

GOD, NATURE AND THE CAUSE: ESSAYS ON ISLAM AND SCIENCE by Basil Altaie was published in 2016 by Kalam Research & Media in Abu Dhabi, UAE, comprising 224 pages including bibliography and index. ISBN 978-9948-02-527-6 (paperback); ISBN 978-9948-02-536-8 (hardback).

There are many reasons to be enthusiastic about this book especially for those who are in the field of mathematical physics or theology or those who are generally interested in science and religion debates.¹

To begin with, there are very few works that directly address the intriguing relation between the enigmatic results of modern physics post quantum and relativity theories and the long known fundamental principles and deduced results from the science of *Kalām*, a discipline often referred to, accurately or inaccurately, as Islamic Theology. Although quantum and relativity theories have been around for more or less a century, while *Kalām*, which not only explains the Oneness of God and His Attributes but also the nature of the world of sense and sensible experience, has matured as a science for over a millennium, where rigorous discussions about the possible intricate connection between the two is still scarce.

Amongst the most well-known results of *Kalām* is a unique and elaborate theory of atoms and accidents or the *jawhar* and *'araḍ*.² This version of atomism that draws insight directly from the Qur'ān flourished partly as a response to Aristotelian cosmology and his theory of *minima naturalia* that tends to lead to the claim for the eternity of the universe. Also worth mentioning is the well-known *Kalām* Cosmological Argument as re-introduced into the Western world by William Lane Craig (1979). Since the surpassing of classical physics and its deterministic causality by the double slit of indeterministic quantum theory, many interpretations have been proposed in order to explain the bizarre results of quantum physics and the author is suggesting that the theory of nature found in the science of *Kalām* could provide an explanation. This situation has sparked debates among scholars and scientists all the way to apologists with various levels of rigor or lack thereof over the proper relation between science and religion in general and Islam in particular. This leads to the second reason why one is enthusiastic about the book under review.

The author, Dr. Basil Altaie, himself a mathematical physicist and a professor in Quantum Cosmology is positively proposing a new interpretation based on the science of *Kalām* which will have repercussion on the theory itself and influence the direction

¹ This composition of review began not long after the book was published in 2016 and even then, it was quite extensive and meant for discussions between friends and closed circles. Since then, my views have undergone temperament, matured, and change to some extent. In redacting the overworded essay to a significantly reduced version to fulfil publication requirements in limiting the number of words, I have reworded some of the statements I made more than 5 years ago here without changing much of the spirit and motivation when it was initially composed.

² The origin of the atomic theory is often credited to Democritus, a 490 BC Greek philosopher while *Kalām*'s theory of atoms often carelessly assumed to be a continuation and mere refinement of this theory. This view is challenged in the book, as there are significant differences between the two.

of its further progress. The book *God, Nature, and the Cause: Essays on Islam and Science* is a preliminary exposition of the said interpretation.

It is not an understatement to say that quantum and relativity theories are largely responsible for the reemergence of philosophy (in the form of philosophy of science) and metaphysical investigations into scientific inquiry breaking the confidence or overconfidence of the previous era. A lot of discussions in philosophy of science aim to address problems inspired by the results of quantum mechanics and relativity, as well as the elusive attempts to unify them into a single theory. The reintroduction of metaphysics into physical enquiry prompted the age-old debate pertaining to the role of God in physical processes. Theologians, both natural and religious, who took part in the debates often point out the inherent inadequacy of the reductionistic, materialistic, and mechanistic paradigms of the old scientific era, despite its apparent success. In the Muslim world, however, there has not been much notable and serious engagement in the debates beyond at best some elusive attempt at reviving the science of *Kalām* during the late 19th and early 20th century to incorporate contemporary philosophical and scientific findings that are in themselves undergoing rapid and major changes.³ However, this is quite understandable considering the historical circumstances we were in during the first three quarters of the 20th century when the discoveries of the most important results of modern physics were made. At that time, the only known Muslim scholar who demonstrated awareness and understanding of the contemporary development in physics and their consequences is Muhammad Iqbal (2013) in his celebrated work, *The Reconstruction of Religious Thought in Islam*.⁴

In the preface, Dr. Altaie clearly stated the very aim and objective of this work, which is, “to analyze the possibility of developing a modern Islamic worldview of natural philosophy, which is construed from the basics of Islamic belief and constructed on the basis of Islamic *kalām*.” He mentioned further that this basis was derived from *daqīq al-kalām* which provides principles underlying the nature of the world of creation instead of *jalīl al-kalām* which deals more with theological matters, a distinction explained further in the subsequent chapters of the book. He proposes that *daqīq al-kalām* is rich enough to provide a valid interpretation of quantum mechanics and could possibly yield new scientific results and discoveries. This in turn could generate or rather re-generate a neo-*kalām* that could provide a religious framework that fits with the times while at the same time staying true to the intellectual tradition of Islam, of which *kalām* is one of its important elements, and this in turn could lead the Muslim community out of its current conundrum of misperceived intellectual stagnation and misplaced inferiority complex.

This book comprises of seven chapters. In Chapter 1 on “*Daqīq al-Kalām: A Possible Role in Science and Religion Debates*”, the author recounts a rather comprehensive survey of the developments of early Islamic sciences and disciplines particularly from jurisprudence to the development and maturing of the science of *Kalām* and its various schools. The author’s simplified historical narrative reveals his sentiments and general

³ Dr. Altaie pointed us to M Sait Özervarli for a comprehensive survey of *Kalām* movements in the late 19th and early 20th centuries. See M Sait Özervarli, “Attempts to Revitalize *Kalām* in the Late 19th and Early 20th Centuries” in *The Muslim World*, vol. LXXXIX, No. 1 (1999), 90-105.

⁴ p. 172.

interpretation of history which could raise some interesting questions and debates but that would detract us too far from the main objective of the book's discourse. There is also a very brief epistemological account on the definition of *'ilm* and *khobar* that begs further elucidation, but the book is understandably not the proper place for that. On top of that, the author briefly touched upon the issue of the nature of mathematics as being used in physics: a case in point the nature of the so-called *imaginary quantities* in mathematics to represent unmeasurable quantities in physics.

In Chapter 2 on "Laws of Nature and Laws of Physics" the author expounds the confusion between what is meant by *laws of nature* and *laws of physics* attributing to the fact that the Greek word φυσικς translates into both nature and physics. He quotes statements by well-known physicists and scientists such as Paul Davies and Richard Dawkins among others, to demonstrate his point. Defining *laws of nature* as "regular phenomenon that occurs once certain conditions are present" or simply "the recurrence of natural phenomena", the author gives a brief account on the development of the idea from observation of simple causal relations to examples of recurrent phenomena forming periodic cycles all the way to the more sophisticated activity of ascribing rules to explain how or why certain phenomena happens. He defines *laws of physics* as "well-stated relationship by which parameters affecting the happening of any phenomena are identified clearly in conjunction with other parameters", and describes further, later in the same chapter, "the world is designed in such a way that allows mathematically solvable formulae to describe it in a consistent way".⁵ It is here that he discusses the relation between logic, mathematics, and reality, and highlighted the question how and why the world is comprehensible to begin with. He highlights Albert Einstein's letter to Solovine, where the expressed bewilderment that we are even authorized to speak of such comprehensibility is said to be nothing short of, in Einstein's words, "a miracle or an eternal mystery". In this chapter, the author also iterates the views of the philosopher of science, Nancy Cartwright, on the impossibility to render the laws of nature comprehensible without God, and it is also here also he begins to incorporate al-Ghazali's account of the regularity of events as a kind of "custom" or "God's customary action" and thus set the stage for more involved and in-depth discussions in the subsequent chapters.

While this chapter is interesting to me because it overlaps the issue of mathematisation which is my area of concentration, I cannot help but finding the author's description of and distinction between the laws of physics and the laws of nature to be a little strange, especially when it led to more subtle discussions involving comprehensibility and regularity of natural phenomena as God's creation and God's customary act of creation. It seems to me that a more appropriate and meaningful categorical distinction is that one is simply physics while the other metaphysics, notwithstanding the perception that "metaphysics" often invites cynicism in physics communities. Other than that, the author's and his colleague's work on the "non-singular quantum model of the early universe" mentioned in this chapter seem to me a promising alternative to many of the prevailing theories based on the Big Bang Theory. This to me establishes the author's intention of attempting to give theologically sound account of the creation of the universe that fits within the accepted framework of contemporary "modern" science.

⁵ p. 40.

Chapter 3 on “Causality: An Islamic Perspective” is rather involved. In this chapter the author discusses the possible meanings of causality as informed by modern physics, as understood by mutakallims and ends the chapter with a discussion on a possible modern Islamic perspective on causality. Causality in the Qur’ān is such that God is always the real cause of everything all the way to the minutest details of things. In discussing the various positions of the mutakallims, he pointed out that almost all of them, both among the Mu‘tazilis as well as the Ash‘aris rejected deterministic causality and he mentions the sources, the works in which these are discussed. In the Mu‘tazili tradition, he identifies four types of secondary causal relations: adherence (*i‘timād*), conjunction (*iqtirān*), generation (*tawlīd*), and custom (*‘āda*). He then explains Ash‘ari’s theory of *‘āda* or regularity as a causal relation and al-Ghazālī’s elaboration of it and the subsequent criticism by ibn Rushd. Modern physics provides us with several new insights into the discourse on causality. Laplace’s determinism which pervades classical physics is clearly contrary to how most Mutakallims understood causal relationships. Relativity Theory however presents us with some necessary conditions by which a relationship is to be causal, and this is bound by the speed of light. The Einstein-Podolsky-Rosen (EPR) thought experiment, however, contradicts this by showing the possibility of information being transferred simultaneously, which transgresses the speed of light limit. Furthermore, the paradigm set by Quantum Mechanics is that causal relations are indeterministic and probabilistic. This, to the author, is more congenial to Islamic *Kalām* than the deterministic paradigm. Causal determinism is also predominant in classical interpretation of physical laws that even prominent physicists like Einstein were incapable of abandoning it. Here, he mentions the inclination of Mehdi Golshani to follow this attitude and claim that causal determinism is more congenial to Islam to the extent that Golshani even put forward some prospects for replacing quantum theory with an alternative that could restore causal determinism. He also mentions Mohammad Hashim Kamali’s assertion that we could find evidence in the Qur’an for both positions, rendering it open for interpretation. However, the author believes that causal determinism is by now a gone case as ever newer evidence from every day experiments confirm the predictions of quantum mechanics. He ends the chapter with a discussion on a modern Islamic perspective on causality. Here, he proposes the *kalām* inspired idea of re-creation as an interpretation of modern physics that respects causal relationships but at the same time the divine will and choice is fully respected as well.

In Chapter 4 on “Divine Action from a Modern Islamic Perspective”, the author begins by clearly stating the fact that although divine action cannot be proven through direct scientific means, modern natural sciences nonetheless point to a transcendental presence. This leads to discussions on Quantum Divine Action (QDA) as presented by Christoph Lameter. However, the discussion came to a deadlock as there is no clear resolution to the problem of quantum measurement available. Therefore, the author is proposing a possible resolution of the problem of measurement based on the notion of continual re-creation borrowed from Islamic *kalām*, and consequently a defense for QDA. The author then continues by arguing for the necessity of God’s existence essentially in the following way:

Premise 1: The condition that necessitates God’s existence is causal indeterminism;

- Premise 2: Modern physics shows that the universe behaves in such a way that its cause-and-effect relationship is indeterministic (causal indeterminism);
- Conclusion: Therefore, according to modern physics it is necessary that God exists.

This understanding, according to him, rules out the notion of “God of the gaps” which theistic interpretations of science are often accused of. Here he points to a verse in the Qur’ān that states God created “with truth” (*bi’l-ḥaqq*). The word *ḥaqq* here is understood as to mean to follow certain laws, and these laws are the laws of nature and not necessarily the laws of physics, as discussed in Chapter 2.⁶ The *mutakallimūn* explained divine action through the process of continuous re-creation, in which all world entities are atomized. This atom is composed of two entities: *jawhar* and *‘araḍ*. The *jawhar* is an abstract entity. It does not exist alone. It becomes realized ontologically when complemented by *‘araḍ*. The *‘araḍ*, usually translated into English as “accident” or “attribute” is defined as that which does not endure two instants of time.⁷ The smallest non-divisible unit of time is called *āna*. The continuous renewal of *a’rāḍ* (plural of *‘araḍ*) at each *āna* leads to continued re-creation of things. This is how God sustains the world. However, this explanation does not salvage QDA unless the problem of interpretation of or the problem of measurement in quantum mechanics is resolved.

It is in this chapter that the author explicitly stated and formulated the principle of continuous re-creation as a possible interpretation of quantum indeterminacy that has physical implications with possible mathematical formulation. This is, in my opinion, the crux of what this entire book is about. While I am extremely intrigued by this proposal especially in the postulate that states, “The frequency of re-creation is proportional to the total energy of the system”, I cautiously refrain myself from making a judgment, neither affirmation nor negation, for I am not convinced that Divine Action is quantifiable, even probabilistically. For example, suppose that “the collapse of the wave-function into a particular state”, for the lack of a better phrase, happens with probability p , would God’s Action be limited to this value p ? Here lies our conundrum with modern science as pointed out by Azlan (2019 and 2020) that the essence of modern science is mathematisation and should we affirm that there are truths and realities that are non-mathematisable, it is incumbent upon us to identify or at least clarify the limits of mathematisation. Further discussions on this are of course beyond the scope of this essay.

In Chapter 5 on “Space, Time, and Kalām”, the author presented a comprehensive summary of the various views concerning space and time (and motion) as derived from the works of some of the best thinkers throughout history. Although this is done in a rather anachronistic way disregarding historical details (which he admits not to be his purpose in the book), the summary is, in my view, captures a good picture of the essential features of the long discourse drawing from diverse sources including St.

⁶ I will return to this point later in this essay.

⁷ In his most recent book, he uses the word “transient” as a more accurate translation of *‘araḍ*. See Basil Altaie, *Islam & Natural Philosophy: Principles of Daqīq al-Kalām* (UK: Beacon Books, 2023) 43-45.

Augustine, Aristotle, John Philoponus, Newton, Galileo, Descartes, Einstein, Leibniz, Max Jammer, Ibn Hazm, al-Ash‘arī, and al-Ghazālī, among others, leading to the affirmation to the integrity of space and time.

In Chapter 6 on “Cases from Old Debates: The Size of the Universe and the Fate of the Sun”, Dr. Altaie pursues a more detailed account of the debates on the issue of the size of the universe and the fate of the sun. For this purpose, he chose to use al-Ghazālī and Ibn Rushd as interlocutors. He then gives an analysis from the perspective of modern physics. At the end of the chapter, he presented with a summary of al-Ghazālī’s views on what we understand today as science. Contrary to many accusations against him as one of the main reasons why science declined in the Muslim world, the evidence based on very clear statements in his *Tahāfut* showed the truth to be the contrary. He proceeds to enumerate several clearer evidence of this.

Finally, Chapter 7 on “Neo-Kalām: A Possible Transformation of Traditional Islamic Thought” has less to do with physics than a discussion on a possible way forward for the Muslim community to get out from their predicament. With a broad historical stroke, the narrative, analyses, and interpretation he offers have real representation in contemporary socio-political setup. I shall not comment on them here except on one issue, that is on Islamisation of Knowledge (IOK). Quoting Ziauddin Sardar, he mentioned the goal of IOK as “to recast the whole legacy of human knowledge from the standpoint of Islam ... Islamize the disciplines in accordance with the Islamic vision.” The reason for the failure of the IOK, according to him, is that it lacks philosophical basis. He then stated in agreement with Professor Abdus Salam that science is independent of any religion or belief. He however remarked immediately afterwards that there are underlying philosophical assumptions behind science that have the character of subscribing to certain beliefs. His final remark on the IOK is that the IOK, in order to succeed, should contribute to meaningful content of scientific knowledge and enhance one or more of the elements in its structure. To demonstrate what he means, he gives an example of how his student taking into consideration the framework of *daqīq al-kalām*, which implies taking consideration of relevant statements from the scriptures, proposed a value for Einstein’s cosmological constant, which resulted in a solution to the Einstein field equations yielding a model for an oscillating universe.

With respect to IOK, I would like to point readers to Professor Wan Mohd Nor Wan Daud’s book, *Education Philosophy and Practice of Syed Muhammad Naquib al-Attas: An Exposition of the Original Concept of Islamization*, where he devoted a whole chapter to explain the origin and germination of the idea of Islamization historically and conceptually. Given so many misconceptions and misrepresentations of this idea of Islamisation, I respectfully disagree with Dr. Altaie’s premature assessment and dismissal of IOK. On the contrary, I believe a proper understanding and execution of IOK is congenial and could coalesce with the author’s aim in bridging the gap in the science and religion debate in which *daqīq al-kalām* is here proposed as the governing framework. The author would surely agree that any framework intending to deal with an issue as important as the relation between science and religion will have to have a sound philosophical basis, and a just and harmonious positive interrelation between the physical and metaphysical sciences. However, we find instances in the book under review that in my opinion hinders such harmony and rendering it far-fetched. For

example, the author's interpretation of the Qur'anic phrase *bi'l-ḥaqq* as to mean simply "to follow certain laws, and these laws are the laws of nature" is, with respect, unsatisfactory under the consideration of metaphysics, while a more philosophically sound assessment has already been formulated by Professor al-Attas (1989 and 1981) in his *Islam and the Philosophy of Science* and his *Positive Aspects of Tasawwuf*, and other related works developed from this master idea such as Professor Alparslan Açıkgenç's (1996 and 2000) *Islamic Science: Towards a Definition* and *Scientific Thought and Its Burdens*, its existential and psychological aspects as elaborated further by Professor Muhammad Zainiy Uthman (2020 and 2023) in his *Al-Attas on Action, Thinking Framework and the Human Soul* and *Al-Attas' Psychology*. Unfortunately, readers would less likely be prompted to discover and carefully consider the ideas contained in these works when it has already been prematurely dismissed with the dismissal of IOK.

As a final remark, I truly enjoyed the book and I thank the author for his meticulous work and scholarship. It is remarkable to read ideas from scholars and scientists of different era and civilisation and of vastly different persuasion interlocking with one another in an informative, rich and colourful discourse. The high intentions and aims of the author deserve profound respect and the work required to achieve them is gargantuan to say the least, as it involves various dimensions that go beyond the scope of physics as a scientific discipline. I am certain that the author himself would not regard this work as his final say on the matter, as evidenced by the publication of a more recent book in 2023, which I am reading now. To anyone who are deeply interested and invested in thinking about the relation between science and religion especially from the onset of the civilisation of Islam beyond shallow sloganeering and hollow activism, this book is a welcome addition to the literature.

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