

Epistemic Humility and the Non-Ultimacy of Nature: Perspectives from *'Ilm al-Kalām*

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'When one contemplates the skies and their orbs, the states of the four elements and of the meteorological phenomena, minerals, rocks and living beings – and most especially, humankind – one finds so great a number of compelling [marks of] wisdom, such clear indications, that the intellect drowns within them, and the mind falls short of their description.

These are preeminent as proofs for the existence of the wise, merciful volitional agent.'

(Maṭālib 4, 327)

So writes Fakhr al-Dīn al-Rāzī (d. 610/1210), possessor of one of the most incisive intellects in history, distinguished debater, supreme systematiser, theologian, and metaphysician able like no other to scrutinize the diverse philosophies of his day. As al-Rāzī states, the natural world has the capacity both to supply intellectually satisfying proofs of the God beyond nature, and at once, to invoke intellectual humility. In the context of this section of *al-Maṭālib al-ʿāliya fī al-ʿilm al-ilāhī*, al-Rāzī's objective is to proffer the most compelling proofs for the existence of a freely acting agent responsible for the creation of the cosmos. To this end, he compiles a select list of natural phenomena, each of which reveals evidence of wise design which provides some kind of deliberate benefit (*manfaʿ*). In doing so, he incorporates findings from the scientists of his day.¹ Earlier in the *Maṭālib*, al-Rāzī treated a wide array of rational proofs for the thesis that the world's creator is an autonomous agent acting by way of choice, and considered also the great number of proofs which may be put forth to undermine this belief. There, he found the evidence inconclusive.² It is only in turning to the natural world, in the extraordinary profusion and variety of witnesses it provides to the nature of its cause, that al-Rāzī hits a note of certainty regarding this critical question.

Al-Rāzī's *Maṭālib* was written at the end of his life, by which point he had reached a place of epistemic humility. Having grappled with the theology of his own heritage as well as with the prevalent alternative of his time (the philosophy of Abū ʿAlī b. Sīnā [d. 428/1037]), he recognised that all our intellectual striving falls short of certainty on some of the most critical theological questions. Rather than relinquishing reason, however, al-Rāzī settled on restrained but confident belief, guided by the most compelling evidence available but ultimately humble in acknowledgement of the limits of human reasoning. Al-Rāzī's reflections upon the natural world occasion some of his most emphatic proclamations regarding the characteristics of God. Nature, he perceived, is a most excellent guide to the One who is beyond nature. This is true even in the confines of a strictly rational enquiry, but also according to the theology of scripture and in the realm of everyday human experience.

Taking al-Rāzī as a point of departure and return, I will survey selected aspects of the relationship between the study of nature and of theology “proper” among the practitioners of the Mu‘tazilī and Ash‘arī schools of *‘ilm al-kalām*, the rational theological tradition of the Muslim world. The physical world and its constituents were of interest to rational theologians of a variety of stripes and in diverse ways. I will ultimately return to al-Rāzī’s perspectives as of great ongoing utility for anyone with faith in God who also seeks answers in science.

Nature as a Sign: Scriptural Foundations

Classical Muslim theologians spilled much ink in discussion and defence of various theories about the nature of the physical world. For several centuries, the physical theory of *kalām* was that of atomism, specifically, the belief that all bodies are composed of a finite number of indivisible parts of matter, and their inherent accidents—immaterial entities responsible for all the characteristics of bodies including their spatial location, color, scent, and so on. There are particular historical reasons—not all of which are recoverable—for the inclusion of physical theory within *‘ilm al-kalām* from the inception of the tradition. From a more general point of view, the theologians’ interest in such questions can, with some justification, be held to be concordant with a Qur’ānic view of nature. Though scripture was not the direct impetus for the theologians’ intense focus on questions relating to matter and space, the abundance of its references to nature at least make the pursuit of natural knowledge religiously relevant.

The Qur’ān portrays scripture and nature together as forming a set of signs which point to their creator. The Arabic word *āya*, connoting a miraculous sign, readily encompasses both cerebral and non-cerebral aspects of the function of both scripture and nature as indicators of their Creator’s majesty. Of the evidentiary value of the Qur’ān, Sūra 45:6 says: “Such are the signs (*āyāt*) of Allah, which We rehearse (recite) to thee in Truth; then in what exposition will they believe after (rejecting) Allah and His signs?” The same theme becomes a bedrock of the doctrine of *i‘jāz*, the inimitability of the Qur’ān. With regard to nature as a sign, a proof-text is Sūra 30:190-191: “Truly, in the creation of the heavens and the earth and the variation of night and day there are signs (*āyāt*) for those of understanding, those who remember God standing, sitting, and lying on their sides, and who contemplate the creation of the heavens and the earth: ‘Our Lord, you did not create this for nothing!’” The Qur’ānic doctrine of nature supremely serves the call to worship which is the heart of the Qur’ānic message. Nature is celebrated on several counts: its order, its purposefulness, its intricacy, and perhaps supremely, its benefit for humans, for the Qur’ānic doctrine of nature is anthropocentric, focusing heavily on how God’s creation demonstrates concern for humankind.

Fazlur Rahman described the Qur’ānic view of nature as a theology of the “non-ultimacy” of nature.³ Both the words of the Qur’ān and the wonders of nature are vehicles by which humankind comes to understand God’s ultimate right to be

worshipped. Given that it is central to the identity of the Qur'ānic God that He, uniquely, is Creator of the natural world, the Qur'ān's theology of nature is not a tangential or minor aspect of Muslim theology, but central to the major message of Islam.

It is appropriate, then, that nature features heavily within the broad theological project of the *mutakallimūn*. Within a Qur'ānic worldview, reflection on nature is integral to belief in God. Yet, there are, of course, different levels at which one can engage with the natural world. The cerebral approach of the theologians, who sought to determine how the physical universe is made up and how it functions, is one mode. Raising one's heart in worship at the sight of a beautiful sunset is quite another. Neither was their interrogation of nature beyond the phenomenal level unanimously approved as a proper part of the religious sciences. Some felt that the theologians' detailed discussions of the physical constituents of the universe were far removed from the Qur'ānic celebration of nature, and so involved as to be lost on most people, they were therefore of little theological value.⁴ In any case, such theoretical discussions took their impetus from specific historical and intellectual circumstances, so that the Qur'ānic doctrine of nature was probably a more transcendent influence. Yet, this makes it no less important for the project of the rational theologians that the overarching sense communicated by the Qur'ān's dual-sign motif (with its obvious parallels with the "Two Books" idea of Christian theology) was of the essential coherence between nature and scripture. The theologians could justify their pursuit of the study of matter and its concomitants as part and parcel of a theology inspired by the Qur'ān, even if not all were agreed on its value. If we are surprised at the inclusion of such questions within books of creed, it is because we are a product of our own times in which it is a commonly held belief that religion and science ought not "impinge on" one another in this way.

Early *Kalām* and the Mu'tazilīs

So how did the *mutakallimūn* conceive of the role of the study of the physical world within the project of theology? There is no singular answer to this question. The tradition of *'ilm al-kalām* was highly heterogenous and developed over several centuries. From its inception, discussion of the physical world and its constituents was a prominent theme. Jahm b. Ṣafwān (d. 128/745–6) and Ḍirār b. 'Amr (d. 200/815) seem to have focused heavily, in their writings, on questions relating to the ontology of nature. This certainly related to more theologically "proper" matters such as Jahm's denial of God's being a thing (*shay'*) or the possessor of attributes. Yet, our access to their thought is via doxological reports and it is therefore difficult to speak with precision about the role of natural philosophy within their respective theological systems.

Among the Mu'tazilīs, physical theoretical questions occupied a vast space. Given the wide variety of theses concerning the natural world among the eclectic early Mu'tazilīs, it may well be the case that in the earliest phase of the tradition, natural philosophical discussions were even more prominent than in the scholastic period, when the

theologians settled on atomism as their explanation of the physical world. Indeed, as Dhanani has shown, the evidence of the titles of early Mu‘tazilī texts preserved in Ibn al-Nadīm’s *Fihrist* shows that there was a greater variety of text types, representing a significant non-theological aspect to *kalām*, in the early Mu‘tazilī period.⁵ Even in the scholastic period, whole texts by Mu‘tazilī authors, including al-Ḥasan b. Aḥmad b. Mattawayh’s (fl. early 11th c.) *al-Tadhkira fī aḥkām al-jawāhir wa-l-a‘rāḍ* and Abū Rashīd al-Nīsābūrī’s (d. after 415/1024) *al-Masā’il fī al-khilāf bayna al-baghdādiyyīn wa-l-baṣriyyīn*, are devoted almost exclusively to physical theoretical questions. The questions addressed by these *mutakallimūn* go far beyond basic ontological theories on the makeup of the cosmos. Theologians were interested in a range of biological, psychological, and geological questions, though the questions they treated were not divided along these siloes, and neither was God absent from their discussions of the physical world. Rather, the theory of accidents unites the question of how vision occurs and the matter of what the sensation of pain is with discussion of the theological theses that God is the sole agent capable of creating accidents of life and death and that the desire to do evil is not itself evil.

All of these, for instance, appear in Ibn Mattawayh’s *Tadhkira*. Some natural philosophical topics may have direct theological import, but not all. The Mu‘tazilīs embraced belief in a limited natural causality, so that many of their discussions attempt to map out the causal relations between physical phenomena. A sample discussion is Ibn Mattawayh’s assertion of the notion that heavier objects are so because of their possession of greater moistness (*ruṭūba*) in relation to lighter objects. By contrast, fire ascends due to the greater degree of dryness (*yabūsa*) therein. This is related to his explanation for the upward inclination (*i’timād*) of certain things including fire, and the downward inclination of others, such as a rock. Ibn Mattawayh defends his position by means of the observation that when fire loses its dryness, it ceases to ascend. This is to say that through observation of a physical process, Ibn Mattawayh is confident to assert the presence of a natural cause, as he writes: “where [moisture and dryness] are present, [downward and upward inclination] are present, so they are seen to be the cause (*ta’tḥīr*) of them.”⁶ There is no obvious theological imperative for this nor for a great number of the discussions Ibn Mattawayh entertains; rather, they appear to be of interest for their own sake. As mentioned, this and other topics are united by the school’s theory of accidents (*a‘rāḍ*), the immaterial constituent of bodies in the world. Everything is accounted for within this broad framework, and God’s relation to created accidents is as integral to the explanatory scope of the discussions as the demonstration of how the relationships between accidents account for observable phenomena. Thus, the idea that the topics of sense perception or mass and motion are somehow extricable from theology is entirely alien to the worldview of the Mu‘tazilīs. No separation of *magesteria* is possible.

On the basis of the prominence of non-theological topics within the works of the *mutakallimūn*, Dhanani has described *kalām* as a “philosophical tradition.” He sees the

prominence of questions concerning the nature and attributes of the things which constitute the world within *kalām* as evidence that *kalām* is not “theology” *per se*, but a “philosophical metaphysics” to rival that of the *falāsifa*.⁷ In this he concurs with Sabra, who discussed *kalām* physical theory as an aspect of the tradition’s ontology, which he saw as a philosophical account of the world’s constitution intended as an alternative to that of Hellenistic philosophical cosmology.⁸ The Mu‘tazilīs certainly prided themselves on their mastery of natural philosophy, and there are specific contextual reasons for this. To give an example, at the time of Abū al-Ḥusayn b. al-Khayyāṭ (d. 300/912), an early Baghdādī Mu‘tazilī, a key concern was to undermine the sceptical philosophy of former Mu‘tazilī Abū al-Ḥusayn Aḥmad b. al-Rawandī (fl. early 10th c.). His *Kitāb al-intiṣār* is the only extant work of a collection of eight refutations of his former colleague’s thought. In this work, Ibn al-Khayyāṭ boasts that the Mu‘tazilīs are “the masters of *kalām* and the people of knowledge and insight into the subtle questions of *kalām*, having mastered its manifest questions.”⁹ Elsewhere he suggests that their mastery of subjects beyond theology proper is part of what distinguishes the Mu‘tazilī school.¹⁰ This pride in the spectrum of theoretical questions suggests that the mastery of subjects that did not directly concern the divine and divine-world relationship was considered independently valuable, as well as in the refutation of competing worldviews.

Through the Mu‘tazilīs, then, we witness the seamlessness with which natural philosophy met theology among intellectuals of the medieval Muslim world. This may be striking for the uninitiated modern reader, used as we are to the commonplace distinction between theological reflection (the pastime of clergymen and academic philosophers) and the study of the physical world (the job of scientists). Most of the physical theories maintained by the Mu‘tazilīs are now obsolete, given our greater understanding of the physical forces that govern our universe and our ability to examine physical bodies at the microscopic level. Nevertheless, individual Muslim thinkers across a wide spectrum have found in the heritage of the Mu‘tazilīs an attitude towards rationalism worth reviving. In the globality of their intellectual project and their willingness to take reason as a yardstick by which to judge the validity of theological doctrine, the heritage of the Mu‘tazilīs may be a source of legitimacy for those who would champion a science-positive modern Muslim theology.

Classical Ash‘arī Thought: The Study of Nature as a Prop to Theology

Unlike Dhanani and Sabra, Richard M. Frank characterised *kalām* as theology, writing that “the primary function of *kalām*—its end and its activity—is to rationalise the basic beliefs of the Muslims as they are given in the Koran and the Sunna.”¹¹ Although he acknowledged the attention given to non-theological topics including physical theory, he argues that “*kalām* never had, or aspired to have, the universality that philosophy has traditionally claimed for itself.”¹² For all classical *mutakallimūn*, premises taken from physical theory underscored the defence of the most central theological doctrines. This is most obvious in the ubiquity of the proof from accidents for the *kalām* doctrine

of creation *ex nihilo*, which relies on the physical theoretical premise that accidents are responsible for the characteristics of bodies and that they are temporally originated.

Although this is true of Muʿtazilīs and Ashʿarīs, Frank’s comments concerning the theological goal and scope of *kalām* seem easier to grant of the latter. The Ashʿarīs far more rarely treated natural philosophical questions outside of the context of theological ones. Al-Rāzī himself, in his earliest work of *kalām*, expresses the school attitude toward the study of nature within *kalām* explicitly. He writes: “The questions of this science are either creedal doctrines such as establishing the eternity and unicity of the Creator, or matters upon which these doctrines depend, such as matter’s composition of indivisible parts.”¹³ As far as al-Rāzī understands the school position, their interest in the natural world is subordinate to their quest to defend creedal truths about God.

Clues of the origins of the school’s tendency towards viewing physical theory as a bolster to theology within the thought of Abū al-Ḥasan al-Ashʿarī (d. 324/935-6) can be found in Muḥammad b. al-Ḥasan b. Fūrak’s (d. 406/1015-6) treatment of his master’s thought in his *Mujarrad maqālāt al-Ashʿarī*. Al-Ashʿarī was heavily involved in the discussion of physical theory, engaging with the views of a variety of Muʿtazilīs and developing his own positions on many questions. In that work, physical theory appears separately from strictly theological topics, under the category of “subtle questions,” although this, of course, is Ibn Fūrak’s structure. However, in many of the discussions of physical theory, Ibn Fūrak is quick to record the theological significance attached to the questions at hand. In recording al-Ashʿarī’s positions on the finitude of matter and its ultimate indivisibility, Ibn Fūrak asserts that al-Ashʿarī associated denial of these doctrines with disbelief.¹⁴ And in defence of the notion that single accidents (for instance, accidents of human capacity [*qudra*]) are associated with single effects, Ibn Fūrak points out that al-Ashʿarī insisted that “he who disagrees with this cannot prove the unicity of God’s essence.”¹⁵ On questions such as the nature of height, width, depth, and weight, al-Ashʿarī’s doctrine, which accounts for these phenomena as functions of the accident of aggregation, and nothing more, can be seen to deliberately emphasise the lack of autonomy in the physical world.¹⁶ This is not to say that al-Ashʿarī’s interest in physical theory is restricted to topics with direct theological bearing, but that the major focus is on developing a version of atomist ontology which is, to the greatest extent possible, theocentric.

Later school members continue the trend towards a focus on properly theological discussions. There are no known Ashʿarī texts devoted solely to natural philosophical matters, and as Gimaret rightly notes, “there seems little likelihood in finding” such texts occurring in Sunnī theological traditions outside of the Muʿtazilī.¹⁷ It is almost universally true among classical Ashʿarīs that physical theory is treated either (a) within the context of establishing creation *ex nihilo*, or (b) in the course of responding to alternative natural philosophies, such as versions of the theory of the world’s constitution of four elements. An exception is Abū al-Maʿālī al-Juwaynī’s (d. 478/1085) *Kitāb al-Shāmil*, in which, after

giving an exposition of Ash‘arī physical theory in the conventional place of the proof from accidents for creation *ex nihilo*, he later entertains significant discussions of the nature of accidents of spatial occupation and various other physical theoretical matters. This involves extensive treatment of positions including those of early Mu‘tazilī figures, not all of which have obvious or direct theological implications.¹⁸

This may be a function of the work’s self-proclaimed comprehensiveness, as in his *Kitāb al-Irshād*, which becomes the basis for Abū l-Qāsim al-Anṣārī’s (d. 512/1118) *al-Ghunya fī uṣūl al-dīn*, al-Juwaynī limits his discussion of physical theory to his defence of creation *ex nihilo*. Even in the *Shāmīl*, al-Juwaynī styles his physical theoretical discussions as part of the section of the work’s *Kitāb al-Tawhīd*, which is to say that he presents it as part of his establishment of God’s being unlike anything in the physical world. In this context, he demonstrates a concern to establish the general theological significance of many of the physical theories under discussion. Before commencing his discussion of accidents of spatial location, he asserts that it is required in order to demonstrate that God is not in space.¹⁹ Similarly, his discussions of body are presented as requisite to his demonstration that God is not body.²⁰ Physical theory for al-Ash‘arī and his classical disciples has no independent soteriological value, and in the context of the objectives of classical Ash‘arī *kalām*, this means that it is not a field worthy of independent attention within the context of the science.

The Challenge of Avicennism: al-Ghazālī and al-Āmidī

In the post-classical period of Ash‘arī thought, the classical Ash‘arī concentration on the defence of theological doctrines to the neglect of physical theory was illuminated by its encounter with Ibn Sīnā (Avicenna). Many aspects of Avicennism seemed to have gained swift traction at the popular level, including his natural philosophy. Abū Ḥāmid al-Ghazālī (d. 505/1111) and Sayf al-Dīn al-Āmidī (d. 631/1233) both describe the enamourment of certain groups with the fantastic sounding terminology of the philosophers. As al-Āmidī puts it, the scholars of his age have been “fooled by the bombastic words and strange-sounding names that [they hear], such as ‘hyle,’ ‘element’ (*uṣṭuqus*), ‘element’ (*‘unṣūr*), ‘matter,’ ‘form,’ ‘First Cause,’ and ‘Active Intellect.’”²¹ Al-Āmidī warns that this enchantment with the thought of the philosophers threatened to lead people away from the important matters of creed and law. Whilst the foremost opponents of classical Ash‘arī doctrine were Mu‘tazilīs, who shared a physical theory and much else besides, after Ibn Sīnā, theologians were forced to confront the worldview of the Islamic philosophers. There were a number of options available to the theologians in their encounter with Avicennan natural philosophy, and the paths taken by some of the key theologians of the time are worthy of our reflection.

Al-Ghazālī’s approach to setting the record straight is to focus on the credal issues that count the most. Despite his well-documented interest in Ibn Sīnā’s theory of causality, al-Ghazālī is far less interested in questions of physical theory than his classical Ash‘arī predecessors. He is, in fact, overtly critical about the priority given to the discussion and

defence of Ash‘arī physical theory among his predecessors. Even in his *Iqtīṣād*, where al-Ghazālī relies on the proof from accidents for creation *ex nihilo*, physical theory does not have the same prominence as for classical Ash‘arīs. For instance, though he agrees in this work with the classical Ash‘arīs that accidents exist and that substance cannot exist except with inherent accidents, he objects to the priority given by classical Ash‘arīs to the discussion of accidents, writing that “responses to [questions on the subject of accidents] were drawn out within the pages of *kalām*, though they do not merit such protraction (*qad ṭāla al-jawāb ‘anhā fī taṣānīf al-kalām wa-laysa taṣaḥīqq al-taṭwīl*).”²² According to al-Ghazālī, no right-minded person denies the existence of accidents—do we not all experience pain, hunger, and thirst? And do we not all observe the changing states of other bodies in the world? Those who deny the existence and originatedness of accidents are simply obstinate. Accordingly, he does not entertain extensive physical theoretical discussions. Indeed, he describes physical theory for its own sake as being “extraneous to the [main] objective” of his *Iqtīṣād*.²³ In his *Munqidh*, al-Ghazālī specifically criticises the theologians for having thought they were defending the faith by investigating “the realities of things,” delving into the investigation of “substances, accidents and their properties” though it was not the goal (*maqṣūd*) of their science.²⁴ Indeed, in that work, he suggests that much of the physics of the *falāsifa* are not problematic for the theologian. This informs al-Ghazālī’s approach to the selection of philosophical material to engage in his *Tahāfut* also. There, he is famously concerned with a select number of metaphysical issues.

Al-Āmidī’s approach to questions of physical theory evolves throughout his career. The most instructive comparison for our purposes is between his two works of theology, the *Abkār al-afkār fī ‘ilm al-kalām* and his later, and shorter work, *Ghāyat al-marām fī ‘ilm al-kalām*. In the former, al-Āmidī engages extensively with Avicennan philosophy, and indeed, appropriates aspects of its metaphysics, naturalizing it within his own theology. This is reflected in the structure of the *Abkār*, by which it is distinguished from works of the classical Ash‘arīs. Al-Āmidī’s most important organizing principle in the work is the distinction between the being which is necessary of existence by virtue of its own essence (God alone), and beings which are possible of existence by virtue of their own essences (everything else, namely the substances [*jawāhir*] and accidents of which the world is constituted). Everything relating to the establishment of God’s existence and His attributes is treated within the first broad division. Questions relating to the possible existent are treated subsequently. This includes all physical theoretical discussions, and also the question of whether or not the world came to be *ex nihilo*. This is significant because prior to Ibn Sīnā, the world’s creation *ex nihilo* was always established as a premise of the demonstration of God’s existence. Thus, the theory of the world’s constitution of substance and its inherent accidents was also discussed in the context of these critical theological questions.

In al-Āmidī’s theology, it is the world’s essential possibility, and not its origination *ex nihilo*, that is taken to determine its need for a cause. This is almost certainly under the

influence of Ibn Sīnā, who made the eternally existent world's dependence on its efficient cause a function of its metaphysical contingency. Because of his departure from his classical school members in this regard, the role of physical theory within the theological project of Ash'arism is called into question. In the *Abkār*, al-Āmidī nevertheless maintains the tenets of classical Ash'arī physical theory, defending these in particular against the natural philosophical alternatives of Ibn Sīnā.

However, the impact of Ibn Sīnā's critique of aspects of Ash'arī physical theory is keenly felt. The only aspect of Ash'arī natural philosophy that Ibn Sīnā directly targeted was their belief in the ultimate indivisibility of the parts of matter. In the section in the work in which al-Āmidī sets out to defend the theory, he is so aware of Ibn Sīnā's objections that he ultimately suspends judgement on the doctrine.²⁵ More problematically, he suspends judgement on the question of whether immaterial substances exist, although his subsequent use of the classical *kalām* proof from accidents for the creation of the world *ex nihilo* is undermined on the assumption of the existence of beings outside the categories of material substance and accident.²⁶ In his later work of *kalām*, *Ghāyat al-marām*, it is not surprising to find al-Āmidī abandoning the physical theory of his school. That this departure from his school is brought on by al-Āmidī's waning confidence in the utility of physical theory as a prop to theology is made clear in his treatment of the proof from accidents. Critiquing the proof (which we saw him defend in his *Abkār*), al-Āmidī first lists a limited number of physical theoretical premises required for its establishment, namely: the existence of accidents; their being entities as additional to substance; and that the qualities of substance are not latent (*kāmin*) within it, nor simply transferred from one substance to another. Al-Āmidī writes that "even if it is possible to prove these premises there are others which are more difficult."²⁷

Al-Āmidī's approach to physical theory can be seen as the outcome of a movement among many of his classical school members away from the earlier Mu'tazilī tendency towards a global approach to the topics of enquiry within the science of *kalām*. If the natural world is primarily an object of interest insofar as it can provide materials with which to defend theological creed, it ceases to be of interest to the theologian where that function is called into question. This belies a conservative approach to theological speculation, in which alternative theories are engaged defensively rather than creatively. This is as much an option for our times as it was for al-Āmidī. Yet, the believer's enjoyment of nature at the experiential level, as a source of worship-provoking wonders, can meet their engagement with nature at the intellectual level. Al-Rāzī's perspectives on the natural world seem a more promising basis for such an approach.

Nature Demands Humility

Al-Rāzī engaged extensively with the natural philosophies of his day, and also with a wide spectrum of older beliefs about the physical world. In his discussion of the origins

of the cosmos, for instance, he lists nineteen possible positions, identifying eighteen of these with thinkers ranging from Plato, Aristotle, Pythagoras, Anaxagoras, and Galen, to the Muʿtazilīs, contemporary Jews and Christians, and the astronomers of his time.²⁸ His positions on many natural philosophical questions seem to have evolved throughout his career and it would be impossible to adequately convey his contributions here. Bilal Ibrahim has charted much of this territory and Rāzīan studies continue to expand, so that the interested reader may investigate further.²⁹ For our purposes, observing the evolving role of physical theory in his thought is relevant. In early works, al-Rāzī's conception of the place of physical theory within *kalām* seems to echo that of his tradition; for example, his *Ishāra fī ʿilm al-kalām* is structured very similarly to al-Juwaynī's *Kitāb al-Irshād*. His *Nihāya*, also, despite the unprecedented extent of its engagement with the philosophers, incorporates physical theoretical discussions as part of the defence of credal tenets of the Ashʿarīs. In other works, this is not the case. In his *Mabāḥith*, al-Rāzī follows the philosophical approach of distinguishing the field of natural philosophy from metaphysics and theology. In keeping with Ibn Sīnā's approach, al-Rāzī here is concerned with establishing truth about natural reality for its own sake. By the time of his *Maṭālib*, al-Rāzī has a totally independent approach in which he engages the natural philosophies of his day rigorously, frequently reaching novel conclusions and solutions, but never loses sight of the theological implications of the physical questions at hand.

Al-Rāzī's approaches to the incorporation of the study of the natural world within his broader philosophical and theological endeavours are as many as his works. It is true to say, though, that al-Rāzī increasingly took a broad-minded and creative approach when engaging with alternatives to the *kalām* worldview. He was not afraid of departing from established physical theoretical tenets that no longer seemed convincing in the presence of alternatives. One significant finding of Ibrahim's studies of al-Rāzī's natural philosophy is that al-Rāzī came to the belief that it was beyond the capacity of human reasoning to ascertain the noumenal structures underlying natural phenomena. An aspect of this tendency towards restraint with regard to that which is knowable was his suspension of judgement on the debate between hylomorphists and atomists.³⁰ By the end of his life, in keeping with his more general attitude of epistemic humility and his willingness to depart from established Ashʿarī beliefs, al-Rāzī ceased to support the atomist doctrine, not because he had joined the ranks of the hylomorphists but because he deemed both sides overly optimistic in the definitiveness of their beliefs about the underlying structures of the natural world.³¹ As his discussions in the *Maṭālib* demonstrate, al-Rāzī also understood that we cannot adequately investigate questions relating to the nature of God, such as whether or not the world's cause is possessed of freedom of action, without incorporating reflection on the physical world including knowledge drawn from professional scientists. Bypassing the study of the physical world when assessing the most crucial claims about the nature of its cause severely limits the validity of that assessment. The absence of definitive answers about aspects of

the natural world and its underlying substrata is not reason enough to exclude the natural world from our theological projects.

Eight hundred years since al-Rāzī wrote, honest reflection reveals that we know only more keenly how little we know! Current estimates concerning the total number of species which inhabit our planet range from 3.5 million to 100 million. The vastness of our known unknowns, together with possible unknown unknowns, appropriately produces humility. Al-Rāzī was right in his own realization that comprehensive knowledge of the planetary bodies eluded him—as, of course, it still eludes us. He concluded from that fact that the wonders of nature are far “greater than that which the human mind can grasp.”³² Yet, he also engaged with the science of his time in the context of theology. Reflecting on nature, whether as scientists or theologians, can yield the realization of the smallness of our knowledge in comparison with the vastness of the universe in which we live. For the person of faith, a desire to understand the world better can happily coexist with a desire to better understand its cause. Indeed, many religious people are among the ranks of the scientists who continue to examine the world around us. The limits to our present knowledge need eliminate neither our quest to know more, nor our conviction that nature does indeed reveal God’s splendour.

To conclude, it is worth pausing over the non-cerebral aspect of the dual revelation of scripture and nature: the Qur’ān and natural world together provide a variety of sensory experiences which, in that they provoke physiological, emotional responses, can inspire reverence and worship. It should not be forgotten that for many, the Qur’an is not primarily experienced as read, but as heard. The aesthetic experience of the Qur’ān is mirrored in the experience of being in the world at its most majestic. The feeling induced by a wonderful sunset, or a garden suddenly in bloom, can, under the right circumstances, invoke worship. Here, revelation is not through data interpreted intellectually, but at the level of emotion and sensation. This reflection may seem out of place in an essay which concerns itself with the rational traditions of Islam, but it is precisely in the combination of the rational and physiological aspects of its impact that nature is one of our most powerful guides to the knowledge of God. Religious believers need not be embarrassed to confess that the sensation of wonder guides their worship. To be human, religious or not, is to experience the majesty of the world of which we are a part. However obsolete the science of al-Rāzī’s day may have become, we participate with him in the experience of wonder, and his reflections remain as relevant today as 800 years ago.

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¹ Fakhr al-Dīn b. ‘Umar al-Rāzī, *al-Maṭālib al-‘āliya min al-‘ilm al-ilāhī*, ed. Aḥmad al-Saqqā (Beirut: Dār al-kitāb al-‘arabī, 1987), 4, 331-352.

² Al-Rāzī, *Maṭālib*, 3, 75-100. On al-Rāzī’s arguments here see my article, “In Pursuit of the World’s Creator: Fakhr al-Dīn al-Rāzī on the Origins of the Universe in *al-Maṭālib al-‘Āliya*,” *Res Philosophica* 98, no. 2 (2021): 233-259.

³ Fazlur Rahman. *Major Themes of the Qur‘ān* (Chicago: University of Chicago Press, 1980), Chapter 4.

⁴ This is Ibn Rushd’s repeated contention in his critique of the theologians. See, for example, Abū al-Wālid Muḥammad b. Rushd, *Kitāb al-kashf ‘an manāhij al-adilla fī ‘aqā‘id al-milla*, ed. Maḥmūd Qāsim (Cairo: Maktabat al-anglū al-maṣriyya, 1964), 143-144.

⁵ Alnoor Dhanani, *Kalām and Hellenistic Cosmology: Minimal Parts in Baṣrian Mu‘tazilī Atomism* (PhD diss., Harvard University, 1991), 37-40.

⁶ Al-Ḥasan b. Aḥmad b. Mattawayh, *al-Tadhkira fī aḥkām al-jawāhir wa-l-a‘rāḍ*, ed. Daniel Gimaret (Cairo: al-Ma‘had al-‘ilmī al-Faransī li-l-Āthār al-Sharqiyya, 2009), 1, 318.

⁷ Alnoor Dhanani, *The Physical Theory of Kalām: Atoms, Space, and Void in Baṣrian Mu‘tazilī Cosmology* (Leiden: Brill, 1994), 2-3. See also Bennett, who argues of Mu‘tazilī thoughtism that the “interrelation of [the school’s natural philosophy, theory of the divine attributes and of human action] amounted to a system of philosophy in its own right.” David Bennett, “The Mu‘tazilite Movement (II),” in *The Oxford handbook of Islamic theology*, ed. Sabine Schmidtke (Oxford: Oxford University Press, 2016), 142.

⁸ See Abdelhamid I. Sabra, “The Simple Ontology of *Kalām* Atomism: an Outline,” *Early Science and Medicine: a Journal for the Study of Science, Technology and Medicine in the Pre-modern Period*, 14 (2009): 68-78.

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¹⁰ *Ibid.*, 7.

¹¹ Richard M. Frank, “The Science of *Kalām*,” *Arabic Sciences and Philosophy*, 2, no. 1 (1992): 22.

¹² Frank, “The Science of *Kalām*,” 16. For more recent contributions on the question of the place of natural philosophy within *kalām*, see Ahmad Dallal, *Islam, Science and the Challenge of History* (New Haven, London: Yale University Press, 2010), especially Ch 3; Robert Morrison, “What was the Purpose of Astronomy in Ījī’s *Kitāb al-mawāqif fī ‘ilm al-kalām*?” in *Politics, Patronage and the Transmission of Knowledge in 13th-15th Century Tabriz*, ed. Judith Pfeiffer (Leiden, Boston: Brill, 2014), 201-229.

¹³ Fakhr al-Dīn b. ‘Umar al-Rāzī, *al-Ishāra fī ‘ilm al-kalām* (Cairo: al-Maktaba al-azhariyya li-l-turāth, 2009), 28.

¹⁴ Muḥammad b. al-Ḥasan Ibn Fūrak, *Mujarrad maqālāt al-Shaykh Abū al-Ḥasan al-Ash‘arī*, ed. Daniel Gimaret (Beirut: Dār al-mashriq, 1987), 211.

¹⁵ Ibn Fūrak, *Mujarrad*, 214.

¹⁶ Ibn Fūrak, *Mujarrad*, 214-215.

¹⁷ Daniel Gimaret, “Mu‘tazila,” in *Encyclopaedia of Islam, Two*, eds. Peri Bearman *et al.*, Brill Online 2012. Consulted online on 22 October 2022. Gimaret draws a contrast between the Mu‘tazilīs and Ash‘arīs in this regard.

¹⁸ ‘Abd al-Malik b. ‘Abd Allah al-Juwaynī, *Kitāb al-shāmil fī uṣūl al-dīn*, ed. ‘Alī Sāmī al-Nashār (Alexandria: Maktabat ‘ilm uṣūl al-dīn, 1969), 447-509.

¹⁹ Al-Juwaynī, *Shāmil*, 467.

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- ²³ Ibid., 95.
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- ²⁵ ‘Alī b. Abī ‘Alī al-Āmidī, *Abkār al-afkār fī uṣūl al-dīn*, ed. Aḥmad Muḥammad al-Mahdī, 5 vols. (Cairo: Dār al-kutub wa-l-wathā’iq al-qawmiyya, 2002), 3, 73.
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- ²⁸ Al-Rāzī, *Maṭālib*, 4, 19-27.
- ²⁹ See, for instance, Bilal Ibrahim, “Fakhr al-Dīn al-Rāzī and Aristotelian Science: Essentialism versus Phenomenalism in Post-Classical Islamic Thought,” *Oriens*, 41 (2013): 79–431.
- ³⁰ On al-Rāzī’s later scepticism in the case of the problem of human free will, see Ayman Shihadeh, *The Teleological Ethics of Fakhr al-Dīn al-Rāzī* (Leiden and Boston: E.J. Brill, 2006), 34-39.
- ³¹ See Ibrahim, “Fakhr al-Dīn al-Rāzī and Aristotelian Science.”
- ³² Al-Rāzī, *Maṭālib*, 4, 350.