

Mehmet Bulğen. *Klasik İslam Düşüncesinde Atomculuk Eleştirileri* [*Criticisms of Atomism in Classical Islamic Thought*]. İstanbul: İFAV Publications, 2017. 331 pages. ISBN: 9789755484433.

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The discipline of *kalām* bases its function of proving the tenets of Islam on various epistemological and ontological principles and on an understanding of the universe developed within the context of those principles. The *mutakallimūn*, who tried first to prove the existence of a creator by establishing the createdness of the universe, were particularly interested in cosmological issues such as the universe's nature and mechanism. In classical *kalām*, the prevailing understanding of the universe was the atomist theory. Most of the theologians gradually adopted the *kalām* atomism developed by Abū al-Hudhayl al-'Allāf (d. 235/849-50[?]), although with some differences, and used it to shape their views on the themes of divinity (*ulūhiyya*), prophecy (*nubuwwa*), and even afterlife (*sam'īyyāt*). This shaping and effective power of *kalām* atomism not only led those who wanted to understand the background of the *mutakallimūn*'s arguments about other matters, but also motivated their opponents to examine and criticize its view of atoms.

Mehmet Bulğen's *Criticisms of Atomism in Classical Islamic Thought* contributes to the field by introducing the background mentioned above, providing a basis for understanding *kalām* problems, explaining the criticisms against this theory that affected problematic issues so much, and scrutinizing new expansions and problems. The book, the product of a project conducted at McGill University with the support of the Scientific and Technological Research Council of Turkey (TÜBİTAK), consists of an introduction and seven chapters.

In the introductory section, "Historical Background," Bulğen analyzes the birth of atomism in Ancient Greece and the kinds of criticisms it received. The information given here is important, for it enables the reader to see the similarities and differences in the criticisms directed toward Ancient Greek and *kalām* atomism and also explains how the *mutakallimūn* turned a theory that

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ruled out divine intervention in nature into an argument for God's existence. As a matter of fact, the author states that atomism, which emerged in Ancient Greece before Socrates (d. 399 BCE) to explain issues such as unity-multiplicity and change-transformation, has faced criticism since Plato (d. 347 BCE) because it made God inactive by relating all of the generation and corruption in the universe to the mechanic movements of atoms (17-20). Bulğen indicates that Aristotle (d. 322 BCE), who defended the divisibility of substance *actually* finite and *potentially* infinite by comparing the hylomorphist understanding of the universe to the atomist view, criticizes atomic thought as Plato does (23-27). Remarking that Aristotle's criticisms were adhered to until the nineteenth century, the author contends that they set ground for the critique of Islamic philosophers, Maimonides (d. 601/1204), al-Kindī (d. 252/866), al-Nazzām (d. 231/845), and Ibn Ḥazm (d. 456/1064). He also argues that they played a role in forming Epicurus (d. 270 BCE) and the *mutakallimūn's* models of atomism (29), as well as demonstrates that the latter might have defended their views (i.e., atoms, space-time, and movement must be in atomic nature) with inspiration from Aristotle<sup>1</sup> (44, 147).

After providing information about *kalām* atomism in the introduction's second part, the author emphasizes that in contrast to the naturalist explanation of Democritus (d. 370 BCE) and Epicurus' atomism, according to which the universe's operations do not require any divine intervention, *kalām* atomism argues for God's existence and so he points to differences in the metaphysical conclusions generated by these two understandings of the universe's origin (32). Reminding his readers that the variety of views on the material universe emerged in *kalām* right at the beginning, Bulğen states that Abū al-Hudhayl al-'Allāf's *jawhar-'arad* model of atomism prevailed over other theories during third/ninth century and was generally accepted by the *mutakallimūn* (36).

Following the introduction, Bulğen discusses the criticisms made against *kalām* atomism as from the Jewish scholar Maimonides (d. 601/1204), because he explained the *mutakallimūn's* atomism and understanding of existence, their epistemology and faiths systematically (39). In this section, the author deals with Maimonides' twelve-premise which summarizes and criticises the model of *mutakallimūn's* atomist universe. According to Bulğen, Maimonides provides a comprehensive explanation of *kalām* principles (e.g., "continuous recreation," "rejection of natural causality," and "creation argument") by connecting them to atomism. He then treats these premises under separate headings (40). Despite his

1 For the effects of Aristotle's critique of atomism, see Mehmet Bulğen, "Aristo'nun Atomculuk Eleştirisi," *2400'üncü Yılında Aristoteles ve Aristoteles'in Dünya Tefekküründeki Yeri*, ed. M. Mahfuz Söylemez and Recep Duran (Lefkoşa: Yakın Doğu University Publications, 2017), 285-324.

comprehensive introduction of the *mutakallimūn*'s worldview, the author states that Maimonides sometimes exaggerated his criticism, such as when he accused them of not taking knowledge based on sensation seriously. Bulğen tries to show, with the help of classical sources, that this assertion is false (72-74).

The book's second chapter is dedicated to the criticisms of al-Nazzām, who, although a *mutakallim*, separated himself from his peers by rejecting atomism and developing a different understanding of the universe with the theories of leap (*ṭafra*), latency (*kumūn*), and appearance (*zuhūr*). According to Bulğen, this criticism, with its special focus on his uncle Abū al-Hudhayl, who introduced atomism to *kalām* and the principle of dimensionless atoms, helped developed atomism in the Islamic world but differed from the critique of Greek philosophers such as Plato and Aristotle. In fact, the anti-atomist Greek philosophers opposed atomism because the materialist and naturalist nature of the atomism upheld by Democritus and Epicurus does not allow divine intervention and rejects a teleological system. However, Abū al-Hudhayl's atomism does not reject the effect of God's creative will in this regard. For Bulğen, Abū al-Hudhayl's dedication of atomism to theology by compromising it with the doctrine of creation led to al-Nazzām's emphasis on logical and mathematical arguments to criticize atomism (79-80). Therefore, the difference between the *kalām* atomism that Abū al-Hudhayl synchronized with the belief in creation and the materialist atomism of Democritus, which the Greek philosophers rejected, not only reveals the uniqueness of *kalām* atomism, but also helped the Muslims' attack on atomism develop a distinct character.

In the third chapter, "al-Kindī's Critique of Atomism," Bulğen indicates that al-Kindī divided the universe into the sub-lunar world and the heavenly universe and limited generation and corruption to the former. In addition, this philosopher based his theory on Aristotle's actual-potential distinction in the perspective of matter-form theory when proving the finiteness of the universe, quantity, object, time, space and movement. Bulğen draws attention to the fact that al-Kindī's view of the universe clashes with the *mutakallimūn*'s perspective, which sees the universe as a whole, in a way that reminds one of modern cosmology's "universality of natural laws" precept of the basic principles (122-23, 125). He further states that the matter-form theory used by Aristotle and other philosophers to prove the universe's eternal (without beginning) character was adapted to Islam by al-Kindī, just as Abū al-Hudhayl had done for Greek atomism, by means of an interpretation that denoted the creation of the universe *ex-nihilo* (130-31). Thus, although with various methods, al-Kindī tried to reach the same conclusion as the *mutakallimūn*.

Bulğen notes that al-Kindī's interpretation of the matter (*hayūlā*) - form theory faced no problems when it came to explaining why particles in the universe are of a certain size but not in another dimension – God acts in the universe as He wills –

whereas Abū al-Hudhayl's doctrine of *kalām* atomism faced the problem of limiting God's power in the discussion of the particles' indivisibility (142-43). However, as the author points out, the Islamic philosophical tradition rejected al-Kindi's system, whereas the *mutakallimūn* embraced Abū al-Hudhayl's, which he created by developing Greek atomism. Al-Kindi's matter-form theory, which he tried to synchronize with Islam's principles, continued to set the ground for the "universe's being eternal in terms of time" (166).

In the fourth chapter entitled "Avicenna's Critique of Atomism", the author examines Avicenna's (d. 428/1037) critique and remarks that this philosopher, being a representative of the Peripatetics who embraced natural causality by accepting the universe as continuous and contiguous, rejected atomism because it posits a discontinuous and discreet universe (176). Bulğen explains Avicenna's criticisms, most of which are mathematical and geometrical in essence, with the help of diagrams and says that they revealed to the philosopher both atomism's inaccuracy and the correctness of the teaching that a substance has no actual components and yet is potentially capable of dividing itself eternally (213). Moreover, he stresses the importance of these criticisms by pointing out that Avicenna's mathematically oriented critique greatly influenced later *mutakallimūn* and led some of them, such as al-Ghazālī (d. 505/1111), al-Āmidī (d. 631/1233), and Fakhr al-Dīn al-Rāzī (d. 606/1210), to suspect atomism (222-23).

The last figure presented is Ibn Ḥazm, who, although a representative of the *Zāhiriyya*, had Aristotelian overtones in his views and, like Avicenna, based his geometrically oriented criticisms on the dimensionless of atoms (226-28, 247).<sup>2</sup> For the author, these criticisms are significant because they signify the decline of *kalām* atomism due to the attacks of theology from the highest level, represented the prevailing view of Islamic thought (225). Even though they tried to protect themselves against theological criticisms directed towards the ancient Greek atomists' view that the universe had no need for a creator God by adapting atomism to the Islamic belief in creation, the *mutakallimūn* could not escape Ibn Ḥazm's critique. In fact, they claimed that only God has the qualities outlined in the *mutakallimūn*'s description of substance (*jawhar*) (e.g., being in himself; not being substance/*arad*; not accepting division; and not having length, width, and depth) and that one will fall into comparison if these qualities, which need to be ascribed only to God, are given to other beings (245). Here, Bulğen notes that in this case, Ibn Ḥazm's criticism presents only a partial approach and points to the

2 See Orhan Ş. Koloğlu, "İbn Hazm'in Atomculuğu Reddi," *Uludağ University Review of the Faculty of Theology* 16 (2007): 169-94. This article deals with Ibn Ḥazm's criticisms of atomism. It does not discuss geometrical criticisms, however, because its scope is limited to logical and theological criticisms.

fact that the idea of subsisting through itself (*qā'im bi-dhātihi*) does not refer to “not being in need of another being,” as does God in *kalām* terminology. According to the author, although they claim that substance has no need for a specific location in order to exist, the *mutakallimūn* do not reject its dependence on a creator to exist. Therefore, for the *mutakallimūn*, substances subsist through themselves but they are “dependent on someone else to exist” and have the quality of “occupying a space.” But since these qualities cannot be attributed to God, applying this meaning to substance avoids the problem of comparison (245-46).

After dealing with the criticisms of anti-atomist scholars, the author deals with the Mu'tazilite Ibn Mattawayh's (d. 486/1075 [?]), Qāḍī 'Abd al-Jabbār's (d. 415/1025) student, responses to the logical and geometrical criticisms of *kalām* atomism in a separate chapter of his *al-Tadhkirah fī aḥkām al-jawāhir wa-l-'araḍ*. This shows that *mutakallimūn* were aware of the criticisms directed against them (255). Bulğen reminds his readers that Ibn Mattawayh knew that geometrical criticisms had emerged because *kalām* atomism was based on discontinuity, whereas the prevailing ancient and medieval view of space was “linear space geometry” based on Euclid's geometry. He also notes that while answering geometrical accusations, Ibn Mattawayh declared the impossibility of formulating a common and certain solution out of these two distinct geometries (267). Even though he successfully defended *kalām* atomism, some of the later *mutakallimūn*, as Aristotle had done, started to criticise atomism on the grounds that since they followed Euclid's geometry, accepting it would force them to reject it. Bulğen emphasizes that this type of geometry, which had been accepted during the ancient and medieval eras, has now lost its impact because modern scientific theories are based on discontinuous space geometry, which justifies the *mutakallimūn*'s principles that space can divide forever and consists of finite compounds (273-74).

In the last chapter, “Al-Ghazālī and Atomism,” the author tries to account for the movement away from atomism during the *muta'akhirin* period of *kalām* beginning with al-Ghazālī. Bulğen indicates that, thinking of the questions al-Ghazālī raised in *Maqāṣid al-falāsifa*, this scholar might have been influenced by Avicenna in terms of atomism and points out that al-Ghazālī abstained from discussing those anti-atomist pieces of evidence that, he thought, the philosophers had taken from scientific fields like mathematics. The author opines that al-Ghazālī did so due to his belief that rejecting what science has definitely proven only harms religion and that his mystical inclinations should have led to his remaining aloof to atomism, which explains everything according to atoms (295). Bulğen maintains that such *kalām* principles as *ex-nihilo*, bodily resurrection, and the possibility of miracles necessitated the acceptance of atomism during the later period of *kalām*, even though its critics, beginning with al-Ghazālī, weakened its dominance in

the system of *kalām* during the later period via Avicenna's strong arguments and some concepts of Peripatetic thought, which do not accord with atomism, and Aristotelian logic (288, 293).

In the conclusion, Bulğen emphasizes that these criticisms were directly related to the medieval era's understanding of the universe and scientific approach. He also states that recent developments in science and modern scientific theories like the quantum theory help us understand the claims of classical atomist *mutakallimūn*, such as "dimensionless particles have physical properties," and remarks that his book, in which he analyzes the anti-atomists' views, helps readers realize that there was a rich tradition of research about the universe in both Islamic and *kalām* thought during that period (298-99).

In my opinion, Bulğen's inclusion of modern cosmology and the quantum theory of particles is significant and can be read as a referral to his *Kelām Atomculuğu ve Modern Kozmoloji (Kalām Atomism and Modern Cosmology)*. In fact, his comparison of *kalām*'s atomist views with modern physics' theory of particles detects, in this book, important similarities, among them the particular/discontinuous nature of matter, energy, and space-time as well as the createdness of fundamental particles/atoms, despite the large conceptual differences.<sup>3</sup> Given that he examined such a comparison in this work in great detail, the author does not discuss it thoroughly in his latest book; however, he occasionally provides comparisons with the data of modern mathematics, physics, and cosmology in order to make atomist and anti-atomist views better understood and mark the place of these discussions in the world of science.<sup>4</sup>

3 *Kalām* atomism embraces a holistic model of the universe. However, modern science explains micro-scale matters and their interrelations with quantum mechanics and explains macro-scale space-time matters with the theory of general relativity. At present, one cannot make any comparison between them, because those theories that attempt to explain the universe by means of a holistic approach have not gone very far beyond mathematical models, that is they have not been verified yet. Bulğen, *Kelām Atomculuğu ve Modern Kozmoloji* (Ankara: TDV Publications 2015), 535. Therefore, Bulğen presented this comparison in two distinct chapters in the context of the "Standard Model" (i.e., the macro-evaluation of the universe) and the "Unified Theories." Even though the latter has not been verified, it has been discussed in chairs of physics and studied by graduate students. In sum, it represents an attempt to explain the micro- and macro-universe together. For Bulğen's findings of the similarities and differences between *kalām* atomism and modern physics' particle theories, see his *Kelām Atomculuğu ve Modern Kozmoloji*, 533-81.

4 The problem that arises at the very beginning of the relation between modern science and classical *kalām* cosmology, and one that needs to be acknowledged, is that the latter's concepts cannot adequately render the findings of recent cosmology. For instance, modern science has no equivalent for the meanings and qualities that the *mutakallimūn* ascribed to the concept of atom (*al-jawhar al-fard*). These are likened to the electrons of modern physics in terms of being homogeneous, but also to quarks and leptons because they cannot be divided into smaller pieces. Bulğen, *Kelām Atomculuğu ve Modern Kozmoloji*, 545, 554. Therefore, the *mutakallimūn*'s fundamental particle has a single form and is called *al-jawhar al-fard*, whereas fundamental particles can appear in forms with different qualities such as quarks, leptons, and electrons in modern physics. Giving different names to these concepts makes such comparisons even harder.

This work, which essentially seeks to expose the criticisms of anti-atomist thinkers, only studies the most significant contributors to the development and formation of *kalām* cosmology. Furthermore, treating those views that appear to defend atomism (e.g., Ibn Mattawayh and al-Ghazālī) in separate sections prevents any possible misconceptions about a particular group or individual's theories when read from second-hand sources. In addition, Bulğen's explanatory diagrams make these exceedingly complicated and complex matters easier to understand. The author has clearly consulted a wide range of classical and modern literature, as seen in his explanatory footnotes, and analyses problems by combining the findings of *kalām*, philosophy and modern science and comparing the views of different thinkers. As a result, this book fills an important gap in the *kalām* literature on cosmology. Since Shlomo Pine's *Beiträge zur islamischen Atomenhere*<sup>5</sup> and Alnoor Dhanani's *The Physical Theory of Kalam*,<sup>6</sup> such a serious study on *kalām* atomism has not been undertaken.<sup>7</sup> Although studies on *kalām* cosmology have been done in Turkey, some of these works focus on figures, whereas others, which are early studies in the field, only give introductory information.<sup>8</sup> No particular work has been devoted to the criticisms of atomism.<sup>9</sup> Atomism, considered one of the most important theories about the universe's formation, nature, and mechanism, remains a subject of discussion in philosophy, theology, and many scientific disciplines. Bulğen's work makes one think that it will provide a systematic and comprehensive point of view not only those who are interested in *kalām* cosmology, but also to those who are studying in related fields.

- 5 This work, first published in Germany in 1936, has recently been translated by Osman Demir from its English translation into Turkish as *İslam Atomculuğu*. Shlomo Pines, *İslam Atomculuğu*, trans. Osman Demir (Istanbul: Klasik Publications, 2017).
- 6 Alnoor Dhanani, *The Physical Theory of Kalam: Atoms, Space and Void in Basrian Mu'tazili Cosmology* (Leiden: E.J. Brill, 1994).
- 7 As indicated by Dhanani, Pines could not consult the books of scholars such as Ibn Mattawayh, al-Juwayni (d. 478/1085), and Qāḍī 'Abd al-Jabbār, all of which give significant information about *kalām* atomism, because their works were unavailable to him during his lifetime (Dhanani, *The Physical Theory of Kalam*, 97). Dhanani's book provides more accurate information on *kalām* cosmology because the author had access to these classical sources; however, the criticisms of atomism is discussed only under the subtitle of a section (Ibid., 67-181).
- 8 One can include these works in the list of studies done on *kalām* cosmology in theology departments in Turkey: Mehmet Dağ, *İmam el-Haremeyn el-Cüveyni'de Allah ve Âlem*, (*God and the World in İmâm al-Haramayn al-Juwayni*) (Associate Professorship Thesis, Ankara University, 1976); Cemalettin Erdemci, *Kelâm Kozmolojisine Giriş (An Introduction to Kalâm Cosmology)* (Ankara: Araştırma Publications, 2007); Çağfer Karadaş, *Bâkallâni'ye Göre Allah ve Âlem Tasavvuru (Al-Bâqillâni's Thought on God and the World)* (Bursa: Arasta Publications, 2003); Metin Yıldız, *İbn Metteveyh'in Kozmoloji Anlayışı (Ibn al-Mattawayh's Cosmological Thought)*, (PhD diss., Van Yüzüncü Yıl University, 2015), Ahmet Bardak, *Sa'düddin Teftâzâni'nin Kozmoloji Anlayışı (Sa'd al-Din al-Taftâzâni's Cosmological Thought)* (PhD diss., Van Yüzüncü Yıl University, 2016).
- 9 It appears that Ulvi Murat Kılavuz devoted the last chapter of his *Cosmological Argument in Kalam* to criticisms of *kalām* cosmology. Ulvi Murat Kılavuz, *Kelamda Kozmolojik Delil* (Istanbul: İz Publications, 2009), 211-41.