

## *Medicine In Islamic Culture*

### AN INTRODUCTION TO THE HISTORY OF MEDICINE IN ISLAM AND IRAN

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As long as history remembers, medical science has always been part of man's life. In the beginning it was difficult to differentiate magicians and witch doctors from physicians. In fact there was no boundary between magic and medicine. Fiction mingled with science. Medicine existed several thousand years ago among Babylonians and Summerians and in "Hamurabi Code," there are some instructions in this field.<sup>(1)</sup>

Many centuries before Christ, Indians made some discoveries in medicine and pharmacy, and Hippocrates took much advantage of Indian medical treatment and medicinal herbs.

In the pre-Islamic Iran, the history of medicine dates back to four centuries before Christ and the primary principles of Iranian medicine were mentioned in *Avesta*.

In ancient Egypt, great importance was attached to medicine, and a number of scholars always spent their whole lives on medical studies. In 1550 B.C., Egyptians compiled a 24-volume encyclopedia; six of which were devoted to medical science. Part of this encyclopedia is still available in the Berlin Library.<sup>(2)</sup>

Greeks were the first people who separated medicine from magic, and Hippocrates was the first who codified medical science and he is regarded as the "father of medicine."<sup>(3)</sup>

Divine religions in proportion to the scope and dimensions of missions of the prophets offered some instructions for hygiene and preservation of human health. The Messenger of Islam and the holy Imams recommended a considerable number of instructions for hygiene and cleanliness.

Given the devoted observance of religious instructions by Muslims, it must be admitted that Islam played a major role in the hygiene and healthy living of its followers: regular bathing and washing of the hands and face for various reasons, detailed arguments for purifiers, putting high emphasis on cleanliness and

basic principles of hygiene such as keeping away from patients with contagious diseases, using private tooth brush and towel, clipping nails, combing, removing superfluous hair from the body, using clean dress, washing away excess perspiration, avoiding gluttony, having meals on time, keeping a balanced physiological pattern, dividing hours of the day for working, worshipping, and sleeping, and many other instructions that are among the miracles of Islam. Today after fourteen centuries these instructions that were brought up by an unlettered man from among nomad desert people are still weighty and will hold valid. There is no easier way to make human beings observe hygiene. Furthermore, the respect paid by Messenger of Islam (PBUH) and the holy Imams for physicians and medical instructions set a pattern for the faithful. Art of friendship and encouragement of education in general, and attaching importance to medicine in particular, led to the development of the Islamic medicine as one of the most outstanding branches of the Islamic science and civilization. Physicians and researchers of the Islamic world began to collect and translate the books and medical articles of other nations into Arabic language. In fact, it may also be said that the Islamic medicine is a mixture of Hippocratic and Galenic traditions and Greek medicine, as well as the theories and practical aspects of the Iranian and Indian medicine.

Jondi-Shahpour School of Medicine should be regarded as the connecting link between the Islamic medicine and others. This university was founded at the time of Shahpour I.

After Azasa School was closed by the Byzantine emperor in A.D. 489, its physicians sought asylum in Jondi-Shahpour University and this contributed to the advancement of Jondi-Shahpour medical center.

Anushirvan sent Borzuieh the physician to India. He brought with him not only *Kelileh-va-Demneh*, but

also some information from Indian medicine and physicians.<sup>(4)</sup>

In the introduction of *Kelileh-va-Demneh* there is a quotation from Borzuieh that indicates his noble remarks towards medicine:

Says Borzuieh, the vanguard of the Persian physicians, ... "When I was at the age of seven, I was encouraged to study medicine. When I became a little aware of the virtues of medicine, I worked hard on that with sincerity and overwhelming enthusiasm, until I became famous in this field and began to give medical treatment to patients. Then I left my inner soul free to choose from among four things that are indispensable to human beings: abundance of wealth, pleasure available in the world, widespread reputation, and next world rewards. Needless to say, that medicine was admired by all wise people in the world."<sup>(5)</sup>

The first direct impact of Jondi-Shahpour on the Islamic circle was felt in 148 (A.H.), at a time when Mansour, the Abassid caliph was suffering from indigestion and was seeking the medical consultations of physicians available in Jondi-Shahpour University. He called for "Jerjis," the then dean of this medical center and from the Bakhtishoo family, the first family famous in medical practice in the Islamic world.

The successful treatment of the caliph by this outstanding physician resulted in the transfer of the medical center from Jondi-Shahpour to Baghdad. The other family that played a major role in the process of this transfer was the Masuyeh family.

From Jondi-Shahpour, Masuyeh went to Baghdad to try his luck. There he became a famous ophthalmologist and the special physician of Harun al-Rashid. His three sons also became physicians, among them Youhana Ibn-Masuyeh emerged as an outstanding physician of his time. He was the first author of the treatise on ophthalmology in Arabic.

Translation was another factor that had a valuable role in transferring the Greek, Syriac, Pahlavi, and Sanskrit into Arabic. According to Ibn Abioseibeh, Sarjios Raas al-Ein was the first who translated both medical and philosophical books. Probably he served Khosro Anushirvan, and his translations were used in Jondi-Shahpour.<sup>(6)</sup>

The oldest translation from Greek medicine into Arabic was "*Konnash Ahrun*", done by Masarjuyeh. Ahrun Ghasis Eskandrani was a writer from Syria who lived during the time of the advent of Islam. The only work by this author still remaining is the above mentioned work that spread very fast among Muslims.<sup>(7)</sup>

It must be said that Honein Ibn-Ishaq was the greatest translator of this period. He was not only a translator, but also a distinguished physician. He translated Greek texts into Syriac with the help of his nephew, Hobeish, and his son Ishaq. Interpretation of Syriac into Arabic was done by his students, and he

personally compared Arabic texts.

Honein and his associates thus translated a number of medical books in Syriac and Arabic including 95 treatises of Galen in Syriac and ninety nine of his treatises in Arabic.<sup>(8)</sup>

By the end of the second century A.H. and early in the third century A.H., physicians moved from translation to writing.

Ali Ibn-Raban Tabari was the first author of an important medical book in Islam. "*Ferdows al-Hikmah*" is the name of the book, written in 236 A.H. This book includes 360 chapters and it has a special value in pathology and pharmacology.<sup>(8,9)</sup>

Tabari's desciple, Razi, was undoubtedly the greatest observer and clinical physician in Islam. The skill shown by Razi in *Taghadamat-al-Marafa*, his analysis of the symptoms of diseases, and the way he treated the patients caused the abnormal conditions he had studied in different diseases to be well-known among the later physicians. Let us refer to one of these abnormal conditions (according to Razi) which he raised in his book, *al-Havi*, in order to indicate the importance of his accuracy and proper understanding from medical issues: "Abdullah-Ibn-Savadeh suffered from irregular fevers. He had these fevers sometimes everyday and sometimes every two, three, or four days. Each time the fever recurred, it was preceded by a fit of chills and shivering, and he urinated frequently. I said that these fevers might lead to quatern or the patient has an ulcer in the kidney. In a very short period of time, pus was observed in the patient's urine. I told him that the fever would never recur and so it happened.

The patient had not complained that he had been feeling a sort of heaviness in his back. I had also forgotten to ask about it. In fact, much urinating strengthened my guess about the ulcer in his kidney. When there was pus in his urine, I prescribed some diuretic drugs for him which removed the pus, the pus melted away soon, because the ulcer was small. But if he went to other physicians, they couldn't find anything about his disease even after the observation of the pus in his urine."<sup>(10)</sup>

Zakaria Razi is rightfully considered as the successor to Galen. His most important book is *al-Havi* which was the most important medical encyclopedia ever written until his time.<sup>(11)</sup>

He was the first who wrote clinical scientific articles about rashes such as smallpox and measles.

Ali Ibn-Abbas Majusi Ahwazi, physician to the court of Azad al-Dowleh, was another distinguished figure in medical science. He wrote the famous book of *Kamel al-Sanaeh* known as *al-Tab al-Malaki*. He was the desciple of Musa Ibn Sayar Ghomi, the great Iranian physician.

Another outstanding physician contemporary with

Avicenna and the author of *al-Meatfi Sanaet al-Tabieh*, was Abusahi Isa Ibn Yehya al-Masihi al-Jorjani.<sup>(17)</sup>

The great physician of the late 4th century (A.H.) and early in the 5th century (A.H.) was Abu ali al-Hossein Ibn Abdullah Ibn Avicenna who received, by Nezami Arouzi, the honorary title of “the master of later physicians”, “philosopher of the orient”, and “the proof of the right.” He has many books, treatises, and pamphlets about medicine, but most important among them is the book “*Canon*.” Hence we quote some sentences from Nezami Arouzi: What we said could all be found in *Canon* and whoever understands the first volume of this work, there will be nothing strange to him in medicine. Because if Hippocrates and Galen come back to life, they should bow down to this book.<sup>(13)</sup>

Avicenna enjoyed a deep knowledge of clinical medicine. The first description of some diseases have been attributed to him, like the description of meningitis which Avicenna first described properly. It is quite appropriate to quote Hamdullah Mustofi's sayings about him:

Hojatul Hagh Avicenna came into existence in “Shaja”. He obtained all sciences in “Shasa”, and he died in “Takaz” (Shaja, Shasa, Takaz, these letters represent certain figures in traditional system of calculation). He wrote many books and many of the scientists in the world followed them. His book *Canon* is regarded as a heal for enchanted hearts and a reserve for saving from evils.<sup>(14)</sup>

During this period Muslims made considerable progress in phramacology, veterinary, botany, the science of animals, and the science of mines. All of these sciences were used in medicine and there was no alternative but to learn them in order to complete the science of medicine.

In alchemy or chemistry Muslims continued the efforts of the Greeks in the Islamic civilization, and they reached certain stages of advancement in these fields. Pharmacological information included in medical treatises and in the voluminous medical books formed one or two lengthy chapters. It means that sometimes they studied compound and non-compound drugs separately or in one chapter.

Nevertheless, Muslims usually arranged separate books for this purpose. Among the important books in this field was the book of Shahpour Ibn Sahi Jondi Shahpouri. According to Ibn al-Nadim the owner of Jondi Shahpour hospital the name of this book is *al-Iqrabar* which contains 22 chapters and was available in hospitals and drug stores.<sup>(15)</sup>

This book was used in the drug stores and the hospitals of Baghdad late in the third century (A.H.), the whole fourth and fifth century (A.H.) and early in the sixth century (A.H.). *Iqrabazin Ibn-Talmiz* was the substitute of this book. There were other books written

during these periods and most important among them is *al-Abnveh Anhaghayeghul Advieh* written by Abu Mansur Movafagh Ibn Ali Heravi in the 4th or 5th century.

During this period Abu Saeid Obeidullah Ibn Jebreil Ibn Obeidullah Ibn Bakhtishul wrote the book *Tabayeh al-Heivan va Khavasha va Mafeh Azaha*. Obeidullah also wrote a book about medicine, named *Rozat al-Tabieyeh. Al-Jamaher fi Marafat al-Javaher* is a well-known book written by Aburayhan Birouni. This book is about jewels and mines and is of great importance because of its information about alchemy and physics.

Some people believe that alchemy was introduced to Muslims during the time of the Umayyads by Khalid Ibn Yazid. But, in fact it became known to Muslims, since mid-second century (A.H.) when translation of Arabic books was prevalent.

The greatest old alchemist was Abubakr Muhammad Ibn Zakaria Razi. His studies, research, and experiences are so accurate and scientific that in the Islamic civilization and in this field he must be considered the greatest of all, who wrote books about alchemy or had a scientific perception of the matter. Some of the books in alchemy that Aburayhan Biruni attributed to Razi are: *Al-Madkhal al-Talimi, Elal al-Maaiden, Esbat al-Sanaeh, Kitab al-Hajar, Kitab al-Tadbir, Kitab al-Exir, Kitab Sharaf al-Sanaeh, Kitab al-Tarbiat, Kitab al-Shavahed, Kitab al-Ser, and Kitab-al-Ser al-Hokama*.

Razi's research and experiences led to the discovery of sulphuric acid and alcohol. Ghazi Abulhassan Abduljabarrin Ahmad al-Hamadni is also an Iranian author in alchemy, and the book *Resaleh fi-Elm al-Kimiya* attributed to him is very famous.

Another author in this field was Mohammad Ibn Abdul Malik al-Salehi al-Kharazmi al-Kathi who lived in Baghdad. In 425 (A.H.) he wrote a treatise named *Ein al-Soneh va oun al-Sanaeh*.

A number of treatises have been attributed to Avicenna in alchemy, such as *al-Exir, al-Kimya, al-Dor al Maknun, al-Jaher, al Masun, and Rasalat fi al-Sanaet al-Alyeh*.

Ophthalmology developed considerably in Egypt where eye diseases were epidemic. The impact of this development in this branch of medical science reached the countries of the West. Before the emergence of Islam, Egyptian ophthalmologists, such as Andalus and Demolstenis Philalets, well-known figures. After Islam, ophthalmology was also important in Egypt. The first important literature on this branch of medicine, *Tazkar al-Kahalin*, was written by Ali Ibn-Eisa Baghdadi. Soon, Abolqassem Emar-Ebn Ali Mossala, the court physician of Alhakim, a Fatimid caliph, wrote *Almontakhab fi Allaj al-Ein* (Handbook of Eye Treatment).

Before the publication of Dave Patrick Kepler's book in the West, these books had kept their credibility in Europe, and even by the eighteenth century, when research in this branch of medicine was revitalized, they were still books of reference. The court of Alhakkim was the scene of activity for Ebn Hetham, the greatest Muslim optician. He conducted important research in the structure and diseases of the eye, particularly in relation to the act of seeing.

Egypt and the court of Fatimid caliphs were also the center of activities for other physicians, like Ali Ebn Rezvan (5th century) who wrote some annotations on the works of Galen the physician.

Cairo hospitals and libraries used to attract physicians from far and near. Ebn Nafis was born in Damascus and came to this city and passed away there in 678 A.H.

The importance of Ebn Nafis was recognized a century ago. He was the discoverer of "lesser circulation" or pulmonary circulation, the discovery that was accredited, up to recent time, to Serutus (1600 A.D.). Ebn Nafis studied the works of Galen and Avicenna with a critical view and published the results of his research in *Almojaz Al-Qanoon* or *Almojaz Fi-Alteb*. This book has gained global recognition and has been translated into Farsi.

Ebn Nafis describes the pulmonary circulation, one of the greatest discoveries by Muslims in the field of medicine, as follows: "After the refinement of blood in the right ventricle it should go to the left ventricle where the living spirit is generated, but there is no passage between the two ventricles since there is non-porous mass in this region of the heart. There is no hidden passage either, as was assumed by Galen; thus the blood, after refinement, should flow to the lungs via a pulmonary artery so it can spread there and mix with air and the most refined parts, then enter the pulmonary vein in order to convey the blood that has been mixed with air and is ready for the birth of spirit, to the left atrium."<sup>(17)</sup>

In Andalusia (Spain) and Morocco and the western countries of Islam that formed an integrated cultural unit, a number of well-known physicians also appeared. The city of Cordova was a center of medical activities. In this city during the fourth century (A.H.), Hossad Ebn Shaproot translated *Adviah Mofradeh* written by Dioscoridus. This translation was later corrected and annotated by Ebn Jaljal. Arib Ebn Saad Al-Keteb who has a reputable treatise on the subject of midwifery, also came from Cordova. Abolqassem Alzahravi, the greatest Muslim personality in the field of surgery, appeared some time later. He wrote a book called *Ketab Al-Tashf Leman Ajz An Altalif*, and for some centuries the Arabic and Latin translations of this book were being used.

Islamic medicine in Andalusia owes very much to

the "Ebn Zahra" family. During two generations a number of well-known physicians emerged from this family and even a woman came to be famous for her medical works. The most important member of this family was Abu Marvan Abdolmalek who died in 556 A.H. in the city of Seville. He left a number of works behind, the most renowned among them being *Ketab Alteisir Fi Almodvatoaltadbir*. He was the greatest clinical physician after Razi in the Islamic history.

Among Andalusian physicians there were also a number of physician-philosophers. Ebn Tofeil, the author of philosophical story, Haay Abn Yaqzan, was an able physician, and his successor to the seat of philosophy, Ebn Rashid, was the same. This celebrated philosopher was formally a physician and had written a number of books on medicine, among them a medical encyclopedia called *Ketab al-Kolliat Fi Alteb*, and annotations on the medical works of Avicenna.

Moussa Ebn Meimoon followed in some respect the work of Ebn Rashid. He was born in 530 A.H. in the city of Cordova. In his youth, he travelled to the east and chose Cairo for his residence. He wrote ten medical treatises in Arabic; his most celebrated work was the book called *Alfossool Fi al-Teb*.

Physicians and scientists of Andalusia contributed greatly to research on medicinal plants. After the annotation of Ebn Jaljal on Dioscoridus book, the Tunisian physician, Abu al-Salt wrote the book *Aladveieh Almofradeh* during the sixth century (A.H.). Afterwards, Ghafeghi, the most innovative Muslim in preparation of medicines of the time, described medicinal plants in his book also called *Aladvieh Almofradeh*, the most important Islamic world book in this field.

A century after Ghafeghi, another Andalusian scientist called Ebn al-Beitar who was born in Malaga and died in Damascus in 644 A.H., supplemented his work. Ebn al-Beitar was the greatest herbalist and pharmacist in the Islamic world. He wrote *Ketab al-Jame Fi-al-Advieh al-Mofradeh* and *Ketab al Magna Fi al Advieh Almofradeh*, in which everything that was known to pharmacists and chemists of the time about noncompound medicines was detailed in alphabetic order. There was also mention of 300 kinds of medicines with no reference to them in the previous works.<sup>(18)</sup>

In Iran, one generation after Avicenna, there was a famed physician and pharmacist, Zein al-Din Abu Ebrahim Esmail Ebn Jorjani contemporary to Abu al-Fath Qutb al-Din Mohammad Kharazmshah who died in 530 A.H. and wrote a number of books on medicine. His book called *Zakhireh Kharazmshahi* is among the important books on medicine and pharmacy. Its importance specifically lies in the fact that it is the most important and exhaustive book in medicine and pharmacy written in Farsi. The text in this book is simple, fluent and clear, and contains many Farsi words

and phrases for diseases and medicines.<sup>(19)</sup>

Imam Fakhr Razi, the sixth century mottakallem, was also among those who emerged after Avicenna. He was a competent physician as well. He wrote an annotation to Avicenna's book, *Canon of Medicine*, and solved some of its problems. He became involved in writing a great medical masterpiece called *Al-Teb-Kabir*, but was not able to finish it.

Seventh century (A.H.) witnessed the appearance of a number of important works on medicine, despite the immense difficulties in the political life of the Islamic world caused by the Mongol invasion. It is surprising that four of the great and outstanding personalities in Islamic medicine, Ebn Qafti, Ebn Abi Asibeh, Ebn Khalkan and Ebn Abri, who were all indisputable authorities on medicine, lived during this flourishing century.

The Mongols, in the beginning of their invasion, had their mind on devastating all scientific works, but soon they also became interested in them.

Qutb al-Din Shirazi, a student of Khajeh Nassirol-din Tousi, was himself a famed physician. He wrote a researched annotation on Avicenna's *Canon of Medicine* and called it *Althoufah al-Saddieh fi al-Teb*. He spent a lifetime on this peerless book.

After Qutb al-Din Shirazi, in the beginning of the eighth century, it was the turn of the learned vizier of Il-Khanid dynasty to write a medical encyclopedia in addition to a book on the history of the Mongol period. He constructed a number of hospitals and schools in Tabriz, the capital city at the time.

During this period particular attention was also paid to anatomy. Both physicians and mottakallemun participated in the works of anatomy and the first known illustrated book on anatomy, called *Book on Human Anatomy* or *Mansuri Anatomy*, was written by Mansur Ebn Elias in 798 A.H. in Farsi language. In this book Greek and Indian concepts of embryology along with Koranic concepts are discussed.

Saffavid Period was a period for revival and a new birth of Iranian art and philosophy, and it is also a period for the full rebirth of Islamic medicine. The greatest physician of this era is Mohammad Hossein Moubakhshi who passed away in 913 A.H. He wrote an outstanding book on medicine, called *Khollasat al-Tajareb* that fully demonstrates the clinical capability of the writer.

He is the first one who identified and treated a number of common diseases, including hay fever and whooping cough. In this period specialized pharmacists are also found and that is why Algood referred to this period as "The golden era of pharmacy" in Islamic history. The most important book on this subject is *Healing Medicine*, written in 963 A.H. During the

same period, within one hundred years, *Tohfato Moamenin* was written.

This book is still being used in the eastern countries, particularly India. During tenth and eleventh centuries Iranian physicians travelled to India and promoted Islamic medicine in that country.

In 1037 A.H. Ebn al-Molk Shirazi wrote *Afaz al-Advieh* and presented it to Shah Jahan, the Gurkha king of India. He probably contributed to the writing of *Dara Shokoo* (a Gurkha prince) which is the last medical encyclopedia in the Islamic world.

Islamic medicine continued to flourish in India during the twelfth century. It is during this period that other books such as *Mizan al-Teb* written by Akbar Shirazi (also known as Shah Arzani), emerged in India. It is interesting to note that coinciding with Nader Shah's invasion of India, the Islamic medicine found new strength in this country, while as the result of the entry of European medicine to Iran, the Islamic medicine started to decline. Today, in the subcontinent of India and Pakistan, the Islamic medicine is more vital than anywhere else and continues to compete with the old Indian medicine as well as new European medicine. Consequently, a new movement in medicine, called "Neo-Hippocrates", has begun and this demonstrates the value accorded to the medical philosophy that Islamic medicine was founded on a number of centuries ago.<sup>(20)</sup>

In conclusion, as an appropriate ending and for the purpose of showing how our predecessors viewed physicians and medicine as a whole and what people expected of a physician or in more comprehensive terms a "hakim", I quote an excerpt from Nezami Arooz Samarqandi's book *Chahar Maqaleh*, in the hope of making us more aware of our responsibility in this era, and more serious about reviewing and restructuring training and educational methods and procedures in medical universities with a view to educating future generation physicians: "A physician should be soft in temperament, wise in his nature and plausible in his guesses, and guessing is a movement inside a man to arrive at a plausible pronouncement; in other words, it is the transitional speed from known to unknown. And any physician who does not recognize the dignity of man's soul is not soft in temperament; unless he knows logic he can not be wise in nature; and unless he receives divine assistance he can not be plausible in his guesses, and anyone not plausible in his guess can not become aware of the cause."<sup>(21)</sup>

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