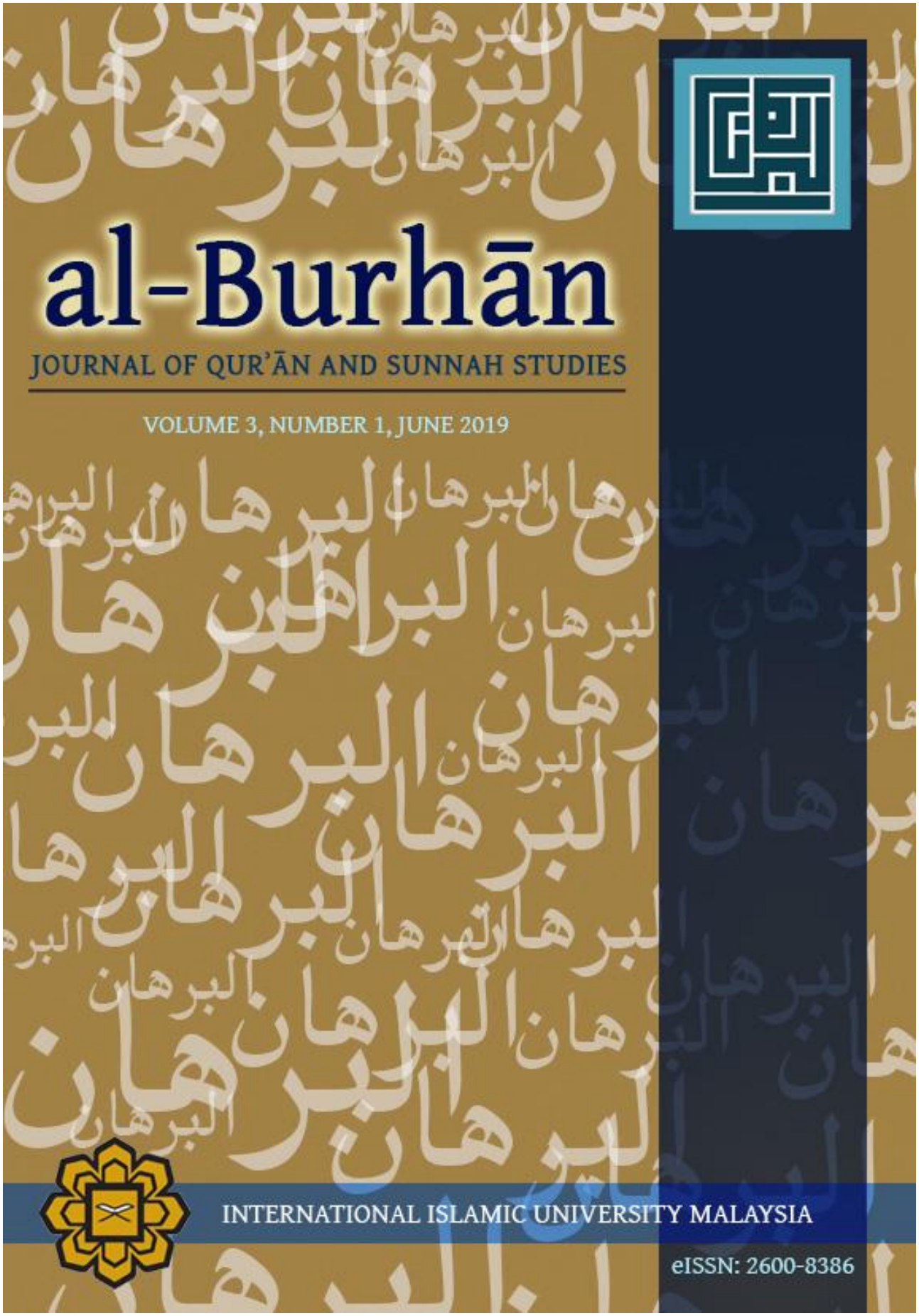

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Modern and Classical Scientific Readings of the Qur'ān: A Comparative Study of Abdul Wadud (d.2001) and al-Bayḍāwī (d.1286)'s Naturalistic Exegesis

Arnold Yasin Mol *

Abstract: Among the trends of Islamic modernism is the propagation of the compatibility or similarity of the meaning of Qurʾanic verses with modern scientific theories and observations of nature and the cosmos. Although this idea of compatibility was also advocated by several classical scholars in their exegeses of the Qurʾān, it never had so many proponents and such wide popularity among the general Muslim population as it has since the 20th century. Many proponents of scientific exegesis (al-tafsīr al-ʿilmī) claim that the Qurʾān contains descriptions of nature that are scientifically accurate, and which can only be understood correctly with current scientific knowledge, i.e. the true meaning of these verses was not available to Muslims before the appearance of modern science. We will test this claim by comparing one such modern proponent's exegesis, Abdul Wadud (d.2001), with that of a classical scholar, ʿAbd Allāh al-Baydāwī (d.1286). Through this, we can see if the modern 'scientific miracle' exegesis of the Qurʾān truly provides new or even better insights of these verses compared to classical rational exegesis. This article attempts not to analyse the veracity of modern or classical exegesis, but their concepts of the purpose of revelation, epistemology and worldview concerning nature, and how this applies in their proposed exegesis of certain verses. In this comparative analysis of the scientific exegesis of Wadud and al-Bayḍāwī, we will show that both their approaches to the Qurʾanic text is rational, focused on the inimitability of the Qurʾān (iʿjāz al-Qurʾān), and incorporate their contemporary natural philosophy into their exegesis, thereby linking revelation and nature.

Keywords and phrases: Qurʾanic studies, *tafsīr* studies, Islamic modernism, Islam and science, scientific exegesis (*al-tafsīr al-ʿilmī*).

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Introduction

Among the trends of Islamic modernism is the propagation of the compatibility or similarity of the meaning of verses of the Qurʾān with modern scientific theories and observations of nature and the cosmos. Although this idea of compatibility is also advocated by several classical scholars in their exegesis of the Qurʾān,[1] it never had so many proponents and such wide popularity among the general Muslim population as it has since the 20th century. Since the early 20th century both classically trained Islamic scholars as Muḥammad ʿAbduh (d.1905)[2] and Muḥammad Mutawallī al-Shaʿrāwī (d.1998), as well as Muslim laity as Sayed Abdul Wadud (d.2001) and Caner Taslaman,[3] and even non-Muslims as Maurice Bucaille (d.1998)[4] have written works on the subject. This concept of scientific exegesis (*tafsīr al-ʿilmī*), according to Abdul-Raof, falls under three typologies of exegesis in order of hierarchy:

1) Rational exegesis (*tafsīr bi'l-raʾy*)
2) Linguistic inimitability of the Qurʾān (*iʿjāz al-Qurʾān*)
3) Scientific interpretation (*al-taʾwīl al-ʿilmī*) as a form of scientific inimitability (*al-iʿjāz al-ʿilmī*)
4) Thematic (*mawḍūʿi*) non-sequenced exegesis (*ghayr musalsal*)[5]

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[1] Several Islamic philosophers such as Ibn Sīnā (d.1036) and theologians as al-Rāzī (d.1209) explained many Qurʾanic verses by using Greek-Arab natural philosophical thought. This paper will try to show that al-Bayḍāwī (d.1316) has done the same in his non-elaborate exegesis. Hussein Abdul-Raof, *Theological Approaches to Qur'anic Exegesis: A practical comparative-contrastive analysis* (Abingdon: Routledge, 2012), 60. Mehdi Golshani, *The Holy Qurʾān and the Sciences of Nature: A Theological Reflection* (New York: Global Scholarly Publications, 2003), 136-141. All the dates in this paper are CE unless stated otherwise.

[2] On ʿAbduh (and many more modern writers on this subject not mentioned here), see: Abdul-Raof, *ibid*, 60-67, and: Ignaz Goldziher, *Schools of Koranic Commentators: With an Introduction on Goldziher and Hadith from 'Geschichte Des Arabischen Schrifttums' by Fuat Sezgin,* ed. Wolfgang Behn (Wiesbaden: Harrassowitz in Kommission, 2006), 204-232.

[3] On al-Shaʿrāwī, see: Muḥammad Mutawalli ash-Shaʿrāwī, *The Miracles of the Qurʾān*, translated by M. Alserougii (Istanbul: Dar al-Taqwa, 2009). On Wadud, see below. On Taslaman, see: Caner Taslaman, *The Quran: Unchallengeable Miracle*, translated by Ender Gürol (Istanbul: Nettleberry/Citlembik, 2006).

[4] For a review of Bucaille's approach, see: Abdul-Raof, *ibid*, 63-64. Although there are many Muslim websites claiming Bucaille became Muslim himself, he never professed as such in his writings or interviews. Although it is logical to believe he did have a sort of faith in the Qurʾān, he was skeptical of the historical prophetic traditions (*Ḥadīth*) and classical practiced and interpretive tradition as such as they "are deemed scientifically unacceptable today". Maurice Bucaille, *The Bible, the Qurʾān and Science: The Holy Scriptures Examined in the Light of Modern Knowledge*, translated by Alastair Pannell (Moultan: Darulfikr, 1977), 248. Interestingly enough, although he certainly was not the first to write on this subject (Abdul Wadud, discussed in this paper, published already two English works on the scientific interpretation of the Qurʾān years (1971 and 1982) before Bucaille's original French (1976) and subsequent English and Arabic translations (1986) came out), his work became the most famous among Muslims and non-Muslims probably due to the propaganda funding by the Saudi government. Within academic Islamic studies, he became the example of popular scientific interpretation of the Qurʾān by lending his name to this form as 'Bucaillism'.

[5] Abdul-Raof, *ibid*, 3-4, 29-30, 59-60, 137-142.

He defines scientific exegesis as:

> "Scientific exegesis is a form of thematic exegesis approach that is primarily concerned with the scientific aspects of some *āyah*s that demonstrate God's omnipotence, on the one hand, and that the two canonical sources of Islam[6] are compatible with the scientific developments of our modern age."[7]

Many proponents of scientific exegesis claim that the Qurʾān contains descriptions of nature that are scientifically accurate, and which can only be understood correctly with current scientific knowledge, i.e. the true meaning of these verses was not available to Muslims before the appearance of modern science. We will test this claim by comparing one such modern proponent's exegesis, Abdul Wadud (d.2001), with that of a classical scholar, ʿAbd Allāh al-Baydāwī (d.1286). Through we hope to answer the question if modern 'scientific miracle' exegesis of the Qurʾān really provides new or even better insights to these verses compared to classical rational exegesis. This article tries not to analyse the veracity of modern or classical exegesis, but their concept of the purpose of revelation, epistemology and worldview concerning nature, and how this is applied in their proposed exegesis of certain verses. In an earlier analysis of modern and classical rejections of supernatural sorcery a link is shown between exegesis, revelation, nature, and epistemology. This analysis concluded that the more one emphasises natural goodness the more one emphasises the stability of that natural order:

> "Another important factor is that, the closer one is to accepting natural laws and goodness, the less emphasis and need is laid on revelatory sources and the higher criteria one sets for accepting and grading revelatory sources. For religion to be natural and rational, sources that are as reliable as nature itself are needed, and for many scholars only the Qurʾān and a few traditions conformed to these criteria. [...] The more one emphasises the concreteness of this nature and the world, the less God is immanently present. This is also counted for the opposite position. The more one rejects natural goodness and laws, the more emphasis is laid on revelatory sources to fill the epistemological vacuum in the pursuit of constructing the religion of Islam. As the Qurʾān can only provide general religious outlines, the more one accepts *hadīth* traditions and the lower the criteria used for them. And when one rejects natural laws the more one accepts supernaturalism and God's immanence."[8]

This explained also why the majority of Sunni orthodox (and heterodox) schools saw reason as both an authoritative means and source next to revelation in their construction of Islam, whereby reason also occupied space within the epistemological framework. Other groups that de-emphasised natural goodness and order enlarged the revelational presence in

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[6] i.e. the Qurʾān and Sunnah.

[7] Abdul-Raof, *ibid*, 3. See also 137-138.

[8] Arnold Yasin Mol, "The Denial of Supernatural Sorcery in Classical and Modern Sunni Tafsīr of Sūrah Al-Falaq (113:4): A Reflection on Underlying Constructions", *al-Bayan journal of Quran and Hadith studies* 11, no. 1 (June 2013), 15-32.

the epistemological framework whereby they used secondary revelational and historical sources[9] in their construction of Islam. To emphasise reason thus de-emphasises traditional knowledge. The first group, typically labelled as *Ahl al-Rāʾy*, mainly focused on rational or inner-textual meanings of the Qurʾān while the second group, typically labelled as *Ahl al-Ḥadīth*, mainly focused on using traditional sources to determine meanings.[10] Both Wadud and al-Bayḍāwī belong to the *Ahl al-Rāʾy* but take different stances within the school.

The compared scholars: The intellectual contexts of Wadud and al-Bayḍāwī

a. Abdul Wadud

Dr. Syed Abdul Wadud (? - 2001) was a Pakistani biochemist who studied under Ghulam Ahmed Parwez (d.1986), the infamous reformist scholar who only accepted the Qurʾān as revelation[11], and was part of his Tolueislam Quranist movement in Pakistan. Wadud himself had no formal training in Islamic sciences and can thus be labelled as belonging to the laity. He applied Parwez's process theology and linguistic exegesis and believed the Qurʾān reflects modern scientific cosmology. Wadud fits within a long line of Indian reformist tradition, starting with Shāh Wallī Allāh (d.1762) who emphasised natural causation in his Māturidī-Ashʿarī synthetic theology,[12] to Syed Ahmad Khan (d.1898) who proclaimed that there is no disagreement between the Qurʾān and the laws of nature,[13] to Muhammad Iqbal (d.1938) who applied Bergsonian 'creative evolution' to the Qurʾanic worldview,[14] to Ghulam Ahmed Parwez who tried to synthesize all these into a Kantian process theology with a Marxist sociology.[15] Wadud has published around eight smaller and larger works, most of them English adoptions of Parwez's ideas, but the works of scientific exegesis are his own original works as Parwez did not write separate works on this. The books discussed here are *Gateway to the Quran*, *Phenomena of Nature and the Quran*, and *The Heavens, the Earth and the Quran*.[16] According to Wadud, the "interpreters of the Quran, who have added interpretations to their own translations, have adopted an inappropriate method, to explain the Quranic text, which is of their own making. They have depended mostly on speculations, man-made ideas,

[9] The prophetic *ḥadīth*, the opinions of the first generations and founding scholars, but also many mythical and legendary stories, especially about the prophets, coming from non-Islamic sources.

[10] Their exegesis is mainly labelled as *al-Tafsīr bi'l-Maʾthūr* (traditionally transmitted exegesis) or *al-Tafsīr al-Naqlī* (textually relayed exegesis), see Abdul-Raof, 10-27. On the *Ahl al-Ḥadīth*, see: Binyamin Abrahamov, *Islamic Theology: Traditionalism and Rationalism* (Edinburgh: Edinburgh University Press, 1998), 19-31.

[11] They are typically labelled as 'Quranists' or '*Munkir al-Ḥadīth*' (Ḥadīth deniers). Ali Usman Qasmi, *Questioning the Authority of the Past: The Ahl al-Qurʾān Movements in the Punjab* (Karachi: Oxford University Press, 2011), pp. 216-286.

[12] al-Dihlawī, Shāh Waliy Allāh, *Hujjat Allāh al-Bālighah* (India: Maktabah Hijāz, 2010), 1:68-69.

[13] Abdur Raheem Kidwai, 'Sir Syed's Tafsir Al-Quran', in *Sir Syed Ahmad Khan: A Centenary Tribute*, ed. Asloob Ansari (New Delhi: Sang-e-Meel Publications, 1998), 74-78.

[14] Damian Howard, *Being Human in Islam: The Impact of the Evolutionary Worldview* (United States: Routledge, 2011), 157-159.

[15] See his magnum opus: Ghulam Ahmed Parwez, *Islam: A Challenge to Religion* (Lahore: Tolu-e-Islam Trust, 1996).

[16] *Gateway to the Quran* (Lahore: Khalid Publishers, 1996). *Phenomena of Nature and the Quran* (Lahore: Sayed Khalid Wadud, 1971). *The Heavens, the Earth and the Quran* (Lahore: Khalid Publishers, 1998).

legends, Biblical stories, and Jewish versions on such subjects"[17] and that the "orthodoxy is averse to exploration of nature."[18] In his earlier *Phenomena,* he does acknowledge the existence of "excellent works on the interpretations of the Holy Quran", and that even though religious leaders "rejected science", Muslim scholars of the early Islamic Era did pursue it. His own pursuit of scientific exegesis is "to show that the Quran is the book revealed by Allah and is not the outcome of human imagination."[19] Wadud thus presents the idea that the majority of orthodox Islam is un-or even anti-scientific, i.e. the orthodox do not interpret the Qurʾān correctly and have an incorrect worldview, proving therefore the veracity of Parwez's reformist enterprise. This claim is aimed at convincing inner-Muslim discourse towards reform. The second aim of his project is to prove the Qurʾān does not have a human origins, thus trying to convince extra-Muslim (i.e. non-Muslim) discourse towards conversion, which has always been the aim of the *iʿjāz al-Qurʾān* project, but also to prove to his fellow Muslims both the superiority of the Qurʾān compared to secondary sources,[20] and the veracity of modern science.

b. al-Bayḍāwī

Nāṣir al-Dīn ʿAbd Allāh bin ʿUmar al-Baydāwī (1225? - 1286 or 1293 or 1316) was born in Persia in a family of Ashʿarī Shāfiʿī scholars, during the time of the Mongolian invasion of the Muslim world. His father was chief judge of Shiraz and after his death al-Bayḍāwī took his position. He had written around a dozen works, but is most famous for his Qurʾān exegesis, *Anwār al-Tanzīl wa Asrār al-Taʾwīl*, which is a revision of the Muʿtazilite exegesis *al-Kashshāf ʿan Ḥaqāʾiq al-Tanzīl wa ʿUyūn al-Aqāwīl fi Wujūh al-Taʾwīl* by al-Zamakhsharī (d.1144), and for his Islamic philosophical theology (*ʿilm al-kalām*) work, the *Ṭawāliʿ al-Anwār min Matāliʿ al-Anẓār*. In both works, he was also clearly influenced by the philosopher Ibn Sīnā (d.1037) and the theologian and exegete Fakhr al-Dīn al-Rāzī (d.1209) on issues of theology and the philosophy of nature.[21] As his exegesis is a revision of al-Zamakhsharī's work, it automatically belongs to the *tafsīr bi'l-raʾy* genre as it applies philosophical theology and metaphorical interpretations, but he also adds much original commentary incorporating natural philosophy and *usūl al-fiqh* concepts of public interest (*maṣāliḥ*).[22] al-Zamakhsharī's is mainly popular for its excellence

[17] Wadud, *Gateway*, 2. Here he is clearly mainly referring to the exegesis of the *Ahl al-Ḥadīth*, for an overview of the myths and legends within this type of exegesis, see: MJ Kister, Adam: A Study of Some Legends in Tafsīr and Hadīt Literature', in *Approaches to the History of the Interpretation of the Qurʾān*, ed. Andrew Rippin (New York: Oxford University Press, 1988), 113-162.

[18] Ibid, 5.

[19] Wadud, *Phenomena*, 17.

[20] Proving that only the Qurʾān is authentic and divinely revealed, and thus that his Quranism is the only logical stance.

[21] ʿAbd Allāh al-Bayḍāwī, *Nature, Man and God in Medieval Islam: ʿAbd Allah Baydawi's Text, Ṭawāliʿ al-Anwār Min Maṭāliʿ al-Anẓār, along with Mahmud Isfahani's Commentary, Maṭāliʿ al-Anẓār Sharḥ Ṭawāliʿ al-Anwār*, ed. Edwin Elliot Calverley and James Pollock (Leiden: Brill, 2001), 1:xxiv, xxvi-xxxiii. Muḥammad al-Sayd al-Dhahabī, *al-Tafsīr wa al-Mufassirūn* (Cairo: Maktabah Wahbah, 1996), 1:304-311. ʿAbd Allāh al-Bayḍāwī, *Anwār al-Tanzīl wa Asrār al-Taʾwīl*, ed. Maḥmūd ʿAbd al-Qādir al-Arnā'wūṭ (Beirut: Dār Ṣādr, 2004), 1:5-8.

[22] al-Bayḍāwī discusses public interest dozens of time throughout his exegesis, both with legal and non-legal verses (for example on verse 2:216), while al-Zamakhsharī only mentions it a few times. Also with verses on

in showing the linguistic inimitability of the Qurʾān, thus it and al-Bayḍāwī's revision both also belong to the *iʿjāz al-Qurʾān* genre. al-Bayḍāwī's philosophical theological work, the *Ṭawālʿi al-Anwār*, is divided into three parts, where the first part can clearly be called a philosophical theology of nature (*daqīq al-kalām*) on epistemology, existence, non-existence, position, senses, cosmology, movement, time, singulars and multiples, cause and caused, bodies and atoms, and cause and effect.[23] Only after this discussion on nature does he delves into a theology on God and on prophethood.[24] al-Bayḍāwī studied and researched many of the ideas of the Greek, Persian, and Arab philosophers on nature, and was deeply influenced by Avicennian neo-Aristotelianism and the reworkings of it by the theologians (*mutakallimūn*), especially al-Rāzī.[25] Within this worldview, nature is seen as completely contingent on God's will and wherein God can create without any means (creation ex-nihilo) or time (instantaneous) and Theistic creationism is constantly emphasised to prove God's existence and attributes, but at the same time the order and constitution of nature is seen as real and part of the proof that God is good and wise. And this natural order has an inbuilt teleology, a gradual progress towards higher stages of perfection.[26] For example, in his discussion on verse 2:22, the idea that the rain falls down from the sky means it has an acting power (*al-quwwah al-fāʿālah*) and the earth an accepting power (*al-quwwah al-qabilah*) and together produce fruits from it, even though God acts on all things without causes or substances (*bi-lā asbāb wa mawādd*) as He is the determiner on all existing things concerning their causes and substances which establishes in them from state to state through His ordering wisdom.[27] In verse 2:29, the idea that God has created everything on earth for mankind means that everything has beneficial properties (*al-nafʿah*) and acts for the goal of becoming complete and perfect (*li-gharaḍ mustakmil*).[28] al-Bayḍāwī's worldview can be thus labelled as both rational and naturalistic, being informed of the ideas on nature up to his time, and linking these to the Qurʾān. The reason why I have chosen al-Bayḍāwī is because

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nature and cosmology, al-Zamakhsharī mostly focuses on discussing the imagery (*taṣwīr* and *takhyīl*) or metaphorical (*tamthīl*) language used in those verses to convey a message. While al-Bayḍāwī follows him in this (see their exegesis on verse 41:11), he also sometimes adds natural philosophical concepts (compare their exegesis on verse 41:9). Abū al-Qāsim al-Zamakhsharī, *al-Kashāf ʿan Ḥaqāʾiq al-Tanzīl wa ʿUyūn al-ʾAqāwīl fi Wujūh al-Taʾwīl* (Beirut: Dār al-Kitāb al-ʿArabī, 1987), 4:187-189. Al-Bayḍāwī, *Anwār al-Tanzīl*, 1:122, 2:936-937.

[23] ʿAbd Allāh al-Bayḍāwī, *Ṭawāliʿ al-Anwār Min Maṭāliʿ al-Anẓār* (Cairo: Maktabah al-Azhariyyah li'l-Turāth, n.d.), 75-146.

[24] Ibid, 165-247.

[25] On Ibn Sīnā and al-Rāzī, see: Marwan Rashed, 'Natural Philosophy', in *The Cambridge Companion to Arabic Philosophy*, ed. Peter Adamson and Richard Taylor (Cambridge, UK: Cambridge University Press, 2005), 287-307.

[26] For Avicennian teleology, see: Seyyed Hossein Nasr, *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for Its Study by the Ikhwān al-Ṣafāʾ, al-Bīrūnī, and Ibn Sīnā* (Albany: State University of New York Press, 1993), 232-233.

[27] al-Bayḍāwī, *Anwār al-Tanzīl*, 1:42. He partially follows al-Rāzī's exegesis on this verse, see: Fakhr al-Dīn al-Rāzī, *Mafātīh al-Ghayb aw al-Tafsīr al-Kabīr* (Beirut: Dār al-ihyā' al-Turāth al-ʿArabī, 1999), 2:343. For his discussion and causes and effects, see: al-Bayḍāwī, *Nature, Man and God in Medieval Islam*, 1:326-359. This occasionalism is not a complete denial of natural causation, it is mainly an emphasis on God as absolute and final cause. al-Rāzī denies that nature has any inner power (the *quwa*), al-Bayḍāwī does seem to acknowledge it, showing the different ways occasionalism was applied in the Ashʿarī school. See a discussion on this in: Mol, *Denial of Supernatural Sorcery*, 23-31.

[28] al-Bayḍāwī, *Anwār al-Tanzīl*, 1:52.

his work is widely accepted in the orthodox Islamic sciences, and because he applies many rational and traditional exegesis of the generations before him, thus representing a cumulative discursive tradition of orthodox Islam. We will compare Wadud's scientific exegesis of verses to that of the commentary of al-Bayḍāwī, to see if the latter is indeed as mythical, irrational, and anti-naturalism as Wadud claims the orthodox Islamic exegesis tradition is.

Comparative analysis of the two exegesis

I have divided the Qurʾanic verse topics into three categories: 1) theology, 2) cosmological creation, and 3) biological creation.[29] With theology, we try to see if Wadud's appropriation of Parwez's process theology really differs from classical theology. Wadud, for example, emphasises that *raḥmah* does not mean mercy in relation to sins as orthodox Islam sees it, but to nourishment of progressive evolution, linking the word to its root-meaning of 'womb'.[30] With cosmological and biological creation, we look at verses with these contents and see what Wadud and al-Bayḍāwī's interpretations can tell us about their views on nature. As both add a lot of material in their exegesis, I have to single out their main points concerning the above three topics. Wadud in general focuses on the compatibility between science and the Qurʾān and thus uses verses as introductions to his exposition of modern scientific cosmology. al-Bayḍāwī incorporates many compatibility discourses between those verses and philosophical theology, natural philosophy, *fiqh*, history, linguistics etc.

1) Theology: Qurʾān 1:2	"The Sustainer of the worlds (*Rabb al-ʿĀlamīn).*"
Wadud:	• "*Rubūbiyyah* is one of the attributes or basic characteristics of Allah and it means — the provision of sustenance to an object from its initial stage to the stage of its final destination." • "Life on this earth evolved from unicellar organisms to multicellular organisms of complex nature. As soon as a new type evolves, it becomes a potential ancestor for many simultaneous descendent lines and each line becomes specially adapted in a particular way." • He then cites verses 71:17 and 11:6 and provides eight pages of explanations of evolution: chemical evolution, singular cells, multicellular organisms, cooperative labour, water cycle. • "'*Ālam* means a sign from which a certain thing could be known [..]. The presence of the physical world indicates that there is a Creator behind it." [*G*, 45-55]

[29] Sources will be mentioned in each box between brackets [...] to avoid footnotes taking too much space. With al-Bayḍāwī, all references are from his *Anwār al-Tanzīl.* With Wadud the references are indicated with a *G* for *Gateway*, a *P* for *Phenomena*, and an *H* for *Heavens.*

[30] Wadud, *Gateway*, 57-72.

al-Bayḍāwī:	• "[*al-Rabb*] conveys something towards its perfection (*kamāluhu*) from something to something" • "It designates through it the owner (*al-mālik*) that he maintains (*yaḥfaẓ*) what he owns and rears it (*yurabbīhi*)" • "The world (*al-ʿālam*) is designated as such as He is known through it [..] He is known through it as the constructing Designer (*al-ṣāniʿ*) and He is Other (*siwāhu*) from everything as from substance (*al-jawāhir*) and cause (*al-aʿrāḍ*), so that its [i.e. world] possibility and its need to a necessary cause for its essence (*muʾaththir wājib li-dhātihi*) proves His existence (*wujūdahu*)." [1:14]

1) Theology: Qurʾān 1:3	"Most Merciful, Ever Merciful (*al-raḥmān al-raḥīm*)."
Wadud:	• "The word *raḥmah* [..] stands for means of nourishment manifest or hidden." • *Raḥmān* is a grammatical form expressing sudden and violent occurrences, and *Raḥīm* expresses slow and gradual occurrences. • Wadud then goes into a long exposition whereby cosmological and biological evolutionary phases resemble sudden or gradual creation and the six days creation are compared to six geological eras. [*G*, 57-72]
al-Bayḍāwī:	• "*al-Raḥmah* in the language is amiability of the heart, and compassion/sympathy/tender attachment (*iniʿtāf*) which requires kindness and goodness, and from it the womb (*al-raḥm*) for its tender enveloping on what is in it. [..] [And He provides] through it His subtle teleological grace (*bi-luṭfihi*) and beneficial blessings [..] so one can obtain benefits (*al-intifāʿ*)" [1:13] • "[The Qurʾān was revealed from Him being *al-raḥmān* and *al-raḥīm*] which proves that He commissioned religious and worldly welfare interest (*al-maṣāliḥ al-dīniyyah wa al-dunyawiyyah*)" [2:935, on verse 41:2]

Both theological expositions have close resemblance in its linguistic explanations and the theological implications of them. For both, God is teleologically active within creation to sustain it beneficially towards completion. The main difference is that for Wadud, these terms are used as proofs for evolution within creation, while for al-Bayḍāwī, they prove the complete otherness of God compared to creation and the complete contingency of the latter. From this we already notice that Wadud is mostly concerned with a philosophy of nature,

while al-Bayḍāwī is mostly concerned with theology. We know look at some 'cosmological' verses.

2) Cosmological creation: Qurʾān 41:9	"Say: Is it that ye deny Him Who created the earth in two Days? And do ye join equals with Him? He is the Lord of (all) the Worlds."
Wadud:	• "The word '*ʿālamīn*' as it occurs in the verse (41:9) has been considered by some commentators to mean 'astronomical worlds'. It is true that the Qurʾān has pointed towards the existence of life on heavenly bodies other than the earth. [..] there is a possibility of the existence of life on other planets in the universe which have got the same conditions that exist in our earth and where living creatures may also be present." [*H*, 45] • "Thus, according to the Quran, the creation of the heavens and the earth, took place in Two Eras. The word *Yawm* usually translated as 'day', means here a very very long period of time. [..] In scientific term the period of creation of the material world is called 'Azoic' i.e. without life. The Qurʾān, however, divides this period into two" [*G*, 18-19]
al-Bayḍāwī:	• "In the extent of two days, or two alterations/times (*nawbatayn*) and He created in totality of time what He created instantaneous (*fī āsraʿ*)" • "{the earth} what in aspect is the lowest from the scattered celestial bodies (*al-safl min al-ājrām al-basīṭ*)" • "{in two days} that He created for it a joint essence (*āṣl mushtarak*) then He created for it a shape through which He shapes species (*ānwāʿ*)" • "{Lord of the worlds} He is the Creator (*khāliq*) of all that exists (*wujida*) from the possible and its rearing (*murabbīhā*)" [2:936] What is meant by the possible is that nothing exists from necessity by itself, only God necessarily exists. • On verse 7:54 he refers to the six days creation as six timespans/periods (*sittat awqāt*). [1:342]

2) Cosmological creation: Qurʾān 41:11	"Moreover, He directed towards the sky, and it had been (as) smoke: He said to it and to the earth: "Come ye together, willingly or unwillingly." They said: 'We do come (together), in willing obedience.'"
Wadud:	• "To begin with the entire universe was smoke. Smoke, as we know, consists of gases as well as fine particles in a more or less stable suspension, which may be solids or even liquids at high or low temperatures." • "Come ye willingly or unwillingly-Allah is the sovereign of the universe. His authority reigns supreme. The entire creation is bound by the splints of His laws. The inanimate objects submit to Him by means of the physical laws which are ingrained in their very substance." [*H*, 49]
al-Bayḍāwī:	• "{and it is smoke} and perhaps He intends through it its substances (*māddatuhā*) or small parts which are prescribed for it. {He said to it and the earth: come together} through which you are created in you two from the causal effect (*al-āthir*) and emerge what is deposited from different states and diversity of living beings. Or {come together} in ontological existence (*al-wujūd*) on the preceding creation with the meaning of calculated quantity (*al-taqdīr*) or arrangement (*al-tartīb*) in degree, or the conveyance in the created occurrence what is intended is its being generated (*tawlīduhu*) [..] {willingly or unwillingly} you want it or deny it and the intent demonstrating His complete omnipotence and necessity of the intended occurrence [..] {They said: we come together willingly} together are led by the Divine essence (*bi'l-dhāt*), and demonstrating that the purpose is to illustrate (*taṣwīr*) the causational effect of His omnipotence in them and their causational effect through the Divine essence on it, and their metaphor (*tamthīluhumā*) is that of the command of the obedient and the consent of the compliant as He said: {Be and it is}" [2:936-937]

2) Cosmological creation: Qurʾān 41:12	"So, He completed them as seven heavens in two Days, and He assigned to each heaven its command. And We adorned the lower heaven with lights, and (provided it) with guard. Such is the Decree of (Him) the Exalted in Might, Full of Knowledge."
Wadud:	• "The words 'seven heavens' have been used in the Holy Quran a number of times. It appears that they do not indicate a numerical quantity but give an undefined idea of 'plurality'. Thus, they mean 'many'. If, however, we take them to mean a numerical quantity, it is not possible to explain this number in the present state of our knowledge of the universe." • "To begin with let us clarify the words *samāʾ al-dunyā*. Literally it means the heaven surrounding our earth. But the question arises how far it extends? Does it mean the atmosphere surrounding our earth? Or does it mean the heaven which encloses our solar system? Or does it include the far away heaven of which starts are visible to us? [..] the word *samā* comprises only *troposphere* from which the rain falls down and which extends only seven miles above the surface of the earth. [..] What is meant by lamps? Do they mean the stars [..] the planets and their satellites which are members of our solar system?" • Wadud then cites verse 37:6 and 24:35 to explain the 'lights' as referring to the planets (*kawākib*). And the 'guard' he links to verses 67:5, 37:1-10, 15:16-18, and 21:32 to prove that the troposphere is that guard that protects us against radiation. [*H*, 51-60]
al-Bayḍāwī:	• "{So He completed them as seven heavens} thus He created them as an original creation (*khalqān badaʾiyyan*) and He perfects and orders them, [..] {and He assigned to each heaven its command} its affair and what it happens from it with that He charges on it choice (*ikhtiyār*) or nature (*ṭibāʿ*) [..] {And We adorned the lower heaven with lights} the planets (*al-kawākib*) [..] {and made it guarded} meaning it guards us from harm (*al-āfāt*)" [2:937] • "{seven heavens} through proof or metaphorical interpretation. So that it is said: Is it not so that the people of the observation outposts [i.e. astronomers] establish nine celestial bodies (*aflāk*)? You say: In what is mentioned is doubt, and if correct then there is nothing in the verse that prohibits addition (*al-zāʾid*) which incorporates that." [1:53, on verse 2:29]

Again, there are no major differences between the two expositions as both interpret the 'days' metaphorically as periods of time. On 41:9, Wadud focuses on geological periods. On the other hand, al-Bayḍāwī, apart from placing the earth within classical cosmology, focused on the atomistic element in creation to show the world's contingency on God[31], but he does view the act of creation as a gradual teleological progress. On 41:11, both understand smoke as a reference to particles, and the anthropomorphic discourse on the heavens and the earth as a metaphor for God's omnipotence and source of all laws of causation. On 41:12 they both agree on that 'seven' can be understood literally or as a general unrestricted statement, and the 'lamps' to be the planets and the guarding is against general harm, the difference. being that Wadud directly links the troposphere with the 'lowest heaven' while in al-Bayḍāwī's cosmology the lowest heaven contains the orbits of the planets. He also projects freedom of choice on the heavens as he follows the classical philosophical cosmology that the celestial bodies have 'intellects', which according to him is equivalent to the concept of angels that affect and control their designated areas of creation.[32] al-Bayḍāwī therefore lives in a cosmology that is both material, composed of atoms and causation, but is also permeated both with God's teleological will and with abstract beings. Wadud's cosmology, being informed by modern astronomy, is far larger than classical philosophy could ever had imagined, and although he views the forces of nature also as angels, he does not ascribe them with being, personal will or intellect. Where Wadud and al-Bayḍāwī's cosmologies do meet is on the subject of atomism and on God's providential teleology within nature. We see this also in the expositions on biological creation.

3) Biological creation: Qurʾān 15:26 and 25:54	"We created man from sounding clay, from mud moulded into shape." "It is He Who has created man from water then has He established relationships of lineage and marriage: for thy Lord has power (over all things)."
Wadud:	• "[W]hen read together, present a beautiful description of a continuous chemical evolution on the earth [..] life was created from [..] extracts of clay and not from clay itself. [..] But our 'learned men' still believe in the creation of man from a model of clay as a whole." [*G*, 6-7]
al-Bayḍāwī:	• on 15:26, al-Bayḍāwī first discusses how different forms of mud are shaped and then says: "modification that takes stage/phase after stage/phase until it has become something other and which God blows His sentient-making Spirit in it

[31] On his discussion of Atomist theories, see: al-Bayḍāwī, *Nature, Man and God in Medieval Islam*, 1:523-643. See also: Mol, *Denial of Supernatural Sorcery*, 23-27.

[32] al-Bayḍāwī, *Nature, Man and God in Medieval Islam*, 1:648-666.

	(*thum ghayyara dhalika ṭawrān baʿda ṭawr hattā sawwāhu wa nafakha fīhi min Rūḥihi*)" [1:531] • on 25:54, "Meaning Adam which is fermented in clay, or He made man from parts from substances (*māddah*)" [2:740]

3) Biological creation: Qurʾān 71:17	"And Allah has produced you from the earth growing (gradually)."
Wadud:	• "[T]he idea that evolution took place from a single cell to man in a ladder-like fashion is now obsolete. Actually, as soon as a new type evolves, it becomes a potential ancestor for many simultaneous descendent lines and each line becomes specially adapted in a particular way. The evolution thus forms the pattern of a branching tree." [*G*, 10]
al-Bayḍāwī:	• "He grows you from it, thus figuratively like plants to grow because it proves the created occurrence (*al-ḥudūth*) and creating (*al-takwin*) from the earth" [2:1099]

On the issue of biological evolution is the differences in cosmologies felt most. Wadud follows Darwinistic evolution[33] whereby the common cellular origins explain why biological life could emerge through microevolution. In al-Bayḍāwī's classical cosmology atoms explain why there can be diversity in the makeup of inorganic or organic bodies, but it does not explain how hereditary traits are passed on within or between species and if one species can evolve into a new species. But classical Greek-Arab biogenesis macroevolutionary concepts did understand a 'chain of being' wherein species teleologically or spontaneously emerge starting from minerals to plants to insects to lower animals to higher sentient animals to which humans belong. Several important Muslim thinkers such as al-Jahiz (d.869) and Miskawayh (d.1030) did add new elements to this biogenesis as the possibility of species adapting into new species through natural selection[34], but just as the 18th century watchmaker-teleological versions, all of these still lacked the necessary insights and knowledge which modern science brought to explain macro and microevolution. Thus for al-Bayḍāwī, the creation of Adam out of clay is not irrational or mythical, as it is fitted within the Greek-Arab biogenesis whereby he adds gradual teleological elements within Adam's

[33] Although it is difficult if we can label Wadud's concept of evolution as intelligent design or as Theistic evolution, as it is unclear how much his ideas on Divine teleology allow random mutations and evolutionary dead ends, which could be viewed as going against the theological claim that God does nothing useless. Also, Anthropocentrism is rejected in modern evolution (humanity is just *a* species, not *the* species).

[34] For an overview of classical Greek-Arab biogenesis concepts, see Sami S. Hawi, *Islamic Naturalism and Mysticism - A Philosophic Study of Ibn Tufayl's Hayy Bin Yaqzan* (Leiden: Brill Academic Publishers, 1974), 109-124. For classical and modern Islamic evolutionary theories, see also: Nidhal Guessoum, *Islam's Quantum Question: Reconciling Muslim Tradition and Modern Science* (United States: I. B. Tauris & Company, 2010), 303-324.

creation as the mud gradually turned into flesh through atomic transition (transmutation).[35] The *Ahl al-Ḥadīth* approach to the creation of Adam, and creation in general, rejects the Greek-Arab philosophy of nature (and thus also teleological gradual macroevolution) and incorporate many anthropomorphic and mythical elements whereby God is viewed (almost) literally as a pottery maker shaping the clay body of Adam with his hands, not very different from the way gods were seen in pagan religious myths.[36] The Islamic theologians (*mutakallimūn*) rejected such anthropomorphism through metaphorical interpretations and adapting contemporary natural philosophies to their theologies. al-Bayḍāwī, for example, emphasises at verse 38:75 wherein God shaped man {with My own two hands (*bi-yadayya*)} that "He created it through His essence without any means (*khalaqtuhu bi-nafsī min ghayri tawassuṭ*)".[37] This explains the important difference between the *Ahl al-Rāʾy* and *Ahl al-Ḥadīth* views on the creation of Adam and creation in general. Both groups believed the creation of Adam from clay as literally true, but the cosmologies wherein this creation occurs, differ immensely. With the decline of the centrality of *kalām* after the 15th century in many parts of the Muslim world, this important distinction was lost in Sunni Islam with the advent of modernity and the rise of new *Ahl al-Ḥadīth* movements from the 18th century onwards.[38] This important distinction is also lost on Wadud, who links the creation out of mud to the chemical (micro)evolution of RNA in ancient heated mud pools, and mistakenly sees every 'Adam out of clay' interpretation as irrational and mythical, misunderstanding that the classical Muslim scientists and philosophers he praises in the last chapter of his *Phenomena* also believed in the 'Adam out of clay' concept, but within a teleological (macroevolutionary) Greek-Arab cosmology that is not that dissimilar to modern cosmology.

Conclusion

In our comparative analysis of the scientific exegesis of Wadud and al-Bayḍāwī, we have first determined that both their approaches to the Qurʾanic text is rational, focused on the inimitability of the Qurʾān (*iʿjāz al-Qurʾān*), and incorporate their contemporary natural philosophy into their exegesis, thereby linking revelation and nature. Wadud accused orthodox Islam of having an irrational and mythical worldview, misunderstanding the important distinction between the orthodox *Ahl al-Rāʾy*[39] and the orthodox *Ahl al-Ḥadīth*[40]

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[35] See his discussion on transition here: al-Bayḍāwī, *Nature, Man and God in Medieval Islam*, 1:488-495.

[36] Such as the Greek myth of Prometheus shaping man from clay. For *Ahl al-Ḥadīth* views on creation, see Kister above at footnote 17.

[37] al-Bayḍāwī, *Anwār al-Tanzīl*, 2:905.

[38] For a discussion on this collapsing of the different elements of the schools, see: Jeffry R. Halverson, *Theology and Creed in Sunni Islam: The Muslim Brotherhood, Ashʿarīsm, and political Sunnism* (New York: Palgrave MacMillan, 2010), 33-82.

[39] The Ashʿarī and the Māturidī represent orthodox *kalām*, while in *fiqh* the majority of the Hanafī, Mālikī, and Shāfiʿī are rational in their foundational (*usūl*) epistemology and humanistic hermeneutics (i.e. *māqasid al-sharīʿah*, *qawāʿid*, *ḥuqūq Allāh/al-Nās* etc.), but many dislike to be labelled as *Ahl al-Rāʾy* due to its negative links to heterodox *Ahl al-Raʾy* groups such as the Muʿtazilah.

[40] The Athāriyyah represent the classical *Ahl al-Ḥadīth* in matters of creed and *fiqh*, the majority of the Hanbalī belong to it (especially the contemporary Wahhabi and Salafi), and a minority among the other schools, although many claim to be *Ahl al-Ḥadīth,* their *usūl al-fiqh* technically designates them as *Ahl al-Rāʾy*.

concerning epistemology. This misunderstanding is partially understandable as *kalām* declined as a common practiced specialisation after the 15th century and the reversed importance of the two orthodoxies. From a confessional *Ahl al-Rāʾy* position, to incorporate naturalism within the exegesis is logical and even necessary, thus validating Wadud's claim that contemporary science is a reliable source within Islam. al-Bayḍāwī completely agrees with him on this position. The difference between the two is the knowledge on nature available to them, but both agree on the epistemological foundations of a science of nature through observation and logic. al-Bayḍāwī's atomism and astronomy still is on many elements very contemporary compared to modern physics, and through which he also accepted macroevolutionary concepts. Within this macroevolutionary cosmology, Adam is literally created out of clay, just as most species gradually emerged from inorganic matter. It is thus placed within a rational teleological cosmology that differs immensely with classical creation idea wherein such natural systems play no part. Wadud also believes Adam is created out of clay, but only the biochemical built-up, through which he also can interpret Adam as representative for the human species instead of a first person. Both Wadud and al-Bayḍāwī apply rational, metaphorical, and naturalistic exegesis, and share a teleological cosmology wherein God's providential will acts on creation to higher stages of existence. Even though there lie seven centuries of major leaps of scientific knowledge between the two, it is their shared teleological cosmology that brings them together in their exegesis of the Qurʾān.

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