



## **“Muslim Philosophy and the Sciences”**

*The Muslim Almanac*

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### **Abstract**

Like the intellectual traditions of other civilizations, the intellectual traditions of Islam examined the entirety of questions which fall under the purview of the intellect. The present study focuses on the questions which are today categorized as belonging to the disciplines of the many branches of philosophy and the sciences. The study examines the historical evolution of the competing schools of philosophy and some of the significant developments in the sciences during the early (1st-2nd centuries AH/7th-8th centuries CE), classical (3rd-6th centuries AH/9th-12th centuries CE), and the medieval (7th-11th centuries AH/13th-17th centuries CE) periods of Islamic civilization.

### **Introduction**

The pursuit of knowledge is central to the Qur’anic

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(died circa 815 CE) and others held the opposite view that created objects are all incorporeal qualities, and that corporeal bodies arise when these qualities combine together (this had been the position of



createdness of revelation upon governmental officials, including religious judges. The resulting inquisition led to the imprisonment of prominent traditionalists such as the well-known scholar Ahmad ibn Hanbal (died 855 CE). The inquisition and Mu'tazili political ascendancy came to an end during the reign of Caliph al-Mutawakkil (reigned 847-861 CE).

In 912-913 CE, one of al-Jubba'i's most brilliant pupils, Abu al-Hasan al-Ash'ari (died 935 CE), broke away to found Ash'ari *kalam*, which was sympathetic to the traditionalists. Over the course of the next three centuries, Ash'ari religious philosophy gradually became the predominant and "orthodox" *kalam* school. To a large degree, the subject matter, analytic structure, epistemology, and cosmology of the Mu'tazilis was retained. The significant departure was over the nature of God and human beings. Whereas the Mu'tazilis had emphasized God's justice, believing it absolutely impossible for God to commit unjust acts (for man and God are beholden to the same objective ethical principles), the Ash'aris emphasized God's absolute power and independence. Hence, they denied the objectivity of ethical principles. In their view, ethical principles were within God's determination, and human beings cannot know of them except through revelation. The primacy of revelation over reason was thus upheld. Furthermore, God's absolute power entails denying causal agency to human beings. They can only metaphorically be said to be causal agents, for they "acquire" actions only God can actually perform. Not surprisingly, the Ash'aris also denied secondary causation. Their system is therefore occasionalist, where every action in the world is directly caused by God. Consequently, attributing a causal relationship between a uniformly observed set of prior and posterior events (e.g., the contact of fire with cotton causes burning) is erroneous, for the uniformity of the sequence of these events reflects only God's choice of habitual action that He may arbitrarily choose to alter. Finally, the Ash'aris rejected the Mu'tazili distinction between God's essence and attributes, and hence the createdness of God's speech.

The Ash'ari position was elucidated and defended from the critique of the Mu'tazilis, Islamic Hellenistic philosophers, and traditionalists by al-Ash'ari's followers, notably al-Baqillani (died 1013 CE), Ibn Furak (died 1015 CE), al-Juwayni (died 1085 CE), and Abu al-Hamid al-Ghazali (died 1111 CE), the author of *The Destruction of the Hellenistic Philosophers*. In this work, al-Ghazali defended the Ash'ari view of God's absolute freedom and causal determination, attacking the Islamic Hellenistic philosophers' doctrine of the eternity of the world; their doctrine of emanation, which denied God's causal activity and God's knowledge of particulars in the world but instead attributed intelligence and causal efficacy to celestial Intellects and Souls; their denial of bodily resurrection and their theory of natural causation. Al-Ghazali's thorough familiarity with Islamic Hellenistic philosophy is evident in *The Destruction's* embrace of its conceptual language (his preliminary study, *The Aims of the Philosophers*, is a succinct summary of Islamic Hellenistic Philosophy which, along with *The Destruction*, was available in Latin translation in medieval Europe. As a result, the Europeans considered al-Ghazali to be one of the Islamic Hellenistic philosophers).

Religious philosophy entered a new phase with al-Ghazali as he appropriated the conceptual language



Ithna ‘Asharis (Twelvers). The Isma‘ilis adapted Hellenistic philosophy within their own intellectual framework. However, in the thirteenth century, the philosopher and scientist Nasir al-din al-Tusi (died 1274 CE) reformulated Twelver Shi‘a *kalam* within the conceptual language and system of the Islamic Hellenistic philosophers.

The influence of Islamic religious philosophy also extended into Judaism. The Karaites, including Yusuf al-Basir (died 942 CE), were influenced by Mu‘tazili religious philosophy. Consequently, the debate between religious philosophy and Islamic Hellenistic philosophy is also found among Jewish intellectuals of Islamic lands. In his



### *Al-Kindi*

Abu Ya‘qub al-Kindi (died 870 CE) is regarded as the first Islamic Hellenistic philosopher or, according to the medieval biographers, the “Philosopher of the Arabs.” He enjoyed the patronage of Caliphs al-Mamun and al-Mu‘tasim (reigned 833-842 CE). His interest in acquiring the knowledge of the ancients is remarkable and indicative of the stimulating milieu. He even commissioned an Arabic translation of Aristotle’s *Metaphysics*. Conscious of the task of introducing Hellenistic learning, he



potentially knowing to actually knowing. Prophetic genius derives from the virtual union of the prophetic soul with this Active Intellect and God's granting of revelation to the prophetic intellect through the Active Intellect.

Al-Farabi's account of religion and prophecy, which was mostly adopted by his followers, is at odds from the views of the religious philosophers. Al-Farabi's perspective (as indeed the perspective of other Islamic Hellenistic philosophers) was that the religious philosophers' views were not demonstrative but rather were dialectical and do not represent "real" knowledge. Other points of contention were Al-Farabi's espousal of emanationism, its corresponding determinism through endowing causal efficacy to the celestial entities, and his belief in the eternity of the world.

#### *Al-Razi*

Al-Farabi's views contrast sharply with those of Abu Bakr al-Razi (died 925 CE) who is regarded as a Islamic Hellenistic philosopher, although his accomplishments in medicine are more significant. Al-Razi was vehemently opposed to authority. His philosophy is egalitarian, anti-Aristotelian, and anti-religion. His egalitarianism denied the special role accorded by al-Farabi to philosophers and even the special role of prophets and religious leaders. He regarded religion to be the cause of conflict, prophets to be imposters, and revelation to be mythical. He opposed the hierarchical cosmology of the Hellenistic philosophers and instead espoused a version of Democritean atomism, which is unlike the atomism of the religious philosophers. He upheld the eternal existence of God, Soul, Matter, Time, and Space and subscribed to a Sabian myth that the ignorant Soul desired matter and that God, wishing to alleviate its misery, therefore created the world, but also endowed Soul with reason. The world will dissolve when Soul has been enlightened and can free itself from matter.

That al-Razi, despite his radical views, was tolerated is indicative of the tolerant milieu of classical and medieval Islamic civilisation. Not surprisingly, al-Razi did not have any followers, while al-Farabi's philosophical synthesis became the dominant paradigm of Islamic Hellenistic philosophy. Elements of this philosophical synthesis were appropriated by the literati and belles lettrists and by intellectually inclined religious movements among the Shi'a, like Isma'ilism.

#### *Ibn Sina*

The naturalization of Hellenistic philosophy reached its apogee with Abu 'Ali ibn Sina (died 1037 CE). In a fascinating autobiography, Ibn Sina (Avicenna in Latin) discusses his education, travels, court intrigues, study habits, and writings. He was a child prodigy, born to a family with Isma'ili sympathies. He was educated in traditional Islamic subjects and the sciences, where he surpassed his teachers, progressing to a personal study of advanced scientific texts and Islamic Hellenistic philosophy. He found Aristotle's *Metaphysics* incomprehensible until he read al-Farabi's *On the Goals of Aristotle's Metaphysics*, which he had purchased in the booksellers' market cheaply for three silver coins. Already famous, the seventeen-year-old Ibn Sina was invited to attend to the Samanid ruler Nuh ibn Mansur (reigned 976-997 CE) who had fallen ill. Obtaining permission to examine the royal library, Ibn Sina entered a building with many rooms, each containing piles of books on a single subject. He looked through the catalogue of works by the ancients and found works that he was never to encounter again. Ibn Sina assiduously studied them all. As he was to recall later, he had, thoroughly exhausted all the available learning by the age of eighteen and he did not subsequently learn anything new (although his knowledge was to mature and deepen with age). Ibn Sina's account is revealing. It shows that Islamic Hellenistic philosophy had penetrated into remote provincial centres like Bukhara, it illustrates the demand for and trade in philosophical works, and it verifies the existence of rich collections in private libraries.

Unlike al-Farabi's oeuvre...







political role in society, Rather than the role of a philosopher-king or advisor to the ruler envisioned by al-Farabi, Ibn Bajja believed that, in the imperfect states of his day, philosophers should, as far as possible, detach themselves from society and instead seek felicity in union with the “Active Intellect”. In such a union, Ibn Bajja maintained, the individual intellect loses its particular characteristics. Ibn Bajja, therefore, rejected Ibn Sina’s view of the immortality of the human soul, for in his view, the soul, that is to say, the individual, perishes with the death of the body.

Ibn Bajja’s student, Abu Bakr ibn Tufayl (died 1185-1186 CE) was physician to the Almohad ruler Abu Ya’qub Yusuf (reigned 1163-1184 CE) and the author of the philosophical tale *Hayy ibn Yaqzan* (*Living, Son of Awake*), which is thought to be the model for Daniel Defoe’s *Robinson Crusoe*. This work is named after one of Ibn Sina’s allegorical works and is even framed as an unfolding of the secrets of Ibn Sina’s Eastern philosophy. In his introduction, Ibn Tufayl is critical of Ibn Bajja’s idea of felicity through union with the “Active Intellect”, endorsing instead Ibn Sina’s sanction of mysticism. He acknowledges the role of rational truths and methods but holds that they are surpassed by mystical experience. He employs several Sufi concepts, including “direct vision,” “mystical experience,” and “sainthood.” The tale describes the self-education of Hayy who lands on (or was spontaneously generated on) a tropical island and is raised by a doe. As he grows up, he is able, through reflection, to deduce philosophical truths and derive actions that lead to ultimate felicity. His ascetic practices, reminiscent of Sufism, lead him to direct vision and then spiritual annihilation in God. Hayy then comes into contact with two men, first Absal who comes to the island in search of solitude, then Salaman from a nearby island whos



revelation. But since revelation addresses all people regardless of their intellectual aptitude, its apparent meaning may seem to contradict the “real” state of affairs. Such apparent difference is to be resolved by allegorical interpretation of revelation by those who are well grounded in science (i.e. the Islamic Hellenistic philosophers). Allegorical interpretation of revelation must be permitted only for those who are qualified to understand its true significance. Conflicts have arisen when religious philosophers like al-Ghazali have misguidedly shared allegorical interpretations with the multitude who are incapable of grasping them.

Some Muslim groups, notably the Isma‘ilis, adapted Islamic Hellenistic philosophy in their doctrinal systems. This is evident in the *Epistles* of the anonymous Brethren of Purity (circa tenth century CE), which were widely circulated and read and in the works of Fatimid Isma‘ili thinkers (tenth and eleventh centuries CE). Notably, however, the First Being or Intellect is the result of God’s command and is not an emanated being. Moreover, subscribing to the doctrine of the correspondence between macrocosm and microcosm, the Isma‘ilis held that the cosmic hierarchy of Intellects, Souls, and spheres is reflected in the religio-political hierarchy of the imam and his representatives in society.

### *Mystical philosophy*

Ibn Sina’s philosophy represents the culmination of Islamic Hellenistic philosophy in the Eastern Islamic world. Its influence on subsequent Muslim intellectual history was, and continues to be, profound. One illustration, albeit a significant one, is that al-Ghazali’s understanding of philosophy derives from Ibn Sina, and hence his critique is agee





of its scientists. Material factors also contributed to the scientific enterprise: the establishment of endowed institutions, primarily academies (for example, the above-mentioned House of Wisdom), libraries, hospitals, observatories, and patronage, which flourished even with the disintegration of the unitary empire and the establishment of local dynasties and principalities. Most patrons employed scientists as astrologers or physicians. However, the interconnectedness of disciplines was such that an astrologer, for example, needed to know astronomy, and could not know astronomy without being versed in mathematics and natural philosophy, which, in turn, required familiarity with the cosmology of Islamic Hellenistic philosophy. With the passage of time, a new scientific role arose, that of the mosque timekeeper who was responsible for calculating prayer times as well as determining the start of the months of the Islamic lunar calendar.

The scientific contributions of Islamic civilisation are enormous. Yet, at this stage of our knowledge of the scientific enterprise of Islamic civilisation, with the continuing discovery of new manuscripts and the incomplete analysis of known works, remarks about the achievements of scientists or about the general character of science must remain tentative (this is true for all of the intellectual disciplines practiced in classical and medieval Islam). The following survey of the sciences in the world of



who is better known as a poet, worked out methods to extract higher roots. A significant advance in the decimal system was made by Abu al-Hasan al-Uqlidisi's invention of decimal fractions in 952-953 CE. Interestingly, this invention seems to have subsequently been lost until reinvented by Ghiyath



The



observatory of Ulugh Beg in Samarkand, both of which compiled their own astronomical tables. The







who had written in Arabic, including Saadiah Gaon (died 942 CE), Judah Halevi (died 1141 CE), Solomon ibn Gabirol (died 1058 CE), and Moses Maimonides (died 1204 CE), as well as several philosophical works by Ibn Rushd. Other translators were Christians, including Constantine the African (flourished 1065-1085 CE), Adelard of Bath (flourished 1116-1142 CE), Robert of Chester (flourished 1141-1150 CE), Gerard of Cremona (circa 1114-1187 CE), and others. Translations were made not only of originally Greek works that had been translated into Arabic (for example, Euclid's *Elements*, Ptolemy's *Almagest*, and the Aristotelian corpus), but also of works by Islamic scientists and philosophers. The latter were now known through their Latinized names of Avicenna (Ibn Sina), Averroes (Ibn Rushd), Avempace (Ibn Bajja), Abubacer (Abu Bakr ibn Tufayl), Algazel (al-Ghazali), Alhazen (es )11.1(e)-9.3(s)5.7.9(er 1 Tf0.249(y)sH)11.1(s)110.55n I-0.9(4.5)4(l)1.J-21.2.249.9(4.HJ20.a)0.9( )5.8of w )11.1(



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