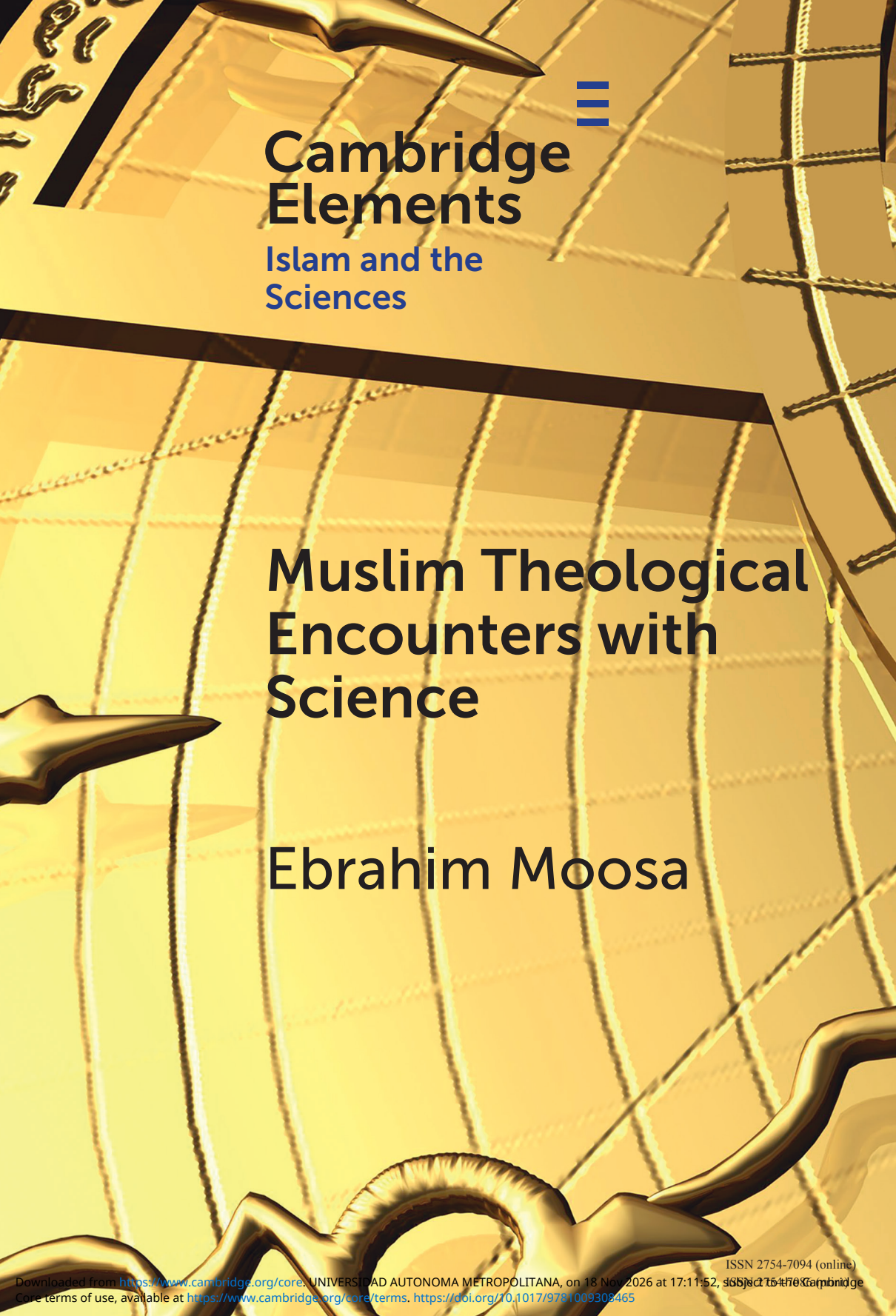


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MUSLIM THEOLOGICAL ENCOUNTERS WITH SCIENCE

Kaleidoscopes of Knowledge Over Time

Ebrahim Moosa
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Muslim Theological Encounters with Science

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Abstract: *Muslim Theological Encounters with Science* dismantles the "Islamic decline" narrative by showing how science and theology have long coexisted in Muslim civilization. Premodern thinkers navigated enduring tensions between reason and revelation, ensuring that intellectual disagreement fostered growth rather than hostility. Modern friction between science and Muslim theology—driven by colonialism, limited scientific literacy, and the absence of a science-attuned common sense among theologians—has often, though not exclusively, stemmed from adherence to outdated theological models. The author proposes a "symphonic and braided" framework for relating science and theology, treating them as distinct yet complementary languages of meaning-making. Cultivating humility and imagination emerges as essential to human understanding. By avoiding the trap of forced convergence, this framework allows science to explain the "how" while theology addresses the "why," together weaving a more complex and resilient pursuit of the truth. This title is also available as Open Access on Cambridge Core.

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> Both corruption and generation are phenomena of time—
> Each bears witness: creation flows from the Wise Divine.
> Abū al-ʿAlāʾ al-Maʿarrī (d. 1057) (al-Maʿarrī, 1430/2009)[1]

Indeed, despise the one who is neither envied nor slandered, and belittle the one who is not accused of unbelief and misguidance. Abū Ḥāmid al-Ghazālī (d. 1111) (al-Ghazālī, 1413/1993b)

Introduction

Throughout the history of Muslim thought, many discussions that we now categorize as science were initially framed within philosophy and theology. Muslim theologians, in turn, adopted and adapted certain philosophical concepts, to express their theological beliefs through catechisms (*ʿaqāʾid*). While these dogmas were intended for general audiences, scholars often supplemented them with detailed explanations. It is crucial to recognize that the philosophical and theological narratives and frameworks from later Islamic history were not present in these earliest teachings and commentaries. In the early Muslim community – the first 100 to 200 years – a mimetic tradition predominated, where the performed actions and statements of first, the Prophet Muḥammad, and then his Companions and distinguished members of his family set the theological and moral standards. By the end of the second Islamic century, this authority included different classes of people in educated circles and took diverse forms. Over time, theology evolved in the shadow of philosophy as Muslim knowledge systems developed and the fortunes of various political empires waxed and waned.

The first Muslim philosophers explored the nature of matter, the cosmos, and epistemology – how we acquire knowledge – while also addressing questions of nature and existence (ontology). Some theologians incorporated this nascent philosophical framework, using it to defend their beliefs in the intellectual language of their time. As Muslim empires expanded and grew more intricate, this development also gave rise to a variety of political and ideological differences. Consequently, politics too began to shape the theological landscape, adding layers of complexity. Theological rivalries arose, as they do in any dynamic intellectual tradition, becoming intertwined with political matters and fostering increased internal tensions.

Initially, theological encounters with philosophy – particularly concerning philosophical explanations of the cosmos's origins (cosmogony) and the details

[1] The term Maʿarrī uses is ḥādith, which means temporal, translated here as the phenomena of time.

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of the universe (cosmology) – reflected knowledge already known in the Near East through Greek and Persian sources. These sources gradually permeated Muslim domains. However, as theology became more established, intellectual and political rivalries intensified, heightening the competition between theology and philosophy in certain contexts.

Fast-forward to the modern period. The exposure of vast segments of the Muslim world to contemporary scientific and technological advancements complicates our understanding of how science is perceived in Muslim contexts. This Element aims to achieve several objectives. I will outline key issues that have influenced Muslim theological literacy, particularly in relation to Islamic theology and science. The problems I identify can be viewed as obstacles to gaining a nuanced understanding of Muslim theological literacy. A central theme of this Element is the ambivalence embedded in the relationship between philosophy and theology throughout Muslim history, a relationship which shaped the epistemic and cognitive frameworks prior to the rise of modern science. For instance, theologians might protest some of the conclusions reached by the Muslim philosophers, yet they also built their theological apparatus on knowledge derived from the work of the philosophers. Ibn Sīnā, also known as Avicenna (d. 1037), was a foremost philosophical figure whose influence was felt widely. Even the theologian Abū Ḥāmid al-Ghazālī (d. 1111) drew extensively on Ibn Sīnā, despite some notable disagreement on the part of Ghazālī. The relationship between the two disciplines is much more complicated than commonly asserted in reductive assertions. Writing in the fourteenth century, the Ashʿarite theologian and polymath, Saʿd al-Dīn al-Taftāzānī (d. 1390) after some four centuries of Muslim theological flourishing, says:

> When philosophy was translated into Arabic, Islam-affiliated scholars (*al-Islāmiyyūn*) engaged with it critically, seeking to refute the philosophers where their views conflicted with revelation (*al-sharīʿa).* In doing so, they incorporated a substantial amount of philosophical content into their theological discourse (*kalām*) to achieve their goals. Over time, the Muslim theologians became adept at systematically dismantling the philosophers' arguments. Their engagement expanded to encompass large portions of physics and metaphysics and even extended into mathematics – so much so that theology (*kalām*) became nearly indistinguishable from philosophy, except for theology's reliance on authoritative statements derived from revelation (al-Taftāzānī, 1973).

Only a monstrous simplification of the accounts of philosophy, theology and history can claim that all Muslim theology is anti-philosophy and/or against reason, claims that nuanced scholarship has rebutted (Van Ess, 2006). Over the centuries, idealist and realist philosophical perspectives have been integral to

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Muslim thought. However, as time progressed and the intellectual traditions stabilized, it also became vulnerable to internal dogmatic conflicts and external political threats, resulting in a gradual and almost imperceptible shift toward dogmatic idealism.

Two significant scientific questions have been ignored or opposed by modern Muslim theologians. The first question concerns the new narrative of the universe's origin – the Big Bang – which initiated the existence of our universe, including billions of galaxies, billions of years ago. The second question revolves around human origins and evolution. The first question, in a sense, implies the second. However, there is also a third major question that Muslim theologians must confront: the emergence of modern technology, in which the potential of artificial intelligence is today the most challenging. I hope the modest themes I present in the final section will help deepen the theological conversation and spark further discussion.

In Section 1, I focus on some premodern debates that Muslim theologians spawned concerning philosophy, especially the ambivalence and uncertainty it produced in their view. I highlight several important disagreements that primarily centered on interpretation and hermeneutics. In Section 2, I explore the views of select traditional figures from the early twentieth century and how they engaged with the phenomena of natural science, particularly in South Asia. There are some schools of thought that I have not addressed, like the Traditionalist school. Representatives of that school really do not engage modern science but rather bring a metaphysical axe to the conversation on science. It is a conversation stopper that others have addressed (Bigliardi, 2025a; Stenberg, 1996). Finally, in Section 3, I outline themes for reflection that can sustain a broader conversation about contemporary Islamic theology and its interactions with science and technology in late modernity. In the late modern or postmodern world, technology itself drives scientific inquiry. Clearly, Muslims encounter science daily in myriads of ways. The challenge arises when scientific theories and technology-driven practices confront received Islamic ethical and theological teachings, often resulting in apparent, but in fact superficial, tensions with the new practices. Here, emerging medical technologies and practices – ranging from organ transplantation and genetic engineering to issues in reproductive technologies, tissue economies, and questions of artificial intelligence – bring into visibility unresolved theological ambivalence. This occurs when issues like a complex understanding of the cosmos's beginnings and debates about human origins based on evolutionary science remain unresolved in the theological common sense of Muslim experts and their publics.

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Popular myths surround the story of Islamic theology, philosophy, and science. Both insiders and outsiders contribute to distorting the historical narrative. The most popular version suggests that Islamic civilization once experienced a "golden era" of scientific achievement, after which it declined. It is alleged that -Ghazālī criticized aspects of philosophy, delivering a fatal blow to Muslim philosophical thought from which Islam has never recovered. I refer to this argument as a simplistic "scapegoat historiography," which fails to merit the title of history. Terms like "golden era" are historically unhelpful, but psychologically and politically satisfying for those who use them, as they imply a "rise and fall" narrative with scant detail about when exactly these events occurred and how they are grounded in historical fact. A growing body of literature addresses these complex historical debates, which cannot be fully explored here (Dallal, 2010; El-Rouayheb, 2015; Saliba, 2007). However, some of these spurious claims have served as convenient narratives in the multiple encounters of Muslim-majority as well as minority societies in the colonial and postcolonial periods. Often, the goal is to reinforce the perceived knowledge superiority of the West and the deficits of the rest. Several Muslim intellectuals, both traditional scholars and modern educated individuals too, have uncritically internalized the decline theory as part of their analytical toolkit, trying to explain what has gone wrong in Muslim societies with little to no attention to specifics and history. Every major civilization from Japan, China, India, and in multiple African regions has had to encounter deficits in their structures of thought in comparison to the modern scientific one associated with the West, with some having fared better than others.

Modern Islamic thought – whether traditionalist, modernist, or scripturalist – each fosters a distinct perspective in its engagement with modern science. Each of these positions requires a nuanced analysis. The reception of science in premodern Islamicate societies, with contributions from Jewish, Christian, Buddhist, and Hindu cultures, was often multifaceted and complex. This has given rise to confusion in the present. In my view, three key factors shape current attitudes toward modern science among Muslims, broadly speaking. It would be misleading to label these responses as a "theology," as that would be a disservice to the complexities involved in a serious theology. Often, they are emotive reactions based on an incomplete understanding of both Islamic theology as well as the history and philosophy of science, especially modern science. I discuss these issues under three headings: "encounter with colonialism," "rise of scripturalism," and an "overreliance on the historical Muslim philosophical-theological tradition."

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Encounter with Colonialism

The Muslim encounter with modernity, like other groups in the global south, particularly in the realms of science and medicine, occurred against the backdrop of European imperialism and colonization (Fahmy, 1999). As the Indian thinker Ashis Nandy (b. 1937) noted, "The civilizing mission of colonialism thrived on this folklore of an encounter between Western science and savage superstitions" (Nandy, 1988). Insufficient attention has been paid to the internal cultural conflicts within Muslim societies in East and South Asia, the Near East, and significant parts of Africa. These societies were fragmented, with traditional religious elites split broadly between those resisting European influences on culture and values, and modernizing elites who were willing to embrace European ideas in scientific, social, and humanistic education. There were several intermediate positions also adopted on this spectrum. Additionally, elites were further divided along urban and rural lines. Rural communities often sought refuge in traditional religious cultures and institutions. This sector often provided the religious, social, and cultural leadership across various regions. Urban areas, in contrast, experienced a greater degree of adaptation to European practices, but this was not without contestation.

For over a century, Muslim religious authorities have sought to develop a theology that could address the challenges of modernity. Their aim has been to enhance traditional *kalām*-based paradigms to respond to questions engendered by science that challenge traditional religious beliefs. Influential figures such as Sir Sayyid Aḥmad Khān (d. 1898), Munshī Muḥammad Ẕakāʾullāh (d. 1910), and Shiblī Nuʿmānī (d. 1914) in colonial India; Jamāl al-Dīn al-Afghānī (d. 1897) and Muḥammad ʿAbduh (d. 1905) in British-controlled Egypt; Ḥusayn al-Jisr (d. 1909) in Ottoman-ruled Tripoli (now part of Lebanon), and Muḥammad Reza (Riḍā) Iṣfahānī (d. 1943) (Arjomand, 2020) in Qajar Iran, pursued at least two objectives. First, they aimed to defend Islamic doctrines through innovative theological formulations that in part responded to modern scientific challenges. Second, they earnestly sought to formulate a new theological narrative that would actively engage with the emerging scientific questions of their time, among other social questions, such as social equality and modern politics.

Instead of establishing entirely new theological paradigms, these advocates presented pragmatic arguments to defend their traditions against Western knowledge hegemony. In an age that vanquished metaphysics, the supernatural and God, these advocates directed their efforts to preserve Muslim theological positions regarding the authority of the Prophet Muḥammad, the authenticity of prophetic miracles and revelation. Western social, moral, and technical

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reasoning, threatened both the grounds for religious beliefs and religious authority, forcing Muslim scholars into a defensive posture. Muslim advocates of reform aimed to reinterpret Islamic ethical and moral values in relation to human rights, women's rights and representative governance. Although new theological foundations were implicitly articulated, they were not fully explicated nor integrated as part of a rigorous modern Muslim theology.

While some Muslim reformers recognized the emergence of new Western knowledge systems, they lacked direct familiarity with these frameworks. They adopted certain aspects of Western thought in an ad-hoc manner, relying on translation and pragmatic adaptation. Only those who were properly trained in these new knowledge paradigms had a comprehensive understanding of the science of an evolving world. However, individuals equipped with scientific skills were neither religious authorities nor capable of convincingly transmitting complete cultural paradigms to the Muslim religious leaders they encountered during their time. At the outset, there was a credibility gap between the modern Muslim advocates of science and the theologians, since the former were viewed as insufficiently engaged with Islam as a tradition and in some sense, were deemed to be secular. In addition, dating back to at least the eighteenth century, Muslim political leadership grappled with the challenge of training theologians so that the latter could engage the world with greater complexity.

Translations of vital texts often fell short in conveying the complexities of Western knowledge traditions to the *ʿulamāʾ*. Efforts in Egypt and India to familiarize the *ʿulamāʾ* with emerging knowledge traditions did not achieve their intended outcomes. In hindsight, it is evident that older *kalām*-based knowledge frameworks could not adequately address the questions confronting Muslims. Modern knowledge and philosophical paradigms valorized ever-changing human experiences. Islamic thought was stranded between old and new knowledge paradigms with little overlap between the two. Although not entirely resistant to European scientific practices, the challenge for the *ʿulamāʾ* lay in their inability to access new knowledge in European languages, and they lacked access to adequate translations in native languages. Thus, knowledge of European science was often poorly understood, fueling suspicion, and misunderstanding, which caused division among Muslim thinkers and communities. In other words, elementary scientific propositions were not part of everyone's *common sense*, for the want of a better expression. European science was suspected to be part of a broader cultural and civilizational transformation of the Muslim world that generated resentment in some quarters. Thomas Babington Macaulay (d. 1859) verbalized the notorious posture of making Indians think like Englishmen. Scholars employed by

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European imperial powers studied the Orient and Africa with a mix of curiosity and romanticism, though much of their knowledge served imperial interests, as noted by Palestinian-American scholar and public intellectual Edward Said (d. 2003) as well as others (Said, 1994).

Few recognized that science is a social, cultural, and historical practice. As Mark Johnson (b. 1949) and George Lakoff (b. 1941) observe, "knowledge is always situated, and what counts as knowledge may depend on matters of power and influence" (Lakoff and Johnson, 1999). They argue that it is "simple-minded" to assert that "all science is purely objective, that issues of power and politics never enter into science, that science progresses linearly, and that it can always be trusted." This may surprise readers in the light of the recent COVID-19 global pandemic, but "science" encompasses both the creation of the vaccine and the ethico-political policies involved in managing a pandemic. For instance, epidemiology is a science that proposes certain behaviors and practices during an epidemic and informs public policy decisions. Additionally, one might wish to resist the myth of scientism, which claims that science provides the ultimate means of understanding everything; this diminishes the value of both scientific and humanistic knowledge. We risk significant danger when the cognitive models of science are used as the standard for all forms of thinking and practices, given the complexity of the human psyche and life itself.

For Muslims who embraced Western learning and integrated some of its values into their lives, there was an initial cost for doing so. Their social capital and standing among more traditional fellow believers often declined; they were viewed with suspicion for aligning with a knowledge system that was identified with colonial rule. While some admired their efforts, it took time for the broader community to fully accept their views, particularly in instances when science-based knowledge offered a perspective that differed from an interpretation offered by orthodox proponents of theology, on topics such as the evolution of species. Such tensions remain palpable today. Modern educated individuals also act as cultural brokers of new knowledge, but the credibility of such knowledge agents gets entangled with the politics of neo-imperialist agendas. With Muslim societies divided across a spectrum of positions – from modernizing sectors to diverse traditional ones – contestation prevails. However, some people perceive the traditional sector as a bastion of resistance to anything viewed as foreign, which might come with harmful consequences. As the movement for decoloniality gains momentum – a necessary counter to Eurocentric epistemic framings and perceptions – the internal discourse among Muslims regarding science becomes increasingly intricate. Allegations that science is part of a colonial episteme can often stifle meaningful conversation.

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Rise of Scripturalism

Islamic reform movements in the late nineteenth and early twentieth centuries brought with their rise some advantages, such as a greater religious awareness among laypeople, but they also negatively impacted theological literacy within Muslim societies. The do-it-yourself approach to religious literacy among these reform movements systematically damaged the previous complex theological literacy. I will briefly outline my claim that it was scripturalism that filled the gap in the absence of a complex theology. This shift to self-help religious literacy prevailed among modern educated Muslim audiences. It was a direct outcome of the challenges faced by the religious scholars (*ʿulamāʾ*) to effectively propose a theological literacy that could converse with the new common sense provided by science on everyday issues.

Each revivalist movement, in turn, sought to correct perceived deficiencies in the Muslim intellectual tradition. One thread of traditionalist revivalist *ʿulamāʾ* aimed to rejuvenate this discursive tradition by emphasizing the legacy of the Prophet Muḥammad, returning to the study of prophetic reports (*ḥadīth*, pl. *aḥādīth*), to revive normative practices and values, known as *sunna pl. sunan*, derived from these sources. This approach was intended to counter what some reformers viewed as the detrimental effects of a stringent adherence to the teachings of a particular legal school, which encouraged conformity (*taqlīd*) to a stifling traditionalism and adherence to the strictures of the canonical schools of law (*madhhab* pl. *madhāhib*). These include figures such as Shāh Walīyullāh (d. 1762), Muḥammad b. ʿAli al-Shawkānī (d. 1834) and Jamāl al-Dīn al-Qāsimī (d. 1914), and many others (Dallal, 2018). These reformers also encouraged religious scholars to exercise their interpretative capacity (*ijtihād*) so that they could address contemporary challenges. Other reformers like Sir Sayyid Aḥmad Khān (d. 1898), Muḥammad ʿAbduh (d. 1905), and Rashīd Riḍā (d. 1935) pushed for a stronger focus on the text of the Qurʾān. They discouraged reliance on specific law schools and deemed the older complex theology to be lacking. All teachings, in their view, had to be subordinate to the Qurʾān, including the prophetic norm, *sunna*. Lay Muslims were to engage with the Qurʾān, even in translation, and to follow only those prophetic traditions that aligned with the teachings of the Qurʾān. Ironically, this version of scripturalism was an unprecedented shift in Islamic thought, one that many embraced and celebrated as a liberating moment.

Though aspects of this scripturalism were labeled "fundamentalism," the situation was more nuanced and complex. A once-vibrant discursive tradition developed by generations of religious scholars became stifled because their modern heirs no longer sustained a dynamic knowledge paradigm. The next

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best thing was the reified traditionalism of ʿAbduh and Riḍā in Egypt or the more nuanced traditionalism of Muḥammad al-Ṭāhir bin ʿĀshūr (d. 1973) in Tunisia. The latter proposed the centrality of the purposes of the sharīʿa, *maqāṣid*, as his remedy, but no broadening of theological concepts. Some of these reformist ideas were later adopted by revivalist movements like the Muslim Brotherhood in Egypt and the Jamāt-i Islāmī in Pakistan. They renewed the emphasis on scripture but neglected to equip the faithful with the necessary literacy to interpret the Qurʾān and the Sunna appropriately as provided by tradition. Simplistic and nominal interpretations supplanted more nuanced readings, with proponents mistakenly believing they were offering "corrections" to the perceived shortcomings of the historical tradition.

Few acknowledged – except perhaps Muḥammad ʿAbduh in Cairo, Ḥusayn al-Jisr in Ottoman-ruled Tripoli, and ʿAbdulbārī Farangī Maḥallī in colonial India based in Lucknow – that the once dynamic intellectual tradition of Islamic thought was being stifled in its engagement with emerging knowledge. Hardly any notable institutions dedicated to training the *ʿulamāʾ* could provide them with a modicum of literacy in the emerging sciences of cosmology, physics, and human biology, and explore a metaphysics consonant with the world in which modern Muslims lived. Resistance to colonialism significantly contributed to the disconnect with emerging knowledge, as European intellectual achievements were often met with skepticism by religiously trained scholars. In Egypt, Dār al-ʿUlūm was established in 1872 to educate the *ʿulamāʾ* in these new emerging knowledge paradigms and was where ʿAbduh occasionally taught. Yet, this institution failed to provide religious scholars with a comprehensive set of knowledge resources to imbricate traditional and modern learning in a productive manner to deal with the challenges of the modern world. This failure gave rise to a constellation of pathologies that within a century emerged as surrogates for tradition, some of which are discussed in the next section.

Qurʾān as a Fount of Guidance and Wisdom, Not as a Source for Scientism

One surrogate for tradition was the assertion that the Muslim scripture contained all the answers to humanity's questions. This attitude gained unprecedented prominence and even persists into the present among segments of both lay and educated Muslim publics. As science was seen as the catalyst for Europe and the West's transformation into vastly powerful imperial powers, Muslim authors in response increasingly claimed that the Qurʾān was the source of all answers and possibilities. This perspective is most likely unprecedented in Muslim intellectual history. Historically, Muslims regarded their scripture and

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the teachings of their Prophet as a wellspring of wisdom that encouraged the human exploration of both the world and the self – both sources of infinite complexity, but not as ready-made surrogates to real-life challenges. Sources of instruction were always accompanied by complex contextual thinking and application.

For centuries, Muslims found moral guidance in the Qurʾān and the Prophet's teachings. The Qurʾān was hardly treated as a "fact-book" intended to provide specific answers in areas where human responsibility and ingenuity were necessary. Historically, Muslims understood a prophetic tradition stating that the Qurʾān is a book "whose wonders are inexhaustible" (al-ʿAlwānī, 1429/2008). Knowledgeable scholars and practitioners viewed these "wonders" as profound moral insights into God's majesty and the obligation to obey Him and His messengers for salvation. The Qurʾān did not claim to provide horticultural or medical advice. Even when it hinted that honey might possess healing properties, no exegete suggested it as a cure for every ailment or as a sign to shutter all research in medicine (see Moosa, 2020).

With the rise of scientific prestige, some enthusiastic commentators superficially linked scientific phenomena to Qurʾānic verses. Numerous passages invite reflection on the creator and the "book of creation." Some, like the Egyptian Shaykh Ṭanṭāwī Jawharī (d. 1940), used Qurʾānic exegesis to encourage Muslims to study modern science (Daneshgar, 2015). Encouraging Muslims to study science is commendable; yet to mine the Qurʾān for scientific propositions is to profane its true purpose.

While some viewed this move positively, in my view Jawharī and others, in their well-intentioned efforts, ventured too far in "filling in" the perceived gaps in the revealed text with scientific realities. Jawharī and his acolytes did not consider what role these revealed texts played in the historical tradition with respect to its earliest audiences. Instead, they hastily employed these texts for contemporary purposes, a practice called instrumentalism. This approach fostered eisegesis – reading one's ideas into the text – and then hastily framed that reading as a theology of the Qurʾān's "scientific inimitability." Historically, Muslims upheld the doctrine of the Qurʾān's rhetorical inimitability, emphasizing the unmatched literary beauty of the Arabic language as a hallmark of divine revelation. However, figures like Jawharī brought a tide of scientism to bear upon the Qurʾān, diminishing the revelation into little more than a vessel for scientific truths. Instead of serious theologians rejecting this misguided trend, many acclaimed it as a model of "scientific exegesis" *al-tafsīr al-ʿilmī* (Daneshgar, 2015) with flourishing levels of incoherence (Habibullah et al., 2025).

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Inimitability was now attributed to the content of the Qurʾān, suggesting it was omniscient and capable of predicting all future scientific discoveries some 1,400 years ago. With a scripturalist mindset, the Qurʾān must answer every question ranging from the feasibility of developments such as the moon-landing to heart transplantation. Neglected was the invitation to deep-thinking as enjoined: "Soon we will show them Our signs – on the far horizons and within themselves" (Q 41:53). The term "far horizons" is an invitation to humans to exert effort in contemplating life's complexities and mysteries. In antiquity, this invitation was to *study* both celestial and imperishable things as well as terrestrial and perishable things. This was known as the study of celestial and terrestrial physics (Duhem, 1969). Yet, Jawharī and his followers mistakenly implied that these mysteries were already embedded or resolved in the revelation, leading Muslims to seek scientific validation within the Qurʾān. Absurdly, this validated a form of theological scientism, in other words, a scientism validated by theology.

To avoid unfairness toward Jawharī, it is best to cite his own words. He wrote that he "combined the verses of the Qurʾān with cosmic wonders, making them concordant with the wonders of design and creation (*liʿajāʾib al-ṣunʿwa ḥukm al-khalq*)" (Jawharī, 1351/1933). He claimed that only 150 verses of the Qurʾān explicitly addressed legal rules, suggesting that a few verses received disproportionate attention in Islamic law compared to the more than 750 verses related to "science," which he believed should have been subject to greater exegetical inquiry (Jawharī, 1351/1933).

Jawharī based his exegetical approach on a fragment of a verse: "And we transmitted this divine writ to you [Muḥammad], step by step, to clarify (*tibyān*^{an}) everything . . . " (Q 16:89) (Jawharī, 1351/1933). This general trope implies that the Qurʾān offers insights across various *fields of human experience*; however, it does not indicate exhaustive scientific knowledge (al-Suyūṭī, 1411/1991). What I deem to be Jawharī's blend of pseudoscience and Qurʾānic exegesis, was to his mind, the *summum bonum* – the highest good. He referred to his commentary as "a divine breath, a holy omen, a symbolic glad tiding" that he pursued through inspiration (*ilhām*) (Jawharī, 1351/1933). Conveniently overlooked is a cardinal rule of Qurʾānic exegesis: the importance of context.

Upon examining the context of the verse Jawharī so frequently invoked "to clarify (*tibyān*^{an}) everything," it becomes evident that it pertains to polemics against polytheists. It discusses how the idols will testify against the polytheists on the day of judgment. It warns those who obstruct others from God's path that they will incur divine wrath. Ultimately, believers are encouraged to bear witness to God in this world, with the promise of salvation on judgment day for those who upheld their covenant. The omitted portion in Jawharī's exegesis

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describes the revelation as sent "to provide guidance, grace, and glad tidings unto all those who surrendered to God." The Qurʾān serves as a clarification concerning human salvation within the context of providing "guidance" and instilling "godliness." Unfortunately, Jawharī misappropriated the fragment to suggest that the revelation possesses comprehensive knowledge of worldly matters, especially "science" – a modern concept that was unknown to humanity at the time of the Qurʾān. Such a claim is unprecedented in Muslim exegesis. While a verse or fragment can be invoked for general edification, a normative argument requires stringent epistemic grounds.

The polymath and exegete Fakhr al-Dīn al-Rāzī (d. 1210) offered a pertinent interpretation of the verse Jawharī upheld as his foundation. Rāzī explained that the passage about transmitting the divine writ is closely tied to the context of witness-bearing. Some people, he said, erroneously interpreted this to mean that the Qurʾān explains all things. Rāzī clarified that knowledge was divided into categories related to salvation and deliverance (*dīnī*) and non-salvific matters. He elaborated: "Knowledge unrelated to salvation has no connection to this verse. It is well established that God, the Sublime, extolled the Qurʾān to consist of knowledge pertinent to salvation (*ʿulūm al-dīn*). Knowledge unrelated to salvation receives no attention" (al-Rāzī, 1401/1981). Rāzī further explained that knowledge of salvation encompasses both fundamental principles and secondary interpretive rules. All foundational principles derived from the clear passages of the Qurʾān. Following the classical exegetical tradition, topics related to science clearly do not pertain to matters of salvation. Deriving scientific interpretations from the Qurʾān reduces exegesis to subjective and simplistic commentary. It subordinates the richness of the Qurʾānic hermeneutical tradition to scientism's one-dimensional framework.

Traditional Theological Approaches to Science

A few bold traditional scholars in the modern period cautioned about the dangers and risks to theology when the Qurʾānic text is deployed to justify the validity of modern science. Ḥusayn al-Jisr, along with Indian traditionalist scholars such as Anwar Shāh Kashmīrī (d. 1933), Ashrafʿ Alī Thānvī (d. 1943), and his student Qārī Muḥammad Ṭayyab (d. 1983), questioned this approach. They argued that it was misguided to seek scientific explanations for natural and observable phenomena mentioned in the Qurʾān. Instead, these Qurʾānic descriptions should be seen as evidence of God's majesty and craftsmanship, prompting reflection on the glory of the Creator. Nevertheless, as will be seen, some of these same authors did proffer Qurʾānic exegesis to contest some scientific observations.

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Islamdom has a rich and proud history in which philosophy, astronomy, alchemy, and astrology were widely practiced and supported without recourse to Qurʾānic or prophetic justification. The few disagreements some theologians had with philosophical ideas regarding theological dogma have been overstated. The decline of complex theological literacy not only accelerated the move toward scripturalism but also pointed to an overreliance on outdated theological models, which contributed to the erosion of the authority of theology.

Overreliance on the Historical Muslim Philosophical-Theological Tradition

Muslim theological responses to modern science are, in part, hindered by how some scholars and representatives view the historical success of Islamic theology, known as *ʿilm al-kalām*. Historically, Muslims developed a rich philosophical and theological tradition to explain the nature of God and the constitution of the world. These theological discourses were rooted in a blend of Aristotelian, Platonic, and neo-Platonic cosmologies and philosophies, which persisted for centuries. Although ancient Muslim thinkers recognized the world as "spherical" (*al-kura*), they also largely adopted the widely held geocentric view of the cosmos that prevailed for millennia (al-Ghazālī, 1997). The strength of this theological tradition contributed to the creation of a vibrant and diverse Muslim civilization across continents and eras, which, in turn, stabilized theological discourse.

However, with the emergence of a new understanding of the cosmos and different understandings of the self and other societal developments, many assumptions from ancient cosmologies and philosophies have become untenable. To some extent, even Muslim ethical thought was influenced by these older philosophical perspectives, particularly in terms of hierarchy and social conceptions related to the "self," the "other," and gender differences. As cosmological thinking evolved, aspects of the traditional Muslim theological framework faced challenges from new scientific realities that shaped lived experiences.

Muslim theology's engagement with modernity has been constrained by its entanglement with Western imperialism and theology's insufficient theoretical examination of modern science. As a result, both science and theology have become fragmented and contentious fields, among traditional *ʿulamāʾ*, with a few exceptions. The rather flawed prevailing attitude among traditionalists has been to adhere to the claim that the inherited traditional Muslim theological model sufficed as a paradigm to address modern questions. This includes the challenge posed by science, even though many traditional theologians do not

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receive a robust education in either philosophy, science, or, for that matter, a rigorous exposure to contemporary theological questions in their training.

Science as a Challenge to Inherited Theology

In the late nineteenth and early twentieth centuries, many Muslim Sunnī and Shīʿa theologians were confident that the theological paradigms they had inherited from Muslim antiquity and refined over the centuries would adequately address the challenges posed by modern science. What were these challenges? Secularly educated Muslims began to question certain doctrines within their inherited faith tradition. Traditional Muslim scholars labeled these inquiries from secular Muslims as challenges produced by "doubts and skepticism" (*shubuhāt*) about existing dogmas (*ʿaqāʾid*) prompted by science. They feared that such doubt-inducing new ideas could undermine the faith of the modern educated individual. For instance, modern Muslims influenced by scientific thought began to question the heavenly ascension (*miʿrāj*) of the Prophet Muḥammad and the existence of the *jinn* – a category of creation hidden from human sight. Some Muslims also demanded answers grounded in empirical evidence to queries such as the exact location of paradise and hell when contemplating the concepts of eternal bliss and torment (Bijnawrī and Thānvī, 2002). Of course, the language of theology is altogether different from empiricism. Yet, it is undeniable that as scientific reason eroded faith claims, free thought and moral laxity spread in some Muslim societies. Numerous authors, rightly or wrongly, blamed science education for Muslim lifestyle changes and lamented their detachment from Islamic teachings. This climate discouraged many *ʿulamāʾ* and laypeople from supporting modern education. Significant debates regarding the well-being of Muslim societies centered on new knowledge in health practices, economics, and politics, all became entangled in the colonial divide between indigenous knowledge and externally imposed ideas. While practical science education improved significantly, the philosophical and theological challenges for many Muslims remained unresolved.

One example from colonial India during the 1840s should suffice to exemplify this trend. An English Anglican priest and missionary, Charles Freer Andrews (d. 1940), described the significant turmoil and opposition in Delhi stemming from Muslim children learning English in the modern colonial schooling system. Many Muslims anticipated that such exposure would lead them to the adoption of Christian lifestyles. Such fears were vindicated when Muslims influenced by English culture "broke through old restraints and customs, demanding a life less bound by formal acts of prayer and worship

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compared to conventional orthodox religion" (Andrews et al., 2003). The behavior of modern educated Muslims confirmed the worst fears harbored by the *ʿulamāʾ* that European education would have a detrimental effect on the faith commitments of ordinary Muslims.

Muslims educated in scientific realism often struggle to understand aspects of inherited dogmatic theology, for they perceive these as incompatible with empirical evidence. The reaction of modern educated Muslims toward *ʿulamāʾ* interpretations of theology is understandable, their unfamiliarity with the history of thought notwithstanding. Orthodox *ʿulamāʾ* claims that Muslim theology fulfills both the demands of reason and revelation may rhetorically sound appealing, but this rhetoric ultimately fails to deliver. Moreover, the orthodox *ʿulamāʾ* are unaware that their concept of "reason" differs significantly from contemporary notions of rationality, which occurred alongside a fundamental shift in scientific paradigms. While traditional theology, rooted in Plato's idealism, acknowledged the objectivity of sense perception, it also extended this claim to the objectivity of rational knowledge (Ṣadr, 1987). Traditional theology claimed that rational knowledge was superior to empirical knowledge. Such theological propositions primarily relied on certain conceptions of existence and reality, ranging from mental existence or reality (*al-wujūd al-dhihnī*) to originated reality (*muḥdath*). Existence is then further divided into several typologies, such as self-evident conceptions of existence, indirectly acquired existence that is knowable, and indirectly acquired existence that is not conceptual (al-Aḥmadnagrī, 1405/1985–1407/1986). Our modern scientific and philosophical conceptions of reality differ vastly from these typologies. Attempts to address scientific questions or, to counter scientific claims, using premodern theological frameworks, which rest on different ontological and epistemological assumptions, are likely to be unproductive and, at worst, incoherent. The gap between older theological paradigms and newer scientific worldviews might at times be insurmountable. A more contemporary theology might require new ways of bridge-building and reconciliation with the goal of forging a new and emerging theological paradigm that is consonant to the needs of scientifically literate Muslim audiences.

In the landscape of twentieth-century Muslim thought, it is uncommon to find a traditional Muslim scholar with the intellectual depth, caliber, and curiosity of Muḥammad Qiyām al-Dīn ʿAbdulbārī Farangī Maḥallī (d. 1926). He hailed from the esteemed Anṣārī family in Lucknow, India. His ancestors were pioneers of traditional Islamic education in eighteenth-century Mughal India and continued this legacy through the colonial era at a seminary known as Farangī Maḥall. ʿAbdulbārī intended to produce several volumes on *Science and Kalām*, yet only one volume was published (Farangī Maḥallī, 1323/1906,

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for further details on the Farangī Maḥallī school, see Moosa, 2015). ʿAbdulbārī stands out among his contemporaries among the *ʿulamāʾ* given his expertise in traditional rational sciences such as logic, philosophy, and theology, as well as his self-taught grasp of the scientific and cultural debates brought to India via British colonialism. Over his forty-eight-year life, he initially dedicated himself to traditional teaching and scholarship. However, in the last two decades of his life, he gained prominence for his political advocacy.

What distinguished him – and perhaps Ḥusayn al-Jisr and Ibn ʿĀshūr – from among other traditionalist scholars was their curious attitude and their somewhat grasping, yet perceptive awareness, of the emerging scientific episteme. Their stance reflected genuine curiosity and receptiveness, though their limited scientific background and the fraught politics of colonial knowledge production inevitably shaped how they encountered and interpreted new ideas. Although ʿAbdulbārī was not an Anglophile since he was also deeply committed to India's liberation from British rule, he was willing to engage the European scientific tradition notwithstanding its sociopolitical and cultural implications. This willingness to explore and understand science, rather than outright reject it without justification, set him – and possibly Jisr – apart from their more traditionalist *ʿulamāʾ* peers.

"Philosophy and sagacity (*falsafa va ḥikmat*) (al-Tahānawī, 1996) create a profound challenge in the imagination (*quwwat-i khiyālīya*) that transforms previously held ideas, causing their earlier qualities to fade," wrote ʿAbdulbārī in 1906 (see al-Suhrawardī and ʿUthmān, 1434/2013 for a detailed note on the many permutations of the word *ḥikmat* in the various schools of Muslim philosophy. Hence, the best meaning that makes sense is to say it signifies metaphysics and first principles of reality.) "These changes affect all types of ideas, whether religious or secular, political or cultural, ethical or customary. It is difficult to determine whether this transformation is beneficial, just as one cannot definitively claim that such mental confusion is harmful. However, those who adhere to traditional views certainly resist such changes" (Farangī Maḥallī, 1323/1906).

It is indeed rare to find such a balanced and candid assessment from someone of ʿAbdulbārī's caliber. He rejected the claims made by traditional scholars who believed that philosophy and rational thought could lead to social deviance and atheism, arguing instead that other factors might be at play.

After the Indian revolt against British rule in 1857, ʿAbdulbārī observed that this incident and its violent aftermath led Muslim religious scholars and leaders to adopt a rigid stance against the British, exacerbating the divide between the colonizer and the colonized (Farangī Maḥallī, 1323/1906). This animosity hindered socialization and transculturation to such an extent that "even the

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slightest resemblance to Europeans was labeled as unbelief and subversive" (Farangī Maḥallī, 1323/1906). He noted that acquiring European knowledge and modern philosophy books was, in the eyes of some *ʿulamāʾ*, deemed to be a grave sin, and incorporating this foreign learning into schools and lecture halls was seen as virtually abandoning the Islamic faith (Farangī Maḥallī, 1323/1906). Over time, he argued, the *ʿulamāʾs* oppositional posture led to numerous calamities and a decline in their political and social standing.

Considering this dire situation, ʿAbdulbārī noted that a small group of Muslims recognized the destructive consequences of the *ʿulamāʾs* attitude for the Muslim community. They chose to distance themselves from these influential religious leaders, opting to socialize more like Europeans and to ignore the authority of the *ʿulamāʾ*. He detailed the deepening hostilities and alienation between modern educated Muslims and the *ʿulamāʾ*, leading to irreconcilable differences. The modern group of Muslims cited the authority of the Qurʾān and prophetic reports (*ḥadīth* pl. *aḥādīth*) to counter the *ʿulamāʾs* interpretations, even as they remained largely unaware of the sophisticated and complex interpretative traditions of Islamic sources. ʿAbdulbārī lamented that this self-taught approach to Islam only further alienated modern educated Muslims from the broader Muslim public, marking a definitive split between orthodox and modern perspectives.

However, the fate of Indian Muslims began to change, as many soon recognized that the path taken by modern Muslims represented the future of a modernizing and secular India. ʿAbdulbārī concluded from his investigations that scientific education, though it bred some doubt, proved to be far less corrosive to faith than the doubts generated by the study of ancient philosophy. Modern education did have negative effects on the psyche of individuals who were exposed to such learning, he conceded. Nevertheless, he remained convinced that science was essential "for the advancement of the country and serves as a skill-related tool for technology, innovation, and craft, without which India cannot progress" (Farangī Maḥallī, 1323/1906).

Another knowledgeable figure, Munshī Muḥammad Ẕakāʾullāh (d. 1910), educated at the Old Delhi College and steeped in Persian learning, was recognized for his mathematical genius and extensive research, including knowledge of English. He fostered an ecumenical and humanistic spirit, often distancing himself from his contemporaries (Hasan, 2006). Among his many writings, Ẕakāʾullāh produced several tracts addressing the relationship between science and the Muslim faith tradition and its doctrines (Ẕakāʾullāh, 1901 The Conflict and Concord of Religion and Science, Ẕakāʾullāh, 1900 Appraisals of Arabic-Eastern Natural Philosophy). He was widely read, and evidence points to the possibility that he might have engaged with the work of John William Draper

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(d. 1882), particularly his influential 1874 book, *The History of the Conflict Between Religion and Science.* This book globally resonated in learned Muslim circles during the nineteenth and early twentieth centuries since it favorably judged Islam's attitude toward science in historical perspective. Z̲akāʾullāh echoed Draper's now-questionable criticisms of Christendom, St. Augustine, and the ancient myths predating Greek religion and philosophy in several places.

Today, some Muslim theologians in multiple regions of the world may not view science education as antithetical to their moral formation and religious practice, but large segments among them are unable to relate to the cognitive claims of science through the lens of their existing theology. However, for over a century, Muslim theological leaders have struggled to grasp significant developments in science, such as biological evolution (Guessoum, 2016). Sadly, the cognitive incoherence and lack of clarity in theological discourses have grown more acute (al-Attas, 2023; Ali, 2023; Bigliardi, 2025b). Contemporary Muslim thinkers, philosophers, and theologians face the challenge of articulating coherent theological reflection considering our current understanding of cosmology and human origins. Modern scientific consensus accepts the Big Bang, which occurred 13.8 billion years ago and laid the groundwork for the creation of matter, energy, time, and space. Theological models or discourses do not have to mirror or be picture-perfect models of reality. Yet, there is a need for theology to disclose the realities of God, grasp the meaning of humanity, and the world as we experience it with some level of cognitive adequacy, which I call a theological common sense that summons a sensibility of lived reality. Some theological discourses in other faith traditions have focused on the origin and development of life on Earth, which began 3.8 billion years ago. Contemporary Muslim theology in these matters is often silent, indifferent, at times outright rejectionist, and in doing so, it renders theology inadequate.

The following sections aim to briefly outline a storyline of Muslim theology in its engagement with premodern natural philosophy (Section 1), followed by an exploration of how traditional religious scholars encountered modern science in the late nineteenth and twentieth centuries (Section 2). Finally, I propose conversation points for a contemporary Muslim theology, emphasizing how theological discussions can be mediated and disclosed in their interaction with science (Section 3).

1 Sketch of Antique Muslim Dialectical Theology (*ʿilm al-kalām*) and Natural Philosophy

The use of the term "theology" in Muslim thought and practice warrants clarification. Today, Muslims use the term in a broad sense like its usage in

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modern Jewish and Christian contexts, as to how faith seeks understanding and articulates religious belief in a secular world. In Christianity, theology has developed into various subfields and specialties, while in Judaism and Islam, theology is less specialized. Judaism and Islam have a greater focus on ethical and legal reflections, but both are increasingly drawn to articulate their positions in a theological language in conversation with Christianity and secularism.

Yet, a more systematic theology is not an unknown discipline to Islamic thought. Historically, Muslims engaged in a discipline known as "dialectical theology," or *ʿilm al-kalām*. Muslim theologians primarily defined the scope of this field of study as the examination of "the most general of things, namely, reality or existence (*mawjūd*)" (al-Ghazālī, 1417/1997, Shahrastānī, 1402/1982). This definition, attributed to the polymath Abū Ḥāmid al-Ghazālī, reveals that by his time, theology was already closely intertwined with metaphysics, particularly the concept of existence. While medieval Muslim theology affirmed the notion of "existence," discussions about the known reality often validated Islamic doctrines (al-Taftāzānī, 1440/2020). Key topics included the eternal nature of the Creator, the indivisible oneness of God, divine power, the operation of the divine will in the world, as well as the existence of bodies in the temporal realm and in their composite natures. My use of the term theology will draw on the old systematic genre of *kalām*, but my goal is to translate some of those concepts into a narrative theology on Muslim encounters with modern science.

Kalām theology was all-encompassing at times. Discrete sectarian doctrines were intensely debated, leading to justifications for various catechisms, beliefs, and doctrines. These doctrines shaped Muslims' understanding of foundational scriptural teachings, such as the Qurʾān and the authority of prophetic teachings, each carrying implications for individuals and communities. Historically, these discussions centered on formulating, justifying, and defining correct beliefs. Different groups of Muslims aligned themselves with specific interpretations. A prominent debate revolved around the legitimacy of succession after the Prophet Muḥammad. Should leadership be inherited by his family, or should successors be nominated and elected by the community? Another significant debate concerned the nature of divine speech: Was the Qurʾān, as divine speech, created, or did it possess an uncreated and eternal essence? Additionally, questions arose regarding human free will versus determinism. Each of these issues sparked extensive debates, with different groups of Muslims taking sides on each issue. The methods and styles of these ancient theological discussions continue to resonate among some Muslim authorities, where *kalām*-style debates are still nurtured and studied (see Wielandt, 2016).

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A modern Islamic theology, responsive to the conditions of a secular age, ought to offer a framework through which persons of faith engage with contemporary questions that challenge, complicate, or reject religion-based claims. It should not be a surrender to the power of modernity, but rather an articulation of faith claims in an unprecedented environment. Such a proposed theology draws upon the deep resources of the Islamic tradition – not merely to defend inherited beliefs, but to reformulate and articulate them anew in the light of lived realities and intellectual complexities. Such a theology invites Muslims into a discourse that sustains both critical reflection and spiritual curiosity, holding together the nearness of God in the world (immanence) with the majesty of God beyond it (transcendence). In doing so, it seeks to orient the self meaningfully in a fragmented world, enabling faithful participation in its social, ethical, and existential dimensions.

The Metaphysical Foundations of Ghazālī's Thought: Grasping Existence in the Premodern World

Understanding how premodern Muslim theologians thought about existence is an important starting point. In this discussion, I will focus on the medieval thinker Ghazālī and his reflections on what it means for something to exist. Influenced by earlier philosophers like Aristotle (384–322 BCE) and the Muslim philosopher Ibn Sīnā (d. 1037), Ghazālī argued for the necessity of a single eternal being as the foundation of all reality.

Aristotle and Ibn Sīnā treated theoretical philosophy as a broad field, which included subjects like mathematics, physics, and theology (Aristotle, 2001). Ghazālī adopted, engaged and drew on their ideas in his own work – even as he sometimes critiqued their conclusions. His reflections show how Muslim theologians used inherited philosophical concepts to explore questions of faith, reason, and the nature of existence.

Theologians like Ghazālī anchored their inquiries in the mystery of being itself – the ontological question that haunts all serious philosophical endeavors. Theologians wove their insights into vast metaphysical tapestries where each thread connected to the whole. Aristotle had named his "first philosophy" as "theology," a discipline devoted to contemplating eternal, unchanging reality (Aristotle, 2001). For Aristotle, such knowledge stood as the cornerstone of all understanding, universal in its scope and application. Following this tradition, Ghazālī too, inheriting Ibn Sīnā's intellectual legacy, conceived of speculative philosophy – what scholars in the Islamic tradition termed *al-ʿilm al-ilāhī* (metaphysics) or *al-falsafa -tʾl-ūlā* (first philosophy) – as a profound investigation into the fundamental nature of existence itself (Aristotle, 2001; al-Ghazālī and Mazīdī, 2003).

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For Ghazālī, theology (*kalām*) had one supreme task: to discern what is truly real, to recognize God as the very ground from which all being springs. He elevated theology as the only authentic "universal science (*al-ʿilm al-kullī*)," distinct from all other sciences that merely explored, limited domains of knowledge. In this vision, Ghazālī dissolved the boundaries between the theologian and the metaphysician; both pilgrims journeyed toward the same destination of grasping existence and being. As he elegantly formulated it: "The theologian is the one who investigates the most universal of things – existence itself" (al-Ghazālī, 1413/1993a).

Ghazālī's theological architecture – particularly his conception of being – deserves our close attention. He carefully distinguishes between two realms of knowledge: the rational (*ʿaqlīya*) and the authoritative (*dīnīya*), the latter of which is illuminated by revelation and prophecy and is essential to obedience and salvation. While he insists on the necessary balance between these two modes of knowing, he understands reason itself as something shaped and refined through experience. For Ghazālī, reason is not reduced entirely to a static endowment or an innate capacity; rather, it flourishes through practice, ethical discipline, and mystical insight. This nuanced position enables him to interweave theology with multiple forms of knowing, creating bridges between philosophical reasoning, moral formation, and spiritual experience. Such an intricate epistemological tapestry might perplex positivist historians of science, but serious historians and sociologists of science do recognize the complex ways individuals and societies have always made sense of their worlds (see for more complex accounts of the sociology and history of science (Duhem, 1969, 1985; Harding, 2015)).

In Ghazālī's treatment of first philosophy, or theology (*kalām*), lies a subtle yet significant tension – particularly his conception of knowledge and its foundations. He draws a crucial distinction between two levels of certainty: knowledge established by categorical (*qaṭʿī*) standards, and knowledge resting on probable (*ẓannī*) standards. The former represents a higher degree of epistemic certainty, compared to the latter, yet both are enmeshed in Islamic thought. Ghazālī places *kalām* firmly in the domain of categorical knowledge, arguing that its principles emerge from pure reason. He characterizes it as exclusively rational (*al-ʿaqliyāt al-maḥḍa*), suggesting that its truths can be discovered independently of revelation (al-Ghazālī, 1413/1993a). In his own crystalline formulation: "The definition of purely theological-rational knowledge is this: the investigator can correctly grasp the reality of a thing by the judgment of reason (*bi naẓar al-ʿaql*) before the arrival of revelation (*qabla wurūd al-sharʿ*)" (al-Ghazālī, 1413/1993a).

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This raises an important question: Which truths does Ghazālī believe can be known through reason alone? He identified several core concepts as accessible by human intellect – for example, the idea that the world has a beginning in time (*ḥudūth al-ʿālam*) and the rational proof for the existence of its Creator (*ithbāt al-muḥdith*). In his very early writings, Ghazālī listed the purpose of *kalām* as only two: to comprehend the origination of the world and its need for a creator. In later writings, the purpose and goals of *kalām* expanded (see al-Ghazālī and Hītū (ed), 1419/1998). Ghazālī argued that reason alone, without revelation, is sufficient to grasp certain essential attributes of God. It enables a person to discern which qualities can and cannot be rightly ascribed to the Divine. He also maintained that reason can lead to further theological insights, such as recognizing that God wills the existence of the created world (*irādat al-kāʾināt*) and is the source of all human actions (*khalq al-aʿmāl*) (al-Ghazālī, 1413/1993a). Ghazālī's claim that reason alone can lead to a broad range of theological conclusions – even before the arrival of revelation – raises important questions and exposes a potential point of tension in his thought.

For, if reason concludes that God is the Originator of the world, then it does not necessarily follow that there is a single rational account of *how* such origination takes place. Other theologians, such as the jurist-theologian, Nuʿmān b. Thābit (d. 767), better known as Abū Ḥanīfa, have argued that simply affirming the existence of a Creator is sufficient, without requiring further rational demonstration of *how* the Creator specifically acts in the world for the purpose of dogma. Ibn Rushd (d. 1198), the Latin Averroës, also highlighted this issue, noting that classical scholars – especially figures like Ibn Sīnā and the Ashʿarite theologians – disagreed sharply over the very concept of temporal origination (*ḥudūth*). If reason is truly the only guide in these metaphysical matters, then competing accounts of how the world begins and unfolds must also then be rationally viable. Unfortunately, Muslim theologians, especially the Muʿtazilites and Ashʿarites, in their polemical feuds, boxed themselves into certain dogmatic corners from which they and their later followers could hardly extricate themselves. And their contemporary followers do lack the courage to question both those ancient positions. Why? Because each creedal theological position came affixed with a sharp theological tool to excommunicate anyone who held a position that dissented from their alleged orthodox position.

Ghazālī contended that reason alone can yield only *one* correct answer to metaphysical issues, deeming any incorrect conclusion to be wrong and sinful. He insisted that serious theologians must investigate "the most general of things, namely, reality or existence (*mawjūd*)" (al-Ghazālī, 1417/1997; Shahrastānī, 1402/1982). While he acknowledges mental and subjective

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categories, he is also open to exploring the empirical aspects of existence. Metaphysics – the abstract domain that shapes our understanding – demands considerable contemplation of "the causes of being in its totality" (al-Ghazālī and Mazīdī, 2003). German philosopher and leading member of the Frankfurt School Theodor Adorno (d. 1969) put it succinctly: that metaphysics is a "back-world" of the truly real, permanent, unchanging world of essences, the quintessence of the philosophical theory behind the world we can know, a realm beyond experience, a science of the transcendental (Adorno and Tiedemann, 2000). To grasp existence, one must grapple with this metaphysical framework. Human thought operates on the premise that where there is smoke, there is fire. Ghazālī would agree that understanding "a cause and its effect" and analyzing the "singular cause, the necessary existent (*wājib al-wujūd*)," identified as God, is crucial to believers (al-Ghazālī and Mazīdī, 2003). Additionally, it is essential to interpret the Divine attributes and the relationship between all existing things in relation to the Divine, as well as how creation emanates from God (al-Ghazālī and Mazīdī, 2003).

However, it is unclear how reason, devoid of revelation, can be restricted to a single correct outcome. Ghazālī expects that reason – specifically, reason unaccompanied by revelation – will naturally lead to conclusions that align with Ashʿarite doctrinal beliefs, an expectation that seems unreasonable. If we forget that Ghazālī allows experience to shape reality, including reason itself, his conclusions can seem strange and contradictory. This situation resembles a logical fallacy known as "assuming the conclusion" (*petitio principii*), as it lacks substantial argumentation.

From Ghazālī's perspective, comprehending the nature of the Divine necessitates a comprehensive framework of knowledge. He emphasizes three interrelated fields – physics, mathematics, and metaphysics – as significant. Among these, he argues that mathematics is the least confusing due to its precision, while physics is the most perplexing (al-Ghazālī and Mazīdī, 2003). Modern physicists, particularly those specializing in quantum physics, might concur with this assessment. Yet, Ghazālī regards physics as unstable, as its phenomena are subject to change, unlike the stability he finds in mathematics.

It is crucial to note that medieval metaphysics differs considerably from our modern metaphysical language. Metaphysicians like Ibn Sīnā and theologians like Ghazālī, despite their philosophical differences, shared a common metaphysical vocabulary. They engaged in discussions and debates about the mental or spiritual aspects of ontology while making distinct claims about the material realm (for the various topics on Muslim metaphysics see Shahrastānī, 1402/1982). Ibn Sīnā argued that the world *emanates* from a divine being, viewing it as eternal because it lacks an origin or beginning; however, he also asserted that

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the world's existence requires a cause (al-Āmidī, 1430/2009). For Ibn Sīnā, there exists an Uncaused Cause that initiates a series of causal relationships. Parenthetically, a modern materialist metaphysics deems matter or physical reality as the ultimate ontological ground, a perspective that can hardly be appealing to a religious worldview.

Ghazālī rejected Ibn Sīnā's view on the origin of the world, as it contradicted his beliefs. Doctrinally, the world for Ghazālī is a *created* entity. The belief that the world is a creation shaped his fundamental disagreement with Ibn Sīnā. Ibn Sīnā's philosophical approach assumed that knowledgeable individuals can independently comprehend as well as understand how the world functions. By contrast, Ghazālī emphasized a perspective that connects human autonomy to divine omniscience. And, the primary source of divine omniscience is derived from the teachings provided by prophets.

For Ghazālī, the theologian's role is to persuade audiences by demonstrating how a necessary eternal being can initiate all actions and how the world is a voluntary *creation* of such a being. Both Muslim philosophers and theologians are silent about the details as to *how* the world either emanated from some eternal source or *how* it was created from such a source. And such deliberate ambiguity is productive. For the theologians, a voluntarily created world necessitates a Being who continuously originates (*muḥdith*) things in time, and whose voluntary actions include the ability to commission prophets to humanity (al-Ghazālī, 1413/1993a). And according to Ghazālī's Ashʿarite reasoning, the theologian's work reaches its conclusion when humanity is rationally convinced of the role and place of prophecy. He wrote: "If you grasp this, then know that a theologian begins to contemplate the most fundamental aspect of existence. From there, the theologian gradually descends to the previously mentioned details, laying the groundwork for understanding good conduct or authoritative knowledge (*al-ʿulūm al-dīnīya*) derived from the revealed Book, the Sunna, and the truthfulness of the messenger" (al-Ghazālī, 1417/1997).

Accepting prophetic authority requires a further commitment to a specific understanding of ontology, often expressed symbolically in religious traditions, as well as in Islam. Prophets are essential in revealing the structure of ontology to humanity, making ontology inherently symbolic—namely, represented in patterns or images that are shared across time. Symbols or archetypes such as the Divine Throne, the Divine Chair, and the Preserved Tablet represent the essence of Being in Islam. However, Ghazālī was also concerned with the empirical dimensions of existence as experienced by individuals.

As an Ashʿarī theologian, Ghazālī acknowledges that reason alone may not validate all teachings received from God at a meta level. Reason cannot fully comprehend all matters or provide convincing arguments in their favor, as the

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authority of religious teachings originates from a source beyond the autonomous self. Philosophers refer to this as heteronomy: actions mandated by an external force or authority, such as God, or by a prophet who speaks on behalf of God. Ghazālī argues that reason cannot explain why obedience to God leads to happiness in the hereafter, nor can it clarify why disobedience results in suffering in the afterlife (al-Ghazālī, 1417/1997). Additionally, reason cannot assert why it is impossible to experience happiness or suffering in the afterlife (al-Ghazālī, 1417/1997). However, reason can provide plausible frameworks to explain how obedience and disobedience, adherence or violation of ethical imperatives, can lead to happiness or suffering in the material world.

Beyond the metaphysical questions, at the level of discursive arguments, Ghazālī defines the framework of Muslim knowledge to be a dynamic interplay between intellect and revealed teachings. He emphasizes that obedience to God encompasses both knowledge (*ʿilm*) and practice (*ʿamal*) (al-Ghazālī, 1417/1997). Knowledge cannot be separated from practice; true understanding requires the inner work of the heart. Knowing is a form of practice. The heart occupies a central role among the human organs, functioning as both a vital physical organ and a revered spiritual center (al-Ghazālī, 1421/2001). It shapes human subjectivity, identity, and our understanding of the world. Understanding is linked to the intellect, which Ghazālī describes as the "chariot for commitment to the practices of salvation – *markab al-diyāna*" and the "bearer of the covenant of responsibility – *ḥāmil al-amānā*" (al-Ghazālī, 1417/1997).

Knowledge, in his view, stems from two sources: intellect and revelation (al-Ghazālī, 1421/2001). Some rational knowledge is innate, but anything additional is acquired through learning and experience. Revealed knowledge is imparted through prophets, primarily via scriptures, but more so by the exemplary lives of messengers. People attain this knowledge by observing and following (a mimetic tradition) the authoritative teaching (*taqlīd*), but doing so also requires an intellect for comprehension. Revelation serves as a remedy for the heart and soul and is grounded in a quotient of reason. Ghazālī states: "The intellect cannot entirely dispense with revealed authority (*samʿ*), nor can revealed authority dispense with the intellect. The proponent who relies solely on authoritative teaching (*taqlīd*), while dismissing the intellect is an ignoramus. Conversely, one who solely trusts the intellect, neglecting the illumination of the Qurʾān and the Sunna, is arrogant. Therefore, be cautious not to fall into either extreme; instead, integrate both sources. For intellectual sciences are akin to nutrition, while revealed knowledge serves as medication . . . " (al-Ghazālī, 1421/2001). Ghazālī notes that anything derived from tradition, custom, or habit cannot be processed once internalized, unless it engages reason (al-Ghazālī, 1421/2001). He underscores the importance of

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utilizing multiple resources to understand ourselves and the world. This interdependence between reason, revealed authority, and tradition positions Ghazālī as a valued interlocutor.

Critique of the Philosophers

One of Ghazālī's primary criticisms of the Muslim philosophers is their assertion of the world's past eternity (*qidam*). The doctrine of past eternity also impacted the theological nature of the Qurʾān as unconditioned and "uncreated speech-*qadīm*" as claimed by the Ḥanbalī and Ashʿarī schools. Such a view was opposed to that of the Muʿtazila who viewed it as "created speech-*khalq*" and by doing so averted the implication of past eternity (see Frank, 2005). There are two senses of past eternity, one in relation to time and the other in relation to the divine essence. Ghazālī charges most Muslim philosophers as claiming that the world has never ceased to exist with God. In other words, God's existence and the world's existence are interdependent in terms of essence, to put it in the formulation of the philosophers. The world's past eternity is like the "Creator's priority to the [world exactly as] the priority of the cause to the effect, which is a priority in essence and rank, not in time" (Ghazzālī, 1997). The standard Sunnī doctrine argues that only God is eternal and immaterial, devoid of a beginning or end, and in so doing also defines their sense of "past eternal." The philosophers' perspective goes against the theological claim that only God is considered self-sufficient, uncaused, and necessary. Philosophers think of other elements, such as the world or time, as an "eternal part" or an "everlasting portion" described in Latin as *pars et aeterna* in their explanation of the nature of existence. Offensive to the Ashʿarī theologians is the mere hint of any semblance of co-eternity of the world with God or even some aspect being eternal, even in part.

Ibn Rushd: Defense of the Philosophers

Ibn Rushd argues that the debate over the eternity of the world is largely semantic rather than substantive. Whether one claims the world is past eternal (*qadīm*), or that it came into existence (*muḥdath*), depends primarily on how the argument is framed, he averred (Averroës and Hourani, 1976; Ibn Rushd and al-Jābiri, 2002). According to Ibn Rushd, existing things can be understood along a spectrum with three distinct categories:

1. Created beings – At one end are things brought into existence by something other than themselves, requiring both an efficient cause (an agent) and matter (Averroës, 2008). These exist within time that is already present. All material beings observed through our senses fall into this category, which all Muslim theological schools agree are "originated" (*muḥdath*).

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2. God – At the opposite end is a being that has no origin or cause. This being precedes time itself. All agree that this pre-eternal being (*qadīm*) is God (Ibn Rushd and al-Jābiri, 2002).
3. The world – Between these two above positions of created beings and God lies a third category. This is a being that is not made from a preexisting thing, does not precede time and is brought into existence by an agent. So, something uniquely made within time by an agent is our world, argues Ibn Rushd.

The controversy centers on the third, intermediate category – specifically regarding the nature of time. Muslim theologians, following Plato, maintained that past time is *finite*. Muslim philosophers who followed Aristotle held that past time is *infinite*. This conceptual disagreement over time drives the dispute between theologians (particularly Ghazālī) and the Muslim philosophers.

Both the theological and philosophical traditions agree on two points: time accompanies motion and bodies, and future time is infinite. Their disagreement concerns past time and being. The core question is whether the world more closely resembles the "pre-eternal" or the "originated" aspects when considering the question of time.

Ibn Rushd breaks this deadlock by arguing that "the world is neither truly originated/generated nor truly eternal. Something truly originated is necessarily perishable; what is truly eternal has no cause" (Averroës and Hourani, 1976; Averroës, 2008; Ibn Rushd and al-Jābiri, 2002). The world cannot be fully eternal because the theologians agree it was brought about by God, and it does not precede time. Those who call the world "eternal" do so only because it shares some features with the pre-eternal, from the *perspective of time* in the Aristotelian sense. (Taftāzānī grapples with the same issue of the eternity of time in discussions about divine attributes (al-Taftāzānī, 1973)).

A cursory examination of the Qurʾān clearly suggests that the world is originated. Ibn Rushd argues that the disagreements between the philosophers and theologians are nuanced, rather than radical. Hence, there is no need to level charges of heresy against opposing viewpoints and interpretations. However, Ibn Rushd notes that several Qurʾānic verses imply preexisting elements:

- "He is the One who created the heavens and the earth in six days while His Throne was on water." (Q 11:7) This implies the existence of the throne and water prior to creation, suggesting a notion of eternal time before worldly time.
- "On the day when the earth shall be changed into other than the earth, and the heavens as well." (Q 14:48) This verse asserts the transformation of the earth into another form of existence.

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- "Then He ascended to the heaven, while yet smoke . . . " (Q 41:11). This suggests God created the heavens from something preexisting.

Ibn Rushd challenges Muslim theologians, including Ghazālī, by pointing out that they themselves often interpret physical descriptions in revelation to be figurative. Nothing in the revelation suggests God coexisted with nonexistence (*ʿadam*). Given these multiple interpretations, Ibn Rushd questions how theologians can claim that a consensus exists on interpretations of the revelation when there are often such divergent views. He concludes that the philosophers' views on the world's existence are equally based on interpretations of revelation. Ultimately, in Ibn Rushd's view, theological teachings about natural phenomena – whether from the Qurʾān, prophetic tradition, or theological treatises – cannot be taken at face value but require comprehensive interpretation.

Ghazālī: A Philosophical Reappraisal

Though Ghazālī criticized Muslim philosophers – often with a passion stemming from his theological commitments – to suggest that he was "against philosophy" would be a mistake. This is a mistake that several modern scholars have unfortunately made. Early in his famous work *The Incoherence of the Philosophers*, Ghazālī clearly states that he disagrees with philosophers on just three core doctrinal issues. On everything else, he sees no reason for conflict, but instead reasonable and passionate disagreement (al-Ghazālī, 1997, I have in various places amended Marmura's translation for the purpose of clarity and accuracy).

He does note that philosophers use their mathematical and logical skills to support their claims about reality. With some suspicion he suggests that they might use these impressive skills to intimidate those less educated – though we could say the same about Ghazālī's own sophisticated arguments. What is most important is his admission that when the philosophers' ideas do not clash with fundamental religious principles about God and the teachings of the prophets, then he has no quarrel with them (al-Ghazālī, 1997).

In fact, Ghazālī favoredphilosophy in many areas. He believed that the explanations offered by the philosophers, who also practiced science in their day, on matters ranging from medicine to discussions about lunar or solar eclipses, should not be challenged if they provide solid and convincing evidence. He argued that observable, provable facts should not be subjected to religious scrutiny (see the Introduction by Rana Brentjes and Sonja Brentjes, where it is acknowledged that in many cultures eclipses were viewed as the effects of demonic forces or as actual demonic forces (Brentjes et al., 2024). He sharply criticized religious scholars who reject scientific explanations of

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eclipses, warning: "Whoever tries to dispute such theories, thinking it is their religious duty to do so, actually harms religion instead." "These matters," he explained, "rest on geometric and arithmetic demonstrations that leave no room for doubt" (al-Ghazālī, 1997). These might sound like the words of a modern empiricist and a refreshing example of a theological common sense in tune with astronomy. Ghazālī took verifiable evidence very seriously, insisting that astronomical proofs offered exceptional clarity (al-Ghazālī, 1997). And here he might be suggesting that both the empirical aspects and the metaphysical dimensions might be enmeshed. The problem with this reading of Ghazālī is that he would not concede to the absolute autonomy of empirical phenomena, always giving the final word to the metaphysical dimension.

When scientific evidence conflicts with religious teachings, Ghazālī offered a bold position: If you cannot reconcile the two, truth based on evidence takes priority over literal scripture. Religious scholars who claim that scientific explanations contradict religion not only appear foolish by rejecting expert knowledge, but they also damage the credibility of religion among educated people. "The harm done to religion by those who defend it incorrectly is greater than the harm caused by those who criticize religion with good reason," he wrote, adding that "a rational opponent is better than an ignorant ally" (al-Ghazālī, 1997; al-Ghazālī, 1404/1986; al-Ghazali and Mc Carthy, 1980).

This "ignorant ally" of Islam might feel compelled to reject "every science associated with the philosophers" – mathematics, physics, logic – but Ghazālī warned that only harm can come from such attitudes (al-Ghazālī, 1404/1986; al-Ghazali and Mc Carthy, 1980). While he fully supported using science to study nature, he maintained that nature ultimately answers to God, a position that stems from his metaphysical commitments (al-Ghazālī, 1404/1986; al-Ghazali and Mc Carthy, 1980). Understanding nature through the discourse of science while claiming nature depends on God are not contradictory propositions – both can be true at once, in Ghazālī's view, since they address the same reality from two different perspectives.

There was a tradition-based account that the before-mentioned eclipses were omens marking the birth or death of someone special. The Prophet suggested that witnessing such events was a good time to remember God and pray, as people feared such events signaled the end of the world. Ghazālī felt compelled to address religious scholars who claimed that eclipses happened by God's direct command as moments of divine manifestation (*tajallī*) (al-Ghazālī, 1997). He quickly dismissed such claims as unfounded (al-Ghazālī, 1997).

He then established an important principle for interpretation: when the literal meaning of scripture – whether from the Qurʾān or ḥadīth (prophetic teachings) – conflicts with proven scientific fact, we should interpret (*taʾwīl*) the

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scripture more broadly to find its deeper meaning. "Even if the report was reliable," Ghazālī wrote, "interpreting it more broadly would be easier than dismissing empirical truths that are clearly proven" (al-Ghazālī, 1997; al-Jisr and Naṣṣār, 1433/2021).

Rāzī's Hermeneutical Insights

Fakhr al-Dīn al-Rāzī (d. 1210) stands out as one of the most fecund theological and juristic minds in Islamic intellectual history. His magisterial commentary on the Qurʾān offers profound insights into how Muslims of the late classical (ninth to thirteenth centuries) and early postclassical (post-thirteenth century) periods approached scriptural interpretation. Since some contemporary Muslim theological discourse often centers on textual meaning, Rāzī's reflections provide a valuable historical perspective on exegetical methodology.

Rāzī explored the claim in Qurʾān 2:2 that the scripture offers "guidance" (*hudan*). The fundamental question he poses is epistemological: How can readers interpretively access the meaning of "guidance"? He raised a series of provocative questions that followed from this one. How can the Qurʾān describe itself as "guidance" when it contains numerous "ambiguous" (*mujmal*) and "unclear" (*mutashābih*) verses? Even in understanding the Qurʾān's self-described categories of clear and unclear verses, he argued, the "signifier of reason" (*dalāla-t al-ʿaql*) proves to be indispensable. It is human reason that serves as the primary tool for identifying and distinguishing between "clear" and "unclear" verses.

Since understanding the Qurʾān necessarily involves human interpretive effort to differentiate between various types of verses and their meanings, a critical question emerges: Is Qurʾānic guidance accessible without interpretation? The answer is emphatically in the negative. Since interpretation is indeed necessary, how does this square with the Qurʾān's self-description of it being a self-evident guide? Rāzī's response is nuanced: in the truest sense, the "guidance" mentioned in the Qurʾān is that which human beings infer through intellectual and rational argument. There is no unmediated or unalloyed access to the text itself (al-Rāzī, 1401/1981).

Rāzī's hypothetical interlocutor recalls the counsel given by ʿAlī bin Abī Ṭālib to Ibn ʿAbbās before the latter's diplomatic mission to the rebellious Khawārij faction. ʿAlī's advice was unequivocal: "Do not deploy the Qurʾān in argument with them [the Khawārij]. For surely, it [the Qurʾān] is a doubled-sided guidance [lit. adversary]." If the Qurʾān were truly unambiguous guidance, Rāzī's questioner suggests, then ʿAlī would not have characterized it as rhetorically double-edged – capable of being turned against its user. Rāzī's

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interlocutor continues: "We observe that all Islamic sects employ the Qurʾān as evidence. And we see the Qurʾān contains verses: some explicitly supporting determinism (*jabr*) and others explicitly advocating free will (*qadar*). Reconciling these seemingly contradictory positions is impossible without resorting to severe hermeneutical arbitrariness (*taʿassuf shadīd*). How, then, can the Qurʾān be a guidance?" (al-Rāzī, 1401/1981).

Rāzī's candid response reveals his scholarly depth and critical acumen. After posing multiple rhetorical objections to the Qurʾān's function as guidance, he provides a measured answer: "It is not a precondition for it [the Qurʾān] to serve as 'guidance' that it be deemed 'guidance' in all things. Rather, it is sufficient if it provides guidance in 'some' matters. It may be guidance in presenting revealed rules (*sharāʾiʿ*), or it may be guidance in affirming that which is already contained within the human intellect" (al-Rāzī, 1401/1981).

Anticipating technical objections to his interpretation, especially from those who hold that an unrestricted statement must yield a rule of general application, Rāzī argued that the general signification of a verse can be restricted. The Qurʾānic description of "guidance for those who are God-fearing" (Q 2:2) could be understood to encompass every kind of guidance without limitation. Given divine omniscience, readers might expect the Qurʾān to offer guidance on all matters. However, in Rāzī's view, early Qurʾānic interpreters did not make this assumption. Rāzī challenges the hermeneutical principle that an unrestricted statement has general application. The claim that the Qurʾān offers guidance of every kind is, in his view, among the "strongest arguments" against this principle (al-Rāzī, 1401/1981). Why? Because it simply does not align with reality. The Qurʾān offers guidance on some matters, not on every conceivable thing. The divine author intended the revelation to provide specific forms of guidance. Supporting his position, Rāzī writes: "Indeed, God described the Qurʾān as 'guidance' with no textual qualification. Yet, it is impossible for it to serve as guidance in proving the existence of the Creator, divine attributes, and the veracity of prophecy. Thus, we establish that an unrestricted statement does not necessarily entail general application" (al-Rāzī, 1401/1981).

Rāzī acknowledges that commentators often cite multiple interpretations of a verse, potentially obscuring its meaning. For the Qurʾān to function as "guidance" requires elucidation and clarity. He responds to this concern by noting that while other exegetes might engage in obfuscation, his practice as a commentator is to base interpretations on evidence, applying the most compelling "determining principle" (*tarjīḥ*) among multiple possibilities (al-Rāzī, 1401/1981). Despite this nuanced historical approach by traditionalists in the past, contemporary traditionalist and modernist advocates of Muslim theology continue to connect theological reflection on nature and science

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directly to Qurʾānic imperatives. Guessoum has extensively and adequately critiqued these latter positions (Guessoum, 2011; Guessoum, 2018). Claims by twentieth-century figures like Maurice Bucaille (d. 1988) and Zaghloul el-Naggar (d. 2025) linking scientific discoveries to the Qurʾān have been thoroughly critiqued, yet variations of this scripturalism persist as surrogates for scientism, exemplified in a soft version by Adrien Chauvet (Chauvet, 2023).

Two verses are frequently cited, erroneously in my view, to claim the Qurʾān's omniscience: "We have not omitted a thing from the Book" (Q 6:38) and "We revealed to you the Book as an 'eloquent elucidation' (*tibyān*^{an}), a guidance, a mercy and glad tidings to those who surrender" (Q 16:89). Some modern readers interpret these verses as indicating the Book refers to the Qurʾān, and that the Qurʾān contains the answers to all questions, including scientific ones. This perspective ignores the historical tradition of Qurʾānic commentary and the contextual usage of words. Classical exegetes understood the term "Book" (*Kitāb*) in verse Q 6:38 as referring to the metaphysical "Preserved Tablet" (*Lawḥ Maḥfūẓ*), the source of all revelations. This is a symbolic referent, an archetype, that is a shortcut for a complex notion of revelation from God to humanity. This Book was mentioned in the context of where animals were designated as "communities (*umam*)," the same term also used for human communities. Commentators contextualized the meaning of "We have not omitted a thing from the Book" as referring to the metaphysical book that recorded the sustenance, lifespans, and deeds of nonhuman species – just as it did for humans (al-Zamakhsharī, 2006, Riḍā, n.d.).

Commentators further clarify that verse Q 16:89 addresses the eloquence of the Qurʾān and its elucidation of matters related to deliverance (*umūr al-dīn*), some of which are explicit while others require clarification through the Sunna and the Prophet's normative teachings (al-Zamakhsharī, 2006). Islamic scholarship unanimously recognizes that the moral verses constitute the revelation's primary purpose, though these too contain ambiguities requiring interpretation. Forcing direct correlations between natural phenomena and Qurʾānic verses, while insisting on their transhistorical scientific relevance, represents a problematic approach (Chauvet, 2023). It diminishes an intellectual and spiritual engagement with the revelation, and in the process diverts readers from the revelation's fundamental purpose, a recognition of God. What commentators across time have enthusiastically supported is the view that the Qurʾān "directs humanity to inquiry" (*irshād ilā al-baḥth*) and "inspires" (*targhīb*) humans to pursue and explore the patterns and wisdom embedded in creation (Riḍā, n.d.). The Qurʾān serves as a motivator for inquiry: yet, expecting it to solve nature's mysteries amounts to neglecting the divine gift of the intellect.

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Conclusion: The Hermeneutical Tapestry of Islamic Theology

The intellectual legacies of Ghazālī, Ibn Rushd, and Rāzī weave together a sophisticated hermeneutical tapestry that continues to inform Islamic theological discourse. Each of these luminaries approached the interpretation of authoritative texts with methodological rigor, yet arrived at distinct conclusions, all of which reflect the rich diversity of Islamic thought. Ghazālī's nuanced distinction between categorical (*qaṭʿī*) and probable (*ẓannī*) knowledge illuminates the epistemological terrain upon which theological interpretation unfolds. His insight that reason in itself is not static but rather is cultivated through practice, ethical discipline, and mystical experience reveals the multidimensional nature of theological understanding. By positioning *kalām* as the "universal science (*al-ʿilm al-kullī*)" concerned with existence itself, Ghazālī established a metaphysical framework that transcends the narrow confines of disciplinary boundaries.

Ibn Rushd's careful defense of philosophy against Ghazālī's critiques demonstrates the productive tension between different modes of interpretation. His insistence on the harmony between revelation and reason, when both are properly understood, offers a counterpoint to interpretive approaches that would sever revelation from reason. Ibn Rushd's methodology – with its rigorous attention to demonstrative proof, dialectical reasoning, and rhetorical persuasion – provides a template for addressing theological questions at different levels of discourse, each appropriate to its audience.

Rāzī's perceptive analysis of how the Qurʾān functions as "guidance" (*hudan*) further enriches this interpretive landscape. His candid explanation that the Qurʾān need not provide guidance on every issue to fulfill its purpose as authoritative teaching challenges simplistic readings of the scripture. By acknowledging the essential role of human reason in distinguishing between clear and unclear verses, Rāzī emphasizes the unavoidable interpretative dimension of engaging with revelation. His critique of the hermeneutical principle that unrestricted statements have general application demonstrates the sophisticated interpretative tools developed within the Islamic exegetical tradition.

From these thinkers and other commentators, we learn that interpreting authoritative theological statements involves a complex hermeneutical framework that cannot be reduced to literal readings or simplistic correlations. This framework encompasses the exegesis of Islamic sources, historical contextualization, a consideration of the cultural knowledge horizons of recipients, an engagement with scientific understanding in their times, and a recognition of the interpreters' critical role in determining doctrinal meaning. The different theological lenses through which these thinkers approached texts make their ideological commitments transparent in the interpretative process.

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The exegetical exchanges between Ibn Rushd and Ghazālī, as well as Rāzī's careful deliberations, illuminate legitimate interpretive differences that enrich, rather than diminish, the Islamic intellectual tradition. They demonstrate that interpretation – far from being a secondary or derivative activity – constitutes the very essence of theological practice. Even these distinguished theologians often struggled with interpretive challenges, reminding us that the path to understanding is rarely straightforward.

This historical perspective offers valuable insights for contemporary Muslim theological discourse, particularly regarding its relationship with modern science. When complex issues are summarily dismissed without the deep and nuanced reflection exemplified by Ghazālī, Ibn Rushd, and Rāzī, public theological discourse suffers. Modern attempts to force direct correlations between scientific discoveries and Qurʾānic verses – while insisting on their transhistorical relevance – represent a problematic approach where revelation serves as a surrogate for scientism, a position that these medieval thinkers would mostly likely have questioned.

As Rāzī recognized, the Qurʾān serves as a motivator for inquiry, "directing humanity to inquiry (*irshād ilā al-baḥth*)" and for "inspiration (*targhīb*)" to explore the patterns and wisdom embedded in creation. Expecting the revelation to solve nature's mysteries directly, however, neglects the divine gift of the intellect that all three thinkers celebrated in their distinct ways.

We would be wise to remember the observation of Baruch Spinoza (Benedictus de Spinoza) (d. 1677) that the less humans "know Nature, the more easily they can feign [coin] many things . . . " (Spinoza and Curley, 1988). This insight resonates with the methodological caution exhibited by Ghazālī, Ibn Rushd, and Rāzī, who – despite their differences – shared a commitment to intellectual integrity in theological interpretation. Their legacy invites us to approach the interpretation of authoritative texts with both reverence and critical acumen, recognizing that the path to understanding requires both faithful engagement and reasoned reflection.

2 Traditional Hermeneutics and the Interpretation of Natural Signs in the Qurʾān

The waning of complex Muslim hermeneutical practices over the past few centuries in traditional Muslim learning circles has gradually yielded to more scripturalist interpretations. By "scripturalist," I mean the reduction of the revealed text to an immanent truth proposition: All truth resides within the pages of revelation, and every verse carries universal significance. This approach stands unprecedented in Muslim history. Advocates of scripturalism claim that the true meanings of the

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sacred text become manifest through direct reading alone. In the twentieth century, across different Muslim regions, traditional seminary curricula increasingly emphasized the direct access to Qurʾānic meanings while setting aside the rich commentarial tradition. The prevailing concern was that readers might internalize past exegetes' interpretations and their cultural contexts, thus preventing direct access to the divine word itself.

This quandary proves both interesting and ideological, since every text is always-already mediated by its history and reception, whether in oral or written cultures. The ideological nature of this direct access to the Qurʾān approach is transparent. Proponents resist selected past readings while claiming to derive authority directly from the text. By avoiding confrontation with past authorities, they secure a license to bypass the framework of traditional interpretative rules and their historical development. A predominant exegetical tendency in modern Islam is profoundly anti-historical, with each iteration characterized by presentism and immanence. Deep philological inquiries, the relationship between the Qurʾān and prophetic authority, interpretations from earlier generations, and the coherence of tradition are either entirely avoided or at best selectively appropriated by modern interpreters. Once a broad spectrum of contemporary Muslim religious authorities concluded that the medieval heritage was either anachronistic or incoherent in the modern context, interpreting the Qurʾān with a minimal hermeneutical apparatus was deemed to be more "authentic" than the interpretive traditions that had served Muslim scholarship for centuries.

In this section, I offer several portraits of modern scholars who addressed the relationship between science and theology from their respective vantage points. While most hail from South Asia, their questions resonate across the Muslim world. Some employ traditional *kalām*-type arguments in their scientific discussions, while others adapt their responses according to their understanding of science.

Munshī Muḥammad Ẕakāʾullāh (d. 1910)

Among traditionally trained scholars who explored the natural signs in the Qurʾān was Munshī Muḥammad Ẕakāʾullāh. In 1901, he published an impressive Urdu text titled *Conflict and Coexistence between Religion and Science*. Proficient in English, Ẕakāʾullāh accessed modern literature; his work clearly reflects threads from J.W. Draper's influential book *The Conflict Between Religion and Science*. Ẕakāʾullāh attempted to bridge the gap between classical Muslim philosophy and modern science, highlighting deficiencies in Aristotelian cosmology. The impact of his scholarship on the traditional *ʿulamāʾ* in colonial India remains insufficiently acknowledged and studied.

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Despite his mastery of Urdu, Persian, and Arabic – his shared linguistic terrain with the *ʿulamāʾ* – many scholars adopted his propositions without acknowledging his important role. His marginalization in South Asian Muslim historiography likely stems from his strong alignment with Sir Sayyid Aḥmad Khān's (d. 1898) modernist orientation, putting him at odds with certain *ʿulamāʾ*.

Zakāʾullāh reported that some intellectuals deemed the reconciliation of science and religion impossible – akin to trying "to sow the wind and then reap the whirlwind!" Religion, he explained, created enduring and unchanging faith within humans, while science continuously evolved. Science progressed (*taraqqī*), while religion claimed singular authority, tolerating neither rival nor equal. "Science never desires to unite with authority," he wrote. "Science wishes to govern nature in a manner where its purpose is nothing but the welfare of the people" (Zakāʾullāh, 1901). Despite demonstrating considerable understanding of modern science, Zakāʾullāh also offered elaborate apologetics, arguing that many cosmographic descriptions appeared as "unclear verses" (*mutashābihāt*) of the Qurʾān whose true existential realities required extensive interpretation (Zakāʾullāh, 1901). Yet, some of his writings also prepared the ground for a soft theological scientism that became in vogue at the time.

Shiblī Nuʿmānī (d. 1914)

Closely associated with Sir Sayyid Aḥmad Khān was Shiblī Nuʿmānī, a younger contemporary of Zakāʾullāh. A talented and intellectually capacious traditional scholar with impeccable credentials, Nuʿmānī was primarily a religious scholar with a strong historical sensibility. He vigorously advocated for curricular reform in the training of Muslim theologians. His fascination with history and literature – particularly his mastery of Urdu, Arabic, and Persian – elevated him significantly above his peers in cultivating a cosmopolitan outlook. The complexity of his thought occasionally generated controversy among his theologian colleagues. Nuʿmānī championed a "new theology" and authored preliminary notes for his initiative to modernize dialectical theology. His two-part work, *Theological Discourse and Dialectical Theology – Kalām aur ʿIlm-i Kalām*, offered little concrete direction. He mainly cataloged the challenges confronting Muslim theology and compiled summaries of the views of past theologians on natural philosophy and cosmology. In reporting historical opinions, he occasionally identified with certain positions of earlier Muslim thinkers on philosophical questions related to premodern science. Simply ventilating these topics was received as advocacy, which quickly made him the target of opprobrium from fellow *ʿulamāʾ* who denounced his views in

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fatwās, or legal opinions. One position that elicited heresy pronouncements was his ambivalence as to whether matter should be considered originated or eternal – a throwback to classical *kalām* debates. Accused of favoring the heretical views of Muslim philosophers on this topic, he was compelled to clarify his doctrinal positions to reassure conservative *ʿulamāʾ* of his adherence to orthodox credal formulations.

Nuʿmānī himself observed that the first decade of the twentieth century posed a greater "threat to Islam than previously" (Nuʿmānī, 1969). "Western knowledge had entered every home," and the climate of freedom facilitated the dissemination of falsehoods more readily than before. He generally highlighted the upheaval in religious thought provoked by modern ideas. While cultivating a qualified openness toward modern thought, he remained frustrated by the insularity of his fellow theologians. With palpable sarcasm, he remarked: "The modern educated ones were in thrall of the West. For their part, the traditionally-trained religious scholars (*qadīm ʿulamāʾ*) when they occasionally peeped through the window of their own isolation, then all they saw was the horizon of religion being covered with dust" (Nuʿmānī, 1969). Nuʿmānī conceded that the traditional theological paradigm required renewal. Whether his considerable trust in the capacity of past traditional theology was intended to offer viable solutions for contemporary challenges or to initiate a conversation in theology, requires further inquiry.

Ḥusayn al-Jisr (d. 1909)

From Ottoman-ruled Tripoli, now part of Lebanon, the influential scholar and Sufi leader Ḥusayn al-Jisr significantly impacted both Arabic-speaking scholars and those in India through his theological treatise that engaged scientific debates. Jisr maintained that the Islamic revelation focused on human moral guidance and divine knowledge through teachings related to worship and ethical conduct that would secure salvation (al-Jisr and Naṣṣār, 1433/20212). He advocated the study of science on theological grounds: It revealed God's majesty and wisdom as Creator. However, he argued that it was not the task and purpose of revelation to provide cosmic knowledge, explain universal creation, or elucidate natural laws. Humans were expected to discover the operations of nature through their own intellectual faculties. Indeed, revelation made synoptic references to heavens, earth, and cosmic order as signs prompting the rational recognition of the Creator, whose key attributes include knowledge, power, and wisdom (al-Jisr and Naṣṣār, 1433/20212).

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Jisr's approach in confronting the triumphalist science-warriors made him repeatedly invoke a fundamental interpretive principle. Islamic thought generally, and theology specifically, he explained, operated within an epistemic grammar of certainty. When the transmission of a teaching possessed an unimpeachable chain of custody and its textual meaning was unambiguously clear, it attained the highest level of epistemic certainty (*qaṭʿī*). Rejecting teachings founded on such unassailable certainty risked violating one's faith commitment. However, if such holy writ contained an empirically proven absurdity, the literal meaning could be challenged and subjected to a nonliteral and expansive interpretation. When addressing new scientific theories on cosmic origins, Jisr consistently rebutted these scientific arguments by categorizing them as epistemically less certain (*ẓannī*) (al-Jisr and Naṣṣār, 1433/20212). He employed the same argument with respect to evolution, dismissing it as an "uncertain" claim in the early twentieth century. Jisr cited the Qurʾānic Adamic creation narrative as evidence against evolution: "The followers of Muḥammad will not divert those clear texts (*nuṣūṣ*) from their true apparent meaning, *even though they might nurture a belief that this evolution occurred by the creative act of God, the High*. In fact, it would not be appropriate for them to switch to non-literal interpretation if the empirical situation did not warrant it. Yes, if incontrovertible rational evidence contradicted the literal meaning of these clear texts, then it will befall upon the interpreter to give expansive interpretation to those verses with an eye to reconcile between these texts and that new evidence, in line with the preceding rule of interpretation. (*And I personally think this will prove to be impossible*)" (al-Jisr and Naṣṣār, 1433/20212; Elshakry, 2003) (italics mine).

Jisr's rhetoric merits close attention. It remains unclear whether he personally doubted that categorical proof supporting evolution would ever emerge or whether his caution was aimed at reassuring his conservative and orthodox readers. Yet, remarkably, he did entertain the possibility of divinely created evolution in the same breath in which he deemed such proof to be unlikely. These passages have been cited by Muslim supporters of evolution as theological justification for nearly a century. However, Jisr did not endorse evolution, but only entertained the idea as a thought experiment. If pro-evolution materialists could provide knowledge rising to the level of certainty for their position, he said, then they surely would reach the conviction, shared by the followers of the Prophet Muḥammad, that God alone is the Creator of all things. Only then could they legitimately reinterpret clear authoritative texts and hermeneutically align authority with categorical evolutionary claims (al-Jisr and Naṣṣār, 1433/20212).

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Anwar Shāh Kashmīrī (d. 1933)

Among traditional *ʿulamāʾ*, Anwar Shāh Kashmīrī at colonial India's Deoband seminary was a renowned *ḥadīth* scholar who had internalized the classical Muslim philosophical tradition and sustained a curiosity for modern science. He accessed modern scientific literature through Arabic journals and publications from the Middle East, especially Egypt, and from within India. In his commentary on Bukhārī, an esteemed Sunnī collection of prophetic reports, Kashmīrī provides significant interpretations of passages discussing natural and cosmographic phenomena.

Prophetic traditions reported that the Prophet Muḥammad described solar and lunar eclipses as divine signs, as discussed in the previous section. One version of a report stated that God instills fear in His servants through solar eclipses. The disappearance of the sun was also recorded in tradition as heralding the apocalyptic end. Kashmīrī's interpretive logic merits exploration both for its inherent tensions and its hermeneutical sophistication. He displayed a critical appreciation for modern science, while also contesting its overbearing authority over traditional theological reasoning. Sometimes he incorporated scientific insights to support his theological claims; at other times, he resisted them.

Framing his approach, Kashmīrī tries to convince his readers by drawing their attention to nature and the cosmos. Humans should tremble in reverence, Kashmīrī maintained, when they observe howling winds, the alternation of day and night, ships floating effortlessly on high seas, and the fact that the heavens stand erect without visible support (al-Kashmīrī, c. 1357/1938). For insightful observers, these features of the world invite contemplation of the Creator. People naturally grow apprehensive, he noted, when encountering extraordinary natural events that contradict familiar experiences. To elaborate his position, Kashmīrī introduced readers to the philosophical concept of "the thing in itself or the thing in its nature" (*nafs al-amr*) – something as it exists, distinct from its appearances or assumptions.

Mughal-era enyclopedist ʿAbd al-Nabī Aḥmadnagrī (d. 1583/4) described "real determined nature" – *nafs al-amr* and the "occasioned" (*al-wāqiʿ*) to be different, but conceded that both are related to the effective intellect and signified a certain relationship to a reality external to the mind (al-Aḥmadnagrī, 1405/1985–1407/1986). Another Mughal-era encyclopedist Muḥammad Aʿlā al-Tahānawī (d. c.1745) explained: "The thing itself means grasping something in terms of the definition of its essence or by itself (*fī ḥadd dhātihi*). So, what is meant by 'determined nature' (*al-amr*) is surely the 'thing by itself' (*al-shayʾ bi nafsihi*)" (al-Tahānawī, 1996). The term *amr* in Arabic has

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multiple meanings. When theologians use the expression *al-khalq wa ʾl-amr*, they mean "the creation and the determination" of a thing. However, when more rationalist-inclined theologians or philosophically minded scholars use the expression, they signify "the creation and naturally determined" aspects of a thing, to avoid the notion of a capricious determinism. If you say something exists in its very nature or order of reality (*fī nafs al-amr*), it means that it exists by its order of nature or reality. For something to "exist by itself" is when it "assumes its existence independent of observer perspective (*īʿtibāru muʿtabirin*) or hypothesis (*farḍu fāriḍin*), whether that hypothesis involves creative origination (*ikhtirāʿ*) or abstraction (*intizāʿ*). Once you divert attention away from any assumption and perspective, the thing still exists . . .," wrote Tahānawī (al-Tahānawī, 1996). Ottoman-era encyclopedist Abū al-Baqā al-Kafawī (d. 1683) wrote that "the thing itself exists irrespective whether the mind affirms or denies it, or whether a mental hypothesis posits its existence or non-existence" (al-Kafawī, 1419/1998). Kafawī defines the "*thing in itself*" (*nafs al-amr*) as an ultimate objective reality that exists independently of both human thought and physical appearance, making it a truth that remains beyond direct human verification (al-Kafawī, 1419/1998. This definition highlights the fundamental disagreements Muslim thinkers encountered when explaining a concept that transcends both the mental and manifest worlds. In this way, the concept resembles Immanuel Kant's later famous distinction between *phenomena* (things as they appear to us) and *noumena* (things as they are in themselves). Much like the *nafs al-amr*, Kant viewed these "things-in-themselves" as essentially unknowable, as our human understanding is always filtered through the frameworks of space, time, and specific mental categories (Kant, 1998). Kashmīrī employed the concept of "the thing itself or in its nature" to argue that regardless of one's beliefs or understanding of a phenomenon, its true causative nature might differ entirely from a regular observation. When encountering unusual natural phenomena like eclipses or extreme weather, people rarely investigate the underlying causal principles of such events. They experience these conditions phenomenologically, meaning they experience these conditions as they feel them, rather than how others might objectively observe or measure them. The actual temporal occurrences or causal principles remain evident only in "the thing itself or in its nature" when properly examined and explored.

When encountering Qurʾānic depictions of natural entities – trees, fruits, herbs, bees, vegetation, sky, moon, agricultural descriptions – Kashmīrī favored specific interpretive approaches. These descriptions do not necessarily indicate "natural causes" (*asbāb*) as they exist "in the thing itself or in its nature." The Qurʾān does not interrogate these causes or their mechanisms. Rather, it

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addresses things as people encounter them in their everyday experience. If the Qurʾān attempted to discuss natural phenomena in their actual form or in their scientific causal manner, several challenges would arise. It would need to provide extensive details across numerous disciplines, require deep investigation and reflection, and address perpetually contested explanations.

The Qurʾān cannot explore those causal levels and provide myriads of details, Kashmīrī explained, as this would undermine the revelation's purpose of guidance; such complicated causation exceeds its mandate. Kashmīrī's older contemporary Ẕakāʾullāh made this point precisely regarding natural phenomena in the Qurʾān (Ẕakāʾullāh, 1901). If the Qurʾān addressed the true causes of natural phenomena, it would confuse people, become a source of debate and dispute, and forfeit its primary spiritual and moral purpose (Ẕakāʾullāh, 1901). Both Ẕakāʾullāh and Kashmīrī agreed that such an approach would transform the Qurʾān into a science manual.

Detailed explanations of natural realities would place the revelation beyond ordinary comprehension. Kashmīrī acknowledged human curiosity; people make inquiries and rely on personal investigations when sophisticated tools and resources are available. However, he doubted that lay people expected such detailed answers from revelation. In the seventh-century Near East, Greek teachings dominated, including the belief that celestial spheres moved while the Earth remained stationary. These convictions prevailed during that period of human history, he explained (al-Kashmīrī, c. 1357/1938).

"If the Qurʾān built its narrative on the earth's rotation," Kashmīrī gestured to post-Ptolemaic cosmology, "then several groups would have deemed it false, since they firmly believed the celestial sphere moved" (al-Kashmīrī, c. 1357/1938). He recognized the protracted conflicts within Christendom regarding heliocentrism. Had the Qurʾān asserted a heliocentric view during its revelation, people would have rejected its authority as outlandish and contrary to their experiences. More importantly, Kashmīrī argued, if the Qurʾān's cosmographic narrative strained the credulity of its first listeners, then its primary teachings of monotheism and ethical living would have found few adherents. "If in multiple instances the Qurʾān referred to the effective causes of things as they occurred in 'the thing itself,' people would not have grasped these causes given their knowledge deficits and pervasive ignorance [of such details]. They would have continued to adhere to their familiar forms of learning . . . thereby refuting the Qurʾān and also refraining from adopting it as guidance" (al-Kashmīrī, c. 1357/1938).

Elsewhere, Kashmīrī noted that for millennia, ordinary people experienced the sun moving around them with the onset of sunrise and sunset. He posed the rhetorical question: "Would it be appropriate for a revelation to contradict their

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[everyday] experience [of the natural world] when addressing them or [should it] concur with their experiences?" (al-Kashmīrī, c. 1357/1938). His answer affirmed the claim that the primary audience of the Qurʾān was ordinary people. Its purpose was to disseminate teachings about divinity, prophecy, and morality. Complex cosmological doctrines were irrelevant to these purposes – and possibly outside the prophetic mandate altogether.

Had the Qurʾān delved into detailed cosmological matters like heliocentrism in seventh-century Arabia as we understand it today, even learned philosophers following Greek traditions would have rejected the Qurʾānic teachings. A heliocentric view would have led educated elites to question the Qurʾān's credibility and the authority of the Prophet Muḥammad. "Hence, the Qurʾān deliberately left such cosmological debates obscure since these had no relationship with the purposes of our deeds," Kashmīrī concluded (al-Kashmīrī, c. 1357/1938).

Kashmīrī's explanation invites multiple layers of analysis. One plausible interpretation might characterize his approach as akin to doctrinal apologetics defending the *ḥadīth* and Qurʾānic content. The Qurʾān itself makes no explicit claims to a cosmological doctrine among those that were known in the seventh-century Near East. Rather, it refers to the sun and the moon as floating objects in the heavens as ordinarily observed. It describes the heavenly vault or the firmament as a canopy or roof as visually experienced. It addresses celestial and terrestrial realms as humanly encountered.

For instance, the Qurʾān states: "It is God who created seven heavens and created [in number] the earth like the heavens. The Command/Decree/Nature descends among these [earths and heavens] that you may know God is powerful over all things and that God has encompassed all things in knowledge" (Q 65:12). This unique verse references seven earth-like entities paralleling the heavens. The Qurʾān, Kashmīrī observed, remains ambiguous regarding multiple earths. Just as multiple heavens exist, the earth too is alleged to be multiple. Kashmīrī clarifies one additional aspect: The Qurʾān leaves the analogous dimension unclear (al-Kashmīrī, c. 1357/1938). We merely assume the most obvious heavenly likeness lies in number, thus implying that there are seven earths. Yet prophetic traditions extensively discuss seven heavens while rarely mentioning a plurality of the earthly sphere. Kashmīrī classified reports about multiple earths as remnant oral accounts (*āthār*) stemming from a Companion, which he deemed to be idiosyncratic and which he claims bear no evidence. These reports, he argued, added to the ambiguity of the Qurʾānic verse since they relied on *ḥadīth* reports of dubious authenticity.

Nevertheless, Kashmīrī offered an alternative interpretation of "multiple worlds." These might reference imaginal realms that humans encounter: corporeal,

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imaginal, spiritual, particle, and pneumatic worlds, among others. Ultimately, Kashmīrī declined further speculation, concluding that these topics have no direct bearing on faith or practice – whatever one's position, matters related to dogma and doctrine remain unaffected (al-Kashmīrī, c. 1357/1938).

Kashmīrī's engagement with scientific questions as a traditional scholar proves to be both fascinating and intriguing. Clearly, knowledge of heliocentrism through his colonial education and his self-acquired scientific literacy had become part of his common sense. As a proponent of tradition, he exerted himself intellectually to provide plausible interpretations of the narrative style and natural descriptions of the Qurʾān within his hermeneutical framework.

However, he resisted addressing the politics of knowledge and the tensions produced by Western knowledge traditions in colonized societies, particularly where modern knowledge vied with Islamic discourses for the allegiance of Muslims. Kashmīrī felt no sympathy for the psychological dynamic of the colonized when confronted with knowledge forms of the colonizer. Kashmīrī articulated this clearly: "People in this age habitually deny anything their intelligence cannot comprehend. How ignorant of them! [Addressing modern-educated Muslims]. However, when Europeans give reports about instrument-based discoveries, they readily accept these, however unusual these may be. Not even a mustard seed of doubt affects these audiences. For instance, when Europeans attribute human origins to monkeys, or when they announce that other planets host civilized habitations" (al-Kashmīrī, c. 1357/1938).

Kashmīrī then addressed the topic of the Prophet Muḥammad's heavenly journey (*miʿrāj*): "But when the most truthful speaker [Prophet Muḥammad] reports what he witnessed personally, as God said [in the Qurʾān], 'will you doubt him as to what he saw?' or, when he relates what his Lord, the great and powerful, told him, they reject such possibilities. One has no option but to separate from such people in distress; may God guide them to the right path" (al-Kashmīrī, c. 1357/1938). Kashmīrī is compelling in his explanation of scientific phenomena. Yet, as with other theologians, he sought to resolve what were framed as empirical puzzles – for instance, the Prophet's heavenly ascent and physical travel in an instant – by recourse to supernatural reasoning. He was prescient in recognizing that a distinctly modern Muslim self was taking root, and that it required a new kind of theological engagement.

Ashraf ʿAlī Thānvī (d. 1943)

A contemporary of Kashmīrī, Ashraf ʿAlī Thānvī was a leading theologian and Sufi master aligned with the Deoband school. His scholarship resonates globally among admirers and followers today. He authored a book addressing early

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twentieth-century theological challenges under British colonialism. Resisting aspects of modernity, Thānvī formulated his theological discourse by drawing on the premodern theological tradition. His *Essential Warnings Against Modern Doubts* published around 1920 or 1921 (later translated as *Answer to Modernism*), summarizes eight theological principles with doctrinal commentaries (Thānvī and Bijnawrī, 2002; Thānvī, 1976). I will only examine two relevant doctrines from his set of eight principles.

Thānvī addressed the question of science in the context of ongoing debates among Muslim theologians in colonial India, especially between figures like Sayyid Aḥmad Khān and Nuʿmānī, about how to develop a new Islamic theology that dealt with the challenges posed by modernity. Evidence suggests that Thānvī harbored profound skepticism toward both the necessity of such a new theology and the orthodox credentials of those who advocated for one. He vehemently rejected modern education and vigorously protested claims that Western discourse could – let alone should – shape Islamic theological foundations. Such positions, in his view, undermined tradition through defeatism.

Yet, Thānvī acutely recognized the pervasiveness of a scientism – which reduced everything to scientific parameters – that generated "doubts and skepticism" (*shubuhāt*) among modern and educated Muslims in colonial India. Scientific propositions appeared to clash with their faith claims. The secular educational system, which exposed Muslims to modern science, represented in his assessment, a lethal source of moral corruption.

His solution to modernity's corrosive effects involved bringing traditional Muslim theological discourse into play. And theologians equipped with traditional theology, were in his view, the true interpreters and defenders of the traditional Muslim intellectual heritage. Rather than crafting a "new theology," Thānvī advocated mastering tradition as the repository of all answers. Advancing an authentic and sound orthodox religious tradition as a counternarrative was his answer to the science-friendly Islamic tradition adopted by Indian modernists like Sayyid Aḥmad Khān, his disciple Muḥsinul Mulk (d. 1907), and Ẕakāʾullāh, Khān's admirer. Thānvī facilitated the translation of *The Hamīdian Epistle* – a treatise by Ḥusayn al-Jisr – which appeared in Urdu in 1900 as *Islam and Science*. Thānvī acquired scientific knowledge secondhand, presumably from Arabic language scientific discussions by authors like Jisr, vernacular sources, and from his disciples who were familiar with modern thought. Jisr's influence clearly manifests in the work of Thānvī (see for comparison between the two authors al-Jisr, Thānvī and Bijnawrī, 2002).

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Traditional Philosophy

Thānvī argued that all knowledge belonged to philosophy (*ḥikmat* in Urdu and *ḥikma* in Arabic), using the same conceptual framework that Ibn Khaldūn (d. =1406) had established. Crucially, his philosophical framework also encompassed *sharīʿa* discourses, establishing it as integral to his understanding of knowledge. "*Ḥikmat* signifies knowledge of existing realities (*ḥaqāʾiq*) corresponding to manifest reality such that the soul/self acquires credible excellence or virtue (*kamāl*)" (Thānvī and Bijnawrī, 2002). He elaborated his position via the synthesis of Abū Nasr al-Fārābī (d. 950–1) of Aristotelian philosophy (Thānvī and Bijnawrī, 2002).

This framework distinguished between practical and theoretical sciences. Practical sciences included three components: individual practical wisdom (character refinement, *tahdhīb al-akhlāq*), economics (household science), and politics. Theoretical sciences encompassed three domains of learning: theology or first philosophy (metaphysics, *ʿilm-i ilāhī*), mathematics, and physics (Shields, 2014; Thānvī and Bijnawrī, 2002). Thus, the human subject acquires knowledge both epistemically and morally. Thānvī then outlined this framework to ensure credible excellence in virtue that encompasses both theoretical and practical dimensions.

For Thānvī, theology included *sharīʿa*, commandments governing duties toward the Creator and between humans (Thānvī and Bijnawrī, 2002). Physics and mathematics, having no bearing on duties or rights, remaining outside *sharīʿa* debates. Physics occasionally served as evidence in theological discourse, exemplifying the Qurʾānic description: "Signs for people of understanding" (Q 3:190). Ultimately, theology anchored all ordinances within *sharīʿa*, meaning revealed discourse.

Epistemological Framework

Thānvī employs traditional theological principles to engage scientific realities. A key epistemic principle states: "Not comprehending a thing is no evidence of its fallacy" (Thānvī and Bijnawrī, 2002). In other words, the inability to understand something does not prove it to be false. Consider quantum entanglement: Particles can instantaneously affect each other across vast distances – a phenomenon that violates our grasp of causality and seems incomprehensible. Yet quantum entanglement has been experimentally verified repeatedly. The concept's difficulty for human comprehension does not invalidate its reality.

Thānvī's second principle states: "When reliable historical testimony (*dalīl naqlī ṣaḥīḥ*) confirms that a logically possible event occurred, we should accept

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it as an incontrovertible fact … Likewise, when such testimony clearly indicates that an event did not take place, we should accept its absence from history" (Thānvī and Bijnawrī, 2002). This principle rests on the agreement between rational thought and trustworthy tradition as the foundation of truth.

Events, Thānvī asserted, can follow a three-category approach to knowledge: rational affirmation (truths we must accept as true, like mathematical proofs); rational negation (claims we must reject as false based on logical contradiction); rational indifference (claims that could be either true or false and require evidence). This third category appears crucial: for it seems to create space for empirical evidence to operate independently of revealed authority. When determining which of two cities is the larger one, for example, we initially remain neutral until the evidence tips the scale in favor of one city or the other.

Rhetorical Moves and the Coloniality of Knowledge

Which of the two cities is larger? Abstract reason alone cannot settle this question, but empirical evidence can do so. Prior to investigation, rational indifference is the position. But what frequently happens in modern Islamic theological debates is that empirical facts or rational claims are shaded, translated and then absorbed into Islamically normative (*sharʿī*) rhetoric and authority structures. Premodern Muslim theology at its best kept these categories separate. The category of rational indifference ought to be filled by an autonomous and impartial observation of the larger city. But a theologian like Thānwī allows for the slippage and translation of empirical fact into a normative *sharʿī* category to occur. He refuses to cede ground to multiple forms of empirical reasoning, even though he created a category for such observations. This allows him to sidestep the mainstream Muslim rational tradition. In this context, it is important to note that scholars have pointed to the need to observe the limits of revelation-inflected, *sharʿī*, discourse (Jackson, 2024). However, few have pointed to how the rational is covertly imbricated into the revelatory discourse. At play in Thānvī's theology is, in my view, a form of *overdetermination*, first identified by psychoanalyst Sigmund Freud (d. 1939) and then adapted by Marxist theorist and philosopher, Louis Althusser (d. 1990) (Althusser, 2005; Freud, 1965). For Freud, a slip, a dream image or a symptom has multiple unconscious causes. Applied to the current context, theological reasoning àla Thānvī arises from multiple contradictions and the complex intersection of causes and effects. This might include the preservation of *sharʿī* authority in colonial India as a counterforce, while rhetorically fastening on to philosophical authority. It might also include offering epistemic

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resistance to Western science along with cultural and political defiance to coloniality. In doing so, Thānvī reframes theological discourse in a colonial context by not ceding epistemic territory to science, the "other."

Thānvī leans into the Muslim tradition. Established Islamic scholarly tradition recognized two complementary forms of reason: our natural cognitive capacity (*maṭbūʿ* from *ṭabīʿa*) and the knowledge we acquire through tradition and testimony (*masmūʿ*) (al-Ghazālī and Bījū, 1428/2008). Both are interdependent. Our innate reasoning ability or cognitive vision (*al-baṣar al-bāṭin*) is as indispensable to understanding tradition as it is to discursively grasping reality. As Ghazālī observed, we cannot grasp revealed knowledge without employing our rational faculties (al-Ghazālī and Bījū, 1428/2008). Reason thus forms the foundation for normative authority, not the reverse. The most complete understanding emerges when natural reason and traditional knowledge work in harmony (al-Ghazālī, 1413/1993a). Yet there are moments when Ghazālī permits normative authority to assert its force over reason—drawing rational judgment into its orbit and subordinating it to the discursive economy of tradition. Ibn Rushd would not allow such conflation. Thānvī in his engagement of theology and science made the rational discourse subordinate to the authority of the normative theological tradition he espoused.

Is the Sky Physical or Optical?

One example might shed light on the problem. Thānvī turns to Qurʾānic exegesis to argue that the sky or firmament is a physical entity, rather than merely the limit of human vision. as scientific evidence suggests. Drawing on authoritative sources, he maintains that the sky objectively exists as a protective covering, citing the verse: "And the sky, We made it a well-protected canopy . . ." (Q 21:32).

According to his three-part epistemological framework, the existence of the sky should logically fall under the previously mentioned category of "rational indifference (*mumkin*)." Only evidence can generate rational affirmation or rational negation. However, Thānvī does not follow through with the requirement of empirical investigation as his own methodology would demand. Instead, he short-circuits this rational process by appealing directly to normative authority. He cites a verse of the Qurʾān to show how the sky is a physical thing as the *jinn* are reported to say: "We touched the sky and found it filled with mighty guards and shooting stars" (Q 72:8). In his interpretation of "touching the sky," Thānvī believes, lies the evidence that the sky must be an "embodied and existing (*mujassam awr mawjūd*)," entity as his commentator further

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explained (Bijnawrī and Thānvī, 2002). Of course, at one stage in human history people did hold a view of a physicalist firmament, but this view gave way as our knowledge advanced.

Thānvī's approach creates a curious inconsistency in terms of the historical theological tradition. By Thānvī's own schema, it is empirical evidence that should determine whether the sky is a physical entity or an optical phenomenon. This position is particularly puzzling given that earlier Islamic scholars like Ghazālī considered questions about the sky's physical nature to be peripheral matters – comparable to counting an onion's layers or a pomegranate's seeds (al-Ghazālī, 1997). In fact, Ghazālī explicitly listed under the category of "essential existence" (*al-wujūd al-dhātī*) the heavens, earth, animal, and vegetation, all independent of rational and sensory affirmation of their existence (al-Ghazālī, 1413/1993b). These are matters that are not dependent on sensory perception (*ḥiss*) and reason (*ʿaql*) for their existence. Sense perception and reason only help to form a perception (*idrāk*) of these objects, he noted. Even Jisr, whose work Thānvī promoted, allowed for flexible interpretations of what constitutes the sky (al-Jisr and Naṣṣār, 1433/20212; Isḥāq and al-Ṭrāblūsī, 1900). Why Thānvī insisted on literal readings of the tradition when they became empirically questionable and doctrinally unnecessary remains a compelling question about his hermeneutical choices, for which I offered the explanation of overdetermination. There are multiple interacting contradictions that likely explain his position, which itself veers toward a form of scripturalism that replaces complex theological thought.

Classical Qurʾān commentaries typically interpreted the "sky" as "protective" in the sense that an immense artifice remains artfully suspended in the heavens without collapsing on humanity. Alternative interpretations suggested that the sky protects earth-dwellers from demonic mischief (al-Māturīdī, 1442/2020). The rationalist Muʿtazilite exegete, Jārullāh Zamakhsharī (d. 1143) described the sky as people imagined it at the time – as a vast canopy that was divinely supported (al-Zamakhsharī al-Khawārizmī, n.d.). Everything above, termed "sky," functioned as a protective shield against collapse, disruption, or cosmic interference. Yet several exegetes explicitly stated the underlying message invites contemplating the sky as a "sign" of a unique Creator's existence, demonstrating extraordinary craftsmanship, power, and wisdom (al-Bayḍāwī and al-Arnaʾūṭ (ed.), 2001). Rationalist Qurʾān commentator Bayḍāwī (d. 1319) added that those beneath the sky "appreciate this endless wisdom of the Creator with their senses and especially when they research it with the help of two disciplines – the study of nature and astronomy" (al-Bayḍāwī and al-Arnaʾūṭ (ed.), 2001). While lyrical in his appreciation of the aesthetics of creation, Bayḍāwī might well have adhered to a physicalist

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conception of the firmament, given the knowledge of his time. His view was not in contradiction with a competing scientific and philosophical narrative. In our time, such a physicalist claim comes up against a competing scientific narrative.

In Search of a Scientific Common Sense in Times of Epistemic Transitions

At the heart of the debate lies a historically specific anxiety. In colonial India, tension grew between traditionally educated Muslims and those with modern education because each group understood "reason" differently. Traditional scholars like Thānvī maintained that Islamic theology embraced both instinctive reason together with deeper philosophical inquiry. Meanwhile, Muslims equipped with scientific education claimed that they too valued reason – but as a practical skill that produced tangible results through experience and training (what the Greeks called *tekhnē*) (Stiegler, 1998). This stood in contrast to theoretical knowledge concerned with foundational truths (*epistêmê*).

Muslim traditionalists championed reason as a tool to uncover universal truths about reality but they could easily subordinate reason to the demands of authority-based normative authority. The modern educated Muslims in colonial India valued reason for its power to transform the physical world. Each group remained unconvinced by the others' perspective, as each was operating from fundamentally different understandings of the meaning and function of reason.

We would do well to heed the caution issued by the philosopher Stephen Toulmin (d. 2009) about those who insist on singular rules and procedures for all people and subjects and thus claim an exclusive singular reason (Toulmin, 2001). We now recognize that productive rational activities involve multiple rules and procedures depending on our objectives. Theology employs different procedures of inquiry compared to physics. Procedures vary according to the tasks at hand. Formulating a theological response to science, Thānvī championed traditional theological postulates as a counter-narrative to science whereas modern educated Muslims aspired for a model that could make theology and science compatible.

The divide between Muslim traditional theologians and those Muslims who had adopted a scientific formation revealed a fundamental difference in their respective epistemological frameworks. Scientific rationality emphasized empiricism – repeatable experiments, observation, and measurement – as the path to universal knowledge. While acknowledging the role of mental operations, it accorded primacy to sensory data. Most Muslim traditionalists did not reject sensory evidence but restricted it within a hierarchical knowledge system where speculative reasoning could override empirical conclusions. Once they

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rationally affirmed propositions, they could easily make the rational dimension subordinate to the *shar'ī* authority. Muslim traditionalists critiqued modern science for being overly dependent on sensory observation and mechanical instruments (the *tekhnē* of knowledge) that they believed could be flawed and fallible.

What traditionalist critiques often overlooked, however, was that classical Islamic scholarship had historically privileged empirical truths – geometric, physical, and mathematical – even when they appeared to contradict authoritative texts. In such cases, the traditional hermeneutical approach resorts to contextual and historical analysis rather than rejecting the empirical evidence. This nuance was frequently lost in the heat of colonial-era intellectual confrontations between different groups of Muslims. Theological reasoning would not find the Prophet Muḥammad's instantaneous heavenly ascension to be incredible, while those habituated to singular reason (*tekhnē*) would be incredulous as to whether they could accept it as a physical event.

One line of thinking that cannot be pursued fully here but helps to explain the above is that importing epistemic frameworks from different historical periods into theology without attending to their original contexts creates fundamental quandaries. As the historian Peter Novick (d. 2012) points out, science historiography demonstrates that a strict distinction between early modern science and supernatural, magical, and religious conceptions can prove to be impossible. Traditional Muslim theology remains partially rooted in overlapping conceptions of knowledge and conceptions of truth which reflect its bygone eras.

This apparent contradiction should not trouble historians of religion. Giordano Bruno (d. 1600) Dominican friar, philosopher and cosmologist and a crucial figure in early modern science, himself remained deeply invested in Hermetic philosophy alongside his heliocentric advances. Nicolaus Copernicus (d. 1543) too was invested in hermeticism, just as early chemistry was connected to alchemical and spiritual concerns of the soul (Novick, 1988). Astronomer and mathematician, Galileo Galilei (d. 1642), by contrast, relied on telescopic observations and mathematical demonstrations. The founders of modern science were not purely "modern" – they inhabited multiple epistemic worlds simultaneously. Ambivalence and ambiguity were constitutive of their thought, not aberrations. Western philosophy and science have invested a great deal of intellectual energy to update and smoothen its scientific narrative in modernity. Thānvī's unshakable confidence in the ancient Muslim theological tradition and resistance to the Western episteme may, in part, account for his interpretative choices. It can be viewed as an inconsistency, since convincing alternative explanations were available.

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Beyond the Impasse: New Openings and Possibilities in Theology

Yet methodological differences persisted among late nineteenth- and early twentieth-century Muslim theologians. Reason remained largely disembodied from sensory experience.[2] Speculative reason and philosophy constituted the cognitive foundation for Muslim theology. This theological mode transmitted through the lengthy traditions of dialectical theology (*ʿilm al-kalām*) and philosophy, typically yielded declarative knowledge, namely, book learning found in encyclopedias, almanacs, catechisms, or dogmatic statements (*ʿaqīda*).

This learning tradition lacks procedural knowledge: It teaches *what* to think rather than *how* to think. The materials circulating in Muslim seminaries even today are prescriptive and argumentative, designed to inculcate commitment to existing theology rather than to develop critical theological skills and sensibilities. For historians of ideas, this tradition is invaluable. But for forging a robust contemporary Muslim theology, it proves insufficient.

In colonial South Asia, this created an insurmountable tension: Theologians fundamentally distrusted observation and experiment as pathways to truth, viewing them as incompatible with their tradition. The educated Muslim elite exposed to modern science inhabited incommensurable worldviews – caught between traditional epistemology and empirical method. In short, there was no shared common sense of what science is among different formations of Muslims.

Yet there were exceptions. Luṭfullāh Aligarī (d. 1916), a contemporary of Thānvī, was a rarity among his peers since he acquired English and had knowledge of modern astronomy. "God's omnipotence shines forth in modern astronomy," he wrote, "while traditional astronomy confined the entire universe to nine or ten spheres." (Moosa and Ali, 2025)

Two distinct approaches to interpreting nature emerged among a single cohort of Muslim theologians in colonial India. Kashmīrī offered a nuanced hermeneutic, suggesting that religious texts described natural phenomena as humans *experienced* these, rather than providing technical descriptions of cosmic composition. From this perspective, humans naturally placed themselves at the center of the universe (geocentrism) because they saw the sun rising and setting daily from their vantage point. The sky appeared as a protective canopy or vault – as an experiential reality, rather than as a scientific claim.

[2] Ghazālī might be an exception, for whom affective impulses in practical instances shaped rational perceptions of what is good and bad. A priori reasoning declares "every orange is a fruit," and Ghazālī relied heavily on such reasoning through logical discourse. But a priori or disembodied reason cannot convey the sensory experience of eating or smelling a specific orange or an apple.

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In contrast, Thānvī and Bijnawrī in their mode of resistance to modern scientific epistemology, reduced science to mere sensory observation thereby justifying its dismissal. They positioned science as incompatible with their theological paradigm that integrated natural reason, speculative thought and revelation. They held on to a speculative understanding of "sky" as a physical entity. Yet, their fundamental error was treating science as a "new philosophy." This conceptual category missed what science is: a distinct and evolving methodology with its own standards of evidence and inquiry.

What Is at Stake? A Common Sense

In the theology-science encounters enumerated earlier, we witnessed the intense sociology of knowledge debates within multiple Muslim experiences. The sociology of knowledge is the study of how human thought and what we accept as "truth" were shaped by social, historical, and cultural contexts. While this sociology influenced theological discourse, it spoke more fundamentally about science's nature and meaning. Can scientific theories be pronounced "true"? If so, by what Islamic theological criteria were scientific standards adopted? At least one Western scientific tradition defined science as objective correspondence with the natural world's reality (Novick, 1988). Yet, whether theology should mirror science is a moot question. For some, it is neither desirable nor possible for theology to continuously mirror the science of the time. It might have been necessary in bygone years when theology and philosophy merged in the Islamic tradition. But this may no longer be a requirement. However, the need for a scientific common sense that can effortlessly translate and mediate scientific experiences and Muslim theological doctrines in a coherent fashion is needed. Its absence would only cause needless confusion, contradiction, and incoherence.

Francis Bacon (d. 1626) recognized this problem centuries earlier. The empiricist philosopher treated inductive reasoning and observation as keys to nature's secrets. In *Novum Organum*, he diagnosed why contemporary natural philosophy in his time failed: cognitive biases and linguistic confusions obscured perceptions of reality, he argued. Errors arose not from observation itself but from the vague and erroneous use of concepts and received notions. Individual thought operates within a mental cave, shaped by temperament, education, habit, environment, and circumstance. He divided the intellectual fallacies into four types: idols of tribe, cave, marketplace, and theater. With each idol he meant something specific. Some errors were caused by cognitive habits and biases (tribe); some errors stemmed from individual dispositions and types of education (cave); other errors arose from the vague and erroneous use of

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language, concepts, and social distortions (marketplace); and other errors that stemmed from clinging to received dogmas and elegant fictions (theater).

Late modern Muslim theologians would be wise to heed Bacon's warning. They should avoid aligning with the idols of their tribe, cave, marketplace, and theater – idols that deprive thought of valuable common sense. The world remains threatening precisely because such frameworks remain enclosed within inherited sanctuaries. Some might argue the theologian's cave offers a valid sanctuary – perhaps even a cogent polemical point. But such a stance lacks practicality. Theology must learn to work outside the cave, in the unsettled terrain where science actually operates. We should also be aware of calls that invite science to be cognizant of ways in which faith, revelation, and religion function in the world to enlarge its common sense (Furani, 2019).

Conclusion

In this section, I surveyed how Ẕakāʾullāh, Shiblī Nuʿmānī, Ḥusayn al-Jisr, Anwar Shāh Kashmīrī, and Ashraf ʿAlī Thānvī responded to science with different hermeneutical strategies. From Ẕakāʾullāh's reframing of cosmological verses as metaphorical to Thānvī's privileging of traditional theology – all reveal something crucial. The encounter between Islamic scholarship and modern science is not a single problem with a single solution, but an epistemological crisis with multiple possible responses. This encounter poses fundamental questions about the nature of knowledge itself.

Kashmīrī's approach stands out for recognizing a critical distinction: The phenomenal description of how things appear and are experienced differs categorically from scientific claims as to "the thing itself" (*nafs al-amr*), namely, how things function. His insight that revelation speaks to human experience rather than making categorical scientific claims provides a hermeneutical key that honors both religious meaning and scientific understanding without forcing their artificial integration.

Thānvī's approach, by contrast, attempted selective engagement with empirical reason while maintaining the authority of traditional theology. This approach created internal tensions, requiring him to subordinate scientific observation to arguments of authority precisely when that authority was neither self-evident nor sufficient to be part of a living common sense.

What emerges from these competing approaches is not a resolution, but a recognition that a new framework is required in theological and scientific engagement. Treating the two as a binary conversation is insufficient, nor is integrating both of much help. Reality is complex and requires a multifocal approach to see how two or more narratives are braided together in

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relationships. Interpretation remains inescapable. Thus is the case whether we consult the words of authoritative tradition, conduct inquiries into the intricate weave of nature, or assess the disciplined practices of science alike.

The work ahead demands rigorous scholarship, substantial intellectual resources, and new conceptual scaffolding appropriate for our times. We require concepts that neither retreat to tradition nor capitulate to scientism. We should foster a desire to provide compelling explanatory narratives that reflect the complexity of the human experience, ones that intimately relate to the life of faith and science without necessarily reducing the one into a pale image of the other. But we should also demonstrate sufficient humility to admit that not all dimensions of human experience are seamlessly resolved.

3 Toward a Symphonic and Braided Islamic Theology

Shifting Knowledge Paradigms

The trajectory of human knowledge reveals not a linear progression but a series of profound transformations across civilizational epochs. Since 1500, within even modernity itself, multiple knowledge paradigms have emerged, evolved, and sometimes receded. These paradigms manifest differently across diverse cultural geographies, creating not one but many histories of science in its encounter with theology.

As modernity unfolded and new sciences emerged, philosophical discourses – and, by implication, theological discourses too – underwent significant mutations. Scientific thought did not simply displace older forms of knowing about nature and the cosmos, but rather engaged them in complex dialogues, creating hybrid frameworks. Such frameworks have always characterized Western intellectual history. Over its long history, Muslim engagement with science, while resonating with Western developments, has also maintained distinctive conversations with Indic, African, Central Asian, and East Asian, as well as Chinese knowledge traditions, creating rich patterns of intellectual exchange that resist simplistic narratives.

The necessary mutation in Muslim theological thought in light of modern developments has been elusive, as the discussion in the previous two sections illustrated. Yet, it ought to be borne in mind that at the time of the death of the Prophet of Islam and even the period of his successors, there were no disciplines such as Islamic law (*fiqh*), legal theory (*uṣūl al-fiqh*), dialectical theology (*ʿilm al-kalām*), exegesis of the Qurʾān and the study of prophetic traditions (*ḥadīth*, pl. *aḥādīth*) and related disciplines, to interpret and understand Islam. These disciplines were nonexistent as we know them today. Early Muslim theology was very different from later incarnations of theology. Impressive in its scope,

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some theological schools tried to close the conversations on certain topics through dogmatic formulations, shuttering the very things that ought to be open-ended. Apart from God and the authority of the Prophet, most significant questions of theology are secondary in nature. Questions such as the nature of human actions or the metaphysical status of matter are mutable, to mention but a few, since the human understanding of these issues changes over time.

Contemporary discussions linking science and Islamic theology are not only consequential for Muslims today, but they inevitably evoke a constellation of passions, contested histories, and struggles over the politics of knowledge among a variety of Muslim constituencies. The historiography of Muslim science remains highly politicized, having been variously instrumentalized. Sometimes such instrumentalizations diminish Muslim contributions to global scientific development, while at other times, such instrumentalizations exaggerate Muslim contributions. Charges of Islamic "decline" emanate from both insiders and outsiders, each harboring distinct political agendas that often sacrifice clarity for polemic. What emerges unambiguously, however, is that Muslim civilizational endeavors in their global manifestation actively seek futures in which science plays a significant role. The means by which such futures might be realized remains contested terrain, populated by diverse conceptions of what constitutes "science" itself (see Sardar, 1985). Muslim responses to modern science and technology cannot be reduced to a set of tidy categories.

Some voices enthusiastically welcome scientific progress, seeing no contradiction between its discoveries and Islamic principles. Others occupy a more cautious ambivalence: They acknowledge the immense potential of science yet remain alert to its unexamined premises, even though the alternatives they propose often prove difficult to realize in practice (Nasr, 2008). Still others, as several figures in the previous section implied, voice deep skepticism, discerning in the modern scientific enterprise the possibility for moral and civilizational harm. For them, science is not merely a tool for understanding the world but an instrument of modernity's broader project to remake social, political, economic, and ethical life. Guided by Western paradigms, this project has produced catastrophic consequences (Ghosh, 2021)—a point now widely undisputed.

This last perspective finds unexpected resonance in the decolonial turn in the humanities, which subjects Western knowledge systems – from science to theology – to unsparing critique. The decolonial project seeks not only to expose the exclusions on which modern knowledge rests but also to re-center epistemologies that were suppressed or disqualified, including Islamic and indigenous intellectual traditions, treating them as living sources of insight for the present. Yet these conversations too often collapse into sterile loops of

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accusation rather than genuine exchange, overwhelmed by the sheer complexity of issues they seek to address. Without a shared conceptual or ethical horizon, decolonial critique risks becoming self-consuming.

Technology, once considered as the practical offspring of science during the industrial revolution, has now become its measure and master. What was once a servant of inquiry has, through a palace revolution applauded by nearly everyone, assumed control of the entire scientific enterprise. This inversion provokes deep philosophical, theological, and scientific anxiety, for technology now reaches into the most intimate structures of human life – minds, bodies, and desires (see the caution of Weizenbaum, 1976).

At its root, *tekhnē* signifies not mere instrumentality but a creative, open-ended process: a living dialogue between humans, their tools, and the world they inhabit. Yet the pace of technological innovation – from fossil fuels and steam engines to space exploration, genomic mapping, advanced medical intervention, and now artificial intelligence – has collapsed centuries of transformation into a few decades. Within these compressed temporalities, the human form of life itself is being remade. What began as an extension of human capacity now threatens to redefine the meaning of humanity altogether.

Toward a Contemporary Muslim Theology

I am proposing a conversation that explores areas for reflection and dialogue that might contribute to developing a contemporary Muslim theology on science. Such reflection, I suggest, could also become the seedbed of a Muslim public theology – one capable of engaging society's larger debates on values, identity, community, technology, and ethics, and of showing how science and theology might achieve coherence without erasing their distinctive vocations. Two different threads, each with its own function yet forming a single strong braid – or, to change the metaphor, distinct instruments harmonizing within one complex symphony, together compose the vision I have in mind. Even readers who might dissent from my conclusions are nonetheless invited to join this larger conversation by engaging with its premises.

My position stems from a lifetime of writing and wrestling with questions in Muslim ethics. I speak from experience in the domains of bioethics and medical ethics, where the encounter between science and theology takes place not in abstraction but at the bedsides of patients, in the decisions of physicians, counselors, and families (Moosa, 1999). Both young and old are often perplexed by the absence of an Islamic theological common sense on contemporary questions in the biological sciences (Moosa, 2021). Scholars and institutions issuing legal opinions on issues ranging from the tissue economy

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and gene editing to artificial intelligence will, I believe, ultimately benefit from a coherent theological literacy on science and technology, one grounded in robust epistemic foundations and attuned to complexity.

Through several historical snapshots, this Element has shown how Muslims once developed a theology of the Divine that animated all subsequent inquiry into the natural world and the cosmos. Conceptions of God shaped the horizons of cosmology, embedding questions about matter, natural law, human agency, and divine causation within a theological framework. Because premodern theologians simultaneously competed with philosophers, while borrowing much of their intellectual apparatus, certain philosophical assumptions gradually acquired quasi-theological authority. This forced later scholars to distinguish between theology and philosophy as if they were inherently separate enterprises.

In the modern era, Muslim theology has been enlisted to mediate humanity's dialogue with nature. God continues to be invoked as the direct author of natural events, even as the frameworks of modern science expand to encompass planetary history, human origins, and the vastness of the cosmos. The Muslim subject thus stands at a charged intersection, witnessing how evolving engagements with God, nature, technology, and ecology continually reshape human consciousness and practice.

Given these challenges, theology today has become a profoundly different enterprise from its earlier articulations. In a secular age – where God is no longer part of the normative public grammar of self, society, and nature – theology must learn to speak within what is now called the public sphere: a collective formed not by coercion or proximity but by shared secular discourse and mutual concern.

In a memorable critique of exclusive theological authority in public debates, the American Catholic theologian David Tracy (b. 1939) reminds us that "theology . . . is too important to be left to the theologians" (Tracy, 2020). He insists that the publics who are addressed by theology must also participate in shaping it. Public experience of science and technology is not merely an illustration of theological problems – it is a form of knowledge, indispensable to any serious conversation about science and faith.

A contemporary Muslim theology, therefore, must cultivate informed debate on the major questions of human existence – war and peace, genocide and colonization, nature and technology, and the impact of science on the environment and the human body and psyche. It is, in essence, a conversation about life itself, but one conducted in relation to God and the intellectual traditions to which Muslims are heirs. The task is not to dictate consensus but to nurture inclusive, rigorous, and self-critical discourse. Such an endeavor requires

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epistemic virtues: curiosity, honesty, humility, fallibilism, attentiveness to evidence, and the capacity to dwell with ambiguity rather than clutching at unexamined certainties.

The multiple and complex Muslim theologies of the past still have a vote in this conversation, though not a veto. Theological discourse remains anchored in its cornerstones – God, prophecy, and revelation – but other matters that once appeared as part of an immovable consensus may require re-examination in the light of contemporary experience.

A renewed conversation in Islamic theology must remain open to alternative models and intellectual grammars. Any prescriptive or dogmatic program risks suffocating the very creativity such theology requires. Today, every thoughtful person confronts questions about existence, suffering, and purpose. The devastations of war and disease, and the insecurities of economy and ecology, all press upon the human soul in search of meaning. An Islamic theology adequate to this moment must ask anew the timeless questions of being and belonging – now refracted through the prisms of prophetic revelation, inherited tradition, and modern knowledge in unprecedented geopolitical spaces.

Rather than offering a blueprint, I propose an invitation: to map themes that can sustain future conversations in the hope that they yield more productive and illuminating outcomes.

Historians of religion show us how understandings of the cosmos have evolved. Millennia ago, our ancestors gazed at the heavens and imagined them populated by spirits and deities who danced, loved, and contended with one another. Later, it was believed that a single deity emerged who ruled all below. Such stories remind us that our comprehension of the world has always been in motion and will continue to change across the longue durée – just as our grasp of the universe's fundamental elements has transformed through time.

The polymath and philosopher Gottfried Wilhelm Leibniz (d. 1716) posed the enigmatic question that is relevant for both science and theology: "Why is there something rather than nothing?" (Leibniz, 1989 "Principles of nature and grace based on reason.") With this, Leibniz invites us to wonder about the very fact of existence, to reflect on the diversity and purpose of creation, and to wrestle with the grounds of meaning itself. Some seventy-five years before Leibniz's death, the philosopher from Shīrāz, Mullā Ṣadrā (d. 1640), offered an indirect response through his exploration of ontology: "Existence (*wujūd)* is the source of everything" (Ṣadr al-Dīn al-Shīrāzī and al-Muẓaffar, c.1387/1967). In effect, Mullā Ṣadrā anticipated Leibniz's question by asserting that existence itself is the reason there is something rather than nothing.

For those seeking transcendent meaning in nature and in human nature, existence becomes a theological question. Like Mullā Ṣadrā, they search not

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for the negation of essence but for its eternal ground. By contrast, for atheists, life's meaning is circumscribed by materiality; existence is merely a biological fact. For the believer, existence discloses divine intention: truths revealed through prophetic guidance that shape human nature and orient it toward trusteeship on earth. Existence also concerns the scientist, who seeks to uncover the structures of material reality. These multiple perspectives, whether scientific, theological, or existential, should not compete but converse with each other, for all are drawn toward the same mystery of being.

At one time, the followers of the Abrahamic traditions conceived of the world as given for their dominion. Today, thoughtful Muslim theologians – faced with ecological crisis – reimagine the world as *amāna*, a trust and responsibility. This awareness entails recognizing the earth's finitude and rejecting its reckless exploitation. Trusteeship means understanding nature in order both to use and to preserve it, for conservation is an act of faith as much as of prudence. Whether prompted by climate change or by a renewed theology of stewardship, the study of nature becomes an act of devotion – a contemplation of divine artistry manifest in creation's subtlety and power. For believers, it is a moment to echo the Qurʾān's exclamation: "Our Sustainer, you did not create all this in vain!" (Q 3:191).

First, such an ambitious enterprise requires broadening the intellectual resources of theology through meaningful engagement with scientific discourse on existence, structure, and the significance of nature – and, more profoundly, the human encounter with being itself. Second, the refusal of some traditional theologians to acknowledge emerging forms of knowledge is not only strategically shortsighted but borders on intellectual irresponsibility. Historical *kalām* thrived through a living dialogue with its cosmopolitan milieu; it cannot now retreat into a repetition of inherited formulas. Third, tradition-based discourses remain indispensable, but they hold a vote, not a veto. My approach treats this reservoir of authority as one vital source within a wider contemporary theological toolkit.

Finally, a vibrant and reflexive Muslim theology, fully aware of its methods, contexts, and limitations, must draw upon philosophical anthropology, metaphysics, hermeneutics, epistemology, and ontology to maintain intellectual coherence. As Rāzī demonstrated in his subtle reflections on Qurʾānic "guidance," human reason is inescapably part of interpretation: There is no unmediated access to either revelation or nature. Understanding itself is an act of mediation – and through it, we grasp the meaning of existence.

Differentiation and Integration

Attempts to formulate modern Muslim theologies have focused on defining their ultimate ends. But it might be more productive to think in terms of ongoing

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symbolic processes. I propose the paired concepts of differentiation and integration to describe how symbols develop in theological systems. By differentiation, I mean the unfolding of a single symbol into multiple, more specialized forms.

A simple idea of divine unity, the oneness of God (*tawḥīd*), for instance, gradually differentiated into multiple elaborations. The concept differentiated into the oneness of Lordship (*tawḥīd al-rubūbīya*), the oneness of worship (*tawḥid al-ulūhīya*), and the oneness of divine names and attributes (*tawḥīd al-asmāʾ wa al-ṣifāt*). Here, one symbolic kernel expanded into a complex theological architecture.

By integration, I mean the merging of distinct symbol-systems through sustained interaction, to produce a hybrid whole. A striking example is the integration of Qurʾānic cosmology with Aristotelian and neo-Platonic concepts in early Islamic philosophy. Even critics such as Ghazālī acknowledged that the Qurʾān and logic converged on shared metaphysical truths, though they were expressed in different idioms (al-Ghazālī and Bījū, 1413/1993). The processes of differentiation and integration might signal how contemporary Islamic theology might fruitfully engage both its inherited traditions and modern scientific disciplines to bridge the gap between scientific and theological literacies. Such integrations might not be uncontested. Yet the very debates they provoked in the past—and still animate in the present, and perhaps the future—testify to the vitality and resilience of the Islamic intellectual tradition.

The conceptualization of the relationship between theology and science emerges primarily as a cultural issue, one that originated in Christian societies where theology once held preeminence but was dethroned by secular culture. This context has generated persistent efforts to frame the religion–science or theology–science relationship through various conceptual models, such as "nonoverlapping magisteria" (NOMA), which claims that science and religion occupy entirely separate domains. Other positions aspire to reach complete identity between the two fields or show that they share partially overlapping jurisdictions in hard and soft forms. Despite their heuristic value, these frameworks remain mechanistic, flattening the rich traffic among the multiple grammars through which humanity seeks to comprehend reality and truth – science and theology merely being one thread in that larger weave.

Colonial education introduced modern science to the Muslim world alongside secularism, artificially amplifying the perceived gulf between religion and science. Historically, Muslim intellectuals – whether jurists, Qurʾānic exegetes, or commentators on prophetic traditions – who also excelled in astronomy or mathematics never segregated their scientific explorations from their theological convictions (Dallal and Maḥbūbī, 1995; Michot, 2003).

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Muslim physicians might have debated the ethical permissibility of autopsies or cadaver examinations for research, but they did not question the fundamental compatibility of scientific and religious worldviews (Fancy, 2013). Today, however, the increasingly complex developments in science that challenge traditional doctrines, coupled with a declining *ʿulamāʾ* literacy in science and public literacy in theology, all call for a need to sustain a renewed Islamic theological engagement with science.

Why Science Demands Theological Reflection

This engagement, as I envision it, does not aim to prescriptively resolve questions on evolution for the faithful, or render quantum mechanics comprehensible within an Islamic framework, to put it sarcastically. Rather, a modern Islamic theology in relation to science should provide resources and modes of thinking that empower interested Muslims with a theological literacy capable of embracing *complexity*. Kashmīrī's insightful distinction between phenomena as experienced and "the thing as it exists in itself" (*nafs al-amr*) reveals a theological mind that recognizes the limitation of ordinary observation. While accepting the firmament as it appears to be a common perception, Kashmīrī deferred to scientific specialists on celestial space's actual nature. In doing so, he cultivated a sensible approach that contrasted with contemporaries of his own theological orientation who insisted that theological conceptions should override empirical evidence.

Science investigates existence – nature, matter, and their permutations, including human origins and cosmic beginnings, without rendering its knowledge inherently opposed to theological concerns and values. These investigations should, however, remain open to theological questions and ethical considerations with respect to their implications. Theology primarily affirms divine truth in the world through engagement with prophetic figures, revelation, and historically situated communities. Expecting science to resolve theological dilemmas or for theology to dissolve scientific problems fundamentally misunderstands both disciplines. The widening literacy gap between scientific and theological domains has transformed what began as an artificial separation into normalized pathological incoherence, severely impeding meaningful dialogue in certain Muslim circles. Synthesis is not lacking, but common sense is absent. What is needed is a grasp of how theological and scientific grammars approach their objects through distinct vocabularies and concepts, though both coexist within human consciousness. Attempting to transliterate between these languages by seeking direct picture-like correspondences between theological and scientific truths misconstrues the grammar and

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purpose of both discourses. Coherence can be fostered only if each discipline develops a common sense of the other. A common sense entails the ability to understand that each discipline is providing the best account of what they are examining in terms of their key reference points.

Initiatives to bridge the gap between scientific developments and theological thought might initially seem artificial. For no one demands theological frameworks to specifically address issues in sports in Muslim societies. Why, then, develop theological approaches to transliterate science and technology? The answer lies in recognizing how profoundly science and technology reshape our ways of life, orchestrate our psychic landscapes, and even touch our fundamental nature. They alter our interior lives and subjectivities as well as our physical bodies and spaces, in ways that sports and other cultural practices simply do not. In secular discourse, the concept of "self" may have supplanted the soul, yet it remains the human soul – that subtle divine-spiritual entity bound to the mind – that undergoes transformation through encounters with scientific and technological paradigms. Given our continued valuation of this mind-soul complex, a legitimate expectation arises to provide guidance in order to navigate the existential anxieties generated by increasingly invasive scientific and technological interventions. Thus, theology functions not as a separate language opposing scientific discourse, but as a necessary strand in the braided cord of human understanding. These braided languages – theological, scientific, aesthetic, ethical – are not consciously separated in our lived experiences but rather interwoven in our engagement with reality, or as Mullā Ṣadrā put it, braided with existence itself.

Strange Loops, Tangled Hierarchies, and Theological Meaning

Unlike other cultural practices, science and technology affect the entire braid of human understanding, altering what it means to be human in ways that call for theological reflection precisely because they touch upon the soul itself. And if theology is your primary language for meaning-making in life, then it will invariably engage an intelligible scientific reflection on the way matter and nature affect the body and self. Yet, this braiding of different knowledge systems resembles what cognitive scientist and philosopher Douglas R. Hofstadter (b. 1945) termed "strange loops" – those self-referential patterns where, like a picture within a picture, moving upward or downward through hierarchical systems, we paradoxically find ourselves back at where we started (Hofstadter, 1979).

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Just as consciousness emerges from the strange loop of self-reference within neural systems, so too does theological meaning emerge from recursive acts of interpretation. In both cases, understanding circles back on itself – neurons modeling the self, or believers interpreting revelation – creating new layers of awareness. In this recursive motion, human comprehension of revelation is never a linear ascent but a looping pattern where meaning is both grasped and re-grasped. These patterns interact across multiple levels at once, forming what Hofstadter called "tangled hierarchies" (Hofstadter, 1979). In such hierarchies, the boundaries between levels blur: The experience of the self, God, and of the scientific world interpenetrate, resisting neat separation.

Similarly, neuropsychologist Mark Solms (b. 1961) suggests in his work on consciousness that our subjective experience – what Islamic tradition locates in the heart-soul complex– emerges not as a separate entity but as an intrinsic property of certain complex systems, specifically those capable of feeling and self-reference (Solms, 2021). Consciousness is fundamentally affective, in other words, a felt intensity of experience. What theological discourse offers is not an alternative to scientific understanding, but a complementary recursive level that addresses the felt qualities of existence (affect) that necessarily escape purely material explanations. Islamic theology, with its sophisticated hermeneutical traditions, provides conceptual frameworks that can accommodate both the objectivity of scientific observation and the subjectivity of human consciousness – recognizing, as Solms argues, that feeling itself is the foundational property. Both science and theology spring from the same felt ground of existence: A looping movement of meaning-making, where our search to know is inseparably braided with our need to feel and dwell in the world. Science and technology transform the soul as well as the shape of life.

Contemporary Islamic theology differs fundamentally from its premodern counterpart. Premodern theology established dogmatic formulations, with belief in God as the universal Creator and the authority of the Prophet Muḥammad constituting the cornerstones of all theological systems. Early Islamic theology borrowed arguments from natural philosophy to construct elaborate dogmatic justifications for the world's createdness, delineated boundaries of human choice against divine decree, and explored divine attributes and divine unity. These *kalām* debates held a genuine relevance within their intellectual context. However, a range of topics once addressed through natural philosophical explanations within *kalām* now fall squarely within the purview of physics, astrophysics, chemistry, and biology. Science's mathematical character now constitutes our common sense, requiring no theological validation. Understanding classical *kalām* arguments on formerly relevant natural

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philosophical topics surely retains historical significance, but it serves a limited contemporary theological function beyond comparative analysis.

Toward Symphonic Thinking

A contemporary Muslim theology optimally serves its audiences by mediating between various languages of human experience. And at times it also serves as a bulwark and a critique of the corrosive effects of science and technology, in its practice and philosophy, on the human self. But critique should remain critique, and not a justification to throw the baby out with the bathwater. A reflexive theological approach should cultivate an appreciation for meaning-making across the human, social, and natural sciences while maintaining a vibrant vocabulary and reference for a relationship of faith, drawing on prophetic authority, community identity, and inherited intellectual traditions. The Islamic humanistic tradition, alongside the broader humanities, can furnish Muslim theology with sophisticated conceptual vocabularies to explore multiple avenues of meaning-making informed by diverse knowledge sources, which are realized through practice. This approach does not position theology as a judge determining whether quantum mechanics or consumption practices studied by the human sciences are true or false, good or bad! Rather, as Ghazālī suggested in his nuanced epistemological framework, different forms of knowledge serve different purposes and operate according to distinct standards of certainty.

What is needed is not merely synthesis but symphonic thinking – a recognition that different forms of knowledge can complement, rather than contradict one another, when properly understood within their respective domains. The theological task ahead requires nothing less than the courage to think beyond established categories toward a more intellectually robust engagement with both divine revelation and knowledge of existence – a courage that honors tradition precisely by extending it into new intellectual territory.

In this endeavor, we might find that the greatest wisdom lies not in resolving all tensions between theology and science, but in maintaining a creative tension that allows each to illuminate the other. There is merit in maintaining a creative tension between the two without diminishing the distinctive contribution to human understanding made by each and furthering cognitive incoherence. When the latter happens, it ceases to be both science and theology and morphs into versions of pseudoscience and pseudotheology. New theological outcomes might be the best way of honoring the enduring legacy of those remarkable past Muslim thinkers – not their specific reconciliations, but their willingness to engage in the difficult work of interpretation that makes faith intellectually vibrant in every age.

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Optimizing Knowledge and Cultivating Humility

A contemporary Muslim theology should optimize and support all forms of knowledge-production while facilitating informed conversation about available options for practice. Traditional *kalām* theology offered a concept worthy of adaptation and development, though this idea never achieved prominence and flowering in Muslim theological thinking: the homogeneous confluence of all knowledge (*tajānus al-ʿulūm*) (al-Taftāzānī, 1440/2020). Ghazālī wrote: "All forms of knowledge in their entirety are mutually reinforcing (*mutaʿāwina*), interconnected (*mutarābiṭa*), with some parts tied to others; the benefit to the learner is instant, so that the learner is not hostile to that form of knowledge of which he is ignorant. Humans are surely enemies of what they are ignorant" (al-Ghazālī and Bījū, 1428/2008). This perspective recognizes that all knowledge, at certain levels, intermingles and forms connections. For instance, *kalām* theologians noted how specialized theoretical knowledge eventually integrates into lived understanding, becoming unquestioned truth – e.g., all right angles are equal. This once highly theoretical proposition eventually became common knowledge.

Muslim theologians acknowledged that knowledge could achieve standardization at certain levels. The essences and substances of known objects (epistemic objects) retain their distinctiveness – horses cannot become windowpanes – yet various forms of knowing become imbricated and enmeshed through their properties (accidents) and features. Different objects share characteristics – a black wall and a black horse share "blackness." Though seemingly elementary, this observation reveals how all knowledge, despite diverse purposes and constructions, ultimately negotiates sameness and difference, unity and plurality. Ideal knowing provides a holistic picture of reality and practice, rather than fragmented, disconnected insights.

Contemporary Islamic theological discourse often proceeds in isolation from current knowledge systems, much to its detriment. The artificial partitioning of "Islamic" knowledge from other knowledge systems does indeed create deficiencies in analyses and diagnoses. A contemporary Muslim theology ought to advance the pursuit of knowledge while optimizing crosstalk between different bodies of knowledge. Conceptualizing knowledge as partitioned and linear in form and imagination, as bulwarks and balkanization, imposes severe limitations or defeats the purpose. Preoccupation with establishing pure lineages of authenticity fails to recognize life's inherently hybrid nature. Knowledge comes in "bodies" already present, already worldly, already embodied. Knowledge has neither an inside nor an outside. Drawing on French philosophers Gilles Deleuze (d. 1995) and Felix Guattari (d. 1992) it might be helpful to adopt the

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desert and oasis as a rhizome in our metaphor of inquiry (Deleuze and Guattari, 1987). They prefer conceptualizations of interconnectivity like the desert and the oasis, instead of the hierarchy evident in tree metaphors. The pursuit of knowledge is a nomadic journey that revels in confluences and synergies.

Knowledge does not belong to specific faith traditions; rather, faith traditions and forms of divine obedience (*dīn*) embody multiple knowledge forms. We should therefore conceptualize knowledge as complex, overlapping, and interconnected (rhizomatic) networks resembling botanical systems of lateral shoots and adventitious roots (Deleuze, 1994). Tubers – storage stems of certain seed plants – can be divided, their offshoots replanted to flourish elsewhere in a continuous process. Offshoots connect different points while potentially developing distinct traits. The human brain similarly functions not through ramification but through various simultaneous and intermittent connections. The homogenizing confluence of knowledge thus reflects our world's complexity. Conceptualizing knowledge as confluence eliminates problems of commensurability and incommensurability since living systems naturally find appropriate habitations.

Science, as Jacob Bronowski observed, "is a language whose structure mimics the behavior of the world" (Bronowski, 2002). In everyday applications, science integrates seamlessly into human life – whether boarding an airplane or contemplating a leap from a roof, gravity remains the determining factor in any landing. Yet science has become profoundly intertwined with technology, which increasingly drives the scientific enterprise. The once hierarchical relationship – science as master, technology as servant – has been inverted through technology's rapid automation. Our current epistemic framework operates primarily through computational reason, transforming how we understand both natural and social phenomena.

Theology, in its lived manifestation, similarly functions as language mimicking human imagination, beliefs, and practices related to divine entities, prophets, scriptures, and sacred objects. Theological grammar describes how the supernatural interacts with lived experience. From casual invocations ("I swear by God") to moral judgments ("God will punish you in the hereafter"), everyday human behavior reflects linguistic engagement with the divine presence. Islamic theological discourses concerning scientific claims thus participate in knowledge confluences. The challenge involves understanding the specificities of each language while recognizing its integration within complex human consciousness. Like different languages, they require translation and interpretation without conflation.

Science largely adopts realist perspectives, positing a physical world existing independently of human minds, yet rationally organized and comprehensible.

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Theological truths derive from belief in an unseen Being, made accessible through revelation, in the case of Islam, vouchsafed to the Prophet Muḥammad. This revealed book constitutes divine speech in a human language, necessarily carrying ambiguity and interpretive challenges. Theology represents a meaning-making process pursuing truth and the sublime through engagement with this revelation, as evidenced in the sophisticated hermeneutical approaches developed by figures like Rāzī.

My emphasis on comprehensive knowledge as necessary for serious theological reflection should now be evident. Theological investigation requires robust epistemological approaches. Knowledge has a clear meaning. But this raises further questions: knowing what? Is it about knowing the essences of things? Is it primarily about knowing in order to make and educate the self/soul? As Ghazālī argued, "knowledge" itself is polyvocal, potentially signifying insight, imagination (*takhayyul*), qualified certainty (*ẓann*), divine omniscience, intellectual perception, or elucidation (*bayān*) (al-Ghazālī, 1413/1993a). Ghazālī also acknowledged knowing's definitional elusiveness, contingent on the parameters applied to knowledge objects. Sensory perceptions – like defining the aroma of musk or the taste of honey – resist precise definition. Knowledge itself can prove to be similarly elusive, but not futile.

The artificial boundary maintained by many traditionalists – insulating "traditional" knowledge from the modern humanities and the social sciences – creates significant disadvantages. Knowledge transcends creed and religion, though civilizational biases may become embedded within knowledge structures and practices, requiring vigilance rather than conspiratorial suspicion. Each discipline offers valuable insights requiring judicious evaluation and compelling argumentation. Combining traditional archives with contemporary disciplines enhances discursive frameworks. Knowledge which fails to develop a critical acumen and wisdom does not merit reconsideration. Approaching knowledge with an awareness of human limitations and the presence of divine mercy, indeed, fosters essential humility. Self-understanding through knowledge creates pathways to this humility, which classical Muslim ethicists recognized as a fundamental virtue.

Cultivation of the Imagination

Muslim theology thrives when it cultivates the imagination, which forms the core of all learning and intellectual growth. The Muslim tradition abounds with imaginative richness (*takhyīl*) across disciplines from poetry and philosophy to rhetoric and poetics. In philosophical poetics, the term *takhyīl* signifies "the creation on the part of the poet, of an image in the mind of the listener," as the

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philosopher Abū Naṣr al-Fārābī (d. 950) first extensively described it (Heinrichs, 2008). For Zamaksharī, the Qurʾānic commentator and philologist, *takhyīl* represented "visual, anthropomorphic representation of abstract notions like God's omnipotence" (al-Zamakhsharī al-Khawārizmī, n.d., Heinrichs, 2008). Simply, it means creating mental pictures or images that help us grasp fugitive abstract ideas – like describing God's unlimited power through familiar human-like images to which our minds can more easily and intentionally understand and relate. This imaginative capacity allows theological thinking to transcend literal interpretations, as Zamkahsharī demonstrated in his exegesis and Kashmīrī suggested in his analysis of the Qurʾān's cosmological language, that the revelation was speaking to human experience rather than making scientific claims.

In engaging with science, theological imagination serves several crucial functions. First, it enables the recognition of multiple interpretive possibilities within revelation, preventing rigid literalism that might otherwise clash unnecessarily with discoveries in nature and science. Second, it facilitates conceptual innovation by allowing theological language to evolve alongside scientific understanding without abandoning its essential commitments. Third, it promotes intellectual humility by acknowledging that both theological and scientific understandings represent human attempts to grasp realities that may ultimately transcend full comprehension.

The theological imagination functions not as escapism from scientific reality but as a mode of engagement that recognizes the symbolic and metaphorical dimensions of human understanding across all domains. Just as scientific models serve as imaginative constructs that help us comprehend physical phenomena, theological concepts offer imaginative frameworks for engaging with questions of meaning, purpose, and value. By cultivating this imaginative capacity, Muslims can develop more sophisticated relationships between their religious worldviews and scientific discoveries, engaging them as braided rather than competing narratives about reality.

In practical terms, cultivating theological imagination requires educational approaches that encourage questioning, metaphorical thinking, and a certain comfort with multiple levels of meaning. The traditional Islamic sciences of *taʾwīl* (interpretation) and *majāz* (figurative expression) provide rich resources for this endeavor, enabling creative engagement with both revelation and scientific knowledge without reducing either to the terms of the other. Persian philosopher and mystic, famous for his metaphysics of light and illumination, Shihāb al-Dīn al-Suhrawardī (d. 1191), believed that imagination is part of thinking and lamented its absence in his day. "Most evil are the times when independent thinking (*ijtihād*) was brought to an end," he wrote, "when the

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movement of ideas was interrupted, the door of spiritual unveiling was shut and the pathways to divine witnessing were sealed" (al-Suhrawardī, 1430/2010).

Dignity and Integrity

A theological inquiry's ontological endpoint remains God, yet the path toward God involves fulfilling our responsibilities to fellow humans and in relation to existence, of which we form an integral part. A contemporary Muslim theology strives to unequivocally promote awareness of human and animal existence, along with nature's dignity and integrity in relation to self/soul and other souls/selves. Theological teachings instill a desire for dignified habits while abandoning undignified ones. Traditional Muslim ethics discussed this value of dignified habits as the virtue of chastity (*ʿiffa*). A theology that values knowledge and prizes the imagination implies the protection of self and others from undignified habits, practices, and modes of thinking. Undignified forms of thinking include both fabricating science and inventing a theology to justify such fabrications. Ghazālī described sloth (*futūr*) as antithetical to human flourishing (*saʿāda*) (al-Ghazālī and Bījū, 1428/2008). This includes environmental restoration, animal protection, and cosmic preservation against all forms of degradation through all conceivable relationships.

In the context of scientific and technological development, this focus on dignity requires careful ethical reflection on how emerging technologies will affect human flourishing in the long term. Scientific advances in genetics, artificial intelligence, and biotechnology all raise profound questions about what it means to be human and how we maintain human dignity in the face of technologies that may fundamentally alter our nature. Similarly, environmental sciences reveal the interconnectedness of ecosystems and the profound impact of human activity on natural systems, calling for theological reflection with respect to our responsibility as stewards (*khalīfa pl. khulafāʾ*) of the earth.

The Islamic concept of *amāna* (trust or stewardship) offers a powerful framework for thinking about scientific and technological ethics. Humans are entrusted with knowledge, capabilities, and natural resources that must be used responsibly and for the benefit of all creation. This perspective avoids both the uncritical embrace of technological "progress" as well as the reactionary rejection of scientific advancement, instead promoting critical discernment regarding how scientific knowledge and technological power align with advancing dignity and integrity or undermine both.

A contemporary Islamic theology of science would necessarily address questions of bioethics, environmental ethics, and technological ethics through this lens of dignity and trust. Many serious philosophers of science have

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questioned whether scientific knowledge itself is morally neutral. Most, of course, agree that its applications always occur within moral contexts that demand ethical deliberation. By grounding this reflection in concepts of dignity, integrity, and trust, Islamic theology can offer valuable perspectives on scientific development that unfortunately often focuses exclusively on technical or utilitarian considerations.

Beauty and Aesthetics

Theological teaching is at its best when it cultivates an appreciation for beauty in all forms while recognizing the Divine as beauty's quintessence. The tradition affirms Divine investment in beauty and love for beauty. The Prophet Muḥammad's teaching states: "God is beautiful and appreciates beauty" (al-Nīsābūrī al-Qushayrī and al-Nawawī, 1415/1995). Aesthetic appreciation emerges from heart-mind dispositions. The human capacity to appreciate the beauty of others arises only through a generosity cultivated consciously in the soul, as a form of entrenched generosity.

The Islamic intellectual tradition has long recognized the connection between beauty, truth, and goodness. Ibn Sīnā linked aesthetic experience to intellectual understanding, suggesting that the pleasure we take in beautiful objects reflects their participation in divine perfection. The tradition of Islamic art – from calligraphy and architecture to poetry and music – exemplifies how beauty serves as a pathway to spiritual insight, not merely as decoration or entertainment.

The aesthetic dimension has profound implications for Islamic theological engagement with science. Scientific discovery reveals the elegant mathematical patterns underlying natural phenomena, the astonishing complexity of living systems, and the vast beauty of the cosmos – all of which can evoke wonder and awe. A theology that emphasizes beauty can help Muslims appreciate scientific discoveries as disclosures of divine creativity rather than as challenges to religious belief.

Moreover, the aesthetic dimension reminds us of the fact that scientific knowledge alone cannot satisfy the full range of human needs and aspirations. While science excels at answering the "how" questions about existence and natural phenomena, theology addresses the "why" questions embedded in aesthetic and spiritual experiences, from which we derive meaning and purpose. An Islamic theology that makes beauty a centerpiece recognizes that a complete human understanding of phenomena requires both empirical investigation and aesthetic appreciation – both the precise measurements of the scientist and the profound insights of those who are poetically and philosophically gifted.

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In practical terms, this means that science education in Muslim contexts ought to prize the integration of aesthetic appreciation alongside technical knowledge, helping investigators recognize the beauty inherent in natural patterns and scientific principles. Similarly, religious education should acknowledge how scientific discoveries reveal new dimensions of cosmic beauty that can deepen faith, rather than threaten it. The concept of *iḥsān* (excellence and beauty in action) provides a framework for integrating scientific precision with aesthetic and ethical concerns, promoting a holistic approach to knowledge that honors both empirical accuracy and spiritual beauty.

Complexity

A contemporary Muslim theology substantially improves when it appreciates the world's complexity. Human knowledge evolves gradually; our self and cosmic understanding unfold across millennia. Arrogance and folly accompany claims of superiority over our predecessors – history is not a beauty contest. Sustaining curiosity and exploring the unknown requires courage and an openness to be surprised, without claiming access to a comprehensive understanding of intersecting forces. Human experience exists at the transcendence-immanence intersection, where some phenomena transcend comprehension yet are experienced with intimacy and proximity. When curiosity meets the unknown, profound experiences productively become opaque and perplexing. Cosmic exploration reveals complex force-fields signifying nonlinear and linear contemplative and living modalities surrounding us. This recognition of complexity reminds us that knowledge operates at multiple levels of certainty, from the less certain known as the probable (*ẓannī*) to the categorical (*qaṭʿī*) and everything in between.

Complexity theory in contemporary science offers powerful metaphors for theological thinking. The emergence of order from chaos, the unpredictability of complex systems, and the limitations of reductionist approaches all have parallels in theological reflection. Just as complex systems cannot be fully understood by analyzing their individual components in isolation, theological truths cannot be reduced to simple propositions or literal readings of revealed and authoritative texts. Both require engagement at multiple levels of meaning and recognition of emergent properties that appear only at the system level.

The Islamic intellectual tradition has resources for engaging with complexity. The concept of wisdom (*ḥikma)* involves recognizing patterns and connections across different domains of knowledge. The discipline of legal theory (*uṣūl al-fiqh)* developed sophisticated methods to weigh multiple, sometimes conflicting indicators, to arrive at balanced judgments by way of extensive

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language and logical debates. The Sufi tradition emphasized direct experiential knowledge (*maʿrifa*) alongside discursive reasoning, recognizing that some truths can be grasped only through specific modes of engagement.

Contemporary Muslim theological encounters with science require similar sophistication in navigating complexity. It must avoid both the oversimplification that reduces religious texts to scientific claims and the compartmentalization that insulates religious belief from scientific knowledge. Instead, it should cultivate what complexity theorists call "requisite variety" – developing conceptual tools as nuanced and multifaceted as the phenomena they seek to understand.

This approach to complexity also has ethical implications. In complex systems, small changes can have large and unpredictable effects – a reality that calls for caution and humility in scientific and technological interventions. The precautionary principle, which has parallels in Islamic legal thinking about harm prevention (*darʾ al-mafāsid*), suggests that when dealing with complex systems like the climate, ecosystems, or human societies, we should proceed carefully when interventions carry very high risks of serious or irreversible harm to the ecosystem.

Ultimately, embracing complexity means acknowledging the provisional nature of all human knowledge while continuing to seek greater understanding. It requires courage. Ibn ʿAṭāʾ Allah al-Sikandarī (d. 1309), a jurist, scholar of *ḥadīth*, and *ṣufī shaykh*, stated: "Competitors in aspiration do not violate the boundaries of destiny" (Ibn ʿAṭāʾ Allāh al-Sikandarī and Ibn ʿAjība al-Ḥasanī, 2018). Persons of high aspiration do not violate destiny, rather they author their own paths in existence, enabling their talents to thrive and their goals to be achieved. It also means recognizing, as the Qurʾān suggests, that "above every possessor of knowledge is one who is more knowing" (Q 12:76) – a principle that applies to both scientific and theological inquiry. Epistemological ambition tempered by humility creates space for genuine dialogue between religious and scientific perspectives, recognizing that each has something to learn from the other in our shared effort to comprehend the complex reality in which we live.

Conclusion: Symphonic and Braided Thinking

Rather than conceptualizing Islamic theology and science as discrete entities awkwardly related through separation, overlap, or partial convergence – metaphors that ultimately prove inadequate – it might be more productive to understand each as a complex symbol system. Both science and theology function as specialized symbolic languages describing discrete types of reality.

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Language itself is a symbol system, one that is open. The relationship between symbol systems involves both differentiation and integration occurring in predictable and unpredictable, conscious and unconscious, ways.

Differentiation represents the gradual divergence of new symbols from parent symbols that served as original templates. The detached symbol gradually achieves autonomy; its external communication is reflected in its internal structure. Integration occurs when unrelated symbols exchange messages so extensively that they become bound together, functioning as a single symbol.

These dynamic processes inform my theology-science meditation. However, a reflexive theology, meaning, an awareness of one's position, context and methods, does not validate the claims of science, nor does it prove God's existence through scientific evidence. Both science and theology function as languages of self-expression and relationality. Theology articulates the God–human–world relationship, while science expresses experience in the human–world relationship, existence at large, in Mullā Ṣadrā's words. Humans simultaneously inhabit all three relationships at once, in intricate and entangled ways, for which I use the metaphor of the braid or braidedness.

The God–human relationship manifests both visibly (*ẓāhir*) and invisibly (*bāṭin*), through articulate expression and inarticulate intuition. Faith represents the compact between humans and the unseen God, incorporating mystery and knowledge beyond sensory perception, yet expressed through intuition and "knowledge by presence" (*al-ʿilm al-ḥuḍūrī*). Science similarly engages both visible nature and invisible realities hidden from unaided perception but is accessible only through complex instruments and conceptual frameworks.

Translating our existential experiences through both scientific-technological and theological narratives means engaging these domains at different meaning-making levels. These distinct languages should not be conflated as one-on-one (isomorphic) experiences. Each differs fundamentally while inhabiting body and mind in braided ways. It would be apt to recall the wisdom of Rāzī's insight. As the fount of theological teaching, the Qurʾān need not provide guidance on everything to fulfill its purpose as guidance. It suffices for revelation to illuminate certain matters while leaving other issues to human investigation. Doing so makes optimal use of the divine gift of reasoning as well as the virtues of the soul.

The path forward lies not in choosing between these languages of science and theology or forcing their artificial integration, but in developing the cognitive and spiritual capacities to navigate them symphonically – to inhabit multiple symbolic worlds without reducing their distinctive characteristics. This requires both intellectual sophistication and epistemic humility, recognizing that our understanding of both divine revelation and natural phenomena (existence)

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remains perpetually incomplete. A contemporary Muslim theology worthy of the name flourishes when it embraces this complexity instead of seeking premature resolution. The preeminent poet-philosopher of pre-partition colonial India, Muḥammad Iqbāl (d.1938) wrote: "An act is temporal or profane if it is done in a spirit of detachment from the infinite complexity of life behind it; it is spiritual if it is inspired by that complexity." (Iqbal, 1999) Complexity cultivates an intellectual space where faith and reason, tradition and innovation, can engage in productive dialogue without abandoning their distinctive grammars. This represents not a compromise but a braiding of the various threads of knowledge that we inhabit simultaneously as humans. This requires that we honor both the integrity of genuine theological reflection and scientific inquiry while recognizing the vulnerability of the human subject who inhabits these languages in the search for a common sense to deal with multiplicity and plurality.

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Islam and the Sciences

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