

Intellectual Life during the Reign of the two Fatimid Caliphs: al-ʿĀmir bi-ʿAḥkām Allāh and al-Ḥāfiẓ li-Dīn Allāh

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Abstract

The present paper sheds light on the intellectual life in Egypt in the time of the two Fatimid Caliphs: al-ʿĀmir bi-ʿAḥkām Allāh (1101-1130 AD) and al-Ḥāfiẓ li-Dīn Allāh (1130-1149 AD). The findings suggest that the Fatimid caliphs were eager to support scientific research and scholarship in Egypt. The caliphs built and took mosques as platforms to advocate the Fatimid beliefs and encourage research and intellectual life. They were also interested in the Arabic language and literature, and so they built schools and libraries and printed thousands of books. Under the Fatimid caliphs, Egypt made impressive strides in the field of medicine, and physicians from the East and the West were brought in by the Fatimid caliphs and were allocated monthly salaries. At the same time, the Fatimid caliphs renovated existing hospitals and built new ones. Finally, the paper found remarkable astronomical achievements, well-evidenced by astronomical observatories built at that time.

Keywords: Fatimids, Egypt, Intellectual Life, Mosques, Schools, Physicians, Arabic, Astronomy.

1. Introduction

The Shiʿah Fatimids were a major Ismaʿili Shiʿah dynasty, the Fatimids founded their own caliphate in rivalry with the ʿAbbasids, and ruled over different parts of the Islamic world, from North Africa and Sicily to Palestine and Syria. The Fatimid period was also the golden age of Ismaʿili thought and literature. Established in 297/909 in ʿIfriqiya (Africa), the seat of the Fatimids was later transferred to Egypt in 362/973, and the dynasty was finally overthrown by Ṣalāḥ-al-Dīn al-ʿAyyūbī (Saladin) in 567 AH/1171 AD, when the fourteenth and last Fatimid caliph, al-ʿĀẓed li-Dīn Allāh (555-67 AH/1160-71 AD), lay dying in Cairo (Encyclopaedia Iranica, 2006). They got their name from their acceptance of Ismāʿil bin Jaʿfar al-Ṣādiq as the divinely appointed spiritual successor to Jaʿfar al-Ṣādiq. They were also named Fatimids because of their claim to be descendants of Fāṭima, daughter of Prophet Muḥammad, and wife of the fourth Caliph ʿAli bin ʿAbi Ṭālib and first Shīʿa ʿImām.¹

¹. Literally, ʿImām is a leader, and means to lead. Whereas the Sunni Islamic literature regard imamate as a vicegerency of the Prophet to handle the worldly and religious affairs of the Muslims. Imamate in the Shīʿa literature refers to an empire in terms of the vicegerency of Prophet [s], for the affairs that pertain to the world and religion. al-Taftazānī, 1989, Vol. 5., 232. The major political reference which the Ismāʿilis recline on is the ʿimāms' existence, possessed of supernatural knowledge, authority and free from any error and sin. Ramdane & Souad, 2014, 138. The ʿImām who is also the inheritor of Mohammad's secret knowledge, is endowed by God with special ʿilm (knowledge), and has perfect understanding of the onward or exoteric (ẓāhir) and the inward or esoteric (bāṭin) aspects and meanings of the Qurʾān and the sacred law of Islam. Indeed, the world cannot exist for a moment without an ʿImām, the proof (Hujjah) of God on earth. Even if only two men were left upon the face of the earth, one of them would be the ʿImām. And there can only be one ʿImām at one and same time, though there may be a silent one (ṣāmī), his successor, beside him. Daftary, 1992, 86.

They have also been called 'Ubaidis, in reference to the founder of the Fatimid dynasty 'Ubayd Allāh al-Mahdī Billāh (Ramdane & Souad, 2014, 136).² The Fatimid Egypt assumed a prominent place among its contemporary nations and witnessed an intellectual, scientific and cultural movement. The advocacy of the Ismā'īlism and the promotion of intellectual activity were some of the cultural manifestations of the Fatimid era (Goitein, 1955:80-82). The Fatimids were eager to build educational institutions and libraries. The caliphs encouraged literary, scientific and philosophical research, thus creating a renaissance-like Egypt. Moreover, the Fatimid caliphs supported librarians, scribes, grammarians, linguists, chemists and physicists (al-Maqrīzī, 1998, Vol. 1., 178).³ At the spiritual level, the caliphs promoted jurisprudence forums and supported scholars of *Ḥadīth*. Thanks to the intellectual forums, which were instituted to teach preaching and jurisprudence, al-'Azhar Mosque came to play a key role in the promotion of the cultural life in Egypt (al-Juwaynī, 1958: 719).⁴

1. Mosques

The Islamic tradition that mosques were extraordinary centers for religious, political, social, judicial, and intellectual functions have been maintained in the Middle Ages (Ramdane & Souad, 2014, 144). The Fatimid caliphs in Egypt, al-'Āmir bi-'Aḥkām Allāh and al-Ḥāfiẓ li-Dīn Allāh in particular, were very much interested in constructing and renovating mosques,⁵ including:

1.1. al-'Azhar Mosque (The Luminous Mosque)

Jawhar al-Ṣiqilī commissioned its construction in 970 AD and it was opened in 971 AD. Its architectural design is modeled after Ibn Ṭulūn Mosque. al-'Azhar was an important center for teaching religion, *Shari'a* and *Fiqh* (Islamic Law) and was instrumental for the esoteric and public face of the Ismā'īli *da'wa* (propaganda).⁶ It is just fair to say that al-'Azhar was regarded as powerful symbol of the Fatimid religious and political legitimacy and a decisive tool to sever spiritual relations with the previous Abbasid proxy rule, and ensure the loyalty of the Egyptians, sever spiritual relations with the previous Abbasid proxy rule, and ensure the loyalty of the Egyptians to the Fatimid 'Imāms. *Khuṭbas* (sermons) were closely monitored by the Fatimid caliphs themselves. The early education system in al-'Azhar was mainly in the form of *Ḥalaqa* (circle) which encompassed the classes of *fiqh* according to the *Ismā'īli* creed and *Shi'a* knowledge of religion, philosophy and monotheism. The management of these *ḥalaqas* was the prerogative of the teaching *sheikhs* (professors) in al-'Azhar.

². For more details about the history of Fatimid khalifate and Ismaili Doctrine, see Encyclopaedia Iranica, Fatimids, 2006; Oleary Dd 2010; Walker 2008.

³. Some historians believes that the Fatimid caliphs' support for scholars and scientific research contributed to the development of Egypt in all areas, because due to the scientific and cultural progress of Cairo during the Tulunid and Ikhshidid dynasties in rivalry with or imitation of Abbasid Caliphate, this city was capable of competing with Baghdad and Cordova. Dehqan & Chelongar, 2014, 137.

⁴. According to Tahraoui Ramdane and Merah Souad, The significance of education for the Fatimids in Egypt originated from the purpose of establishing their state in Egypt. The Ismā'īli 'Imāms were not after wealth and personal glory. They aimed to establish a theocratic Ismā'īli orthodoxy which can displace the Abbasid Sunni caliphate and rule the entire Muslim world. To reach that aim, the Fatimids invested immense efforts in disseminating knowledge, arts, literature, and the Ismā'īli culture in Egypt. Ramdane & Souad, 2014, 140. Some historians attributed the flourishing of intellectual activities in Egypt during the Fatimid rule to another factor that is directly related to the geographical and social milieu in which they created their state, namely Egypt. al-Majma' al-Malakī libuḥūth al-Ḥaḍāra al-'Islāmiyya, 1989, 65-68.

⁵. The system of governance and all of its apparatus was centered on the 'Imām. The Fatimid Caliphs were in full control of their state's administration. Ismailism recognizes the authority of the 'Imām, who after the Prophet Muḥammad is the representative of God on Earth. The 'Imām is both the spiritual and the political leader of the community, he is appointed either by the prophet (as in the case of 'Alī) or by the preceding 'Imām. He has to be male, pious and of specific descent. He is infallible and the only official interpreter of scriptures. Calderini, 1996. Tahraoui Ramdane and Merah Souad noticed that the Fatimids engaged into intensive administrative reforms in order to tend to the affairs of their subjects, though they retained some institutions inherited from the conquered Ikhshidids, meanwhile, they adopted many forms of governing from their old foes, the Aghlabids. Some historical sources, particularly Ismā'īli ones, stressed that the Fatimids did not hesitate to turn to former officers from the old Ikhshidi and Aghlabi regimes and employed them in their *dīwāns* (offices) Ramdane & Souad, 2014, 140.

⁶. Heinz Halm sees that the Cairo mosque al-'Azhar acted as a multipurpose institution in the service of the Ismā'īliyya. It was built as a symbol for the Fatimid Isma'īli rule and a place to be used by the Fatimids and their adherents for conducting the Isma'īli religious rituals, so as to prevent friction with Egyptian Sunni devotees. Halm argues that since it was built, al-'Azhar functioned exclusively as an educational institution. Halm, 1997, 41.

The Fatimids used several names for al-'Azhar, such as Cairo Mosque, al-'Anwar Mosque, al-'Aqmar Mosque and al-'Afkar Mosque (al-Maqrīzī, 1998, Vol. 2., 276; Ramdane & Souad, 2014, 144).

1.2. The Mosque of 'Amr bin al-'Ās

It was the first mosque ever constructed in Egypt and Africa. The Mosque was built in the city of Fustāṭ, which was also founded by Muslims. The mosque had other names, such as Masjid al-Fath, al-Masjid al-'Atīq and Tāj al-jawāmi' (the crown of mosques). The Mosque of 'Amr bin al-'Ās is located on the eastern side of the Nile (al-Qalqashandī, 1987, Vol. 3, 838).

When it was built, the Mosque had an area of 50x30 cubits, and it had six gates. It remained so until 672 AD, when Maslama bin Mukhallad al-'Ansārī, the governor of Egypt during the Omayyad's reign, made some extensions and built four minarets. The mosque, then, underwent other restorations and expansions by the rulers of Egypt, increasing its space to about twenty-four thousand cubits. Its minaret was built during the reign of Caliph al-'Āmir bi-'Aḥkām Allāh at the time of Minister al-'Afdal bin Badr al-Jamālī (al-Maqrīzī, 1998, Vol. 2., 273).⁷

1.3. The mosque of 'Aḥmad bin Ṭulūn

It is the most important mosque in Cairo. Unlike the mosque of 'Amr bin al-'Ās, whose original features were completely wiped out, the mosque of 'Aḥmad bin Ṭulūn is arguably the oldest mosque in the city that retained its original structure, except for some Mamluki extensions. It was established by Prince 'Aḥmad bin Ṭulūn between 876 -878 AD on an area of six acres and a half. The minaret of the mosque has a unique Islamic architecture, being Cairo's only minaret with a cylindrical base and a spiraling external staircase which is 90 cm wide. This mosque was designed by Sa'īd bin Kātib al-Farghānī, a Coptic Engineer. In the era of al-Ḥākim bi-'Amr Allāh and al-Ḥāfiz li-Dīn Allāh, this mosque played an important religious and social role (al-Maqrīzī, 1967-73, Vol. 3, 77; Ibn Maysar, 1981, 91).

1.4. The seven mosques (516 AH / 1122 AD)

They are also known as the 'seven scenes' and Quraysh graves. They were built by Caliph al-Ḥākim bi-'Amr Allāh in Fustāṭ (al-Maqrīzī, 1998, Vol. 2., 442). During the reign of Caliph al-'Āmir bi-'Aḥkām Allāh, and specifically in 1122 AD, Minister al-Ma'mūn al-Baṭā'ihī ordered his agent 'Abi al-Barakāt Muḥammad bin 'Othmān to renovate the seven mosques, located between al-Muqṭam Mountain and al-Qirrāfa. He also instructed him to inscribe the caliph's name and the renovation date on various marble plates in the seven mosques. The first was the Mosque of Sayyida Zaynab bint 'Alī bin 'Abī Ṭālib, which is located in Qanṭarat al-Sibā'. The last was the Mosque of Sayyida Kulthūm bint al-Qāsim al-Ṭayyib bin Ja'far al-Ṣādiq (Ibn Daqmān, 1960, 91; Māhir, 1971, Vol. 1, 97, Vol. 2, 112-123).

1.5. Monia Ziftī Mosque (516 AH / 1122 AD)

Monia Ziftī is located near Fustāṭ on the Nile bank. During the reign of Caliph al-'Āmir bi-'Aḥkām Allāh, Minister al-Ma'mūn al-Baṭā'ihī ordered the construction of the mosque. After completing the construction, he appointed an orator, imam and two prayer-callers who were paid from the charitable Endowment funds (al-Maqrīzī, 1967-1973, Vol. 2, 199).

1.6. Quesna Island Mosque (516 AH / 1122 AD)

This island is located between Cairo and Alexandria. The mosque was built during the reign of Caliph al-'Āmir bi-'Aḥkām Allāh in the month of Shawwal (516 AH / 1122 AD), following an instruction by Minister al-Ma'mūn al-Baṭā'ihī (al-Maqrīzī, 1967-1973, Vol. 2, 199).

1.7. Albihnā Oases Mosque (517 AH / 1123 AD)

During the reign of Caliph al-'Āmir bi-'Aḥkām Allāh, Minister al-Ma'mūn al-Baṭā'ihī ordered the construction of this mosque in the month of *Shawwal* (517 AH / 1123 AD). After completing the construction, an orator, imam and two prayer-callers were appointed and paid like other workers in the mosques (Ibn Daqmān, 1960, 14).

⁷ The system of governance was centered on the Caliphs. Meanwhile, the office of the *wazīr* (minister) managed the day to day business and looked after the affairs of the *ra'īyya* (people). Ramdane & Souad, 2014, 137-138.

1.8. al-Jāmi‘ al-‘Aqmar (519 AH / 1125 AD)

It was built in Marjūsh market which is very close to Bāb al-Futūḥ, opposite to the North Palace (Sayyid, 2000, 172; al-Musabbiḥī, 1978-84, 48). Its construction was completed during the reign of Caliph al-‘Āmir bi-‘Aḥkām Allāh (1125 AD). al-‘Āmir bi-‘Aḥkām Allāh bought a steam bath and a caravanserai and endowed their revenues to the mosque to cover its expenses and lighten its lamps (Ibn Zūlāq, 1935, 101). In the Fatimid religious ceremonies, both the orators of al-‘Azhar and al-‘Aqmar mosques used to deliver their sermons in the presence of the Caliph al-‘Āmir bi-‘Aḥkām Allāh (al-Maqrīzī, 1998, Vol. 2., 290; al-Maqrīzī, 1967-73, Vol. 2., 191)

al-‘Aqmar mosque is one of the magnificent landmarks of the Fatimid Era. It is an example of the engineering art, architectural decorations and inscriptions engraved in stone (Mu‘nis, 1981, 257), Some read: “There is no God but Allāh, Muḥammad is the Messenger of Allāh”, and “‘Alī is the vicegerent of Allāh”. The mosque has an open square courtyard, surrounded by a wide wall (Māhir, 1971, Vol. 1, 324).

1.9. Maṣjid al-Tār ikh (522 AH / 1128 AD)

It is located between al-Raṣd and al-Qirāfa al-Kubrā overlooking al-Ḥabash Lake. It was built during the reign of Caliph al-‘Āmir bi-‘Aḥkām Allāh, and under the supervision of senior statesmen and ministers, at a cost of 1200 dinars (al-Maqrīzī, 1998, Vol. 2., 446; Ibn al-Ṣayrafī, 1924, 63-64).

1.10. Maṣjid al-‘Andalus (526 AH / 1132 AD)

It is located in the Baq‘a area next to al-Faṭḥ Mosque. ‘Abū Turāb had supervised its construction (al-Maqrīzī, 1998, Vol. 2., 446).

1.11. Mashhad al-Sayyida Ruqayya – Shrine of al-Sayyida Ruqayya (527 AH / 1133 AD)

It is situated next to Shajarat al-Dur mosque. The shrine was built during the reign of Caliph al-Ḥāfiẓ li-Dīn Allāh by ‘Abū Tamīm Turāb the agent of al-Sayyida ‘Alam al-‘Amīriyya. Over the shrine, there is a wooden compartment inlaid with ivory and shells. The niche of the shrine is an architectural masterpiece in Egypt. Also, it has a conch with the name of Muḥammad and ‘Alī engraved inside (Māhir, 1971, Vol. 2, 126-129).

2. Schools

The Fatimid Caliphs were significantly renowned for building educational institutions and public libraries. They also supported scientific research and intellectual/scholarship activity. The Caliph’s library had more than half a million books.⁸

2.1. Madrasat Dār al-Ḥikma (Dār al-‘Ilm)

It was founded by Caliph al-Ḥāfiẓ li-Dīn Allāh in 1139 AD. Teachers included Chief Justice Hibat Allāh bin Ḥasan al-‘Anṣārī al-‘Awsī, known as Ibn al-‘Azraq, Abu al-Ḥasan ‘Alī bin ‘Ismā‘īl and ‘Abū al-Ṭāhir ‘Ismā‘īl bin Salāma al-‘Anṣārī, nicknamed al-Muwaffaq fī al-Dīn, who continued to teach there until 1140. The latter’s monthly salary was 40 dinars (Ibn Maysar, 1981, 132; al-Maqrīzī, 1967-73, Vol. 2., 251-252). Dār al-Ḥikma was founded to serve as a center of learning and to facilitate the working of the Ismā‘īli mission as well.⁹ It rapidly became a cultural center, attracting students from all over the Muslim world. It was a venue to teach and learn sciences such as astronomy, logic, philosophy, mathematics, history, theology, languages and medicine. The Shī‘a Ismā‘īli esoteric interpretation was propagated in Dār al-Ḥikma by organizing *majālis al-Ḥikma* attended by the ‘Imām himself, he took part in debates sometimes and granted generous gifts to the participants (Ramdane & Souad, 2014, 145).

⁸. According to some historians, Egypt has already occupied a substantial position in Islam, after the conversion of the majority of its people to the new religion and their adoption of the Arab character. Such circumstances were accompanied by a dynamic Islamic educational movement which promoted Arabic as a chief instrument for the Islamic culture. That movement attained great scientific and Islamic advancement in the first capital of al-Fuṣṭāṭ, which eventually became a gathering point for leading scholars. Thus, it is appropriate to say that the Fatimids have not destroyed the existing learning tradition, rather, they brought further advancement which involved public and military education for youngsters and adults, as well as offering religious education of the Shī‘a Ismā‘īli and Fatimid school. al-Majma‘ al-Malakī libuḥūth al-Ḥaḍāra al-‘Islāmiyya, 1989, 65-70.

⁹. For Ismā‘īli Fatimids, educational curriculum and policies shall primarily protect the Ismā‘īli teachings and ensure their dissemination. Ramdane & Souad, 2014, 141.

2.2. al-Madrasa al-Ḥāfiẓiyya

It was built by Minister Raḍwān bin Walakhshī in Alexandria in 1138 AD to teach religious studies. The school was named after the Shiite Caliph al-Ḥāfiẓ, who allowed his Sunni minister to build the school in the Sunni stronghold of Alexandria. The school included dormitories for all of the students. al-Ḥāfiẓiyya was also known as al-ʿAwfiyya School, after ʿAbī Ṭāhir bin ʿAwf, the first Maliki scholar. The school mainly taught Islamic Sharia 'Sharī'a' (al-Shayyāl, 1957, 3).¹⁰

3. Libraries and Houses of Knowledge

The Fatimids were obsessed of collecting books, especially rare ones in both art and science. Very often, they paid high prices to obtain copies of various manuscripts originally handwritten by their authors. To facilitate finding a reference, those books were categorized in accordance with a very precise system (Ibn al-ʿAthīr, 1997, Vol. 3, 119-121).

The Fatimid Caliph al-ʿAzīz bi-Allāh (975-996 AD) was very fond of books. He took Jacob bin Kalas as a state minister. Bin Kalas established a huge library, known as Khizānat al-Kutub, and spent a lot of money to provide it with important works in the fields of history, literature and jurisprudence. It is believed that the library had more than thirty copies of *Kitāb al-ʿAyn* for Khalīl bin ʿAḥmad al-Farāhīdī, including a copy of his own handwriting. The library had twenty copies of al-Ṭabarī's book and a hundred copies of *Kitāb al-Jamharah* for Ibn Durayd. al-ʿAzīz bi-Allāh instilled the love of books in his son al-Ḥākim bi-ʿAmr Allāh (996-1020 AD).

Al-Ḥākim bi-ʿAmr Allāh established Dār al-ʿIlm (house of knowledge) which used to host linguists, grammarians, literary men and doctors. For more encouragement, the caliph paid them money and provided the library with the needed paper and ink. Later, the public were allowed to use the library, which had more than one hundred thousand books. The number of book copies in the Fatimid library steadily increased. For example, when Ṣalāḥ al-Dīn captured Egypt, there were 1200 copies of the book *Tārīkh al-Ṭabarī* and 2400 gold-adorned copies of the Qurān. According to al-Maqrīzī, there were more than one million and six hundred thousand books in the fields of Fiqh, grammar, language, Hadith, history, astrology, spirituality and chemistry, including eighteen thousand old science books, and six thousand and five hundred books on stars, engineering, philosophy and astronomy, suggesting that the number of books in the library had doubled sixty times during the reign of Caliph al-ʿAzīz bi-Allāh (al-Maqrīzī, 1998, Vol. 2., 1, 163).

The Fatimid palace was home for a second-to-none library, with valuable books, dictionaries and encyclopedias. However, following the internal turmoil under Caliph al-Mustansir bi-Allāh (1036-1094 AD), the library lost a lot of its holdings. The remains of the library, during the period of al-ʿĀmir bi-ʿAḥkām Allāh and al-Ḥāfiẓ li-Dīn Allāh, were kept in a caliphate palace, which was turned into a hospital after the fall of the Fatimids in 1171 AD (Ibn al-ʿAthīr, Vol. 5, 105; Ḥasan, 1991, Vol. 4, 195-197).

The library of the Old Hospital had more than 200,000 books on jurisprudence, Hadith, grammar, language, history, astrology, astronomy, spirituality and chemistry. This library was regarded as one of the wonders of the world (al-Maqrīzī, 1998, Vol. 1., 408-409; al-Maqrīzī, 1967-73, Vol. 1., 309, Vol. 2., 126-127; ʿĪsā, 1981, 70). The books were classified in groups by subject and kept in labeled bookcases. The library hired a librarian, scribes and attendants (al-Maqrīzī, 1998, Vol. 1., 409). When the caliphs visited the library for reading, the librarian would suggest some readings and he was also responsible for lending books to caliphs and scholars (Ibn al-Ṭawīr, 1992, 130-131).

Libraries, however, experienced hardship, especially under the reign of al-Mustansir bi-Allāh, when the books were taken from the Fatimid palaces in payment of debts. During the process, some were robbed and others were burned (al-Maqrīzī, 1998, Vol. 2., 164).

3.1. Dār al-ʿIlm/ Dār al-Ḥikma (House of Knowledge/ House of Wisdom)

Dār al-ʿIlm was within the premises of the House of Wisdom. It was built by Caliph al-Ḥākim bi-ʿAmr Allāh in 1004 AD near the small west palace in the Darb al-Ṭabbānīn. Dār al-ʿIlm was directly supervised by a custodian (Ibn Maysar, 1981, 95; al-Maqrīzī, 1967-73, Vol. 2., 126-127; Muḥāmid, 2001, 82).

¹⁰. Tahraoui Ramdane and Merah Souad noticed that in Fatimid Egypt two systems of education co-existed, an official that was adopted, sponsored, and propagated by the state, and un-official, that was advocated and preserved by Sunni intellectual elite (scholars). Ramdane & Souad, 2014, 147. For more details about the Fatimid and their traditions of learning. see Halm 1997.

The House was home for scholars, readers, grammarians, physicians, philosophers and mathematicians. The House of Wisdom was furnished, decorated and supplied with paper and ink; curtains covered all the doors and corridors (al-Maqrīzī, 1998, Vol. 1., 408-409; Ibn, al-Zubayr, 1959, 262). The library continued to prosper throughout the Fatimid era. Yānis, the book scribe from the Levant, arrived to Egypt in 1112 and was appointed in the library for a monthly salary of 10 dinars and 3 annual livery packages (al-Maqrīzī, 1967-73, Vol. 2., 174). In 1122 AD, Minister al-'Afdal had to close down the library following the emergence of the al-Badī'iyya sect, with two proponents (Barakāt, and Ḥamīd bin Makkī al-'Aṭṭihī al-Qassār) claiming to be gods (al-Qalqashandī, 1987, Vol. 3., 362). The two apostates practiced witchcraft and sorcery and deluded many people before they were killed by al-Ma'mūn in 1123 AD. Then, in 1124, the House of Knowledge was moved next to the Eastern Grand Palace behind the Khizānat al-Darq. Since then, 'Abū Muḥammad bin 'Ādam¹¹ became in charge of its management (Ibn Maysar, 1981, 95-96, 99).

3.2. Al-'Azhar Library

al-'Azhar Library was vibrant during the reign of Caliph al-'Āmir bi-'Aḥkām Allāh. In 1123 AD, al-'Āmir bi-'Aḥkām Allāh appointed Minister al-Ma'mūn (who was the son of scholar Ibn al-Nu'mān) as the librarian (Ibn Maysar, 1981, 96). The library, which lasted until the fall of the Fatimid caliphate, had holdings of literature, sciences, religion, history and humanities (al-Maqrīzī, 1967-73, Vol. 3., 106).

3.3. The Eastern Grand Palace Library

There were 40 small libraries in the Palace premises and yards, with 1800 ancient science books and 2400 copies of the *Holy Qurān* adorned with gold and silver. In 1068, the libraries in the yards were looted, while those in the premises survived until the fall of the Fatimid caliphate (Ibn Maysar, 1981, 96; Ibn, al-Zubayr, 1959, 262).

4. Bimaristans (Hospitals)

Bimaristan is a Persian word meaning "hospital", with Bimar- meaning "sick" and Stan- meaning "place". In the Fatimid era, the word "Bimaristan" was used to refer to a hospital where the ill people were welcomed and cared for by the healthcare staff (al-Khafājī, 1998, 49; Shīr, 1972, 33). The bimaristans served as public hospitals where all diseases were treated. When those bimaristans were hit by natural disasters, all patients left them, except the insane, and so the word was later used to refer to psychiatric hospitals. Historical sources indicate that until the end of the Abbasid period, Muslims had not used any word other than Bimaristan (Ibn Ṭuwayr, 1992, 132).

The Fatimid caliphs in Egypt sponsored medical sciences and healthcare. When they came to Egypt, they found many hospitals.¹² According to Ibn al-Qalānsī, there were a number of hospitals, namely *al-'Atīq* (the Old Hospital), the Small Hospital which is located south of the Umayyad Mosque and the Hospital which is located beside Bab al-Barīd. The hospitals provided healthcare, especially before establishing the Norī Bimaristan. These hospitals helped attenuate the public suffering following the spread of epidemics and diseases in the era of the Fatimid state. The Fatimid caliphs allocated generous funds to existing hospitals and constructed new ones as needed (Ibn al-Qalānsī, 1908, 142).

The Fatimids enabled the physicians to regularly attend the palaces in order to give medication services to the caliphs and to all those in power. The hospitals were administered by the scientific institutes that produced physicians and surgeons. 'Imād al-Dīn Bin 'Alī al-Mūṣulī, who lived in the era of Caliph al-Ḥākim bi-'Amr Allāh was an ophthalmologist who conducted major operations in the hospitals. Al-Mūṣulī wrote many books on eye medicine. Sources say he performed six eye white-water operations. In 994 AD, the then sitting Caliph al-Ḥākim bi-'Amr Allāh used to reward physicians with plenty of gifts (Ibn 'Abī 'Auṣaybi'a, 2010, 155).

The Old Hospital (874-1481 AD), which was built beside the University on Mount Yashkur (Ibn Daqmān, 1960, 122) was one of the most important hospitals during the reign of 'Aḥmad Bin Ṭulūn. The magnificent hospital was constructed under the western minaret of the Umayyad Mosque (Ibn al-Qalānsī, 1908, 142-143). Throughout the Fatimid period and until the death of the historian al-Qalqashandī (1418 AD), the hospital continued to provide medical services to the public, except soldiers ('Īsā, 1981, 67-72).

¹¹. 'Abū Muḥammad bin 'Ādam was Dā'ī al-Du'āt (Chief Commissioner) in charge of supervising and managing the Dār al-Hikma (House of Wisdom) in the late days of Caliph al-'Āmir bi-'Aḥkām Allāh. Ibn Maysar, 1981, 74.

¹². Masoumeh Dehqan and Mohammad Ali Chelongar noticed that during the Fatimid period, both hospitals, which had been constructed during the Tulunid and Ikhshidid periods, were still actively providing services. Much attention had been given to the hospitals and they had been sufficiently equipped. Dehqan & Chelongar, 2014, 147.

The hospital had an award for patients with mental disorder (al-Musabbihī, 1978-84, 35; Ramaḍān, 1994, Vol. 2, 258-259). It also contained two restrooms for ablution and washing the dead (al-Khafājī, 1998, 198). The hospital had two water closets for men and women. There was also a pharmacy which the Fatimid caliphs used to visit. Apart from medicine, the pharmacy sold ointments and creams in Chinese Sakārij¹³ (Ibn Daqmān, 1960, 99). Among those who worked at the hospital were the caliph's private doctors who were in charge of checking drugs and writing prescriptions. The pharmacist was a senior professor who had a direct relationship with the Fatimid Caliph. After preparing, triturating and diluting the medicine, the senior pharmacist would be ordered to taste the drug before the Caliph. Having proved proper for human use, the drugs were then prescribed to patients in the hospital (Ibn al-Ṭuwayr, 1992, 130-131). *al-ʿAtīq* hospital was also known as the Upper, as opposed to a latter hospital in the center of the city called the Lower. Caliphs equipped that hospital sufficiently and allocated many resources to it so that it would properly fulfill its duty of serving the poor and the rich equally. With an excellent furnished library and two bathhouses for men and women, this hospital continued to give health and educational services to society for four centuries until the Mamluk era (Dahqan & Chelongar, 2014, 147).

The management of the hospital was the job of the comptroller, who would compel practitioners to make the Hippocratic Oath after being examined by a team that the comptroller nominates for this task (al-Musabbihī, 1978-84, 107; al-Maqrīzī, 1967-73, Vol. 2, 214; ʿĪsā, 1981, 52-53). The surgeons in the hospital were responsible for performing surgeries and treating blood vessels, wounds and hemorrhoid using scalpels of different shapes and sizes (al-Sharbīnī, 1980, 30). There were also official ophthalmologists and untrustworthy street ophthalmologists, while orthopedists were responsible for treating bone fractures (ʿĪsā, 1981, 46-55). It had been observed that the caliph's private doctor was from the Dhimmis (non-Muslim citizens: Christians or Jews).¹⁴ An example of those was Doctor Yaʿqūb bin Naṣṭās al-Nuṣrānī, who was a private doctor for Caliph al-Ḥākim bi-ʿAmr Allāh (al-Maqrīzī, 1967-73, 368).

5. Educational subjects

5.1. Religion

al-ʿAzhar was a center of religious sciences and an educational institution for the Ismailism. Yaʿqūb bin Kalas was the first minister who in 988 established a center for teaching jurisprudence. On Fridays, Ismaili scholars used to gather at al-ʿAzhar to promote Ismailism.¹⁵ Some lectures known as Majālis al-Ḥikma (wisdom lectures) were also delivered inside the Palace of the Caliph. At the end of the lectures, money was raised for the poor 'Zakāt' (al-Maqrīzī, 1998, Vol. 1., 227; Halm, 1999, 74-77).

Minister Yaʿqūb bin Kalas used to hold meetings in his house for scholars and preachers. There, he also used to read the *al-Risāla al-Wazīriyya* (ministerial letter) which was considered as a constitution for the Ismaili jurisprudence which he received from Caliph al-Muʿiz li-Dīn Allāh and his son al-ʿAzīz li-Allāh. In 1123, the House of Knowledge became the center of the Ismaili *Daʿwa* (propaganda).¹⁶ during the term of Minister Maʿmūn al-Baṭāʿhī. According to Ibn al-Ṭawīr, knowing the Ismaeli teachings was a condition for becoming a jurist.

¹³. Sakārij (singular ʿUskuruja): An Arabized Persian word meaning vinegar utensil. see Shīr, 1988, 10.

¹⁴. Masoumeh Dehqan and Mohammad Ali Chelongar sees that the Fatimids abandoned the policy of converting Egyptian Muslims to Ismaili religion and established friendly relations with Egyptian Dhimmis. The policy they pursued in Egypt was policy of religious tolerance of the Dhimmis. However, the reign of al-ʿAḥākim bi-ʿAmr Allāh was an exception, because he severely persecuted and tortured the Dhimmis. Yet, it was this tolerance which facilitated the political integration of Egypt. In fact, Dhimmis benefited the most from tolerance in this period, because the Sunnis did not benefit from this tolerance. Dehqan & Chelongar, 2014, 139. Another researchers generally agree that Muslims, Copts, Jews and Christians were economically and politically equal and this equality led to scientific and artistic flourishing of the Fatimid Egypt. Due to this tolerance, not only did Egyptian Jews influence the economic growth of the Fatimids, but also Jewish immigrants of the western and eastern regions came to Egypt to participate in economic activities and signed commercial contracts with the Fatimids. al-ʿAbādī, 1971, 260-262; al-Quffī 1992, 11-13.

¹⁵. Ismaʿīli doctrine stressed the dual nature of Qurʾanic interpretation, exoteric (zāhir) and esoteric (bāṭin), and made a distinction between the ordinary Muslim and the initiated Ismaʿīli. The secret wisdom of the Ismaʿīlis was accessible only through a hierarchical organization headed by the ʿImam and was disseminated by Duʿāt (missionaries), who introduced believers into the elite through carefully graded levels. Encyclopedia Britannica, 2016.

¹⁶. As a reflection of their religio-political ideals, the Fatimids divided the world into twelve *jazāʿir* (singular: *jazīra*, island) for the purposes of their *daʿwa* activities; each *jazīra* representing a separate and somewhat independent region for the penetration of the Fatimid *daʿwa*. Encyclopaedia Iranica, 2016. For more details about Ismaʿīli *Daʿwa*. see Maḥamīd 2006.

This tradition continued to exist until the fall of the Fatimid state (Ibn al- Ṣayrafī, 1924, 50; Ibn al-Ṭuwayr, 1992, 115; Sayyid, 2000, 385).

5.2. Arabic

Arabic language, literature, grammar and rhetoric took center stage during the reign of the Fatimid caliphs, who hosted roundtables and meetings in their palaces. Historian 'Abu al-Qāsim al- Ṣayrafī was a prominent figure in rhetoric and poetry in the time of both al-'Āmir bi-' Aḥkām Allāh and al-Ḥāfiẓ li-Dīn Allāh. al-Ṣayrafī excelled in calligraphy and composition. Both Caliphs and their ministers were generous with creative poets and writers (Halm, 1999, 189; al-Ṣafadī, 1979, Vol. 12., 23). The Fatimid libraries contained 30 copies of al-Khalīl bin 'Aḥmad al-Farāhidī's *Qāmūs al-'Ayn*, in addition to a copies of books by the linguist Ibn Durayd (Halm, 1999, 141; al-Nu'mān, 1978, 132).

5.3. Medical Sciences

The term 'Islamic medicine' (or Arab medicine) is used to describe medical works produced in Arabic in the Golden Age of Islam. The Islamic medical sciences were innovative, but they were also influenced by the legacy of other nations. The first translations of medical texts were considered a key factor in the establishment of Islamic medicine. Similarly, the Latin translations of Arabic works had a great influence on the development of medicine in the late Middle Ages and early Renaissance (Ibn Daqmān, 1960, Vol. 5., 46).

At a time when the Western church criminalized the medical sciences, claiming that the disease is a punishment from God and should not be prevented, the Muslims began, in the nineteenth century, developing a medical treatment system that depended on scientific analysis. Over time, people began to understand the importance of health sciences. In the Middle Ages, Islam had known some great doctors who developed hospitals, and practiced surgery on a large scale. Some medical files reported female physicians, midwives, wet nurses including two women who served in the court of Caliph al-Muwaḥidī 'Abū Yūsuf Ya'qūb al-Mansūr in the 12th century (Ibn Daqmān, 1960, Vol. 5, 48).

The Fatimid Egypt witnessed a tremendous medical progress, thus becoming a destination for doctors from the East and the West. That situation helped in enriching the field (Ibn Daqmān, 1960, Vol. 5, 45). A large number of Muslim, Coptic and Jewish physicians were known in that time. Though those physicians were not as famous as other contemporary physicians like Ibn Sīnā, al-Rāzī and al-Zahrāwī, they had excelled in enriching the medical library with many important works. The Egyptian doctors were not famous probably as the majority of them were practitioners (Ibn 'Abī 'Auṣaybi'a, 2010, 567). At a time when Muslims, influenced by the ideas of Aristotle and Galenos, considered medicine as a branch of natural philosophy. The people in that age were lucky having ophthalmologists, surgeons, phlebotomists, gynecologists and cupping specialists. al-Rāzī and Ibn Sīnā were the greatest of those doctors, in that their books continued to be taught at Islamic medical schools for a long time. Besides, those doctors, in general, and Ibn Sīnā, in particular, had a great influence on medical sciences in Medieval Europe (al-Maqrīzī, 1998, Vol. 1., 487).

6. Physicians and surgeons during the Reign of al-'Āmir bi-' Aḥkām Allāh

The Fatimids made great efforts to advance medical sciences and generously gave a lot of property to the physicians. The physicians enjoyed these properties and received numerous gifts from benevolent caliphs. Caliphs also appointed these physicians to high government positions, to the extent that they gained a lofty status in Egypt. Several hospitals were founded so that along with theoretical medical courses at scientific centers, students gain practical experience in these hospitals (Dehqan & Chelongar, 2014, 141). A number of Muslim, Christian and Jewish physicians were well-known in Egypt during the reign of Caliph al-'Āmir bi-' Aḥkām Allāh, namely:

6.1. Sharaf al-Dīn 'Abdullāh bin 'Alī

He was nicknamed as the rational Sheikh. His father was the private physician for the Fatimid caliphs, especially al-'Āmir bi-' Aḥkām Allāh. Bin 'Alī was brilliant and erudite. He lived to see the fall of the Fatimid state (al-Ḥamawī, 1995, Vol. 2., 250)

6.2. 'Abū Ja'far Yūsuf bin 'Aḥmad bin Ḥasdiyya bin Yūsuf al-'Isrā'īlī

In 1122, he left al-'Andalus and headed to Egypt where he received a standing ovation and given a monthly salary, livery, bonus, and a house in Cairo.¹⁷ The Fatimid caliph was interested in bringing in Abū Ja'far because the caliph thought he would add a contribution to the intellectual life of Egypt. 'Abū Ja'far dedicated two days of the week to see the patients and the rest of the days were devoted to writing and research, helped by two scribes appointed by the Caliph. He interpreted several books written by Hippocrates and Galenos (Ḥamāda, 1985, 1973-1974; Ibn al-Ṣayrafī, 1924, 11; Ibn 'Abī 'Auṣaybi'a, 2010, 499-500; al-Maqrīzī, 1967-73, Vol. 2., 204).

6.3. 'Abū Naṣr 'Adnān bin Naṣr 'Abū Maṣṣūr Zarbī

He came straight from Baghdad to Egypt and died in 1153. 'Abū Maṣṣūr Zarbī was influential in logic, mathematics, astrology, prose writing and poetry. Zarbī trained a number of physicians who excelled in medicine. He wrote several books, including *al-Kāfi fī al-Ṭib*, which he began to write in 1117 and completed in 1152, *Sharḥ al-Ṣinā'a al-Ṣaghīra* (by Galenos), *Mujrayāt fī al-Ṭib 'Alā Jihat al-Kanā'is*. Zarbī also wrote articles, including *al-Ḥasā wa-'Ilājuhu*, *Risāla fī Ta'athur al-Ṭabīb al-Fāḍil wa-Nifāq al-Jāhil*, *al-Risāla al-Muqni'a fī al-Manṭiq* and *Risāla fī al-Siyāsa*. In astrology, he wrote *Mā Yaḥtājuhu al-Ṭabīb fī 'Ilm al-Nujūm*. Zarbī adopted a scientific, experimental approach based on induction, trial and error. Zarbi was also well-versed in Arabic; and he had an impressive handwriting style (Ibn 'Abī 'Auṣaybi'a, 2010, 570-571; Ḥamārni, 1986, 306-309).

6.4. Physicians during the Reign of Caliph al-Ḥāfiẓ li-Dīn Allāh

In that period, two Jewish physicians were well-known, namely 'Abū Maṣṣūr al-Yahūdī and 'Abū Sa'īd bin Qariqa al-Ḥakīm, who had abundant knowledge of medicine, architecture and other ancient sciences. 'Abū Sa'īd made a fatal poison which the Caliph used to poison his son who rebelled against him. Then, the Caliph captured the doctor, confiscated all his property, killed him in 1130, and appointed in his place 'Abū Maṣṣūr al-Yahūdī as the chief doctor in the palace (al-Maqrīzī, 1976-73, Vol. 2., 240-241; Sayyid, 2000, 192; Qāsim, 2003, 53).

7. Drugs / Medicinal Herbs

The Fatimid physicians used many drugs and medicinal herbs, including:

7.1. Balsān Lotion

It is a perennial plant that has yellow, white or pink flowers with the smell of almonds. The herb is known by several names, such as elderberry, Mecca balsam and Israel balsam. It is abundantly grown in al-Maṭariyya area near Cairo. It is believed to be the best type of Balsān as it is a female plant. The oil is extracted from the Balsān in July (al-Zāhirī, 1997, 29; Ibn Daqmān, 1960, 43-44; Hāw, 1975, 16, 143).¹⁸ The oil has several medicinal usages, including brain activation, maintaining dead bodies from rotting and as a diuretic drug. It is also analgesic for joint pain, toothache, headache, and it is anti-inflammatory of skin sores. The Balsān has religious connotations for Coptic Christians. Its oil is mixed with baptism water as a form of religious ritual. The water is taken from the Balsān well in al-Maṭariyya garden 'holy water' (Ibn al-Ḥāj, 2000, Vol. 2., 58-60; Ibn Zūlāq, 1935, 19). The legend says that when Virgin Mary together with her Child, Jesus Christ, escaped from the tyranny of Herod (the Roman governor of Jerusalem), she sat down to rest as they were tired and thirsty. The Child moved his feet and as his heel touched the ground, a stream of water flowed. His mother drank and washed his clothes. At that moment, some seeds from the Balsān tree fell down and grew. Thus, the garden has become a place of pilgrimage for Christians who seek blessing after returning from Jerusalem. As a result of the medical benefits and uses of Balsān oil, the officials in the Fatimid Caliphate were interested in harvesting it. Due to its heavy demand, and lack of production, it was very expensive. The kings of Europe used to pay a lot of money to get it (Hāw, 1975, 16-17; al-Maqrīzī, 1998, Vol. 2., 162; Fahmī, 1973, 209, 211).

7.2. Khiyār Shanbar/ Cassia Fistula

It is a perennial plant that has a pleasant smell. It grows in Egypt and is used in medical drug industry to treat constipation, mummify the dead, kill visceral and joint pain, and remove phlegm from the body.

¹⁷ . It should be emphasized that, under the patronage of the Fatimid court and Mu'iz the Fatimid caliph, scholars from other countries were encouraged to immigrate to Egypt in order to escape misfortunes in their own lands. Dehqan & Chelongar, 2014, 139.

¹⁸ . For more details about Balsān Lotion, see al-Muqaddasī, 2003, 206; al-Ḥawāj, 2016.

It has other uses, such as leather tanning and preparation of gum. Cassia Fistula was abundantly found in Cairo, Alexandria and Damietta (Fahmī, 1973, 201, 214-215).¹⁹

8. Astronomy

Under the Fatimid rule, Egypt enjoyed great achievements in astronomy, culminated by building astronomical observatories, including al-Jayūshī observatory which was established above al-Jayūshī Mosque in al-Muqaṭṭam mountain to the east of Cairo and al-Ma'mūn's observatory in Bāb al-Naṣr. Both were named after the ministers who built them (al-Maqrīzī, 1976-73, Vol. 2., 100, Halm, 1999, 137). In 1006, a Muslim Arab astronomer named 'Alī bin Raḍwān reported that he observed a supernova and recorded his observation in details in his book *al-'Arbā'* (Quarters) which was translated into Latin in the Middle Ages. The book was the most important astronomical reference in Europe (Ibn Daqmān, 1960, Vol. 4., 58). Equally influential were Ibn Yūnis al-Miṣrī who was an astrologist and mathematician at the same time Ibn Yūnis built an observatory on al-Muqaṭṭam Mountain to observe the moon, the sun and the planets, and al-Ḥasan bin al-Haytham who was a prominent figure in astronomy and history. Ibn al-Haytham is considered by some as the real founder of modern optics (al-Maqrīzī, 1998, Vol. 1., 128).

The Fatimid caliphs were interested in astrology— knowledge of the orbit forces and their effects. Caliph al-Ḥākim bi-'Amr Allāh built an astronomical observatory on al-Muqaṭṭam Mountain in order to observe the stars from there. At night, he would isolate himself from the people's company to practice that hobby. Despite the decision that prohibited astrology in Egypt in 1013, this observatory remained functional in the reign of Caliph al-'Āmir bi-'Aḥkām Allāh. However, in 1123, Minister al-Ma'mūn ordered to move the observatory to Bāb al-Naṣr in Cairo. Its construction was supervised by some astronomers, namely 'Abū 'Abdullāh al-Ḥalabī,²⁰ Ibn al-'Aythamī,²¹ 'Abū Ja'far bin Ḥasdāy,²² Ibn Sanad,²³ poet 'Aḥmad bin Mifrij,²⁴ and Ibn Qaraqā.²⁵ Another new observatory was also constructed at that time (Ibn Khaldūn, 1981, Vol. 3., 1217-1223; Ibn al-Muqaṭṭam, 1974, Vol. 2., 124; al-Maqrīzī, 1976-73, Vol. 1., 397).

The new observatory remained operative until the last days of Caliph al-'Āmir bi-'Aḥkām Allāh. Caliph al-Ḥāfiz li-Dīn Allāh was very much interested in astronomy. He used to read books about it, and he believed that astronomy would reveal a lot about the conditions of the state. Caliph al-Ḥāfiz depended on seven astrologers, most notably, al-Maḥqūq, Ibn al-Mallāh, 'Abū Muḥammad al-Qalā'ī al-Maghribī and 'Abū Mūsā al-Nuṣrānī (Ibn Maysar, 1981, 96, 140-141; al-Maqrīzī, 1998, Vol. 2., 445).

In a nutshell, Muslims had significant contributions to astronomy, particularly:

1. Muslims translated ancient astronomical books from Greek, Persian, Roman and Assyrian languages. They also corrected some inaccuracies in those books. The original books were lost, while their translations into Arabic survived; and that is why the Europeans depended on Muslims for certain scientific issues.
2. Muslim additions and important discoveries advanced the science of astronomy.
3. They approached astronomy inductively, rather than theoretically, as the ancient Greeks did.
4. Cleaned out astronomy from the impurity of astrology (Halm, 1999, 137; al-Maqrīzī, 1998, Vol. 2., 127).

Conclusion

The Fatimid period was one of the most brilliant historical periods due to its intellectual and cultural achievements. The Fatimid period was also the golden age of Isma'īli thought and literature.

¹⁹. For more details about Cassia Fistula, see al-Ṭib al-Badīl, 2016.

²⁰. 'Abū 'Abdullāh al-Ḥalabī was one of the most influential astronomers during the reign of al-'Āmir bi-'Aḥkām Allāh. He was a co-founder of the astronomical observatory in Cairo in 1123 AD. al-Maqrīzī, 1998, Vol. 1., 425.

²¹. Ibn al-'Aythamī was an astronomer during the reign of al-'Āmir bi-'Aḥkām Allāh. al-Maqrīzī, 1998, Vol. 1., 452.

²². 'Abū Ja'far bin Ḥasdāy was doctor who read Hippocrates works enthusiastically. He emigrated from al-'Andalus to Egypt. During the reign of al-'Āmir bi-'Aḥkām Allāh, he excelled in science, philosophy and medicine. al-Ḥamawī, Vol. 4., 205.

²³. Shaykh 'Uthmān bin Sanad bin Rāshid bin 'Abd Allāh bin Rāshid al-Wā'ilī was a writer, historian and a poet. He was born in the village of Dasht, Filka Island in 1766 and died in 1826. al-Maqrīzī, 1998, Vol. 1., 227.

²⁴. 'Aḥmad bin Mifrij al-Manāwī was a well-known scholar who wrote *Jawāhir al-'Āthār*. He was a contemporary of Sultan Sulaymān bin Muẓaffar al-Nabhānī. He died in the 9th century A.H. . al-Maqrīzī, 1998, Vol. 1., 425.

²⁵. Ibn Qaraqā was a co-founder of the astronomical observatory in Cairo in 1125. al-Maqrīzī, 1998, Vol. 2., 127.

The Fatimid caliphs built mosques to advocate the Fatimid beliefs. They also built schools, libraries and astronomical observatory and made great efforts to advance medical sciences.

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