

In Pursuit of Consonance: Science and Religion in Modern Works of *tafsīr*

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Introduction*

Any account of the relationship between science and religion is fraught with considerable difficulties for both historical and epistemological reasons. The two categories 'religion' and 'science' have been distinguished as two separate domains only in the modern period after having undergone a long process of development in different historical and cultural contexts. It was only in the nineteenth century that 'science' started to signify the natural and physical sciences exclusively. Within the western historical context the linguistic and semantic genealogies of the two terms suggest a much closer and deeper relationship than is usually assumed. For example, the Latin terms *religio* and *scientia* were understood more as internal intellectual habits or virtues rather than external systematic bodies of knowledge.¹ Starting from the early modern period, accounts of the relationship between science and religion are often cast against consecutive episodes of disputation and mutual contestation. Eventually the impressive achievements of science forced sceptics and critics not only to acknowledge these achievements but also, more importantly, to recognise the epistemic authority of science. In some accounts of the post secular conception of religion, the latter can only be accommodated depending on whether it acknowledges the monopoly of science over secular knowledge.² In light of these competing narratives as well as the multidimensional aspects of the relationship between science and religion, scholarly surveys identify several modes of interaction between religion and science in the published literature, which include: perpetual conflict, mutual independence, and supportive interaction.³

Similarly, within the Islamic intellectual tradition competing accounts can also be identified. On the one hand, the relationship between science and religion is often characterised as one of harmony and consonance rather than conflict and dissonance. Historically in the Islamic tradition, scholars not only condoned science, but many of

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them were also accomplished scientists. Moreover, the Arabic term for science, *‘ilm*, was equally applied to religious and natural sciences. On the other hand, a more complicated picture can be drawn in terms of the contentious debate over the relationship between the religious sciences and classical Greek philosophy, particularly if modern science is considered an extension of the latter. The reception of classical Greek thought within Islamic culture and its interaction with the traditional Islamic sciences has inspired one of the most heated debates in Islamic intellectual history. In the modern period, the status of science in Muslim-majority countries has been entangled in discourses on (de)colonisation, westernisation, and secularisation. While science is generally credited as one of the main factors that contributed to the West's ascendancy and supremacy, western scientific initiatives and educational reforms in the Muslim world are often viewed suspiciously as part of western plots to achieve further control and domination. Recent studies trace the emergence of several approaches to the relationship between Islam and modern western science in contemporary discourses since the beginning of the nineteenth century, which range from full or reserved acceptance to multiple types of criticism.⁴

Within the Islamic intellectual tradition, works of Qur'anic exegesis (*tafsīr*) are important sources to explore the relationship between Islam and science, in as far as they can reveal how different interpreters discuss Qur'anic references to cosmic and natural phenomena, which are depicted as divine signs (*āyāt*). With the gradual emergence of science as an independent body of secular knowledge and the increased authority of its methodological framework, within which all types of natural phenomena must now be analysed and explained, modern commentaries on the Qur'an are expected to articulate the relationship between Islam and modern science. From another perspective, these references to natural and cosmic phenomena highlight the difficulty of drawing a sharp distinction between religious-theological knowledge and mundane-secular knowledge, especially in light of other references that emphasise the comprehensive scope of the Qur'an, such as Q. 6:38, *We have not overlooked anything in the Book*, and Q. 16:89, *We revealed to you in the Book a clarification of all things*.⁵

This essay examines how modern commentators have conceptualised the relationship between religion and science and how, in turn, this modern concern with science has led to the emergence of a new genre within *tafsīr* literature. It explores the extent to which this new genre represents an extension to earlier forms of *tafsīr* and how authors of this genre relate their work to the historical exegetical tradition. The essay traces the emergence of two main trends within this modern genre of *tafsīr* literature. The first involves efforts to understand the Qur'anic text in light of modern scientific knowledge and discoveries, while the other aims to prove the precedence of the Qur'an over modern science and its ability to anticipate subsequent developments in human knowledge, including most recent scientific achievements. The second trend argues that

this approach to Qur'an commentary emphasises the continuity of the miraculous nature of the divine text. If premodern scholars concentrated on linguistic and stylistic aspects of the Qur'an to prove its miracles, modern scholars should appeal to the universal language of science and, consequently, should explain the miracle of the Qur'an in scientific terms. Special attention is devoted to *Tafsīr al-manār* by Muḥammad °Abduh and Rashīd Riḍā and its impact on subsequent works of *tafsīr*, with a particular focus on *Tafsīr al-jawāhir* by Ṭantāwī Jawharī. The essay aims to analyse the epistemic authority of science in these works and explore how this authority has been used for the construction of the divine text in light of modern knowledge and sensibilities. In general, these works have to be placed within the context of Islamic modernism, mainly during the nineteenth and early-twentieth centuries, as a movement that sought to reconcile the universal moral vision of Islam with the liberal ideas and ideals of the European Enlightenment. A prominent component of this movement had to do with the enthusiastic reception of modern science by Muslim modernist thinkers who sought to emphasise its congruity with Islam.⁶

Typology of *tafsīr* Works and the Emergence of Scientific Exegesis

Taken at its most literal meaning, the term *tafsīr* stands for 'uncovering', 'disclosing', or 'explaining'. Technically, it denotes explaining Qur'anic verses in terms of their linguistic meaning, semantic import, and historical contexts.⁷ The term *ta'wīl* is sometimes used synonymously with *tafsīr* although the former is usually used for the underlying meanings of verses while the latter is used for their literal and explicit meanings.⁸ Scholarly surveys of *tafsīr* works often highlight two main approaches: historical and typological. The historical approach explores the exegetical tradition along its main stages of historical development (for example, formative, classical, and contemporary). The typological approach concentrates on the main classifications of *tafsīr* works regardless of the historical context within which these works were developed.⁹ The most famous example of the typological approach is the binary classification of report-based exegesis (*riwāya/ma'thūr*), and opinion-based exegesis (*ra'y/dirāya*).¹⁰ Over time, Muslim exegetes have developed a wide range of *tafsīr* works, which often reflect the main interests of their authors, as is the case with linguistic, juristic, philosophical, or mystical types of *tafsīr*.¹¹ In the modern period, with the increasing power and prestige attributed to science, authors of *tafsīr* works have felt the need to reconcile the Qur'an with modern scientific knowledge in an effort to prove the continued relevance and authority of the Qur'an. This is particularly manifested in an expanding genre elucidating the scientific dimensions and connotations of the Qur'an (*al-tafsīr al-'ilmī*). Researchers often trace the emergence of this genre to the late nineteenth century, and to works by pioneers such as Muḥammad Aḥmad al-Iskandarānī (d. 1889).¹² The most famous representative of this scientific approach to Qur'anic exegesis, however, has been the Egyptian scholar

Ṭaṭāwī Jawharī, who, among other works, produced a complete Qur'anic commentary focusing on the scientific dimensions of the Qur'an with the goal of establishing its compatibility with modern science. While the term *tafsīr 'ilmī* is usually used to refer to works that interpret the Qur'an in light of modern scientific knowledge, a growing tendency within this genre has concentrated on highlighting the inimitability (*i'jāz*) of the Qur'an. The term *i'jāz* within this genre is usually used to prove the precedence and supremacy of Qur'anic knowledge over recent scientific discoveries, which is meant to confirm the divine origin of Islam's foundational text.¹³ One of the main problems with this approach, however, lies in its tendency to privilege contemporary scientific explanations over other moral, doctrinal, or metaphysical dimensions of the Qur'an. Several reservations have been made concerning the scientific interpretation of the Qur'an, which tend to emphasise the importance of the original Arabian context within which the Qur'an was revealed. Accordingly, familiarity with the historical and cultural background of the text is essential for its proper understanding. Moreover, as the late rector of al-Azhar, Maḥmūd Shaltūt, notes, scientific knowledge is constantly changing and should not be used to place limitations on the divine text. Ultimately, the Qur'an should not be perceived as a science textbook but rather as a book of religious and spiritual guidance. Qur'anic references to natural phenomena are not meant to give exact details on their inner workings but rather to draw attention to the divine wisdom manifested in His creation and to inspire mankind to use their reasoning faculty to establish religious faith on firmer grounds.¹⁴ The notion of scientific miraculousness of the Qur'an (*al-i'jāz al-'ilmī li'l-Qur'ān*) has been particularly problematic due to the exaggerated claims made by its proponents even on the basis of erroneous constructions of scientific knowledge.¹⁵

Premodern Precursors to Scientific *tafsīr*

Although some premodern works are sometimes cited as examples of, or at least precursors to, scientific exegesis, most contemporary researchers argue that the latter represents a new development.¹⁶ Some note that scientific exegesis constitutes an entirely new orientation in *tafsīr* works, which is indicative of a perceived tension between the Qur'an and modern science. According to this view, this perceived tension reflects the impact of medieval European controversies since premodern Muslim commentators did not feel the need to reconcile the dictates of science and divine revelation.¹⁷ For example, in his comparison between Indian and Islamic scriptures and their respective attitudes towards positive or empirical fields of knowledge, the famous Muslim scientist Abū Rayḥān al-Bīrūnī (d. 440/1048) indicated that the Qur'an does not provide any detailed or emphatic propositions that may be contradicted by means of necessary knowledge.¹⁸ Other researchers, on the other hand, trace modern forms of scientific *tafsīr* to earlier trends in the extended exegetical tradition, especially in works that address theological and philosophical dimensions of the Qur'an.¹⁹ In particular, the

works of luminary figures such as Abū Ḥāmid al-Ghazālī (d. 505/1111), Fakhr al-Dīn al-Rāzī (d. 606/1209), and Jalāl al-Dīn al-Suyūṭī (d. 911/1505) are often highlighted as some of the most prominent examples. For instance, al-Ghazālī contests limiting the scope of the Qur'anic text to its literal or explicit meaning. He refers to a statement by the famous companion and the Prophet's cousin and son-in-law ʿAlī b. Abī Ṭālib highlighting the disparity in human understanding of the divine text. The possibility of gaining deeper and unprecedented understanding of the Qur'an remains open and dependent on the ability of an individual to grasp such understanding.²⁰ He concludes that the Qur'an is the fountain of all types of knowledge because, ultimately, any branch of knowledge can be subsumed under divine acts and attributes, which are properly demonstrated in the Qur'an.²¹ By contrast, some premodern scholars criticise the tendency of expanding the scope of the Qur'an to include all types of knowledge. For example, the Andalusian jurist Abū Ishāq al-Shāṭibī (d. 790/1388) argues that works of *tafsīr* should concentrate on elucidating the meaning of the Qur'an and should avoid unnecessary additions.²² He criticises the attitude of practitioners within particular fields and professions to find justifications for their respective fields of study or practice in the Qur'an.²³

Early Modern Discussions on Islam and Science

Discussions on the emergence of the scientific interpretation of the Qur'an must be placed within the larger political, social, and cultural context of the nineteenth century, within which this genre emerged. By the late eighteenth century, most Muslim-majority territories had come under European influence. From South East Asia, and the Indian subcontinent, to the Near East and North Africa, these territories experienced direct military occupation by different European powers. Modern science was perceived as the main source behind European ascendancy, which was manifested in superior European technology in almost all walks of life, most particularly in advanced weapons and military equipment. Muslim rulers were convinced that in order to be able to catch up with the Europeans, they must understand and acquire modern European science. Muslim scholars encouraged the call for the acquisition of science by emphasising how Islam's foundational sources extol knowledge as an important means to achieve deeper understanding of oneself, the universe, and also the divine. This broad conceptualisation includes all types of knowledge but due to the constant comparison of the lived realities between the Muslim world and Europe, in addition to the incessant search for the reasons behind the amazing success of the West, more emphasis is now placed on modern applied science to the extent that the Arabic term for knowledge (*ʿilm*) became associated, almost exclusively, with it.²⁴ Throughout the Muslim world the various reform-renewal movements sought to defend Islam against accusations of being the main cause for Muslims' backwardness.²⁵ Leading figures of these movements insisted that Islam supports rather than opposes the embracement of modern science. This new

defensive discourse on Islam and science was directed internally at fellow Muslims to convince them that Islam is not antithetical to modern science, and also to reinforce the efforts of political leaders to achieve a modern scientific awakening. It was also directed externally to defend Islam against criticism by western authors who blamed Islam for the ills from which the Muslim world suffered. Because of the role of the Qur'an as the fountainhead of knowledge in Islam, these efforts were manifested most prominently in modern commentaries on the Qur'an.

Islam and Science in *Tafsīr al-manār*

Tafsīr al-manār is considered one of the most important commentaries on the Qur'an in the modern period. The work started in the form of lectures that were given by Muḥammad °Abduh (1849–1905) at al-Azhar mosque, which were documented by his disciple Rashīd Riḍā (1865–1935) and published first in a serial form in the famous journal *al-Manār* that Riḍā established, before being published separately. The work is usually attributed to Riḍā because not only did he add his own comments on °Abduh's oral lectures, which stopped at Q. 4:126,²⁶ but he also continued the work after the death of °Abduh. The work remained incomplete as it extends only until Q. 12:52 at the time of Riḍā's death. The most important feature that one observes in *Tafsīr al-manār* is its concern with the relevance of the Qur'an to the modern context and its engagement with contemporary questions. Despite the significant common features that both °Abduh and Riḍā shared, the reader of the work can easily distinguish their respective approaches in terms of style and also methodology. Because °Abduh's commentary was captured and written by Riḍā, it often appears in a focused and condensed form, while Riḍā's comments tend to be more detailed and elaborate. Also, in terms of methodology, while °Abduh's commentary reveals a greater tendency towards rational and allegorical interpretation, Riḍā's comments show greater adherence to traditional Salafī views. This, however, does not mean that Riḍā ruled out rational and allegorical explanations entirely as a matter of principle. Occasionally he would adopt a particular rational or metaphorical reading and even when he disagreed with °Abduh he tended to provide justification for the latter's views.²⁷ In general, *Tafsīr al-manār* emphasises the role of reason as one of the important tools for understanding both the divine text and also God's signs in the universe. This emphasis on the role of reason accords with the general orientation of *al-Manār*, which was indicated in its first issue, as noted by its founder:²⁸

We established *al-Manār* in the last ten days of Shawwāl of 1315 AH [March 1898] and we explained in the first issue our vision for it, which includes many goals that can be subsumed under the general theme of religious and social reform for our Islamic nation as well as those who live with(in) it and whose interests are connected with its own. It also includes: elucidation of the agreement of Islam with reason

and science; its conformity with the benefits of mankind in all places and times; and clarification of misconceptions attributed to it.

The rational orientation of *Tafsīr al-manār* can be explored in its treatment of the two notions of history and science. Narratives of the past in the Qur'an, it is indicated, are meant to emphasise underlying moral lessons rather than give detailed accounts of historical events. Similarly, the Qur'anic verses that deal with natural or cosmic phenomena are meant to point out God's marvels in the universe rather than give an exact explanation of these phenomena. According to Riḍā, both history and science aim to reveal the unknown dimensions of this material world (*‘ālam al-ghayb al-māddī*) and these two disciplines can demonstrate the miraculous nature of the Qur'an either positively or negatively. The positive miracles (*al-mu‘jizāt al-ijābiyya*) refer to aspects that were not known to the previous generations and were revealed only recently through systematic scientific research. The negative miracles of the Qur'an (*al-mu‘jizāt al-salbiyya*) refer to the absence of any form of contradiction between a definitive indication in the Qur'an and another definitive source of non-revelatory knowledge.²⁹ This is in line with ‘Abduh's emphasis on the absolute harmony between the dictates of authentic religious knowledge and sound rational knowledge in his famous *Risālat al-tawhīd*.³⁰

Religion and reason have been reconciled for the first time in a holy book, as conveyed explicitly beyond any doubt by a prophet, and it has been established among all Muslims—except those whose command of religious knowledge or intellectual capabilities cannot be trusted—that some of the religious principles can only be proven by reason as is the case with knowledge of God's existence, His ability to send prophets, His knowledge of what is revealed to them, His choice of these particular prophets, and other issues pertaining to comprehension of the meaning of prophethood and its acknowledgement. They have also agreed that if religion includes something that is considered beyond comprehension, it cannot include something that is rationally impossible.

While acknowledging that the Qur'an is neither a book of history nor science,³¹ both ‘Abduh and Riḍā make an effort to reconcile the meaning of the Qur'an and contemporary scientific knowledge. Moreover, scientific knowledge can in fact corroborate and further confirm important theological principles such as divine omnipotence and omniscience.³² They emphasise that the ultimate objective of the Qur'an is to provide moral and spiritual guidance to mankind in general and that is why it is meant to be accessible and intelligible to people of all times. The general references to cosmic and historical phenomena are to be explored further through

systematic study and reflection by specialists in the different fields according to the current state of scientific knowledge and while utilising relevant tools, skills, and methods.³³ This view of the role and aim of an exegetical work in the modern period is evident in the coverage of a wide range of issues, which include the Qur'anic narratives on past incidents and earlier prophets, interpretation of supernatural and metaphysical questions, and Qur'anic references to natural phenomena.

Narratives on Past Incidents

°Abduh notes that the Qur'anic narratives on past events are generally meant to highlight important moral lessons in light of past human experience rather than give full account of particular stories. The Qur'an does not always indicate specific details such as names of individuals or places but focuses instead on the general moral objectives of the narratives.³⁴ For example, in his commentary on the story of Adam, °Abduh observes that this type of Qur'anic narrative belongs to the category of the equivocal verses (*mutashābihāt*). This is with reference to Q. 3:7, which speaks about two types of verses in the Qur'an: unequivocal verses (*muhkamāt*) constituting the essence of the book (*umm al-kitāb*); and equivocal ones. According to °Abduh, these verses cannot be interpreted literally (*alā zāhirihā*) if they lead to an understanding that contradicts God's incomparability (*tanzīh*), which is the essence or fundamental principle (*aṣl*) of Muslim creed.³⁵ Occasionally, in order to avoid seeming tension between reason and revelation, °Abduh offers two types of interpretation: literal and metaphorical, which can be seen in his commentary on various aspects of the story of Adam. According to the literal interpretation, the story represents an actual event that took place somehow at a particular point of time. According to the metaphorical interpretation of these verses, the story is meant to give an illustration (*tamthīl*) of the universe's natural forces as well as the different human instincts.³⁶ Riḍā utilises these two modes of interpretation in an effort to appeal not only to readers who are well-versed in the Islamic tradition and are familiar with classical exegetical works but also to others with modern western education, who are reluctant to accept metaphysical explanations merely on the basis of the authority of premodern authors.³⁷

Supernatural and Metaphysical Dimensions

As noted above, in his commentary on the story of Adam, °Abduh gives a metaphorical interpretation for metaphysical entities such as angels, jinn, and Iblīs as subtle forces that represent good and evil forces within human nature.³⁸ In other places, °Abduh gives different interpretations for these metaphysical entities in light of modern scientific knowledge. For example, with reference to Q. 2:275, he compares two main views on the interpretation of the image given for individuals who engage in usurious transactions. According to this verse, such individuals rise in a manner similar to the one who wanders about aimlessly as if touched by the devil. While the majority of interpreters observe that this is a description of these individuals' state on the Day of

Resurrection, a minority view argues that it describes their state in this world. In their tireless efforts to achieve utmost material gain, people who deal with usury move in different directions guided by the sole objective of maximising their profits. °Abduh chooses this latter interpretation and adds further comments invoking modern examples such as trading in stock markets and gambling. He also compares the movements of the person who is touched by the devil to the movements of an epileptic on the basis of the common belief among the Arabs that epilepsy is caused by the devil's strike. While the verse itself does not support this causal connection, the scholars were divided on whether epilepsy is actually caused by the devil's strike. Here °Abduh cites modern medical confirmation that epilepsy is a type of neurological disorder that can be treated by chemical drugs as well as other forms of medical treatment. He, however, does not rule out the possibility that the subtle creatures referred to as jinn may be able to exercise influence on humans in light of the modern discovery of the disease-causing microbes, which may well be nothing less than the jinn themselves.³⁹ °Abduh used a similar explanation in his commentary on the *aṣḥāb al-fīl* ('the Story of the People of the Elephant', Q. 105). He notes that the destruction of the Abyssinian army that was heading to demolish the Ka'ba involved the outbreak of contagious diseases such as smallpox and measles, which can now be understood in light of modern medical knowledge explaining the influence of microbes in the transmission of diseases. According to °Abduh:⁴⁰

It is conceivable for you to believe that the birds [mentioned in the story] are of the genus of mosquitos and flies that carry the germs of diseases, and that the rocks are of the type made of hard poisonous mud, which is borne by air, and which can get attached to the feet of these animals [birds]. When it [the mud] touches a body, it enters through the pores of the skin and then causes sores that end up causing the body to decay and its flesh to fall apart. Therefore, many of these birds are some of God's greatest soldiers. He uses them to destroy whomsoever He wants from mankind. This small animal—which is known now as the microbe—is one type of them.

Another important example that illustrates how *Tafsīr al-manār* treats supernatural and metaphysical issues is magic. In connection with the commentary on the story of Hārūt and Mārūt in Q. 2:102, Riḍā discusses the various Qur'anic references to magic, according to which magic may entail: tricks of optical illusion, a body of secret knowledge transmitted through direct instruction and training, or a set of tactics that aim at exercising spiritual influence on others.⁴¹ The main import of the discussion is that the Qur'anic references to magic do not necessarily support its viability or efficacy. In these various references the Qur'an simply narrates and conveys contemporary beliefs and practices. Magic is generally distinguished from miracles but theologians,

jurists, and interpreters disagree on its reality and related rules. While some deem it similar to miracles, a supernatural power that breaks established customs (*khāriq li'l-āda*), Riḍā notes that unlike the case with miracles, the ability to exercise magic can be acquired through instruction and training. Accordingly, it should be considered a natural rather than supernatural power.⁴²

One of the main points that Riḍā emphasises in this discussion is the distinction between the reality of magic on the one hand and its relationship with or impact on religious faith on the other. He notes that the Qur'an did not provide a clear pronouncement on the nature of magic, leaving such determination to be made by people on the basis of current state of human knowledge and in light of established and verified information. Ultimately, he notes, the Qur'anic references to magic leave room for disagreement between supporters and deniers of magic. In other words, the Qur'an did not use categorical terms to either support or deny the efficacy of magic in order to avoid conflict with established and known facts at different times and places, depending on the state of available human (scientific) knowledge.⁴³ With regard to the relationship between magic and religious faith, however, the Qur'an was emphatic on negating its power to inflict harm, independently of divine will and permission (Q. 2:102).

Riḍā explains how references to supernatural phenomena such as magic, particularly within narratives of earlier peoples, should be understood and interpreted. Following ʿAbduh, he asserts that these references relate to particular incidents and occurrences, mainly for the purpose of instruction and drawing lessons rather than giving exact details of the history of past nations. As much as these narratives include agreeable, beneficial, and truthful elements, they also include disagreeable, harmful, and unreliable ones. Therefore, mere reference to certain phenomena does not necessarily indicate moral approval or agreement. Nonetheless, the Qur'an's moral position can still be deduced through careful examination of explicit as well as implicit contextual clues.⁴⁴

Keeping in mind *al-Manār*'s larger vision and program of social reform, Riḍā points out that the main objective behind the practice of magic is deception and exploitation of people's needs and ignorance. Ironically, according to Riḍā, such deception is sometimes even justified by appeal to religious texts or arguments. Recalling the Qur'an's condemnation of some scholars among earlier nations from the People of the Book, who used to manipulate religious texts to achieve specific objectives, he notes that some jurists employ similar methods. This is the case, for example, with the jurists who resort to certain stratagems and tactics to enable the rich to evade the payment of the obligatory *zakāt*. This would also be the case with some learned or pious individuals who deliberately give false testimony under the pretext of enabling people to obtain their legitimate rights, which may otherwise be difficult to attain.⁴⁵

Natural Phenomena in the Qur'an

In *Tafsīr al-manār*, Qur'anic references to natural phenomena are usually introduced in light of modern scientific knowledge and discoveries. °Abduh often reiterates the point that these references are meant to highlight divine omnipotence and majesty rather than provide an explanation of the reality of these phenomena or how they function. The human intellect is propelled to reach this knowledge through continuous reflection and contemplation. For example, the Qur'anic reference to thunder and lightning in Q. 2:19 is placed within the context of contemporary scientific explanations as well as modern discoveries and inventions associated with electricity. Reports indicating that the occurrence of thunder and lightning is caused by specific angels are traced to earlier Biblical narratives (*Isrā'īliyyāt*) that found their way into premodern works of *tafsīr*.⁴⁶ Similarly, while commenting on the Qur'anic narrative on the creation of the heavens and the earth, Riḍā points out the compatibility (or at least non-contradiction) of the Qur'anic creation narrative with modern scientific theories explaining the origin of the universe. This includes indications such as the origination of both the heavens and the earth in the same material before they were set apart and also creation of all living beings out of water. On this, and other similar references, *Tafsīr al-manār* often invokes contemporary scientific views and theories, suggesting that these brief and generic references to natural phenomena in the Qur'an should be understood and studied in light of two main parameters: the lexical meaning of the Qur'anic terms associated with these phenomena; and the evolving and cumulative human knowledge in the various scientific fields.⁴⁷ Any supernatural or metaphysical connotations should be limited to verified and authentic sources, and should then be reconciled with established scientific knowledge.⁴⁸ These two parameters are usually proffered in connection with the references involving cosmic or natural incidents mainly to place classical interpretations within their historical contexts. The fact that these references are made in a brief, concise, and highly focused style has enabled the Qur'an to accommodate various interpretive possibilities. In fact, classical scholars often underscored brevity (*ijāz*) as one of the most important manifestations of the miraculous nature (*i'jāz*) of the Qur'an. For example, in his commentary on Q. 2:23 and explanation of the challenge that the Qur'an posed to contemporary Arabs (to produce a similar text), Riḍā disputes the Mu°tazilī view that the Qur'anic miracle was established by means of *ṣarfā* ('diversion'), which means that the Arabs were prevented (by God) and this is why they failed to meet this Qur'anic challenge. Instead, Riḍā, following an established motif in the tradition of Qur'anic sciences, lists various aspects of the Qur'an's miraculous nature, which include: literary structure; unsurpassed eloquence; anticipation of future events; absence of incoherence or discordance; theological, spiritual, and legislative dimensions; ability to withstand the test of time; and inclusion of scientific and historical information unknown to contemporary Arabs.⁴⁹ Under the last two points, Riḍā explores various examples of Qur'anic references to natural phenomena, which

substantiate the divine origin of the Qur'an. The inclusion of the scientific connotations of the Qur'an marks a significant development of the *i'jāz* discourse of the premodern period, which used to focus mainly on the linguistic and stylistic dimensions of the Qur'anic text.

Islam and Science in Subsequent Works: *al-Jawāhir fī tafsīr al-Qur'ān*

Another important *tafsīr* work that focuses on the natural and cosmic dimensions of the Qur'an is *al-Jawāhir fī tafsīr al-Qur'ān* by the Egyptian scholar Ṭaṭāwī Jawharī (1870–1940). Jawharī was a prolific author and, despite being a traditional scholar, he developed a deep interest in the natural sciences and wrote several books elucidating the importance of these sciences from an Islamic perspective.⁵⁰ Jawharī had many varied interests including philosophy (which he taught at the Egyptian University, now Cairo University), literature, and spirituality. In his writing, he emphasised the urgency of reform on the basis of a utopian vision for the future of Muslim societies through embracement of modern knowledge, which he saw as the main source of power in the modern period.⁵¹ He, however, became mostly known for his work on *tafsīr*, and in particular as the pioneer of scientific exegesis.⁵² He started his Qur'anic commentary in his lectures at Dār al-^ʿUlūm in Cairo, and they were eventually published in 26 volumes. His motive behind the composition of this work was to highlight the increasing significance of science as one of the important prerequisites for progress in the modern period. He lamented the status of natural sciences in the Muslim world and the scant attention devoted to them in proportion to that given to traditional religious sciences. One of the main points he underscored in *al-Jawāhir* is the great emphasis that the Qur'an places on natural phenomena. According to Jawharī, no fewer than 750 verses address the various natural dimensions of the universe. By contrast, the verses addressing legal issues do not exceed 100 verses.⁵³ Premodern scholars dedicated themselves to the study of the legal verses, and in the process they developed highly elaborate bodies of religious and legal knowledge. According to Jawharī, Muslims in the modern period should concentrate on the verses dealing with various types of natural phenomena, which are the subject matter of the cosmic sciences (*al-^ʿulūm al-kawniyya*). For Jawharī, this reorientation of attention from the religious-legal sciences (*ʿulūm shar^ʿiyya*) to cosmic sciences should enable Muslims to see the Qur'an in a new light as a text that continues to provide guidance and inspiration in the present age. Perhaps expecting criticism of this argument, Jawharī negates any tension or contradiction between these two sets of sciences. For him, both originate in the same source because the science of religion (*ʿilm al-dīn*) consists of two types: the first covers the horizons and psyches (*al-āfāq wa'l-anfus*); and the second covers religious-legal rules (*sharīʿa*). As much as the Qur'an commands Muslims to uphold religious-legal rules, it also commands them to explore the various manifestations in the universe. Thus, Jawharī repeatedly calls on Muslims to devote

greater attention to the acquisition of the natural sciences and urges them to learn from the example of European scientists:⁵⁴

Let each scholar or king teach his nation all types of sciences as being part of Islam as will become evident in this *tafsīr*. If Muslims ignore what we indicate, I warn them of a thunderbolt similar to the one that befell the nations of ʿĀd and Thamūd.

A glimpse of Jawharī's approach and methodology in his *tafsīr* can be gained by examining several themes, such as the conformity between religion and science, contemplation of divine marvels in the universe, and the explanation of miracles and supernatural events.

Conformity of Religion and Science

One of the main objectives that Jawharī pursues in his *tafsīr* is to demonstrate absolute conformity between religion and science. He incorporates all types of information that he deems relevant to the Qur'anic passage in question, which may include excerpts of translated works of modern European scientists, newspaper reports of recent discoveries and inventions, or even personal anecdotes. Science is usually presented as the main means for progress and development in the modern period. Accordingly, the Qur'anic miracle can be understood in this age mainly with reference to the natural and cosmic dimensions of the Qur'an, and its consistency with the dictates of modern science. He shares the established view, expressed by many premodern and modern scholars, that true religion and true science can only support each other.⁵⁵ He, therefore, occasionally extends the conventional meaning of certain terms by infusing them with modern scientific connotations. For example, according to Jawharī, the term *ulū'l-ʿilm* ('those endowed with knowledge') in the Qur'an must refer primarily to those who have devoted themselves to the study of the natural sciences and those who understand how the universe works.⁵⁶ Even when it comes to a term such as *mutashābih* ('equivocal'), which has been used mainly to refer to the linguistic and literary dimensions of the Qur'an, he uses it to refer to controversial scientific topics such as evolution.⁵⁷ In general, Jawharī underscores the comprehensive scope of the Qur'an by building on al-Ghazālī's earlier discussion concerning its incorporation of the various types of knowledge. He, however, singles out the unique role of the natural and cosmic sciences in developing proper and deeper knowledge of the divine names, attributes, and acts.⁵⁸ In his effort to reconcile religion and science and prove the harmony between these two domains, Jawharī does not shy away from utilising recent scientific theories or discoveries to vindicate religious beliefs and doctrines. According to Jawharī, modern scientific discoveries reveal the existence of entities and realms that fall beyond immediate human experience. In other words, one's inability to observe these entities and realms does not negate their

existence. Therefore, religious beliefs and metaphysical doctrines should not be negated on the basis of such inability.⁵⁹

Contemplation of the Divine Marvels in the Universe

Throughout his *tafsīr*, Jawharī reiterates his exhortation to fellow Muslims to heed the frequent call in the Qur'an to contemplate the various divine marvels, which are manifested in every aspect of this physical world. For him, the main method of realising this objective is through mastery of and active participation in the development of modern science. The Qur'anic condemnation of the earlier nations for their renunciation of their holy books applies today to Muslims for ignoring the Qur'an's frequent call to reflect on the divine wisdom behind the creation of this universe.⁶⁰ Jawharī aims to respond to this call by elucidating the distinctive characteristics of different beings and entities in an effort to show overall harmony, coherence, and complementarity in the universe. What is interesting to note here is that the most important resource that Jawharī relies on for the elaboration of these characteristics is modern scientific information, which he utilises to achieve a deeper understanding of the universe, and consequently of its creator.⁶¹ He points out that appreciation of the explicit and implicit beauty in this world can deepen one's knowledge of and love for the divine, who possesses the absolute meanings of beauty and perfection. Moreover, preoccupation, and even infatuation, with science can be both a sign of and a path towards one's love for God. Jawharī even suggests that science can serve as an important tool to reinvigorate the traditional discipline of Sūfism, by offering new insights on how to refine one's knowledge of God in a practical and empirical way by careful and meticulous examination of the divine signs in the universe.⁶²

Explanation of Miracles and Supernatural Events

In his commentary on the verses discussing miracles and other supernatural events, Jawharī often points out that the earlier nations were in need of such miracles in order to believe the claims of their prophets. The revelation of the Qur'an, however, marks a significant development in human history, with both its numerous references to natural and cosmic signs in the universe and its recurrent exhortations to mankind to use the God-given gift of the intellect in order to understand these signs. Human understanding of these signs is evolving in light of contemporary scientific knowledge and available human experience. Muslims should therefore be at the forefront of the effort to unlock the secrets of the universe and to constantly refine the repository of human knowledge. Moreover, if the miracles of earlier prophets consisted largely in the ability to break the usual and conventional, the miracle of the Qur'an highlights the structural laws that govern and explain the order, consistency, and regularity in the universe, which can only be understood through science.⁶³ This also includes events and incidents that used to be considered supernatural, such as magic, which can now be understood in light of modern hypnotic and spiritual sciences.⁶⁴ In light of the popularity of the modern

spiritualist movement in the West during the nineteenth and early-twentieth centuries, he cites the views of the English scientist Oliver Lodge to substantiate the religious belief in life after death.⁶⁵

In the same vein, Jawharī points out the importance of gleaning clues from the Qur'anic narratives on past incidents and earlier nations. For example, in his commentary on the story of Adam, he underscores the significance of this story and its inclusion of the wisdom behind the creation of humankind on earth.⁶⁶ The physical dimensions of human nature, consisting of basic material elements and characteristics, reveal the connection between humankind and other creatures in this world, both animate and inanimate. The spiritual dimensions, on the other hand, reveal the metaphysical connections between humans and the world of the Unseen. Reference to the role of humankind as God's vicegerent on earth is of particular importance because it shows how humankind, through both the material and spiritual dimensions of its being, serves as a microcosm that symbolises the larger macrocosm that is created by God. In providing this account, Jawharī not only draws on classical philosophical thought and taxonomies but also seeks to incorporate the findings of modern scientific research in fields such as anatomy and psychology.⁶⁷

Reactions to Scientific Exegesis and the Debate on *i'jāz*

The approach that Tantāwī Jawharī adopted in his works, particularly in *al-Jawāhir*, generated a wide array of responses, both from his contemporaries as well as subsequent generations. On the one hand, he received flattering praise from many admirers who described him as the wise man of the East (*ḥakīm al-sharq*). His works have been translated into many languages and he used to receive messages from all over the world praising his views and opinions. Others, however, have found various aspects of his methodology problematic.⁶⁸ For example, his *tafsīr* has often been compared to that of Fakhr al-Dīn al-Rāzī, in the sense that it 'contained everything but *tafsīr*'.⁶⁹ Occasionally, one also encounters in his works passages that betray a sense of frustration due to what he saw as misunderstanding of his work or lack of proper appreciation of it.⁷⁰ In general, however, the work of Jawharī has been quite influential, mainly in inspiring a new trend within the works of *tafsīr*, one that emphasises the scientific miracles in the Qur'an through comparison with modern scientific discoveries.⁷¹ This tendency has gained popularity in recent decades with the emergence of institutions promoting the compatibility of the Qur'an with, and even precedence to, modern science.⁷² The notion of *i'jāz* is by no means new and it can be traced to extended and extensive discussions in the Islamic tradition. The fact that the Qur'an is believed to be the main miracle that the prophet of Islam introduced in order to support his prophetic claim inspired scholarly efforts to investigate the various aspects of the miraculous nature of the Qur'anic text. These efforts culminated in the late fourth/tenth and early fifth/eleventh centuries, when independent works were

compiled to investigate this topic.⁷³ Soon these works constituted a special genre within Qur'anic studies, which also inspired the emergence of rhetoric as a branch of the sciences of Arabic.⁷⁴ These earlier discussions, however, attribute the Qur'anic miracle mainly to its linguistic and rhetorical characteristics, either in themselves or by means of divine intervention, preventing contenders from matching it.⁷⁵

Since its emergence as a new genre within the *tafsīr* literature, the scientific interpretation of the Qur'an has remained a controversial topic.⁷⁶ While both supporters and critics agree on the divine origin of the Qur'an and also its theological status as the main miracle of Islam, they disagree, however, on how the miraculous nature of the Qur'an should be understood in the modern period. On the one hand, supporters, such as Jawharī, argue that the primary means to highlight the miracles of the Qur'an is by demonstrating its harmony with modern scientific knowledge and discoveries. Critics, on the other hand, insist that the Qur'an must be understood in the same way that the Prophet and the early generations of Muslims understood it.⁷⁷

The debate on the scientific exegesis of the Qur'an and its miracles includes important points such as its feasibility, merit, and scope. Between enthusiastic advocates and skeptical critics, several scholars and researchers, over the past few decades, have tried to provide parameters of acceptable scientific exegesis in the form of specific guidelines. These guidelines include outlines for the qualifications of the interpreter, methodology of interpretation, the nature of scientific knowledge used, and the overall objective of this type of interpretation. For example, in terms of qualifications, it is indicated that the interpreter must satisfy the conditions that classical scholars have listed as being necessary for proper understanding of the Qur'anic text, particularly knowledge of Arabic language, grammar, and stylistics. The process of interpretation must adhere to a consistent methodology, which should aim to place scientific connotations in relationship to the linguistic meaning of the passage in question. In other words, scientific connotations should not depart from the explicit indication of the text in favor of other implicit or metaphorical indications without proper justification. Moreover, interpretation must rely on verified scientific information rather than tentative or hypothetical propositions. Finally, scientific interpretation must be tied to the higher objective of the Qur'an, which is to provide spiritual nourishment and guidance to humankind.⁷⁸

Concluding Remarks

The story of the relationship between religion and science has multiple narratives, ranging from conflict, independence, and mutual accommodation. Within the Muslim context, *tafsīr* literature is one of the important sources to explore this relationship. Not only does the Qur'an include many references to different natural and cosmic phenomena, but it also includes references emphasising its comprehensive

scope and its ability to provide clarification on all things. In the modern period, *tafsīr* was one of the important vehicles that reformers used to bolster their reform-renewal ideas. By arguing for the compatibility of the Qur'an and modern science, they aimed to emphasise the continuing ability of Islam to accommodate modern changes and transformations. While both *Tafsīr al-manār* and *al-Jawāhir* aim to reconcile the Qur'an and modern science, the latter took further steps in the direction of establishing the scientific miracles of the Qur'an. Although the notion of *i'jāz* has an extended history in light of the characterisation of the Qur'an as the main miracle of Islam, premodern discourses on *i'jāz* concentrated almost exclusively on the linguistic and rhetorical structure of the text. While this linguistic-rhetorical approach to *i'jāz* remains dominant, even in the modern period, a new approach has emerged over the past few decades. This new approach emphasises the potential of science to serve as the locus of the Qur'anic miracle in the modern period. This in turn paved the way for a new orientation that not only sought to establish the harmony of Islam and science but to establish the precedence and superiority of the Qur'an over modern science. By taking these steps, however, this new orientation makes itself susceptible to the criticism that it conflates the permanent moral nature of the scriptural text and the evolving and exact nature of modern science.

The scientific exegesis of the Qur'an has become one of the main approaches to Qur'anic interpretation in the modern period, as most contemporary surveys of *tafsīr* literature demonstrate. The emergence of institutions that encourage this orientation has contributed to its popularity among wider circles of Muslim populations. While this approach to Qur'anic interpretation, along with the various reactions it generated, provides insights on how Muslim scholars seek to accommodate modern science, it also reveals their efforts to prove the continued relevance and significance of the Qur'an in an increasingly secularised and disenchanted reality.

NOTES

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1 Harrison, *The Territories*, pp. 1–19.

2 Habermas, *The Future*, p. 104 (noting that in a secular society religious consciousness must come to terms with the following: the reality of religious pluralism; the authority of science; and the grounding of a constitutional state on profane morality).

3 Olson, *Science and Religion*, pp. 1–24.

4 See, for example, Kalin, 'Three Views', (tracing early responses to modern science in the Muslim world during the nineteenth and twentieth century, from religious apologetics for science on the one hand to defence of western secular science on the other, Kalin identifies three main Islamic responses to modern western science on the basis of ethical, epistemological, and ontological/metaphysical grounds); Iqbal, *Science and Islam*, p. 139 (tracing two main approaches on Islam and science since the nineteenth century. The first, dominant and more popular, sought to dispute the view of Islam as antithetical to modern science, according to which Islam is characterised as 'justifier for the acquisition of modern science'. The second, representing a minority position, sought to reconnect with the classical/traditional Islamic scientific tradition before the hegemonic rise of modern western science in the nineteenth century. Iqbal discusses what Kalin refers to as ethical and epistemological responses along with their most recent developments under the first approach and reserves the second approach for the ontological/metaphysical response); Guessoum, 'Islam and Science' (tracing the emergence of Muslim scientists who accept modern scientific theories and methodologies and seek to reconcile them with religious doctrines, and also the increasing popularity of the miraculous dimensions of Islam's foundational texts, particularly the Qur'an).

5 This is my own translation.

6 See Moaddel, *Islamic Modernism*, p. 84.

7 This includes explaining the meaning of individual verses either within a particular sura or in relationship with similar or related verses in the Qur'an. It also includes explaining the following: the place of revelation (Mecca or Medina); the verse's signification in terms of being equivocal or unequivocal, its scope in terms of being general or specific, import in terms of being absolute or restricted, and mode of expression in terms of being explicit or implicit, see al-Zarkashī, *al-Burhān*, vol. 2, p. 148.

8 al-Zarkashī, *al-Burhān*, vol. 2, p. 149. For further distinctions between *tafsīr* and *ta'wīl*, see al-Zurqānī, *Manāhil*, p. 278.

9 Rippin, 'Tafsīr'. For a general introduction on the *tafsīr* literature, see al-Dhahabī, *al-Tafsīr*.

10 al-Zurqānī, *Manāhil*, p. 282. Al-Zarkashī records a classification of *tafsīr* by the Companion Ibn 'Abbās distinguishing four types: what the Arabs can understand from the language, what every Muslim knows in terms of what is allowed and what is prohibited, what only scholars know, and what only God can know. See al-Zarkashī, *al-Burhān*, vol. 2, p. 164.

11 al-Suyūfī, *al-Itqān*, pt 4, p. 196.

12 al-Iskandrānī lived in Alexandria and used to work in the navy before moving to Damascus to assume the position of head army physician. See al-Zirikī, *al-A'lām*, vol. 6, p. 21. Around the year 1880, al-Iskandarānī published a book with the title *Kashf al-asrār al-nurāniyya al-Qur'āniyya fīmā yata'llaqa bi'l-ajrām al-samāwiyya wa'l-arḍiyya wa'l-ḥayawānāt wa'l-nabātāt wa'l-jawāhir al-ma'daniyya* ('Revealing the Illuminating Qur'anic Secrets Regarding the Heavenly and Terrestrial Bodies, the Animals, the Plants, and the Mineral Substances'). See Wielandt, 'Exegesis of the Qur'ān'; Elshakry, 'The Exegesis of Science'.

13 Guessoum, *Islam's Quantum Question*, pp. 147–148.

14 Shaltūt, *Tafsīr al-Qur'ān*, pp. 11–14; Shaltūt, *al-Fatāwā*, p. 367; Zebiri, *Mahmūd Shaltūt*, p. 151. See also Wielandt, 'Exegesis of the Qur'ān'.

15 See, for example, Guessoum, *Islam's Quantum Question*, pp. 152–172.

16 Mir, 'Scientific Exegesis of the Qur'an' (balancing both the argument for and against scientific exegesis. Arguing against the *i'jāz* dimension of scientific exegesis, he notes that scientific exegesis can be a viable undertaking in the sense of responding to the Qur'anic

invitation to reflect over God's signs in the universe, provided that such an undertaking remains faithful to the Islamic intellectual tradition).

17 Iqbal, *Science and Islam*, p. 151. Muḥammad °Abduh also notes how in the premodern period, Muslim rulers did not show any discrimination against non-Muslim scientists and intellectuals (*ahl al-'ilm wa'l-naẓar min kull milla*) but they often employed them in their courts. See °Abduh, *al-Islām wa'l-Naṣrāniyya*, pp. 20–26.

18 See Dallal, 'Science'. On the treatment of science and philosophy in some classical works of *tafsīr*, see Dallal, *Islam*, pp. 124–125 (discussing al-Rāzī's views on the movement of the earth); Morrison, 'Reasons for a Scientific Portrayal' (discussing the views of Niẓām al-Dīn al-Nisābūrī on nature).

19 al-Dhahabī, *al-Tafsīr*, pt 2, p. 417.

20 al-Ghazālī notes: 'some scholars indicated that each verse is susceptible to more than sixty thousand different understandings. Others noted that the Qur'an contains seventy seven thousand and two hundred types of knowledge (*'ilm*). Each word may entail a type of knowledge on its own and this number can also multiply up to four times because each word has both explicit and implicit meanings as well as a definition (*ḥadd*) and a beginning (*maṭla'*) ... Ibn Mas'ūd, may God be pleased with him, is reported to have said 'whoever desires to attain preceding as well as subsequent knowledge (*'ilm al-awwalīn wa'l-ākhirīn*), let him ponder over the Qur'an. This cannot be attained only by limiting one's focus to the explicit meaning of the Qur'an' (al-Ghazālī, *Iḥyā'*, vol. 1, p. 383). See also his *Jawāhir*, pp. 44–47 (noting that the Qur'an includes references to all existing as well as potential branches of knowledge).

21 al-Ghazālī, *Iḥyā'*, p. 384.

22 al-Shāṭibī, *al-Muwāfaqāt*, pt 1, p. 39.

23 al-Shāṭibī argues that the Qur'an should be understood in light of its original Arabian context and its immediate (illiterate) audience. The editor of the text, °Abdullāh Darrāz, takes issue with this argument and emphasises that the Qur'an was not sent to the Arabs only. See al-Shāṭibī, *al-Muwāfaqāt*, pt 1, p. 41.

24 Iqbal, *Science and Islam*, p. 133; Elshakry, 'When Science Became Western', p. 103.

25 Moaddel, *Islamic Modernism*, pp. 78–80 (discussing the reaction of early Muslim modernists to the views of some European thinkers and colonial administrators and how they blamed Islam for the problems of colonised societies). See, for example, °Abduh, *al-Islām wa'l-Naṣrāniyya*.

26 Riḍā, *Tafsīr al-manār*, vol. 1, p. 35.

27 See, for example, his justification for °Abduh's allegorical interpretation of the story of Adam (Riḍā, *Tafsīr al-manār*, vol. 1, pp. 257 and 272).

28 Riḍā, 'Introduction', *Majallat al-manār* 1, pp. 1–2.

29 Riḍā, *al-Waḥy al-Muḥammadī*, p. 242.

30 °Abduh, *Risālat al-tawḥīd*, p. 19. On the harmony between Islam on the one hand and reason and science on the other, see also Riḍā, *al-Waḥy al-Muḥammadī*, pp. 157–164.

31 Riḍā, *Tafsīr al-manār*, vol. 1, p. 25. See, for example, his critique of premodern works of *tafsīr* and the preoccupation of their authors with including all types of details associated with various bodies of contemporary knowledge, as is the case with the work of Fakhr al-Dīn al-Rāzī. He extends his critique to authors in the modern period who include detailed scientific expositions, which tend to distract readers' attention away from the main import of the Qur'anic text. See Riḍā, *Tafsīr al-manār*, vol. 1, pp. 27–28. In light of this critique some researchers categorise Riḍā among the scholars who rejected scientific interpretation of the Qur'an. See

Wielandt, 'Exegesis of the Qur'an'. See also Pink, 'Riḍā, Rashīd' (noting that in making these critical remarks, Rashīd Riḍā was referring to Ṭaṇṭāwī Jawhārī).

32 °Abduh, *Risālat al-tawhīd*, p. 44 (noting that scientific research in fields such as biology, medicine, and natural history can provide further evidence for God's existence).

33 Riḍā, *al-Waḥy al-Muḥammadī*, pp. 242–243.

34 Riḍā, *Tafsīr al-manār*, vol. 2, p. 415; vol. 1, p. 384.

35 Riḍā, *Tafsīr al-manār*, vol.1, p. 257.

36 Riḍā, *Tafsīr al-manār*, vol. 8, p. 314.

37 For more on the interpretation of the story of Adam in *Tafsīr al-manār*, see Shabana, 'The Concept of Sin', pp. 50–54.

38 Riḍā continued to employ this dual interpretation of jinn and angels after the death of °Abduh as can be seen in his *fatwās*. For example, in response to a question on the reality of jinn and whether they can be understood as physical entities as suggested by some textual references in the Qur'an or Prophetic reports, Riḍā notes that we (humans) cannot verify the reality of all entities belonging to the unseen world (*al-ghayb*). Their existence is believed as a matter of faith on the basis of verified narratives in the foundational sources. A Muslim should either accept what is mentioned in these sources and relegate accurate knowledge of jinn and angels to God or take these textual references as metaphorical representations of different forces within human nature. In either case one should focus on the moral lessons behind these narratives instead of concentrating on their literal meanings. See Riḍā, *al-Manār*, vol. 11, pp. 585–594.

39 Riḍā, *Tafsīr al-manār*, vol. 3, pp. 83–84. See Adams, *Islam and Modernism*, pp. 137–138.

40 See °Abduh, *al-A'māl al-kāmila*, vol. 5, p. 533. Some researchers have criticised this interpretation by °Abduh on the grounds that it does not conform with the standard usage of the Arabic language. See Ja'far, *al-Tafsīr*, p. 790.

41 Riḍā, *Tafsīr al-manār*, vol. 1, p. 385. Riḍā discusses the reality of magic also in his commentary on Sura 7 (*al-A'rāf*), particularly with reference to the story of Moses. He notes that magic involves three main types: the first relies on the specific characteristics of certain materials, which can be known and verified now through the sciences of chemistry and physics; the second relies on certain tactics, which employ sleight of hand; and the third relies on the ability to influence others, as can be demonstrated in the case of hypnotism. See Riḍā, *Tafsīr al-manār*, vol. 9, pp. 40–41.

42 *al-Siḥr yutalaqqā bi'l-ta'lim wa-yatakarara bi'l-°amal fa-huwa amr °ādī qaṭ'an bi-khilāf al-mu°jiza* (Riḍā, *Tafsīr al-manār*, vol. 1, p. 386). See also °Abduh's commentary on Sura 113, especially with regard to the claim that the Prophet fell under the influence of magic. °Abduh denies such a claim because it is based on a solitary *ḥadīth*, which contradicts Qur'anic references negating such possibility (see Riḍā, *Tafsīr al-manār*, vol. 9, pp. 50–51; °Abduh, *al-A'māl al-kāmila*, vol. 5, p. 565). In general, Rashīd Riḍā was critical of the numerous miracles ascribed to the Prophet. For both °Abduh and Riḍā, the main miracle that the Prophet introduced was the Qur'an (see al-Dhahabī, *al-Tafsīr*, pt 2, p. 514).

43 Riḍā, *Tafsīr al-manār*, vol. 1, p. 386.

44 Riḍā, *Tafsīr al-manār*, vol. 1, p. 184.

45 Riḍā, *Tafsīr al-manār*, vol. 1, pp. 390–391.

46 Riḍā, *Tafsīr al-manār*, vol. 1, pp. 185–188.

47 Riḍā, *Tafsīr al-manār*, vol. 8, pp. 408–411; Riḍā, *al-Waḥy al-Muḥammadī*, p. 242.

48 Riḍā, *Tafsīr al-manār*, vol. 1, pp. 186–188.

49 Riḍā, *Tafsīr al-manār*, vol. 1, pp. 206–223.

50 Some of his works include *Jawāhīr al-‘ulūm* (‘The Jewels of the Sciences’), *al-Tāj al-muraṣṣa‘* (‘The Adorned Crown’), and *Jamāl al-‘ālam* (‘The Beauty of the World’). See al-Zirikī, *al-A‘lām*, vol. 3, pp. 230–231.

51 ‘Atīyya, ‘al-Dars al-falsafī’.

52 al-Dhahabī, *al-Tafsīr*, pt 2, p. 369; al-Zirikī, *al-A‘lām*, vol. 3, pp. 230–231.

53 Jawharī, *al-Jawāhīr*, vol. 1, p. 5. This has been one of the most reiterated points in the literature on Islam and science. See Dallal, ‘Science and the Qur’ān’. Other researchers refer to different numbers. For example, the Egyptian geologist Zaghoul El-Naggar, who is considered one of the main champions of the scientific interpretation of the Qur’an in the contemporary period, indicates that the Qur’an includes about 1,000 verses that include explicit references to different cosmic phenomena (*āyāt kawniyya*) in addition to many others that include implicit references (see El-Naggar, *Tafsīr al-āyāt al-kawniyya*, vol. 1, p. 26).

54 Jawharī, *al-Jawāhīr*, vol. 1, p. 11. Jawharī often attributes Muslims’ weakness and backwardness vis-à-vis the West to a general state of intellectual lethargy, which is characterised by, among other things, a lack of interest in natural and cosmic sciences (see Jawharī, *al-Jawāhīr*, vol. 1, p. 19–20; vol. 1, p. 43; vol. 1, p. 56; vol. 1, p. 331).

55 Jawharī, *al-Jawāhīr*, vol. 1, p. 42. For example, several premodern Muslim scholars wrote on the theme of concordance between religion and reason (‘*aql*) or religion and philosophy (*ḥikma*). See, for example, Ibn Taymiyya, *Dar’ ta‘arud*.

56 Jawharī, *al-Jawāhīr*, vol. 1, p. 46.

57 Jawharī, *al-Jawāhīr*, vol. 2, pp. 60–61.

58 Jawharī, *al-Jawāhīr*, vol. 1, p. 26–8.

59 Jawharī, *al-Jawāhīr*, vol. 2, p. 203. Throughout, Jawharī is particularly interested in elucidating the connection between the Qur’an and the results of modern scientific research. For example, in his commentary on Sura 2, he observes that it entails four main marvels (‘*ajā‘ib*) that confirm and even anticipate modern scientific findings: usury, wine, spiritual sciences, and hypnotism (Jawharī, *al-Jawāhīr*, vol. 1, p. 99).

60 Jawharī, *al-Jawāhīr*, vol. 1, p. 87; vol. 1, p. 97.

61 See, for example, his discussion on the chemical elements that form the substance of the different organisms as well as impressive aspects of different animals and plants, in vol. 1, p. 173–181 and vol. 2, p. 83; on marine life, in vol. 2, pp. 87–89; on insects, in vol. 2, pp. 99–103.

62 Jawharī, *al-Jawāhīr*, vol. 1, pp. 188–191; vol. 2, p. 80.

63 Jawharī, *al-Jawāhīr*, vol. 1, p. 97.

64 Jawharī, *al-Jawāhīr*, vol. 1, p. 121; vol. 2, p. 138.

65 Jawharī, *al-Jawāhīr*, vol. 2, p. 202–204. Jawharī often refers to contemporary western discussions on the influence of spirits. See, for example, his account on the rise of the modern spiritualist movement, in vol. 1, pp. 101–105; the possibility of explaining the meaning of religious miracles in light of these discussions, in vol. 2, p. 138; and similar discussion on hypnotism, in vol. 1, p. 122.

66 Jawharī, *al-Jawāhīr*, vol. 1, p. 63. Jawharī notes that wisdom is of two types: intellectual and practical. The first includes three main disciplines: mathematics, natural sciences, and theology. The second includes an ability to manage three main domains: self, household, and society.

67 Jawharī, *al-Jawāhīr*, vol. 1, p. 67.

68 In his biographical entry on Jawharī, Khayr al-Dīn al-Zirikī notes that Jawharī developed a new approach in his *tafsīr*, different from typical works of commentary, and included all types of narratives (*aqāsiṣ*), contemporary arts (*funūn ‘asriyya*), and ancient tales (*asāṭīr*). See al-Zirikī, *al-A‘lām*, vol. 3, pp. 230–231.

69 This depiction of al-Rāzī's *tafsīr* can be found both in premodern as well as modern works. See, for example, al-Suyūṭī, *al-Itqān*, vol. 4, p. 197. As noted above, Rashīd Riḍā criticised this orientation in the work of al-Rāzī in the past and also in modern works that followed this approach. See Riḍā, *Tafsīr al-manār*, vol. 1, pp. 27–28. Since Jawharī was not a trained or practicing scientist, some researchers see him more as a social thinker and populariser of modern science. For a recent assessment of his work, see Daneshgar, 'An Approach to Science'; Daneshgar, *Ṭanṭāwī Jawharī*; Sharīf, *Ittijāhāt al-tajdīd*, pp. 493–503.

70 See, for example, Jawharī, *al-Jawāhir*, vol. 3, p. 110.

71 Subsequently this trend was also extended to the Sunna of the Prophet by highlighting how certain Prophetic reports anticipated modern scientific discoveries. For example, the Moroccan scholar Aḥmad b. Muḥammad b. al-Ṣiddīq al-Ghumārī (d. 1960) wrote a book to indicate how Prophetic reports foreshadowed many applications of modern science and technology. See his *Muṭābaqat al-ikhtirā'āt al-ʿaṣriyya*. The discoveries that al-Ghumārī listed include cars, trains, aeroplanes, and telephones. Al-Ghumārī's daring approach solicited severe criticism, particularly from the scholars of Saudi Arabia; see al-Tuwayjirī, *Īdāḥ al-mahajja*. See also Dallal, *Islam*, pp. 171–172 (discussing the tendency to trace modern scientific theories and discoveries to specific Qur'anic references).

72 One of the most important examples is the International Commission on Scientific Signs in the Qur'an and Sunna, which was established in 1986 under the auspices of the Muslim World League. See <http://www.eajaz-dz.org/cms/التأسيس والتطوير> [accessed September 2018].

73 Examples of the earliest works on this theme include *I'jāz al-Qur'ān* by ʿAlī b. ʿĪsā al-Rummānī (d. 384/994), *I'jāz al-Qur'ān* by Abū Sulaymān al-Khaṭṭābī (d. 388/998), and *I'jāz al-Qur'ān* by Abū Bakr al-Bāqillānī (d. 403/1013) (see al-Bāqillānī, *I'jāz*).

74 In particular, the work by ʿAbd al-Qāhir al-Jurjānī (d. 471/1078 or 474/1081) is considered important for the development of Arabic rhetoric. See his *Dalā'il*. See also, al-Rāzī, *Nihāyat al-ijāz*.

75 This latter view is known as *ṣarfa*, which is usually attributed to early Muʿtazilī figures such as al-Nazzām. It was also supported by some followers of other theological schools. For example, the prominent Ashʿarī theologian-jurist al-Juwaynī (d. 478/1085) indicated in some of his works that Qur'anic inimitability cannot be explained solely in terms of literary excellence but also by God's ability to prevent others from challenging it (see al-Juwaynī, *al-ʿAqīda al-Niẓāmiyya*, p. 73).

76 Elshakry, 'The Exegesis of Science', p. 515 (listing some of the supporters and critics of the scientific interpretation).

77 See, for example, ʿĀʾisha ʿAbd al-Raḥmān, *al-Qur'ān wa-qaḍāyā al-insān*, p. 279; al-Dhabābī, *al-Tafsīr*, pt 2, p. 430. See also Shākir, 'Introduction', pp. 25–28 (noting that the source of the inimitability of the Qur'an lies in its linguistic structure and style, which explains how the contemporaries of the Prophet, both Muslims and non-Muslims were impressed by it).

78 Abū Zahra, *al-Muʿjiza al-kubrā*, p. 374; Sharīf, *Ittijāhāt al-tajdīd*, p. 476; ʿAbbās, *al-Tafsīr wa'l-mufasssīrūn*, vol. 1, p. 588 (summarising the two guiding principles suggested by Muḥammad Aḥmad al-Ghamrāwī (d. 1971), who is considered one of the main proponents of scientific exegesis: namely that explicit meaning takes priority over metaphorical meaning in the absence of strong circumstantial evidence suggesting otherwise; and that the natural and cosmic verses in the Qur'an should be interpreted in light of verified scientific information only).

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