

## REVIEW ARTICLE

# The Flowering of Islamic Medicine during the Fatimid Caliphate in Egypt

### Abstract

The Fatimid era (358-567 AH /968-1171AD) was one of the most brilliant historical periods due to its intellectual and cultural achievements and successes. influencing an area beyond its boundaries. Due to their attempts, Cairo turned into one of the artistic, cultural, and scientific Islamic centers and it became the focus of research and science.

During this period, there were numerous debates among doctors which led to the flowering of this science. Different gifts were dedicated to the scholars' tuition fees and physicians' salaries. Whenever caliph identified a physician as qualified in his career, he was empowered and favored by the caliph, and became his close friend. Medicine was in the hands of Jewish and Christian physicians in Fatimid territory during Moez and Aziz caliphs, until the mid-fifth century. This continued up to Alhakem period during which Sunni people attempted to challenge their authority and seize their position.

Some specific diseases were more common in Egypt; including eye diseases, cholera, and plague which got epidemic successively because of the ongoing famine in Egypt.

This study is a piece of library research which makes use of Arabic, Persian, and Latin sources regarding the development of Islamic medicine during the Fatimid period in Egypt

**Key words:** Islamic medicine, medical sciences, the Fatimid Caliphate, Cairo, Egypt, Fatimid era

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## Introduction

The Fatimid era (358-567AH/969–1171 AD) was one of the most brilliant historical periods due to its intellectual and cultural achievements and successes. From a geographical point of view, Fatimid's intellectual, scientific, and cultural traditions have influenced an area beyond its boundaries. Due to their attempts, Cairo turned into one of the artistic, cultural, and scientific Islamic centers and it became the focus of research and science. 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<sup>1</sup>.

The palaces of Fatimid caliphs and their ministers were the centers of intellectual life and served as a gathering place for the scholars to have debates and conduct scientific research.<sup>2</sup> In their palaces, some places had been allocated to holding these gatherings. Courtiers comprised of a large group of scientists, poets, physicians, philosophers, etc. Caliph Al Moez (953–975 AD) often played a vital role in the debates held in his palace and these debates were instrumental in the development of Cairo scientific movement.<sup>3</sup> The debates continued in the palace and royal library throughout the reign of Al Aziz (975–996 AD), Al Hakem (996-1021 AD), Al Zahir (1021–1036 AD) and Al Mostanser (1036–1094 AD). Participation of the caliphs and statesmen in this intellectual movement had considerable impact and scientific conferences were an opportunity for scientist who had immigrated to Egypt to have a share of the court patronage or sought to obtain a position such as tutorship of caliphs' children. Fatimid caliphs summoned scholars to Egypt, favored and encouraged them and also supported the students. To manage the affairs of the scholars and students, a special judge had been hired. Students received food and facilities until graduation. Al Moez Ledin Allah the Fatimid (953–975 AD) held scholars in high respect, encouraged them and gave them a lot of property. This support led to publication of numerous books as well as scientific progress in Cairo and in a way, changed the Egyptian public opinion towards the Fatimid caliphs and won their favor.<sup>4</sup> The Fatimid also equipped libraries of their palaces. *Dar Al Elm* or *Dar Al Hikma* (the house of science) was one of the scientific centers during the Fatimid era which was established and equipped by Al Hakem Beamrelah in 1005 AD. Although *Dar Al Elm* was primarily significant for

1- Ebrahim Hasan, 1958: 502.

2- Maqrizi, 1996: 46.

3- Maqrizi, n.d.( v1): 460.

4- Tamer, 1982: 197.



educating Ismaili Dais, its doors were open to scientists who went there to learn authentic knowledge. Therefore, it was as prestigious as *Bayt Al Hikma* in Baghdad and educational centers in Andalusia.<sup>5</sup> At *Dar Al Elms*, classes were held for scholars and ex and present teachers of *Dar Al Elms* could use library facilities.<sup>6</sup>

It should be emphasized that, under the patronage of the Fatimid court and Moez the Fatimid caliph, scholars from other countries were encouraged to immigrate to Egypt in order to escape misfortunes in their own lands. Thanks to the Fatimid's incentives and supports, the number of debates, courses and books published in various fields considerably increased. Historians have mentioned the names of the scholars who immigrated to the Fatimid Egypt and benefited from the material and intellectual support provided by the wealthy aristocracy.<sup>7</sup> Qazi Abdulvahab bin Ali, one of the Maliki juris consults, immigrated to Egypt due to the hardships he endured in Baghdad and in spite of his different religious views, in Egypt, he came to considerable wealth, led a prosperous scientific and material life and died in 1031 AD.<sup>8</sup> The present study seeks to explain the reasons for the growth of medical science within the Egyptian Fatimid territory and also instances of the progress of medical science during the Fatimid period. Physicians of the Fatimid period are to some extent unknown. In this paper, their names will be cited and their achievements in curing local Egyptian diseases as well as general maladies in the Islamic world will be discussed.

#### **The Fatimids and their regard for science**

The Egyptian Fatimid period has been rightly called the Golden Age of the Islamic Civilization in the western Muslim world. The Fatimids abandoned the policy of converting Egyptian Muslims to Ismaili religion and established friendly relations with Egyptian Dhimmis (non-Muslim citizens). The policy they pursued in Egypt was policy of religious tolerance of the Dhimmis. However, the reign of *Al Hakem Beamrelah* 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. As a matter of fact, transference of *Ibn Kals*, the Jewish man who had converted to Islam during the reign of Kafur the Ikhshidid, to Afriqayh and his persuasion of Moez to conquer Egypt and then his efforts to fulfill this goal and attaining the position of

5- Chelongar, 2011:170-1.

6- Ata Allah, n.d: 208.

7- Kamel Hosain, 1939:66.

8- Ibid.



minister, strengthened and established the status of the Jews of Egypt. To the extent that the Fatimids were implicitly and constantly inclined to have friendly relations with this Egyptian minority.<sup>9</sup> Researchers generally agree that the success of the Fatimids was, to a great extent, due to their racial and religious tolerance and their administrative stability. In fact, the Shiite Fatimid had a special skill in making use of the services of competent individuals and groups, regardless of their race or religion.<sup>10</sup> Political solidarity of the Fatimid government in Egypt and participation of opposing intellectual and religious groups were the results of the tolerance policy. Muslims, Copts, Jews and Christians were economically and politically equal and this equality led to scientific and artistic flourishing of the Fatimid Egypt.<sup>11</sup> Even economic and commercial successes in the Fatimid Egypt are considered to be due to this tolerance and friendly relationship with the Dhimmis. 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.<sup>12</sup>

During the Fatimid era, Egypt was the scientific leader of the Islamic world. Scientific thoughts and teachings of the Fatimid court spread over other lands; to the extent that even the scholars who were prejudiced about the Shiites and especially the Fatimids also immigrated to Egypt. These immigrant scholars affected the ideas dominant in Egypt, modified them or were influenced by Ismaili Shiite beliefs. Imam Muhammad Al Ghazali (1058-1111 AD) had the greatest impact on dominant ideas in Egypt. In his books *al-Qestas*, *al-Munqidh min al-Dalal*, *al-Mustazhari* and *al-Rad ala al-Batiniya*, he criticized and attacked the Shiite and Fatimid thoughts. But, during the last years of his life, the same person immigrated to Shaam, a land ruled by the Fatimids, and lived there. He wrote *Mishkat al-Anwar* under the influence of some Fatimid ideas regarding Sufism. Also, his ideas in his book, *Tarbiyat al-Uqul*, were the result of his intellectual shift. It should be admitted that due to the support of the Fatimids for sciences, the emphasis of the Fatimid religion was on reason and science and rationality were the innermost constituents of this religion. It was through sciences, argumentations and debates that the Fatimid Dais were able to convert people. This factor was influential in promoting Fatimid beliefs throughout the Islamic world and helped the Fatimids to form a government.<sup>13</sup>

9- Wiet, 1937: 118-84.

10- Daftary, 1997: 292.

11- Al-Ebadi, n.d: 261.

12- Al-Qefti, 1992: 12.

13- Ata Allah, n.d.: 209.



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. In Egypt, like other Islamic countries, general medicine was practiced but some of the physicians diagnosed and treated internal, infectious and ophthalmologic diseases and also performed surgeries. One of the requirements for studying medicine was learning disciplines such as philosophy and foreign languages especially Syriac and Greek. Just like the eastern Islamic world, a large number of scholar/physicians (philosopher/physicians) emerged and medical sciences progressed during this period, just as philosophy did. It should be noted that attention to sciences especially medicine during the Fatimid era also existed in the western Islamic world. Alhazen mentions the special role *Ziad ibn Khalfun* played in his first encounter with Abuabdullah and Abu al-Abbas. Ibn Ziyad accompanied the army which went to Sijil-massa to free the Fatimid Imam and served as a senior court physician at the Fatimid court until his death in 920 AD.<sup>14</sup> But, like many other physicians, he did not write any books on medicine- or perhaps nothing is left of them. In north of Africa, the Jewish philosopher and physician, Isaac Israeli (832-932 AD), who was once dependent on Imam's court, in addition to some interesting books on philosophy, wrote several books about medicine; books about fevers, urine, nutrition (which were later translated into English). The latter one brought him considerable fame.<sup>15</sup> His works may belong to a time when he was not serving the Fatimids. Therefore, they may or may not be the result of the Fatimids' support.<sup>16</sup>

During this era, physicians had numerous debates; their debates led to advancement of medical science, broadened its horizons and increased the number of books authored in the field of medicine. The Fatimids held physicians in high respect and generously supported them. Much money had been allocated to paying students' tuition fee and physicians' payment.<sup>17</sup> Whenever the caliph realized that a physician was adept in his profession, that physician gained power and entered the court circle and became worthy of the caliph's friendship. The physicians' special costumes had been somehow hoarded by the Dhimmis within the Fatimid territory. Up to the

14- Walker, 2004: 237.

15- Valtman, 1958: 114.

16- Vaker, 2004: 238.

17- Ibid: 210.



middle of the fifth century AH (12<sup>th</sup> century AD), the Fatimid caliphs hired a large number of Jewish physicians.<sup>18</sup> During the reign of Moez and Aziz, Jewish and Christian scribes and physicians were appointed to various positions at the court. This was the case until the time of Al Hakem (996-1021 AD), but then following the measures taken by Hakem, the Sunnis tried to seize the position these two religious groups occupied in Egypt.<sup>19</sup> This can be confirmed by referring to the long list of physicians which has been mentioned by Qefti in his book *Akhbar Olama be Akhbar al- Hokama*<sup>20</sup> and Ibn Abi Usaibia in *Uyūn ul-Anbā' fī Ṭabaqāt ul-Aṭibbā*.<sup>21</sup>

Yaqub bin Kals (Jews from Baghdad (930-991) was known as the Financial Director and the Secretary of the Fatimid Caliph al prospered, became Muslim and Islamic science was presented as an ultimatum.), the Fatimid minister, was also influential in the advancement of medical science in the Fatimid Egypt. He had over four thousand guards including servants and owned slaves in his palace. In addition to these guards, he also had servants and handmaids at his court. He had employed physicians to diagnose and treat the diseases of people as well as his servants.<sup>22</sup> During this period, many books written by scholars, literary figures and physicians were published in the name of Ibn Kals.<sup>23</sup> In his palace, Ibn Kals had established a hospital in which some adept physicians worked and diagnosed and treated patients and did research about diseases. Patients were not charged for the medication they were prescribed.<sup>24</sup>

More than any other period in the history of Islam, a large part of the educational heritage of the Fatimid era in the field of natural history and medicine has been lost or destroyed. Historical evidence indicates constant and abundant production of knowledge.<sup>25</sup> Evolution of natural sciences in Egypt was due to their progress during the Fatimid era. In this period, Egypt became powerful enough to compete with other Islamic regions in the field of medicine.<sup>26</sup> In this period, some of the distinguished physicians emerged in the Muslim world and the medical science gained prestige due to their presence. The Fatimids respected the physicians, gave them generous gifts and exacted fees for their services.<sup>27</sup> In *Subh al-A'sha*, Qalqashandi states that at the Fatimid court, physicians were considered among special employees who enjoyed special privileges in the Fatimid court and government. They were called *Ashab al-Vazaef al-Sanaiya* and one of their major responsibilities, particularly if they were special physicians, was to visit caliph's house everyday and

18- Sayyid Ayman, 1992: 90.

19- Kohen, 1987: 19.

20- Al- Qefti, 1947: 210-1.

21- Ibn Abi Usaibia, n.d.: 540-60.

22- Tamer, 1982: 212.

23- Ibid: 202.

24- Ebrahim Hasan, 1958: 504.

25- Hamameh, 2009 ( Vol 9): 1-2.

26- Kamel Hosein, 1939: 78.

27- Tamer, 1982: 202.



sit on a golden seat in a special place facing the caliph and courtiers. Three or four physicians were selected for this duty and whenever there was an epidemic in the palace or caliph's relatives or special friends became sick, these doctors wrote prescriptions for them which were provided by the *Khizanat al-Sharab* (medicine storehouse) of the palace. Physicians were the only nobles who had access to *Khizanat al-Sharab*. Court physicians enjoyed high salary and position as well as handmaids.<sup>28</sup>

### **Monitoring hygiene and medical practice; a reason for the progress of medical science the Fatimid Egypt**

In Egypt, like other Islamic regions, a "head physician" or "*muhtasib*" supervised the medical practice of the physicians. Although little information is available regarding the responsibilities of a head physician, some books had been written to guide muhtasibs.

Prior to the sixth century AH (13<sup>th</sup> century AD), such books (Hisbat books) mentioned the medical profession only briefly and mostly discussed drugs and doses. Shaizari (died 1193 AD), a physician who worked in Aleppo, wrote a book in which physicians had been required to take Hippocratic Oath.<sup>29</sup> One of the most important duties of a muhtasib was to carefully monitor sanitation of production machines and their tools and accessories as well as the market and shops of various artisans.<sup>30</sup> In order to monitor medical practice, *hisbat* and *ihtisab* (literally calculation), which were applied in other professions, were also devised and implemented in the field of medicine and scholars who have written books about *hisbat*, also wrote a chapter on *hisbat* in medicine.<sup>31</sup>

In his book, *Nihayat al-Rotba*, Shaizari dedicates a chapter entitled "*fi al-Hisbat ala al-Atiba va al-Zohalin va al-Mojberin va al-Jarahin*" to *hisbat* of physicians, ophthalmologists, orthopedists and surgeons and states that physicians must be tested based on the content of Hunayn's book entitled "*Mihnat al-Tabib*" and ophthalmologists based on his ten treatises on eye and orthopedists based on Paul's *Konash* and surgeons based on Galen's and Zahravi's books (Figure 1).<sup>32</sup>

Ophthalmologists were tested based on *Hanin ibn Eshaq's* "*al-Ashr Maqalat fi al-Ayn*" (ten treatises on eye) and orthopedists based on the Arabic translation of the chapter on surgery in the book by Paul of Aegina and surgeons had to know the contents of a particular book by Galen. Later *hisbat* books repeated these requirements, but there is little evidence available to show whether these tests were taken strictly. Also, it

28- Al-Qalqashandi, n.d. (vol. 3): 569.

29- Shyizari, 1946: 97-8.

30- Shyizari, 1946: 97.

31- Ibid.

32- Ibid:100.





Figure 1. Muslim physicians excelled in the art of *Al-Kahala* (ophthalmology).

has been emphasized that a physician received a “license” after graduation, but there is no evidence of the existence of an equal, standardized or supervised system in medical education, although today copies of some treatises are available at the end of which a person has signed and testified that a certain student has read and understood a certain text in the presence of its author or a respected physician. Such testimonies are not equivalent to a license which a physician receives following graduation from an approved educational course, and the term “license” is not found in such documents.

*Muhtasib* also appointed an expert to supervise pharmacists, an expert who was familiar with their tricks and inspected their drugs every week, advised them and intimidated them by the threats of punishment, because pharmacists used many tricks and cheated a lot and it was impossible to find out all these tricks, while their harm was much more than the harm of the tricks used in other professions. Medicines and syrups had different humors and were used to treat different





maladies; some of them were only suitable for a certain humor and if something was added to them, their humor would change and naturally, they would harm the patient.

One of the tricks that pharmacists famously used was mixing Egyptian opium with lettuce extract or, sometimes, mixing gum with “*saf mamita*”. The expert appointed by *muhtasib* found out these tricks by dissolving opium in water and considered the following points:

- If it smells like saffron, it has been mixed with “mamita”.
- If it has a mild smell and was powdery like flour, it has been mixed with lettuce extract.
- If it is bitter, brittle and transparent, it has been mixed with gum. ( Mamyta: Short stature and bitter plant, its leaves resemble the leaves and blossoms Poppy Boon has Bluish it<sup>33</sup>.

Also, these experts forbade pharmacists from selling sesame or apricot kernel oil in place of almond oil.<sup>34</sup>

As mentioned previously, *muhtasib* was supposed to test ophthalmologists based on *Hanin ibn Eshaq's* “*al-Ashr Maqalat fi al- Ayn*” (ten treatises on eye). Whoever passed the test and could describe eye layers and glands and the three types of moisture and the diseases associated with them as well as the method of mixing eye drugs and how to prescribe them was allowed to treat patients. Itinerant eye doctors were unreliable because they were impious. *Muhtasib* had to ban this group, who were ignorant about eye diseases, from treating patients. It was harmful for patients to refer to these physicians because some of them used drugs made of starch and gum and offered them in various colors. They made red drugs with minimum, green ones with turmeric and they made black indigo with acacia (a species different from the famous one) and made yellow drugs with saffron. The instances of their medical fraud were innumerable.<sup>35</sup>

This monitoring of public health and medical practice was in fact one of the reasons for development of public health system in Fatimid Egypt and indicates the importance of health and hygiene for Egyptian citizens. It also led to growth in the areas of personal and public health. It should be admitted that *hsbt* and monitoring health, hygiene and medical practice in Islamic civilization is a point of honor which led to the growth of medical science and its related branches all over the Islamic world. During the fourth, fifth and sixth century AH (12<sup>th</sup> and 13<sup>th</sup> century AD), with the same approach to medicine, medical supervision and establishment of medical centers, the Fatimid Egypt played a pivotal role in scientific power of Islamic civilization.

33- Ibn Bytar, 1965 (vol 4): 124-5.

34- Shyizari, 1946: 46.

35- Abo Zeyid, 1986: 210.



### Hospitals in the Fatimid era

As mentioned previously, during the Fatimid era, more than any other period in Egyptian history, theoretical and applied researches in the fields of natural sciences and medicine were conducted, but due to animosity of the dynasties that followed them in Egypt and as well as numerous problems that the Fatimids had during the sixth century AH (13<sup>th</sup> century AD), the achievements of their sciences and civilization were plundered and over time, were seized by others. It should be stressed that the Fatimids themselves had inherited their civilization from civilized dynasties which were patrons of sciences such as the Tulunid and Ikhshidid dynasties and continued to improve their civilization and scientific growth. The historical sources have frequently discussed the repeated turmoil in Egypt during the late fifth and early sixth century AH (12<sup>th</sup> and 13<sup>th</sup> century AD). Consecutive famines and political and military problems which made it impossible for the caliphs and their minister to take reformist measures in the field of science.<sup>36</sup> The aforementioned instances show why the historical sources have merely mentioned four hospitals operating during the Fatimid era, whereas immediately after the fall of the Fatimids of the Ayyubid era (569-589AH/1174-1193AD), the historical sources mention the era of *Nuraldin Zangi* (1146-1174 AD) and his successors as well as the Mamluks as the period in the Islamic civilization during which numerous hospitals were built. However, it should be admitted that in fact this has been the case; yet shouldn't this point be taken into consideration that the tradition of producing knowledge and establishing scientific and medical centers and paying attention to social health had belonged to the Fatimids and later dynasties built on those foundations? One of the hospitals that actively provided health and medical services during the Fatimid era was *Al-Atiq* hospital in Fustat city next to Ibn Tulun mosque. It was built by Ahmad Ibn Tulun (835-884 AD). According to Maqrizi<sup>37</sup>, in this hospital, patients were dressed in special uniforms, then they were treated and food and medication were provided for them. At this hospital, which sixty thousand dinars had been spent for its construction<sup>38</sup>, aside from the slaves and soldiers, everybody including the poor were admitted. Every Friday, Ibn Tulun visited the hospital and managed the affairs. This hospital is very important in the history of medicine and psychiatry. Kafur, the fourth Ikhshidid caliph, established a hospital named Al-Afsal in Fustat in 346 AH (957 AD).<sup>39</sup> During

36- Al-Savvy, 1988: 327,199.

37- Maqrizi, n.d. (vol. 2): 405-6.

38- Al-Qalqashandi, n.d. (vol. 3): 377-392.

39- Ibid.



the reign of Al-Aziz Billah the Fatimid, *Al-Atiq* hospital went through major repairs, new buildings were constructed and hospital wards were equipped so that following the downfall of the Fatimids and during the Mamluk era, this hospital was one of the major landmarks in Fustat and was still actively in operation.<sup>40</sup>

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. During this period, there was a well-equipped charity hospital in Fustat. *Al-Atiq* 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. The Lower hospital was built in 346 AH/957 AD. Hospital wards and kitchen had been equipped with plenty of medication and food. In addition to the equipment required for the hospital drugstore, the store of food, drugs and sedatives made the hospital independent and self-reliant. This hospital also had a library with large rooms and conference and lecture halls for promoting medical knowledge and education. In this hospital, while patients were treated, health specialists were also trained and their professional knowledge improved.<sup>41</sup>

**Clinic and infirmary:** Apparently, a large hospital was divided into these two main sections. After a quick examination, the patient was written a prescription which was filled in at the hospital drugstore. After he was examined at the hospital clinic, if the physician's diagnosis<sup>42</sup> required that the patient be hospitalized, he was sent to the related ward. For example, patients who had internal diseases or fractured bones or needed surgery or ophthalmologic treatment, etc. were hospitalized at special wards.<sup>43</sup> The number of physicians and nurses was proportional to the number of patients. There were hierarchies for the physicians at any hospital. There were more male physicians and less female midwives and physicians. Historical sources mention that hospitals had problem treating gynecological diseases and in some cases, besides a male physician, a female midwife or physician had to attend the patient in order to avoid any religious problems.<sup>44</sup> The responsibilities of the nurses were similar to those of modern

40- Al-Qalqashandi, n.d. (vol. 3): 397.

41- Hamarneh, 2009 (Vol. 9; No2): 1-2.

42- Ibn abi Usaibia, n.d : 243.

43- Ibid: 244-310.

44- Elgood, 1978: 240-50.



nurses. Apparently, someone was in charge of health services and collecting charities.<sup>45</sup> Other hospital employees included department manager (attorney), superintendent (supervisor), the auditor and the custodian, etc. *Al-Qashashin* hospital was located near Al-Azhar mosque (Figure 2). During the ministry of Ma'mun Bataehi, minister of *Al-Amr Biahkam Allah* (1096-1130 AD), this place was turned into a mint-house. *Al-Siqtiyin* hospital was located in *Siqtiyin* market outside *Bab Al-Zaviya*, one of the gates of Cairo.<sup>46</sup> *Shahab Al-Din Abuhajaj Yusef* was a prominent ophthalmologist who worked at this hospital.<sup>47</sup>

45- Elgood, 1992: 182.

46- Ibn abi Usaibia, n.d. (vol. 2): 247.

47- Ghani, n.d: 124.

48- Ataa Alla, n.d : 113.



Figure 2. Al-Azhar mosque, main courtyard, 10<sup>th</sup>-18<sup>th</sup> centuries

### Medicine during the reign of Al-Moez li-Din Allah (341-365 AH/952-975 AD)

Al-Moez was cultured and highly knowledgeable. He spoke several languages including Italian which he had learned during his childhood in Sicily Island. The palace where he grew up he was frequented by scholars and poets who were seeking knowledge and arts and he was eager to learn foreign languages.<sup>48</sup>

Medical and pharmaceutical aides in North of Africa reached their height during the Fatimid era. This progress can be observed in the works of Abu Jafar Ahmad bin Ibrahim bin Abu Khaled bin Al-Jazar Al-Qirvani (290-369 AH/905-984 AD). His father and uncle were also distinguished physicians at the Fatimid court. Ibn Jazar was preeminent in promot-



ing medical education and practicing medicine and was the most distinguished physician in the court of caliph Al-Moez in Qirvan and later in Cairo.

More than thirty books in the fields of history, biography, geography, philosophy and other related subjects have been ascribed to Ibn Jazir, but most of them have been lost. Among the surviving works are the seven brief medical treatises entitled *zad al-mosafer va qut al-hazer*. In the introduction of this book, Ibn Jazar mentions the greatest ancient physicians (especially Hippocrates, Rufus of Ephesus and Galen) and then, shares his vast knowledge of pathology and treatment of the diseases of each organ of the body from head to toe and due to his all-comprehensive knowledge, he leaves behind a work which can benefit both the patients and the medical students. This book was a manual for educating medical students, a glossary of medical terms for the physicians and a medical guide for travelers to remote rural places (hence the title *Zad al-Mosafer*) where a physician could be rarely found.

This book is divided into two parts; the first part includes four treatises and 86 chapters discussing the diseases of head, including hair and skin diseases, headaches, migraine, insomnia, epilepsy and facial paralysis and then hygiene of eyes, ears and mouth, common cold, chest and heart diseases, tonsillitis, cough, irregular heartbeat, angina and eventually gastrointestinal diseases.

The second part includes three treatises and 70 chapters discussing diseases of the liver and spleen. Ibn Jazar writes: "This part contains a brief, yet complete, introduction in 70 chapters of diseases of the liver and spleen, including jaundice, kidney and bladder stones, urinary retention, and reproductive system diseases including allergic uterus, labor pain, gout and sciatica. This part of the book also contains a discussion of fevers including smallpox and measles, skin diseases, burns and wounds, and toxicology.<sup>49</sup>

The book of home remedies, *Tib al-Foqara*, consists of 58 chapters and contains all the previous Greek and Arabic sources. It is a book for patients who are in need of medical treatment but cannot afford to purchase expensive medication and medical costs. The book concentrates on introducing inexpensive and accessible drugs and their composition and also suggests ways to protect health. This book discusses treatments for various diseases of head, ears, teeth as well as stomachache, cough, asthma and hoarseness of voice and offers useful and accessible methods for preparing various

49- Hamarneh, n.d : 3-4.



kinds of medication. The author even suggests sublingual tablets which are still prescribed in the modern era.

In chapter 22, the author discusses children's health prior and after birth and up to adolescence including issues such as choosing a nurse, milk and nutrition, children's hygiene, mother and child's healthcare and children's normal growth. Interestingly, the author emphasizes the role of children's habits and education in protecting and promoting health. He stresses the significance of studying children as a field of medicine and regrets that this field has been neglected. This field has been ignored by ancient scholars in a way that no independent text on the subject can be found.<sup>50</sup> At least 30 of his treatises which have been quoted in various books have been lost.<sup>51</sup> But available works of this great Muslim scholar some of which have been translated into European languages, include: *fi al-Me'da va Amrazoha va Modavateha*<sup>52</sup>, *E'temad al-Adwiya al-Mofrada*, *Zad al-Mosafer va Qut al-Hazer*, *Tib al-Foqara va al-Masakin*, *Siasata al-Sebayn va Tadbirohom*, *al-Foruq Bayn al-Ishtibahat fi al-Elal*,<sup>53</sup> *Tib al-Mashayekh va Hefz Sehatehem*, *fi Fonun al-Tib va al-Atr*, *al-Khavas*, *Abdal al-Aqaqir*, *Modavat al-Nesyan va Toroq Taqviat al-Zakera*.<sup>54</sup>

Musa bin Al-Izaz [Al-Azar] Al-Israili [Beltian bin Shaftiya]; this famous physician was really skilled in medical 300-370AH/913-981AD. Mus and his son, Ishaq bin Musa were always at the service of Al-Moez li-Din Allah the Fatimid.<sup>55</sup> He was highly respected by Moez and was the court physician even during the reign of Moez's father. Musa was knowledgeable about the composition of drugs and their properties. He also knew the principle of preparing one thousand drinks.<sup>56</sup> Musa bin Al-Izaz wrote books in the field of medicine including *al-Moezi fi al-Tabikh*, which was dedicated to Moez, and *maqala fi al-aal*, which answered the questions of medical students, and *al-Aqrabazin*<sup>57</sup>, *Sharab al-Osul*, *Madat al-Baqa*, *al-Fahs va al-Akhbar* and the article entitled *Mahiyat al-Ramd va Anva'a va Asbaba va Ilaja* are also ascribed to Musa.<sup>58</sup>

Said bin Bitriq; this physician was from Fustat, Egypt. His medical knowledge was superior to his contemporaries. He was also conversant in Christian theology. In 263 AH (877 AD), during the first year of the caliphate of Qahir Billah, he went to Egypt. He was called Othoshius. He served for seven years and six months in his position as physician and chairman.<sup>59</sup>

He wrote books in various fields of science including a

50- Ibid.

51- Ibn Jazzar, 2009 (vol 1): 5.

52- Ibid: 50.

53- Ibid: 54.

54- Ibid: 3.

55- Syed Eimen, 1992: 91.

56- Al-Qefti, 1992: 210.

57- Ibn abi Usaibia, n.d.: 545.

58- Ibid (vol. 2): 87-9.

59- Ibid: 545.



book in medicine entitled *fi Tib, Elm va Amal, Konash, al-Jadal bayn al-Mokhalef va al-Nasrani, Nazm al-Javahir, Thalath Maqalat, Tarikh Kholafa va Moluk*. Yahya bin Said bin Yahya wrote a book about the history of caliphs and Said bin Bitriq entitled *Tarikh al-Zeyl*.<sup>60</sup>

Isa bin Bitriq; Isa bin Bitriq was also a Christian physician who was very proficient in theoretical and applied medicine and was skillful in treating diseases. He lived in an old city in Egypt. He was Said bin Bitriq's brother. He practiced medicine in Egypt until his death.

Ishaq Israili (320 AH/932 AD); Ishaq bin Suleyman Israili (Abu Yaqub) was a scholar/physician. He became famous and was known as Israili. He was born in Egypt and moved to Qirvan during the reign of Ziyada Allah (290-296 AH/903-909 AD) and attended the classes of Ishaq bin Omran, the celebrated physician. Ishaq Israili worked as a physician for Obeydullah Mehdi, governor of Afriqiayh and outlived Ziyada Allah Aqlabi. He lived for a hundred years and died around 320 AH/932 AD and according to another source he lived until 341 A/932 AD.<sup>61</sup>

Ishaq bin Suleyman wrote several books including; *al-himaya*, which has been called "*Nafaia va la Mazid Alayh*" by Ibn Rezvan, *al-Adwiyat al-Mofrada va al-Aghniyat al-Taryaq, al-Bowl, al-Madkhal ela Sanat al-Tib, fi al-Nabz*.

#### **Medical advances during the reign of Al-Aziz Billah (365-386 AH/975-996 AD)**

Aziz was a knowledgeable man who loved science and scholars. Historians have reported that he was a poet and wrote fine poems. Allegedly, he was the first caliph to institutionalize academic research at Al-Azhar. As a matter of fact, transforming Al-Azhar mosque into a university was a measure taken not by Al-Aziz but rather his minister, Yaqub bin Kals. In order to promote the Fatimid religion, Aziz relied on his minister, Yaqub, and in this regard, Yaqub bin Kals did his best to transform Al-Azhar into a university; a university in which theoretical and applied sciences were taught. He himself held conferences in his palace to support literature and sciences on the one hand and promote Shiism on the other hand.<sup>62</sup>

Muhammad bin Ahmad bin Said Tamimi (died after 370 AH, 981 AD); Abu Abdullah Muhammad bin Ahmad bin Said Tamimi was a distinguished physician and pharmacologist from Jerusalem who lived in Egypt in the middle of the fourth century AH (11<sup>th</sup> century AD). He was well-informed

60- Ibid: 546.

61- Nemat Alla Haikal, 199: 86-7.

62- Al-Ebadi, n.d.: 281-2.



about herbs and their properties. In professional medicine and minutes of treatment of diseases he was prominent in his age. He was quite familiar with *al-Kabir al-Faruq* antidote drug and its composition. In Jerusalem, he had apprenticed with a monk scholar named Anbaz Kharia bin Sawaba. Anbaz Kharia was prominent in all sciences including medicine and lived in Jerusalem in the fourth century AH (11<sup>th</sup> century AD). He was specialized in the field of composition of drugs.<sup>63</sup> From him, Tamimi learned the properties of herbs. In his book entitled *Mada al-Baqa*, Tamimi discusses the properties of the healing powder *rufjan* and explains how *rufjan*, which is fat-burning soda, turns into a healing powder and also explains that he has learned this method from Anbaz Khiyar.<sup>64</sup>

Tamimi was respected by Hasan bin Abdullah bin Taghaj who ruled the city of Ramla and its surroundings. Hasan bin Abdullah loved Tamimi and used his medications to cure his own diseases. Several physicians and balm producers worked for him in order to fight cholera epidemic in that region. In this period, Tamimi wrote several books. During the reign of Caliph Moez, he immigrated to Egypt. Tamimi was famous for his knowledge of properties of drugs and their composition. He met Egyptian physicians and held debates with them. Through these physicians, he entered caliph's court and became his companion. He also served at the court of the Fatimid caliph, Aziz bin Moez.<sup>65</sup> He also served the minister of Al-Moez and Al-Aziz, Yaqub bin Kals and wrote a book in several volumes for him entitled *Madat al-Baqa Beslah Fasad al-Hava, al-Tahrez men Zarar al-Vaba*.

The important book, *Mada al-Baqa*, was about methods of preventing epidemics. Although in this book Razi's al-jadri and al-hasba treatises were used, he also criticized it and at times, preferred the ideas of Ishaq bin Suleyman Israili over Razi's ideas. This and other books remaining from the Fatimids entered the court of Salah al-Din Ayubi.

Ibn Qifti writes: "In Jerusalem, Tamimi learned the principles of medicine and methods of mixing drugs. He invented a special antidote and wrote about its properties. This antidote was invented in Jerusalem and its composition was stabilized. It was useful and cured the harmful effects of the deadly poisons which had entered the body by drinking. This antidote was also effective for neutralizing the poisonous bites of animals such as snakes, scorpions or tarantulas."

The components and method of mixing this antidote have been described in a book entitled *Mada al-Baqa*. During his

63- Ibn abi Usaibia, n.d.: 546.

64- Ibid: 547.

65- Al- Syuti, 1967: 539.





residence in Egypt, he wrote the books *Miftah al-Sorur men Kol al-Homum* and *Mofarah al-Nafs* for some of his colleagues. In these books, he explained the methods of mixing and the constituent elements of the drugs. Some other books are also ascribed to Tamimi including: a treatise for his son, Ali bin Muhammad about method of producing *Fariq* (distinct) antidote and concentration of its components and another book about antidote, the book entitled *Mukhtasar fi Taryaq, Mada al-Baqa Beslah Fasad al-Hava va al-Taharor men Zarar al-Vaba*, which was dedicated to Minister Abi Faraj Yaqub bin Kals in Egypt and an essay on inflammation of the eye, its diseases and their treatment and another book entitled *al-Fahis va al-Akhbar*.<sup>66</sup>

Abulhassan Sahlan bin Osman bin Kisan; when the Fatimid caliphs came to power in Egypt, the importance of Coptics in medical science and their skill in medicine increased. Some of the Fatimid caliphs chose their special physicians from Coptics; physicians like Sahl bin Kisan who was highly respected by Caliph Al-Aziz.<sup>67</sup> He was a Christian physician from Egypt. After converting to Islam, he turned to Maleki religion and served the Fatimid caliphs and gained a high status during the reign of Al-Aziz Billah in 380 AH (990 AD).<sup>68</sup>

Ali bin Suleyman (in 385 AH, 995 AD); Ali bin Suleyman was famous for quoting some of the medical books of Hippocrates and Galen. He also wrote several books on natural sciences.<sup>69</sup>

Ali bin Suleyman's books include: *Mukhtasar al-Havi fi al-Tib*, and *al-Amsela va al-Tajarib va al-Akhbar va al-Nakt va al-Khavas al-Tayiba al-Montazia min Ketab Boqrat va Jalinus*, etc. Also, A'yen bin A'yen who died during the period of Aziz Billah in 385 AH (995 AD).<sup>70</sup>

Yusef Nasrani; he was a physician who was skillful in medicine and also knowledgeable in other sciences. In his book, *Tarikh al-Zeyl*, Yahya bin Said bin Yahya writes: "In the fifth year of Aziz's caliphate, he embarked on his journey from Jerusalem and settled in Egypt and for three years and eight months, he was the head of physicians in that city..."<sup>71</sup>

A'yen bin A'yen (died 385 AH, 995 AD); he was famous for his neat treatments. He practiced medicine during the reign of Aziz (Al-Aziz Abu Mansur Billah fifth Fatimid Caliph of Egypt (975-996 BC 365-386 AH) when he was at the top of the Fatimid state. Many palaces and mosques built. Create Corps relied on the Turks and the Turks, the Corps continued to dominate.) the fifth Fatimid caliph of Egypt. A'yen bin A'yen died in 385 AH, 995 AD.<sup>72</sup> His books include: *Kanash*,

66- Ibn abi Usaibia, n.d: 548.

67- Ebrahim Hasan, 1964: 521.

68- Ata Allah, n.d: 216.

69- Ahmad Amin, 2005: 203.

70- Ibn abi Usaibia, n.d.: 546.

71- Ibid: 545.

72- Neamat Allah Haikal, 1991: 92-3.



*fi Amraz al-Ayn va Modavatiha*.<sup>73</sup>

### **Medicine during the reign of Al-Hakem Biamrillah (386-411 AH/996-1020 AD)**

Al-Hakem Biamrillah was keen on promoting sciences. In Jamadi al-Akhir of 395 AH, 1005 AD, he founded Dar Al-Elm in Cairo following the example of Dar Al-Hikma in Baghdad. A number of Quran reciters, theologians, astronomers, grammatologists, linguists and physicians taught or studied at Dar Al-Elm. This place was rightly named Dar Al-Elm (literally; house of science), because in this place numerous books had been collected and the most famous scholars in the fields of mathematics, logic and medicine were employed there. Al-Hakem invited Abu Ali Hasan bin Haytham, the eminent scholar, to work at Dar Al-Elm. Ibn Haytham had advanced geometry and had calculated the timing of the flooding of the Nile and issues regarding irrigation.<sup>74</sup>

The first physician of the caliph's court was Mansur bin Maqshir Nasrani who died in 344 AH, 955 AD and was replaced by another Christian physician named Abu Yaqub Nastas. Abu Yaqub was the closest person to Al-Hakem.<sup>75</sup> Abulfath Mansur bin Sahlan bin Maqshir was also a medical genius in the Fatimid era. He was a Christian physician who was well-known for his competence and intelligence and was very skillful in medicine. He was the physician of Hakem Biamrellah and very close to the caliph. He also worked as a physician for Al-Aziz and was respected by him.<sup>76</sup> It was due to Ibn Sahlan's intercession that Al-Hakem relented on Dhimmis and returned them to their land.<sup>77</sup>

Abu Bashar was also an eminent physician during the reign of Al-Hakem. Hakem Biamrillah usually employed Jewish physicians at his court. Saqar the Jew was one of these physicians who was specialized in medicine especially in ophthalmology.<sup>78</sup> Another ophthalmologist at the court of Al-Hakem was Amar bin Ali Mouseli who was a famous ophthalmologist. Many cases of his treatments have been mentioned; reports of treating eye diseases by him and his expertise and skill in eye surgery using iron instruments. He traveled to Egypt and resided there during the reign of Al-Hakem in Egypt. His works include: *al-Muntakhab fi Elm al-Ayn va Elaloha va Modavatoha Biladwiya va al-Hadid* which was dedicated to Al-Hakem.<sup>79</sup>

One of the most well-known physicians in Egypt during this period was Salama bin Rahmun who was an Egyptian Jew. Abulhasan Ali bin Rezwan was also Egyptian. It is note-

73- Ibn abi Usaibia, n.d: 546.

74- Abdol Aziz Salem, 2002: 189.

75- Anan, 1983:144.

76- Ibn abi Usaibia, n.d: 549.

77- Al-Qefti, 1992: 178.

78- Maqrizi,1996 (vol. 2):83.

79- Ibid:549.



worthy that this physician was superior to his contemporaries. Caliph Al-Aziz held him in high respect and acknowledged his services. He maintained the same status till the reign of Hakem Biamrillah who employed him and appointed him as head physician.

Other Jewish physicians named Ibrahim bin Al-Zafan and Abu Kasir bin Hasan bin Ishaq were also famous during the Fatimid era. Also Abu Jafar Yusef bin Harani was a physician who wrote a book about Hippocrates entitled *al-Iman*.<sup>80</sup>

Ibn Moqshar Al-Tabib; Mansur bin Moqshir Nasrani was one of the most distinguished physicians during the Fatimid era. He was considered the greatest of all physicians. In 385 AH, 995 AD, he became sick and could not serve the caliph anymore. Aziz enquired about him and when he found out about that he was unwell, he himself wrote him a letter. Writing this letter indicates that physicians were highly respected by the Fatimid caliphs.<sup>81</sup> Such letters had been previously written to Sadiq Hamim, who had been appointed as court physician by the caliph.

Ibn Moqshar was influential at Al-Hakem Biamrillah's court and was trusted as a physician. He was an expert on the composition and properties of drugs. Ubaydullah bin Jibril writes: "Ibn Moqshar, the physician who serves Al-Hakem Billah has achieved a high position and precious gifts are sent to him. When Ibn Moqshar got sick, Al-Hakem personally visited him and when he died, spend a lot of money for his funeral."<sup>82</sup>

Salama bin Rahmun; Abulkhayr Salama bin Mubarak bin Rahmun bin Musa was one of the Egyptian scholars and physicians. Salama was Jewish and had a brilliant experience in medical profession. He had mastered Galen's books and studied the complexities of those books. Ibn Rahmun spent a long time learning from Afraim and practicing medicine.<sup>83</sup> He also studied logic and philosophy and wrote several books in these fields. He learned medicine from a preceding physician, Amir Al-Vafa Mahmud Al-Dowla Al-Mobashir bin Fatek. When Abusalt Umayya bin Abdulaziz ibn Abi Al-Salt Andusi came to Egypt from Morocco, he visited Salama bin Rahmun and they had hot debates.<sup>84</sup> He wrote many books in the field of logic and philosophy. His works include: *Nazm al-Mowjudat*, *Maqala fi Sabab al-Mowjib Laqh ah-Matar Bimesr*, *Maqala fi al-Elm al-Elahi*, *Maqala fi Khasb Abdan al-Nisa Bimesr enda Tanahi al-Shabab*.<sup>85</sup>

Amar bin Ali Mosuli (died around 400 AH/1010 AD); Amar bin Ali Mosuli was a famous ophthalmologist whose

80- Tamer, 1982: 226.

81- Ibid.

82- Ibn abi Usaibia, n.d: 550.

83- Ata Allah, n.d: 216.

84- Ibn abi Usaibia, n.d: 568.

85- Ibid.



treatments have been described. He was original from Mosul in north of Iraq; hence his last name. He traveled to Egypt and settled there.<sup>86</sup> He was a famous ophthalmologist whose treatments have been reported in many sources. He was specialized in curing eye diseases and used iron instruments to do operations on eyes. During the reign of Al-Hakem, he immigrated to Egypt and settled there. He dedicated *al-Muntakhab fi Elm al-Ayn va Elaleha va Modavatiha Bilad-wiya va al-Hadid* to Al-Hakem.<sup>87</sup>

Abulfaraj Yabrudi (died 400 AH/1009 AD); Abulfaraj was from Damascus and was a famous physician in the Fatimid Egypt. He was born and grew up in Yabrud village. At first, he was a farmer, but after continuing his studies, he moved to Baghdad and became famous. Then he immigrated to Egypt and became one of the most visited physicians.<sup>88</sup>

Haqir Al-Nafe was also a Jewish physician from Egypt who practiced medicine during the reign of Al-Hakem. He mostly did surgeries and was famous for his effective treatments. Ibn Moqshar, the caliph's physician, was trained by him. Other special physicians also learned from this Jewish physician when he treated the nobles or did surgeries. When he proved that he could cure the maladies of the aristocrats within a short while, he was favored by them and received many gifts. He was granted the title of Haqir Nafe and became one of the special physicians at the court.<sup>89</sup>

Abubashar was also one of the well-known court physicians during the reign of Al-Hakem and was one of the greatest Egyptian physicians.<sup>90</sup>

Ishaq bin Yunes; he was a knowledgeable physician who was conversant in various sciences. He was famous for teaching medical science as well as his treatments. He was a student of Ali bin Samh and lived in Egypt.<sup>91</sup>

Ishaq bin Ibrahim bin Nastas (4<sup>th</sup> century AH/late 10<sup>th</sup> century AD); Ishaq bin Ibrahim bin Nastas bin Jarih (Abu Yaqub) Nasrani was skilled in medicine. He worked as a physician for Al-Hakem Billah (375-411 AH/985-1021 AD). As a physician, he was trusted by Al-Hakem. Ishaq bin Ibrahim bin Nastas died in Cairo during the time of Al-Hakem. After him, Ali bin Rezwan served as Al-Hakem's physician and was the head physician.<sup>92</sup>

Ibn Haytham (354-430 AH/965-1039 AD); Muhammad bin Hasan bin Haytham known as Ptolemy the second (Abu Ali) was the mathematician, engineer, physician, philosopher and philologist. He was born in Basra around 354 AH/965 AD. Al-Hakem Biamrillah the Fatimid asked Ibn Haytham to cal-

86- Neamat Allah Haikal, 1991: 216.

87- Ibid: 549.

88- Mohasene, 2001: 214.

89- Ibn abi Usaibia, n.d.: 549.

90- Ibid.

91- Ibid:561.

92- Neamat Allah Haikal, 1991: 87-8.



culate the timing of the flooding of the Nile. When he arrived in Egypt, the caliph left the city to welcome him. The caliph held him in high respect. After lengthy research, Ibn Haytham realized that he cannot calculate and predict the flooding of the Nile and droughts and begged Al-Hakem to pardon him and instead was appointed to several offices. But he was afraid he might be killed and therefore, he pretended to be mad. Al-Hakem confiscated his properties and jailed him. He was in prison until the death of Al-Hakem. It was then when he stopped faking madness and retrieved his properties. He died in Cairo around 430 AH/1039 AD.

93- Ibid: 60-1.

He was one of the most distinguished Arab and Muslim natural scientists and wrote many books in various sciences. Ibn Haytham wrote a remarkable number of books in the field of agriculture and about various instruments. He expanded the horizons of science for the scientists. His books overshadowed other scientific sources and were trusted by the researchers. His study of the nature of shadows attracted much attention from the researchers in the 17<sup>th</sup> century. Ibn Hatham was famous for his studies on perspective and scholars had much regard for his studies in the field of optics and study of shadows in the 11<sup>th</sup> century AH. He wrote over one hundred books; his writings included such areas as philosophy, mathematics, geometry, astronomy, natural sciences and medicine- most of which have been lost. His major medical books include: *fi Taqvim al-Sana't al-Tayiba va Yaqa fi Talashayn Kitaba*, *fi Firaq al-Tib*, *fi al-Tashrih*, *fi al-Elal va al-Amraz*, *fi Azaf al-Hamiyat*, *fi Qavi al-Adwiya al-Mofrada va al-Adyiya al-Morakaba*, *fi Hefz al-Seha*, *fi Amraz al-Ayn*, *fi Estemal al-Fasd le-Shafa al-Amraz*.<sup>93</sup>

#### **Medicine during the reign of Al-Zaher Le'ezaz Din Allah (411-427 AH/1020-1035 AD)**

Although the period of Al-Zaher Le'ezaz Allah was tumultuous due to religious disputes and intellectual challenges of the late Al-Hakem era, there was no significant change in the growing process of knowledge production and scientists still did research at scientific centers.

Ali bin Suleyman; he was a knowledgeable physician and an expert in the fields of philosophy and mathematics. He was distinguished as a physician and eminent in astronomy. During the reign of Al-Aziz and his son, Al-Hakem and Al-Zaher Le'ezaz Din Allah, he practiced medicine. Several books are ascribed to Ali bin Suleyman. A summary of the book *al-Havi fi al-Teb*, *al-Amsala va al-Tajarib va al-Akhbar*



*va al-Nokat va al-Khavas al-Tayiba al-Montazia men Kotob Boqrat va Jalinus va Gheyrohoma, al-Ta'aliq al-Falsafiya*, written in Ali bin Suleyman's handwriting in 411 AH, 1020 AD, *fi Qabul Jesm al-Tajza va Layatf va la Yantahi ela ma la Yatajaza*, and a critique on Aristotle's essay, *fi al-Absar va Ta'did Shokuk fi Kavakib al-Zanb*.<sup>94</sup>

Mobshir bin Fatik; Amir Mahmud Al-Dowla Abu Al-Vafa Al- Mobshir bin Fatik Al-Amri was one of the greatest emirs and scholars of Egypt. He learned astronomy and mathematics from Abu Muhammad bin Hasan bin Haytham. He also attended the classes of Sheikh Abi Hussein known as Ibn Amedi and learned various sciences from him. He also worked as a physician and served as an assistant to Ibn Rezwan.<sup>95</sup> It has been reported that Abulkhayr Salama bin Mubarak ibn Rahmun was one of the students of Mobshir bin Fatik. Mobshir bin Fatik also wrote a book in medicine entitled *Kitab fi al-Tib*.

Afraim bin Al-Zafan (453 AH/1061 AD); Abukasir Afraim bin Hasan bin Ishaq bin Ibrahim bin Yaqub was Jewish and was one of the famous Egyptian physicians. He served his contemporary caliphs as a physician and in this way, had gathered a considerable wealth. He learned the medical profession from Ali bin Rezwan and was one of his distinguished students. He put great effort into collecting the medical books of the ancient scholars and transcribed the works of the ancient doctors and had a collection of medical books. He left behind a considerable wealth including twenty thousand books. He had also hired several transcribers who copied books for him. Among them was Muhammad bin Said bin Hashem known as Ibn Malsaqa. The books he transcribed have been ascribed to Afraim because of the similarity of his works to those of Afraim.<sup>96</sup>

*Ta'aliq va Mojriyat Ja'al ha ala Hasba al-Kanash* is one of Faraim's book in which he describes various diseases and their treatments. He also wrote *Tazkira al-Tayiba fi Maslaha al-Ahval al-Badaniya* for Nasir Al-Dowla Abi Ali Hussein bin Abi Ali Hasan bin Hamdan.<sup>97</sup> He wrote two essays entitled *fi Taqrir Qiyasi ala an al-Balgham Yaksar Tulada fi al-Sayf* and *al-Dam va al-Marar al-Asfar fi Ashta*.<sup>98</sup>

Muhammad bin Said bin Hisham Hajari known as Ibn Malsaqa was also one of the transcribers who worked for Afraim bin Hasan. Ibn Malsaqa did his best to copy Afraim's books. Historical sources ascribe the handwriting in his books to Afraim.<sup>99</sup> One of the book sellers in Iraq wanted to purchase one Afraim's books, Afzal bin Badr Al-Jamali heard of this

94- Ibn abi Usaibia, n.d:550.

95- Ibid.

96- Ibid: 568.

97- Neamat Allah Haikal, 1991: 93.

98- Ibn abi Usaibia, n.d: 568.

99- Ibid: 567.



and cancelled the contract so that the book would remain in Egypt and would not be transferred to other lands. Besides, Afzal purchases other copies of Afraim's books and additional works and added them to his own library. He granted various titles to Afraim. Allegedly, over twenty thousand of Afraim's books were left after his death.<sup>100</sup>

Mubarak bin Salama bin Rahmun; Mubarak bin Abi Al-Khayr Salama bin Mubarak bin Rahmun was born and grew up in Egypt. He was a distinguished physician who wrote several books. The book *fi al-Jamra al-Masama Bilshaqfa* and *al-Khazfa Mukhtasara* were written by Mubarak bin Salama.<sup>101</sup>

Ibn Al-Ayn Zarbi (died in 540 AH, 1146 AD); Sheikh Muwafaq Al-Din Abunahr Adnan bin Nasr bin Mansur was from Ayn Zarba and lived in Baghdad for a while. He was a physician and philosopher and was also knowledgeable in astronomy. Later, he left Baghdad for Egypt and worked for the Fatimid caliphs until his death. During the Fatimid era, he gained a high status. His major success was in medical science. He was very intelligent and gave his patients correct warnings while treating their diseases. He wrote many books in the fields of medicine, logic and other sciences. Also, some students studied in his classes. They were all distinguished physicians. It is noteworthy that, at first, Ibn Al-Ayn Zarbi studied astrology.

Sheikh Abunahr Adnan bin Al-Ayn Zarbi's grandson (his son's son) has reported that the reason for his grandfather's fame in Egypt and his collaboration with Egyptian caliphs was that an envoy came from Egypt to Baghdad and visited Ibn Al-Ayn Zarbi in Baghdad and realized that he was eminent in various sciences. When he was departing for Cairo, Ibn Al-Ayn discovered the science of astrology and learned it. The envoy was awed by Ibn Al-Ayn's mastery of sciences and found him distinguished in medical profession. Thus, when the envoy visited the minister, he told him about the scientific excellence of Ibn Al-Ayn Zarbi and reported what he had witnessed regarding his knowledge and superiority in medical science.

In 510 AH/1116 AD, Ibn Al-Ayn Zarbi wrote *al-Kafi fi al-Tib*. He also wrote a book entitled *Sana'a al-Saghira*. He died in Cairo in 548 AH, 1153 AD, during the reign of Al-Zafir Biamrillah.<sup>102</sup>

*Tashrah Kitab al-Sana'a al-Saghira Lejalinus, Mojriat fi al-Tib ala Jaha al-Kenash* was compiled and edited by Zafer bin Tamim after the death of Ibn Al-Ayn. Among Ibn Al-

100- Ibid: 568.

101- Ibid: 570.

102- Ibid.



Ayn's other works are *Risala Ta'zer va Vojud al-Tabib al-Fazel va Nifaq al-Jahil* and *Risala fi al-Hasy va Alaja*.<sup>103</sup>

Ibn Butlan (444 AH/1052 AD); Abulhasan Al-Mukhtar bin Al-hasan bin Abdun bin Sadun bin Butlan was a Christian physician and logician from Baghdad. He taught medicine in the classes of Abi Al-Faraj bin Tayib. He was a contemporary of Ali bin Rezwan. He entered Egypt in 441 AH, 1050 AD. He resided in Egypt for three year and then moved to Constantinople and from there to Antioch and turned to hermitage and died there in 444 AH, 1052 AD.

Ibn Butlan wrote several books on medicine including *Konas al-Adida va al-Rahban* in which he listed the diseases which monks developed while being away from cities. He also wrote an essay entitled *shorb al-dawa al-mostahel*, an essay entitled *Keyfiya Dokhul al-Ghaza fi al-Badan va Hazmehi va Khoruj Fazlala va Saqy al-Adwiya al-Moshela va Tarkibeha*, and books entitled *al-Madkhal ala al-Tib* and *Dava al-Atiba*, an essay entitled *ala Naql al-Atiba al-Mohra Tadbir Aksar al-Amraz alati Kanat Ta'alaj Qadima Bilad-wiya al-Hara ela al-Tadbir al-Mobrad* discussing diseases such as paraplegia, paralysis of the face, lethargy, passing out, etc., a book entitled *Umda al-Tabin fi Ma'rifa al-Banat*, an essay entitled *Modava Sabi Arazat lah Hisah*.<sup>104</sup>

#### **Medical achomplishments during the reign of Al-Mustansir Billah (427-487 AH/1035-1094 AD)**

The long period of Mostansir's caliphate can be considered the period of scientific progress of the Fatimid era. During this period, the authority of the Fatimid caliphate and its economic and political stability attracted the attention of the Muslim world to Egypt and scientists and scholars were, more than ever, attracted to this land. The competition among Islamic states throughout the Muslim world in attracting scientists and scholars to their courts led to unprecedented scientific growth.

Abulhasan Ali bin Rezwan (died 453 AH/1061 AD); Abulhasan Ali bin Rezwan bin Ali bin Jafar was born and grew up in Giza, Egypt. He learned medicine and became a skillful physician, mathematician and astronomer. In order to make a living, he turned to astrology and astronomy<sup>105</sup>. In his autobiography, Ali bin Rezwan has written about learning medical science: "Since I was six, my education started and at fourteen, I began to learn medicine and philosophy and at thirty two, I became a famous physician and accumulated a wealth that would suffice me till old age."<sup>106</sup> Ibn Abi Osiba'eh had

103- Ibid.

104- Neamat Allah Haikal, 1991: 41-2.

105- Ibn al-Arabi, 1998: 268

106- Ibn abi Usaibia, n.d: 560.





a manuscript by Ibn Rezwan in which he had stated that, according to Hippocrates, had to have the following characteristics:<sup>107</sup>

- Shapely, healthy, intelligent, noble-minded, wise, having a good memory and good-natured
- Well-dressed, pleasant smelling and observing cleanliness of body and clothing
- He must keep the patients' secrets and do not reveal them
- He must be more interested in curing the patient than getting paid and more eager to treat the poor than the rich
- He must be greedy in learning knowledge and benefiting the public
- He must have a good heart, avoid lustful looks and be honest
- He must not show interest in women's lives or what he sees in patients' houses and must never desire them
- He must protect people's lives and properties; he must not prescribe lethal drugs that he does not know or abortion drugs. He must cure his enemies with a good intention, just as he cures his friends.<sup>108</sup>

Although his childhood was spent in poverty and hardship, through hardworking and perseverance, he became the head of Egyptian physicians. Ibn Rezwan also became distinguished among his peers in other Islamic lands such as Baghdad and Cordoba. He was also skillful in astrology. He was one of the pioneers of astrology. He is believed to have continued the researches of Farabi and Avicenna in the field of astrology and medicine.<sup>109</sup> During the Fatimid era, caliphs trusted in his knowledge of astrology. They believed in the influence of celestial bodies on the destiny of human beings. The medical revival in Egypt was to some extent due to the efforts of Ibn Rezwan. His observations and experiences with diseases contributed to medical science in Egypt. Ibn Rezwan compiled his experiences and practically rectified widespread deviations from medical ethics and implemented reforms in the area of medical ethics. Ibn Rezwan did not seek material gain in his profession and all his efforts were aimed at becoming skillful. He was a humanitarian physician who did his best to help the needy and the poor. He did not wish to amass wealth and his ethical determination to observe these principles made him a perfect physician in the Islamic civilization.<sup>110</sup> During the period when he was the head of the physicians' guild in Cairo, Ibn Rezwan stated that: "A physician must heal his enemies with the same enthusiasm and readiness as he treats his friends".<sup>111</sup>

107- Ibid: 561.

108- Mohaghegh, 1995: 274.

109- Hasan, 1958: 502.

110- Ibn abi Usaibia, n.d: 562.

111- Motaseb Mojabi, 2007: 125.



Ibn Rezwan's life consisted of a series of efforts. This perseverance continued until his death around 460 AH, 1068 AD.<sup>112</sup> Ibn Rezwan was a pioneer in medicine and philosophy. Many authors have discussed his works and he has numerous books. His presence in Cairo was one of the reasons for rivalry and scientific debates among the physicians in Egypt.<sup>113</sup>

In the fifth century, hot debates took place between two important physicians. Ali bin Rezwan was a self-made physician who was very selfish and bad-tempered. Al-Mustansir, the Fatimid caliph, appointed him as the head physician at the court and he gained great political power in Egypt. He also wrote several treatises including the book *Daf Mazar al-Abdan Biarz Mesr*, which discussed the climatic features of Egypt and their relationship with hygiene and public health, especially cholera. When Ibn Butlan, the Nestorian Christian from Baghdad who had been trained by the eminent physician of that time, entered Fustat, Egypt in 441 AH, 1050 AD and criticized Ibn Rezwan's position and theory, ten pungent essays were exchanged between them, which became increasingly harsh and poignant. Apparently, their debate was about a topic in Aristotelian biology; but in fact, their motivation was animosity as well as the desire to gain (or preserve) a higher social status. Finally, Ibn Butlan was compelled to leave Egypt; but instead of returning to Baghdad, he first went to Constantinople and then to a monastery and became a monk. Ibn Butlan wrote a medical hand-book for the use of the monks, a treatise about diagnosis of diseases in slaves for sale, a satirical essay about the flaws of physicians and other medical personnel (*Da'vat al-Atiba*) and a book entitled *Taqvim al-s\Seha*. In the latter book, which was enthusiastically embraced by the professional physicians, he listed 210 herbal and animal drugs as well as seventy other items which were good for preserving health in 40 tables. Apparently, neither Ibn Butlan nor Ibn Rezwan were aware of Avicenna's book entitled *Qanun* (Canon of Medicine).

Perhaps, imitating the model of Ibn Butlan's *Taqvim*, comprehensive tables were integrated into the medical literature of the Islamic period. For instance, tables are found in the medical handbooks of Ibn Jazla and Said bin Haba Allah and also in individual medical treatises by Ibrahim bin Abi Said Alayi Maghrebi (renowned physician of the mid sixth century AH, 12<sup>th</sup> century AD) and Hobaysh bin Ibrahim Taqlisi (renowned physician of the late sixth century AH, 12<sup>th</sup> century AD).

112- Al-Qefti, 1992: 268.

113- Ata Allah, n.d.: 214.



Since the third century AH, 9<sup>th</sup> century AD, in order to show the relationship between ideas or diseases, branched diagrams were used. Although these diagrams are seen in some of the Arabic versions of Galen's collection of essays, it seems that Ibn Masviya has been one of the first scholars to use them. Another common model for medical discussions was the questions and answers method. Hunayn bin Ishaq used this method in his book entitled *al-Masa'el fi al-Tib* *Le'l-mota'alemin* and also in his *al-Masa'el fi al-Ayn*. Others also used this method; for example, Said bin Abi Al-Khayr Masihi (died 589 AH, 1193 AD), physician at Naser the Abbasid caliph's court, used this method in his book entitled *al-Iqtizab*, which was a medical book.

Poems written for the purpose of medical instruction were also a common method; although contemporary medical historians do not pay much attention to them.

Ibn Butlan also wrote a treatise in which he addressed Ibn Rezwan and argued with and criticized him. In this essay, he tells Ibn Rezwan that his knowledge of the ancient sciences is nothing but ignorance. His treatise included seven chapters:

Chapter one: on superiority of those who have studied with scholars over those who have learned from books

Chapter two: on the issue that those who have acquired their knowledge from books have doubts and problems which they are not able to solve

Chapter three: on the issue that it is easier to prove the truth to someone whose mind is not contaminated with untruth than someone whose mind is contaminated with untruth

Chapter four: on the issue that it is a habit of the scholars that whenever they read the works of the ancients and find a contradiction in them, they do not criticize the author but instead, they themselves do research to find out the truth

Chapter five: on the issue that the problems for which there are correct arguments and proper premises, should be solved argumentatively

Chapter six: on the issue that one must consider the statement of a person who has said in a debate: "I ask him one question and he asks me a thousand ones"

Chapter seven: on examining his statement regarding the "natural point" and clarifying the ambiguity of this appellation<sup>114</sup>

Ibn Abi Osaybe'a compares the two physicians, namely, Ibn Rezwan and Ibn Butlan Baghdadi and states: "Ibn Butlan was very eloquent. He was polite in his speech. But, Ibn Rezwan was more knowledgeable in science and philosophy."<sup>115</sup>

114- Ibn Alebri, 1998: 268.

115- Ibn abi Usaibia, n.d : 562.



The debates of these two physicians have been recorded in five books.<sup>116</sup>

Ibn Rezwān was a distinguished scientist and a skillful physician which made him superior to all his contemporary physicians. He frequently rejected or modified the ideas of the preceding physicians and in some cases, he accused them of ignorance in medical discussions and criticized them. Scholars who were criticized by him included Hunayn bin Ishaq, Abi Faraj bin Tayeb, Ibn Butlan's teacher, and also Abi Bakr Muhammad bin Zakariya Al-Razi.<sup>117</sup>

Ibn Rezwān had an ugly birthmark on his black face.<sup>118</sup> He wrote an essay about mocking a person who has a physical defect. In this essay, he states that a scholarly physician does not need to have a pretty face. Ibn Butlan Baghdadi frequently referred to Ibn Rezwān's ugly face. Ali bin Rezwān was called *Timsah Alhan* because he had an ugly face and was foul-mouthed.<sup>119</sup> In his old age, Ibn Rezwān suffered from dementia. It has been reported that during the reign of Al-Mustansir the Fatimid, famine occurred in Egypt; and in 447 AH/ 1055 AD, life became really difficult and the orphan child which had been adopted by Ibn Rezwān and lived in his house stole precious objects, gold and twenty thousand dinars and fled. Ibn Rezwān's health was affected by this incident and he eventually died in 453/ 1061 AD or 460 AH/ 1068 AD.<sup>120</sup>

He wrote and compiled close to one hundred books.<sup>121</sup> Ibn Rezwān had a huge impact on the intellectual life of Egypt. He had several debates with other Egyptian physicians and in his works he rejected the ideas of several ancient physicians. His work was not confined to criticizing and explaining the books left from ancient physicians and scholars such as Galen and Hippocrates; in this field of science, he was very prolific and innovative and he has referred to this point in his autobiography.<sup>122</sup> Among his numerous works are: a critique of the book *al-Araq Lejalinus*, a critique of *al-Sana'a al-Saghira Lejalinus*, a critique of *al-Nabz al-Saghir Lejalinus*, a critique of Galen's book *ela Aghluqn fi al-Ta'ani Leshafa al-Amraz*, a critique of *al-Istiqsat Lejalinus*, a critique of *Ba'z Kitab al-Mazaj Lejalinus*, and also a book entitled *al-Osul fi al-Tib*, an essay entitled *fi Alaj al-Jozam*, a book entitled *Tatabo Masa'el Hunayn*, an interpretation of *Namus Alptib Leboqrat*, an interpretation of *Vasiya al-Boqrat al-Ma'rufa Betartib al-Tib*, *Kalam fi al-Adwiya al-Moshila*, *fi Amal al-Ashraba va al-Moajin*.<sup>123</sup>

The ideas of Ibn Rezwān and his hostility with others had

116- Ata Allah, n.d.: 214.

117- Ibn abi Usaibia, n.d.: 562.

118- Ibn Alebri, 1998: 268.

119- Ata Allah, n.d.: 215.

120- Ibn Alebri, 1998: 268.

121- Sarvar, 1970: 159.

122- Ibn abi Usaibia, n.d.: 562.

123- Neamat Allah Haikal, 1991: 205.



a great impact on his contemporary physicians and philosophers. Ibn Rezwan had students who learned sciences and medicine from him. Among these students was the Jewish physician, Afraim bin Al-Zafan known as Abukasir. Afraim bin Hasan was one of the most well-known Jewish physicians in Egypt and served his contemporary caliphs a lot. In this way, he accumulated great wealth. He had learned medical science and skill from Ibn Rezwan. He diligently collected books and transcribed medical and other types of books which were found in Egyptian libraries. A number of transcribers copied the books.<sup>124</sup> In addition to his famous treatise against Ibn Butlan and a book entitled *Daf'e Mazar al-Abdan fi Mesr*, his book entitled *al-Nafe*, which has not been published yet, and over one hundred treatises which have been ascribed to him by later authors can be mentioned- most of which have been lost. His entitled *On Preventing Physical Diseases* was a response to a work by Ibn Jazar (died 369 AH/979 AD), one of the authors of medical works during the early years of the Fatimid era who was a student of Ishaq Israili. In fact, besides medical books, Ibn Jazar also wrote a book about the history of the Fatimid dynasty which has been lost.<sup>125</sup> (See Al-Moez era)

124- Ata Allah, n.d.: 216 .

125- Ata Allah, n.d.: 216.

126- Sarvar, 1970: 155.

### Conclusion

The Fatimid era was one of the most brilliant historical periods due to its intellectual and cultural achievements and successes. From a geographical point of view, Fatimid's intellectual, scientific, and cultural traditions have influenced an area beyond its boundaries. Due to their attempts, Cairo turned into one of the artistic, cultural, and scientific Islamic centers and it became the focus of research and science. The Fatimid era was one of the periods of flowering of Islamic Egypt in the field of science. This scientific growth in Egypt was due to the presence of distinguished scholars and immigrant scientists in this land. During this period, numerous books were written in various scientific and technical areas. The Fatimids promoted culture, therefore, sciences, arts and literature flourished and Al-Azhar had the most significant role in this cultural movement, especially during the reign of Aziz when it was transformed into a university.<sup>126</sup> In fact, the scientific and technical growth of Fatimid Egypt was the result of the wise management and appropriate cultural policies of the Fatimid statesmen. Through their cultural policies, they directed society toward an encompassing scientific quest. From the first days of the establishment of their dynas-



ty in Egypt, the Fatimid caliphs began to establish scientific centers such as mosques, libraries, Dar Al-Elms and schools in order to promote science and education and improve Shi-ite community culture. Scientific circles were not confined to the caliphs' palaces, but rather they were held in ministers' palaces, especially at the palaces of Ibn Kals and Afzal bin Badr Al-Jamali. The policies of the statesmen led to the shift in the function of Al-Azhar from a mosque into one of the most important universities of the Muslim world. In order to promote scientific centers, the Fatimid caliphs invited the thinkers and elites of the Muslim world to Egypt and in order to give them peace of mind and hope for a promising future, they provided them with educational and research equipment and facilities which were available at the time and secured a good living for them. But it is noteworthy that in order to compete with the Buyid and Abbasid dynasties and develop the Islamic community through cultural interactions, adopting an extreme approach and without considering the negative sectarian consequences, the Fatimid opened the doors of their scientific centers unto scholars from all sorts of Islamic sects and selected the scholars with tolerance, which led to a result contrary to what they had intended; that is, a group that, by promoting the Fatimid religion and Ismaili Shiite sect, had stirred a revolution among the public and Sunnis, was overwhelmed by the scholars of the same ideology and was destroyed due to its inappropriate approach.

From the very beginning, medicine and medical sciences were very crucial for the Fatimids. A long list of the leading physicians who served caliphs and the court members during this period can be provided. Because of the Fatimid religious tolerance and affability, medicine like the rest of sciences flourished in the west territory of the Islamic world. Qualified doctors with different religious affiliations worked at the court of the Fatimids as well as in the city and tried to treat the diseases. Moreover, some specific diseases were more common in Egypt; including eye diseases, cholera, and plague which got epidemic successively because of the ongoing famine in Egypt. These diseases necessitated physicians' more attention and attempt. Yet, this does not mean that Egyptian physicians did not study or treat other types of diseases. This study seeks to explain the reasons of the growth of medical science within the territory of the Egyptian Fatimids as well as the advances of this science during the reign of the Fatimids in Egypt and takes into consideration famous physicians of the Fatimid era who are less



known in the Islamic civilization.

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