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SCIENTIFIC AND SOCIAL DEVELOPMENT IN THE ABBASID CALIPHATE DURING THE 10TH–11TH CENTURIES

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Abstract. The 4th century AH / 10th century CE and the opening decades of the 5th / 11th century constituted a formative phase in the history of Islamic civilization, marked by far-reaching socio-political transformations that paradoxically coincided with an extraordinary cultural and intellectual flourishing. Analyzing the scholarly and intellectual environment of this era and its influence on scholars' work yields important theoretical conclusions about the relationship between political authority and the production of knowledge. This article examines the social, political, and scientific circumstances of the Abbasid Caliphate during the 10th–11th centuries, addressing the state's ethnic composition, interethnic relations, modes of life, cultural and religious festivals, the patronage of science, and the formation of centres of learning. It argues that political fragmentation under the Buyid amirs did not arrest intellectual life but, in several respects, decentralized and intensified it.

Keywords

Abbasids, Buyids, Ashura, Yawm al-Ghadir, naqli sciences, shar'i sciences, fiqh, kalam, Islamic civilization.

Introduction

The period extending from the 4th century AH / 10th century CE into the early decades of the following century occupies a distinctive place in the history of the Islamic world. Politically, it was an age of fragmentation: the universal authority once exercised from Baghdad receded, and effective power passed to a constellation of regional dynasties (Kennedy, 2004). Yet the very same decades are frequently described by historians as a "renaissance" a term made current by Adam Mez and later refined by Joel Kraemer precisely because of the unprecedented vitality of letters, philosophy, and the natural sciences (Mez, 1937; Kraemer, 1992). Understanding how cultural efflorescence could accompany political decline is therefore central to any account of classical Islamic civilization.

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This article sets out to characterize the social and scientific conditions of the Abbasid realm during the 10th–11th centuries and to trace their bearing on the work of scholars. It proceeds in five steps: first, it surveys the territorial and demographic profile of the caliphate; second, it contrasts the luxury of the ruling elite with the hardship of the common population; third, it describes the scientific renaissance and the network of knowledge centres that sustained it; fourth, it analyses the parallel growth of the rational (ʻaqlī) and traditional (naqlī) sciences; and fifth, it considers the impact of sectarian diversity and the consolidation of the legal schools. The discussion draws on classical Arabic chronicles chiefly Ibn al-Athir, Ibn Kathir, and the modern synthesis of Hasan Ibrahim Hasan read in the light of contemporary scholarship.

Main Part

The Abbasid Realm and Its Demographics

During the second century of Abbasid rule the Islamic world had expanded to a vast extent eastward toward India and the Persian Gulf, westward into the Sudan and North Africa, northward toward Byzantium, Armenia, Khazaria, Bulgar, the Turkic lands and China, and southward again to the Gulf. This territorial reach, however, proved difficult to sustain. Between 942 and 1039 CE (330–430 AH) a succession of emirates asserted their independence from Baghdad, among them the Fatimid–Ismaili caliphate in Egypt and North Africa (Kennedy, 2004; Hodgson, 1974). Although certain powers, such as the Shiʻi Buyid (Buwayhid) state, retained a nominal allegiance to the Abbasid caliph, in practice the Abbasids ruled little beyond Baghdad itself and even the capital fell under Buyid control in 945 CE, inaugurating the period that Vladimir Minorsky termed the "Iranian Intermezzo" (Kraemer, 1992).

The caliphate's population was strikingly heterogeneous, comprising Arabs, Persians, Turks, Daylamites, and Kurds. Tensions arising from sectarian fanaticism fuelled interethnic conflicts, especially between Turks on the one hand and Persians or Daylamites on the other (Hodgson, 1974). Widespread poverty among the common people, aggravated by recurrent internal warfare, repeatedly issued in famine and social unrest. A severe food crisis struck in 975 CE (364 AH), compounded by natural disasters earthquakes, fires, and looting that deepened popular misery (Hasan, 1996). Of a later famine in Khorasan in 1011 CE (401 AH), Ibn al-Athir records that people cried out for bread and perished of hunger (Ibn al-Athir, 1978: 254).

Ruling-Class Luxury and Public Suffering

While the masses endured scarcity, the caliphs, amirs, and viziers lived amid conspicuous opulence. Their palaces were vast and embellished with ornamental

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gardens, and new residences were raised to rival those of the Persian and Byzantine courts (Hasan, 1996: 434). Lavish architecture divided these palaces into private quarters, service rooms, and banqueting halls. The great festivals ʻId al-Fitr and ʻId al-Adha mirrored the wealth of the rulers. Charity was especially prominent during Ramadan, when the poor received gifts, sacrificial animals were slaughtered and distributed, and cities were illuminated with lights and adorned with boats arrayed along the rivers (Mez, 1937).

The Shiʻi community, encouraged under Buyid patronage, also mounted grand public commemorations of Ashura and Yawm al-Ghadir; indeed, public mourning for Ashura was officially instituted in Baghdad under the amir Muʻizz al-Dawla in 963 CE (Kraemer, 1992). Such observances, accompanied by self-flagellation rituals and public expressions of disrespect toward the Companions, generated recurrent tension and frequent unrest.

2.3. Scientific Renaissance and Knowledge Centres

Despite chronic political instability, the 10th and 11th centuries witnessed a vigorous scientific renaissance. Baghdad remained a beacon of intellectual life, in several respects outshining even Egypt under the early Fatimids (Kraemer, 1992). Caliphs and amirs honoured scholars with gifts and gathered them at court as a mark of prestige, and scholars in turn migrated to the capital in search of patronage and renown (Mez, 1937).

Centres of learning and legal instruction multiplied across the caliphate not only in Baghdad but in Khwarazm, Fergana, Tashkent (al-Shash), Termez, Nasaf, Merv, Kashgar, Balasaghun, Talas, the towns of the Volga, Nishapur, Isfahan, Herat, Jurjan, Tus, Rayy, Ghazna, and the cities of al-Andalus and North Africa (Makdisi, 1981; Lapidus, 2014). The institutional culmination of this trend was the endowed madrasa, most famously the Nizamiyya colleges established by the vizier Nizam al-Mulk in the later 11th century (Makdisi, 1981).

The splendour of the capital impressed even foreign observers. In 917–918 CE a Byzantine embassy reached Baghdad and marvelled at the city's scale, prosperity, and ornate architecture; the caliph al-Muqtadir is said to have honoured the envoys with a military parade of some 160,000 soldiers (Ibn Kathir, 1997: 97).

Growth of Rational and Traditional Sciences

The era saw the simultaneous flowering of the natural and philosophical sciences. Among the towering figures who lived and worked during this period were:

- Abu Nasr al-Farabi (c. 872–950);
- Abu Mansur al-Maturidi (d. 944);
- Abu Abdallah al-Khwarizmi (d. c. 997);

- Avicenna (Ibn Sina) (980–1037);
- Abu Rayhan al-Biruni (973–1048);
- Yusuf Khass Hajib (b. c. 1019).

The intellectual temper of the age placed a high premium on reason and logic. Building on the great Graeco-Arabic translation movement of the preceding centuries, Muslim scholars reinterpreted the pre-Islamic philosophical and scientific heritage and pursued the natural sciences with notable energy (Gutas, 1998). By the 10th century, knowledge had come to be divided into two broad categories a classification reflected in works such as al-Khwarizmi's Mafatih al-ʻUlum and later systematized by Ibn Khaldun (Ibn Khaldun, 1967):

1. **Traditional sciences** (ʻulum al-naqliyya or ʻulum al-sharʻiyya) embracing Arabic linguistics, Qur'anic studies, and the sharia and legal disciplines.
2. **Rational sciences** (ʻulum al-ʻaqliyya, also called ʻulum al-ʻajam, "the sciences of the non-Arabs") embracing mathematics, the natural sciences, logic, and metaphysics.

The Influence of Religious Sects and Legal Schools

The plurality of Islamic currents Twelver and Ismaili Shiʻism, Muʻtazilism, and the Qarmatians stimulated debate and scholarship. Scholars composed treatises and engaged in public disputations to advance their doctrines, and were often rewarded by patrons of a corresponding allegiance (Kraemer, 1992).

The rivalry among the legal schools fostered the elaboration of fiqh (jurisprudence). It is traditionally held that, following the so-called "closure of the gate of ijtihad" around 941–1038 CE, jurists confined themselves largely to commenting upon the works of earlier authorities rather than deriving independent rulings. This view, however, has been substantially qualified by modern scholarship, which has shown that independent legal reasoning in fact persisted well beyond this period (Hallaq, 1984). The consolidation of the schools coincided with the growing weight of non-Arab populations Turks and Daylamites whose limited command of Arabic created a demand for accessible legal texts (Hodgson, 1974).

By the 8th century CE, fiqh had already emerged as a discipline distinct from kalam (speculative theology) (Hallaq, 2005). As the schools of al-Awzaʻi, Sufyan al-Sawri, and Ibn Jarir al-Tabari declined, the four major Sunni madhhabs achieved lasting dominance (Melchert, 1997). Ibn Khaldun and, in the modern period, Muhammad Kurd Ali attributed the disappearance of the lesser schools to their failure to develop a sufficiently detailed practical jurisprudence, in contrast with the meticulous works of Abu Yusuf and Muhammad ibn al-Hasan al-Shaybani (Ibn Khaldun, 1967).

During this period the Hanafi madhhab became especially influential in Iraq. Turkish rulers adopted Hanafi principles in administration, which furthered the school's diffusion, and caliphs and governors regularly appointed Hanafi jurists as judges, favouring their rulings over those of rival schools (Melchert, 1997).

Conclusion

The history of the Abbasid Caliphate in the 10th–11th centuries reveals a striking paradox: the erosion of central political authority coincided with one of the most creative epochs in the intellectual history of Islam. As effective power devolved from the caliph to the Buyid amirs and to a host of regional dynasties, patronage of learning was not extinguished but dispersed, multiplying the courts and cities in which scholars could find support. The same period that witnessed famine, sectarian strife, and the conspicuous luxury of a narrow elite also produced al-Farabi and Avicenna, al-Biruni and al-Maturidi, and an enduring institutional framework for both the traditional and the rational sciences.

Three conclusions follow. First, political fragmentation and cultural flourishing were not contradictory but, under the conditions of the Buyid age, mutually reinforcing. Second, the bifurcation of knowledge into the naqli and aqli sciences gave classical Islamic learning a durable architecture that would shape education for centuries. Third, the consolidation of the four Sunni madhhabs and the particular ascendancy of the Hanafi school in the eastern lands established a legal order whose influence extended far beyond the period under study, not least across Central Asia. Taken together, these developments confirm that the 10th–11th centuries deserve their designation as a renaissance, and that the relationship between authority and knowledge in this era repays continued scholarly attention.

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