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The Legacy of Early Islamic Scholars

Where early academic enlightenment is involved, European scholars typically maintain a central focus. However, Islamic scholars and their contributions to the history of academia must not be overlooked. The influence they held over intellectual discoveries in almost every subject from astronomy to geography still impacts us today. Much of this influence can be credited to the Golden Age of Islam, a period of about 600 years in the first and second centuries, which molded many scholars of the time. The Qur'anic exhortation to pursue intellectual breakthroughs also pushed Islamic scholars to remain at the forefront of academia, a position they have maintained for centuries.

The Qur’an contains a wealth of evidence encouraging Muslims to pursue knowledge. There are many discussions centered around knowledge and understanding within the Qur’an. According to verse 39:9, the achievement of both ensures enlightenment for followers of Allah. This passage is intended to serve as a reminder to the intellectual person of the value of knowledge (Khansary). The Qur’an itself is a means for Muslims to praise Allah while simultaneously working towards understanding his divinity. Allah gave the gift of comprehension to humanity, and He encourages us to make use of it. However, the knowledge people gain is proportional to the level of responsibility they hold. A sense of morality and ethics is necessary for an intellectual to have, which is why the message of Allah must be kept in mind (Walsh). The Prophet Muhammad also recognized the importance of intellect and required his

followers to seek out knowledge however they could. The first message delivered to the Prophet told him to read and thus to contemplate and reflect (Wani). Since the beginning days of the Prophet, Islam has been a religion of learning.

Without the work of the translation movement, many arab Muslims would have been limited in the knowledge they could procure. This movement provided many Muslims with translated texts written by scholars from across the world, which they used to develop their own wealth of knowledge. The translation movement began what is known today as the Golden Age of Islam. Caliph al-Mansur, who ruled from 754 to 775 C.E., was passionate about expanding knowledge of the day to Muslim people. He hired translators and sent them to the academic hubs of the world to find specific texts to translate. The translators would locate various versions of a text and examine them so the final translation would be as extensive as possible. Because direct translations are often confusing, the translators would also use their intellect to modify the text to be more comprehensible. As Arabic lacked much technical vocabulary, translators borrowed from other languages to make new words and modified grammatical structures to accommodate their new words. Although it appeared as such from an outside perspective, the push for translation was not exclusively an intellectual movement. Many caliphs in the later years of the movement held political motives and desired their appearance to be that of a learned leader well-versed in the sciences and arts. These caliphs sought to overpower Byzantine emperors who had fallen behind in the intellectual world (Montgomery 316). Regardless of the motivation, the work of the translation movement helped many Islamic scholars start their intellectual journeys.

The first of these scholars is Abu Bakr Muhammad ibn Zakariya Al-Razi. Born in Iran in the year 865, Al-Razi is a well-known medical scholar from the medieval age. He directed many hospitals in Baghdad as well as his hometown of Rayy. He even helped determine the location of

one by hanging meats in different corners of a city and recording how quickly they were putrified, although the hospital was not built until fifty years after his death. Al-Razi was keen on sharing his knowledge and wrote many medical books, the most popular of which being *Kitab al-Hawi fi al-tibb* (The Comprehensive Book on Medicine). He filled this book with developments originating from his own studies and experiences as well as information he had previously acquired from other scholars. Without the interference of statesman and scholar Ibn al-'Amid, this collection may have never seen the public eye. While in town shortly after al-Razi's death, al-'Amid purchased al-Razi's notes from his sister and arranged for al-Razi's pupils to collect and organize the notes for distribution. In general, al-Razi managed to be extremely thorough in his documentation of information and its sources, which has contributed massively to the remembrance of certain medical practices from Greek, Indian, and early Arabic texts that may have otherwise been forgotten. His works also held the most varied information regarding types of medical cases compared to other texts from his time, which makes his documents invaluable ("Islamic"). In total Al-Razi wrote 113 texts covering various medical conditions and diseases (Abudawood).

Another important Muslim scholar is Muhammad ibn Musa al-Khwarizmi, a Persian man born in 783. Shortly before his birth, the Caliphs of Baghdad overtook the region his family inhabited and mass converted the population to Islam. He is also predicted to be of Jewish-Persian descent based on his last name. Due to this mixed culture and his multilingual skills, al-Khwarizmi had wide access to scholarly works in Persian, Arabic, Syrian, and Sanskrit. He studied at the Bayt al-Hikma (House of Wisdom) which held an observatory as well as a library where many Greek texts had been translated. His main focuses of study at the Bayt al-Hikma were astronomy, geography, and geometry. Al-Khwarizmi worked with many other

decorated mathematicians of his time to calculate the circumference of the Earth. Around 825 C.E. al-Khwarizmi wrote *al-Jam' wa al-Tafriq bi Hisab al-Hind* a book on addition and subtraction per the Hindu methods of calculation, which provided people with another method of solving arithmetic problems. It is also credited with introducing decimals as well as the number zero into the mathematical world. This text became widely used after being translated into Latin in the medieval period. The original text has since been lost, but the translated versions remain to this day. Al-Khwarizmi and his discoveries became so influential that the word algorithm originated from his name. While partaking in mathematical discussions, people would use the phrase "dixit Algorismi" or "thus spoke al-Khwarizmi" to dominate the argument because everyone knew his word was final. He even wrote the first book on algebra as a means to help Persians with legal matters. Al-Khwarizmi was not only skilled in mathematics, he also made significant discoveries in astronomy. He constructed an astronomical table based on Indian methods of studying astronomy, which he used to determine the magnitude of solar eclipses and diameters of solar and lunar velocities. His geographical work included drawing a world map with proofs and calculations that allowed him to be more accurate with measurements of distance (Nabirahni). Al-Khwarizmi was a well-rounded scholar who impacted many academic fields.

One final example of an influential Muslim scholar is Al-Hasan ibn Al-Haytham. Al-Haytham was born in 965 C.E. in Basra, Iraq, where he was educated in various academic disciplines (Tbakhi). During his time at the al-Azhar Mosque located in Cairo, it is estimated that he wrote almost 100 works on almost every topic ranging from poetry and music to politics and theology. He is mainly credited with crucial discoveries in optics but has also made an impact in other academic areas. Among these is his work in Euclidian geometry, which is taught in school systems throughout the Western world to this day. Regarding optics, his most influential work is

the book *Kitdb al-Mandzir* (Book of Optics). It was no secret that existing theories on vision at the time were flawed, but al-Haytham was the first to introduce solutions to these problems. In this book, along with many other discoveries, he introduces his theory that psychology impacts vision just as much as geometrical optics. He included proof of images being flipped by the lens in the eye, although he did not fully believe in this discovery himself. After the book's translation into Latin in the early thirteenth century, al-Haytham's discoveries became available to a much wider spread audience, which began the appearance of his name in scholarly works for centuries to come. People began to use his theories on vision to explain spiritual sight involving the way it reflects and refracts. His discoveries were also used by Ghiberti as a means of developing a theoretical interpretation of the arts. Based on these works, it is likely al-Haytham began a focus on optics throughout academic disciplines that before his discoveries was not apparent (Falco).

Al-Razi, al-Khwarizmi, al-Haytham, and many more Islamic scholars were the reason for many academic breakthroughs throughout the Middle Ages. The information they discovered aided in the progression of knowledge across the world. Although they are not often credited for their discoveries in the modern Western world, intellectual scholars across Europe that most people know by name cited these scholars' works in their own advancements. Because of their reach, early Islamic scholars and their profound impact on our everyday lives must never be overlooked or forgotten.

Works Cited

Abudawood, Ghufran A, et al. “Arab and Muslim Scientists and Their Contributions to the History of Ophthalmology.” *Saudi Journal of Ophthalmology : Official Journal of the Saudi Ophthalmological Society*, U.S. National Library of Medicine, 27 Feb. 2021, www.ncbi.nlm.nih.gov/pmc/articles/PMC8081083/.

Falco, Charles M. “Ibn al-Haytham and the origins of computerized image analysis.” *2007 International Conference on Computer Engineering & Systems*, 2007, https://doi.org/10.1109/icces.2007.4447016.

“Islamic Culture and the Medical Arts: Al-Razi, the Clinician.” *U.S. National Library of Medicine*, National Institutes of Health, 15 Dec. 2011, www.nlm.nih.gov/exhibition/islamic_medical/islamic_06.html.

Khansary, Muhammad Ali. “The Bright Lights of Guidance.” Translated by Lisa Zaynab Morgan and Ali Peiravi, *Al-Islam*, Ansariyan Publications, www.al-islam.org/bright-lights-guidance-muhammad-ali-khansary/chapter-2-knowledge. Accessed 5 Dec. 2023.

Montgomery, Scott L. *Mobilities of Science: The Era of Translation into Arabic*, 2018, www.journals.uchicago.edu/doi/pdf/10.1086/698236.

Nabirahni, David M., et al. *Al-Khwarizmi (Algorithm) and the Development of Algebra*, 2019, commons.hostos.cuny.edu/mtrj/wp-content/uploads/sites/30/2019/08/v11n12-Al-Khwarizmi-Algorithm.pdf.

Tbakhi, Abdelghani, and Samir S. Amr. "Ibn Al-Haytham: Father of Modern Optics." *Annals of Saudi Medicine*, vol. 27, no. 6, 2007, pp. 464-467, https://doi.org/10.5144/0256-4947.2007.464. Accessed 4 Dec. 2023.

Walsh, Colleen. “Where Science and Religion Meet, from an Islamic Perspective.” *Harvard Gazette*, Harvard Gazette, 8 May 2008, news.harvard.edu/gazette/story/2008/05/where-science-and-religion-meet-from-an-islamic-perspective/.

Wani, Zahid Ashraf, and Tabasum Maqbool. “The Islamic Era and Its Importance to Knowledge and the Development of Libraries.” *DigitalCommons@University of Nebraska - Lincoln*, Apr. 2012, digitalcommons.unl.edu/libphilprac/718/.