

# Sayyed Esma'il Jorjani, founder of Persian medicine

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**Abstract:** Sayyed Esmail Josjani (Gorgani) was one of the greatest scientists and physicians of Iran died in 1136 in merve. He prompted writing medical book in Persian by authoring the valuable book of zakhireh kharazmshahi and Al Aghraz al tibbia. Of course writing medical books in Persian was common before Avicennas time (980 - 1037). Zakhireh and Aghraz are like big and medium medical encyclopedia and even since the creation of the present Persian script. These books are the last and most important medical books in Persian. Like any other ancient book, some parts of these books are abolished but some other parts are valuable. However these books are remained to be unique as Persian medical books in the course of time. I have edited and corrected al - Aghraz al tibbia (Medical goals) from several old manuscripts. There are several manuscripts of al - Aghraz (which is about 250000 words). To edit and correct this book, I have used five old important manuscripts of Aghraz and one manuscripts of zakhireh kharazmshahi. I have published this book in 2 volumes in 2005 - 2006. At the end of the second volume, I compiled a medical dictionary named Dictionary of Aghraz. The references of this work are various documents including manuscripts of published, old and new medical sources in persain or Arabic languages and some English or French documents.

**Key words:** Sayyed Esmail Jorjani, Persian, medicine.

## Introduction

Upon the death of Avicenna, the Islamic medicine became limited to regional areas and the Iranian, Spanish, Egyptian and Moroccan medicine flourished.

Sayyed Esma'il Jorjani is another bright star in the firmament of medicine. He promoted writing medical books in Persian by authoring the valuable book of Zakhireh Kharazmshahi and Al Aghraz al Tibbia. Of course writing medical books in Persian was common even before Avicenna's time.

Since Jorjani's time, Iranian medicine shifted to the Persian language and facilitated the learning and teaching of this science. Thousands of our ancestors owe their health and lives to this genius man of the world of humanity.

Emir Sayyed, Emam Zeynoddin Esma'il ibn

Hassan (or Hussain) ibn Muhammad ibn Mahmoud ibn Ahmad Hussaini Jorjani (Gorgani) was one of the greatest scientists and physicians of Iran and the world. He was born in 1042 in Gorgan and left for his heavenly abode in 1136 in Merv when he was 94. Though we have inherited many top-notch works from him, little we know about his life.

Sayyed Esma'il Jorjani learnt medicine in his hometown and then went to central Iran, Khuzestan and Fars (Loghat-Nameh, Dehkhoda, 2153.). Jorjani also traveled to Qum and visited survivors of Kia Kooshyar, the astrologer. "And today, his children live in Qum and I visited them in Qum." (Zakhireh kharazmshahi, 644).

Sayyed Esma'il Jorjani lived for some time in Neyshabur, where he visited Ibn Abi Sadeq, this is why he is Avicenna's student indirectly because Ibn Abi Sadeq was a student of Avicenna. He has several times mentioned Abi Sadeq's name with full respect

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in Zakhireh (pp. 34, 35, 40): "And Khadjeh Abu al-Qassem ibn Abi Sadeq Neyshaburi, may God bless him, is one of the contemporary scientists who has written a book on description of the Galen's Advantages of Body Organs, in which he has conducted interesting research." (Zakhireh kharazmshahi, 34.) In Zakhireh, in the chapter on tuberculosis and its treatment with animal milk, he refers to master Ahmad Farrokh, who was apparently a physician.

In addition to medicine, Sayyed Esma'il Jorjani was an expert in jurisprudence and traditions. He learnt traditions and Sufism from Abu al-Qassem Kushiry. In traditions he rose to such a level that the renowned scientist Abu Sa'd Samani asked his permission to narrate a tradition. Merv (or Mary) was Jorjani's next destination after Neyshabur where he spent some years on research and medicine. In Zakhireh, he narrates some of his experiences in Merv: "And I saw a man in Merv suffering from melancholia. Guinea-worm appeared in his feet and melancholia vanished in him. And I saw a man in Merv suffering from a pain in the Ilium." (P. 568).

Sayyed Esma'il Jorjani, finally left for Kharazm in 1110 to join Qotb al-Din Muhammad, progenitor of Kharazmshahian dynasty. Qotb al-Din Muhammad ibn Nushtakin ruled in Kharazm during 1096-1128 and his court was a desirable haven for luminaries and scientists. Kharazmshah welcomed Jorjani, assigned a monthly 1,000 dinars to him and he was appointed as the custodian of Baha al-Doleh Pharmacy (Hospital). Seemingly, Baha al-Doleh was the name of a great man in Kharazm as is mentioned in Zakhireh: "One reason is that the king asked me to be the head of the pharmacy (Timar Dar) of the late Baha al-Doleh." (P. 644). Despite being busy with hospital affairs, attending to clients and treating patients, Jorjani completed his voluminous book of Zakhireh in Persian in the same year (1110). He named the book after Qotb al-Din Kharazmshah, "Zakhireh Kharazmshahi" (Treasure of Kharazmshah). In the beginning of Zakhireh after opening the book in the Name of God, he writes: "Thus it was destined by God that the author of this book, the grateful man to the just king Qotb al-Din Muhammad Abu al-Fath

Muhammad ibn Yamin al-Mulk, comes to Kharazm in 1110, finds the climate agreeable, enjoys policy and justice of the king, lives in this region and enjoys peace of mind under this just king. Therefore, he deemed it necessary to compensate for all the good the king did, serve him, and publish the fruit of science he had with him for ages in his country. This is why, he wrote the book and named it after this king, Zakhireh Kharazmshahi, to be famous in the world as is his name. He wrote the book in Persian to be equally useful for the elite and common people. Since the author of this book, Esma'il ibn Hussain Jorjani, observed the conditions of this country and realized the people's need to medicine, wrote this book to serve the king. Although the book is in Persian, easy-to-understand Arabic words are also included. However, I will give the majority of terms in Persian, if God wills. This book is perfect, because the author's purpose is to supply whatever a physician needs in theory and practice. It is clear that there is no such a book. This book has been compiled in a manner to make the physician needless to refer to other sources. Scientists, who will read this book, will easily grasp how it is distinguished from other books." (PP. 2-3).

The Zakhireh is a rich treasure of Persian medicine that is not a book to be written in a year. Rather, we can guess that Jorjani wrote this book in several years, especially during his long stay in Merv, and when he settled in Kharazm in 1110, he collected his notes and completed the book in the name of Kharazmshah.

Ala al-Doleh Atsez ibn Qotb al-Din Muhammad, Kharazmshah II (reigned 1128-1157) respected Esma'il Jorjani both as a crown prince and as a king. He asked Jorjani to make a summary of Zakhireh to be easily used. He summarized the book into two pocket-size books to enable the physicians to hide it in their boots and use whenever needed. He named the book, Khofi (Hidden Book of) Alaii.

Sayyed Esma'il Jorjani lived in Kharazm for years, and then moved to Merv, capital of Sultan Sanjar and was duly welcome. He researched and worked in this city as a noble man and finally left for his heavenly abode in 1136. (Loghat-Nameh, Dehkhoda, 2153).

In the reign of Ala al-Doleh Atsez, upon his



request and through the mediation of Abu Muhammad Saheb ibn Muhammad Bukhari, Jorjani wrote a summary of the Zakhireh which was more detailed than "Khofi Alaii" and he named it Medical Goals and Alaiyeh Discussions (Al- Aghraz al- Tibbia val Mabahess al- Alaiia).

The introduction of the book reads: "... And now by the order of Ala al- Doleh and upon the recommendation of the exalted leader Majd al- Din Abu Muhammad Bukharayii, the vizier, this book was written."

This shows that the author has written the book in Merv and not in Kharazm. Therefore, the book must have been written between 1128 (when Atsez ascended the throne) and 1136 (date of his death) most probably in 1130 in Merv.

The Zakhireh Kharazmshahi and Al-Aghraz are two valuable medical collections in Persian. As it was mentioned earlier, before Jorjani, there were other authors writing in Persian, such as Akhaveyni, Abu Mansur Movaffaq Heravi, and even Avicenna. Zakhireh Kharazmshahi and Al-Aghraz, however, are the voluminous and median medical encyclopedia in Persian, which revived the tradition of Persian medicine.

Sayyed Esma'il Jorjani was harshly blamed by his Arabophile contemporary colleagues, who criticized him for not writing the book in Arabic to be used by a greater number of people. Their emphasis convinced him to translate the book into Arabic during the last years of his life. Therefore, the Zakhireh was translated in 20 volumes for Majd al- Din Abu Muhammad, vizier of Atsez. In introduction of his Arabic version, the author writes: "I wrote the book of Zakhireh Kharazmshahi in Persian at 70 in Kharazm. Next I saw people and colleagues viewing the book and blaming me for the language I used, and they insisted me to write the book in Arabic to be used by a greater number of people."

However, the Persian version overshadowed the Arabic translation of the book.

Of his other works, one may mention a short book, namely, Yadegar (The Keepsake), which is very important like his other works in medicine. There are a few handwritten versions of the book in the Library

of Tipu Sultan and other libraries. The Keepsake includes main discussions of medicine and pharmaceuticals and comprises of five chapters. Medical Selection, Royal Biography in the Art of Medicine, Royal Medicine, a book on syllogism and analysis and interpretation, are his other works.

Ibn Esfandiar in Tarikh-e Tabarestan (1216 A.D.), writes that Jorjani has translated Canon of Medicine into Persian. In his Tattema Sevan al- Hekmat, Abu al- Hassan Ali ibn Zeyd Bayhaqi, has narrated a short but rich treatise by Jorjani in ethics. The 24-line treatise reads: "What was the reason, o brother, behind living in this mortal, wicked world and the transient house, becoming interested in growing this body made of dust? And we do not know that the joys of this world are limited to eating tasteful food, having a comfortable house, velvet clothing, good horse, a nice sweetheart, and finally defeating the enemies. These I just mentioned, are not joys to a sage, because eating and drinking removes sorrow, hunger and thirst, nothing more, ..."

(Zakhireh Kharazmshahi, Text; Al- Aghraz al- Tibbia [Medical Goals], 2; ; History of human and veterinary medicine, 162-174; Khofi [Hidden Book of] Alaii, 1-4; Tattema Sevan al- Hekmat, 100-102; Chahar Maqala, Notes, 238; Tarikh-e Gozida , 686; Tarikh-e Tabarestan, Vol. 1, 137; Habib al- Siar, Vol. 2, 641; Mojam al- Boldan Vol. 2, 54; Nuzhat al- Arvah, 422-424; Classes of Muslim Sultans, 159-161; Al- Tafhim, Introduction; Loghat-Nameh, Dehkhoda, 2145-2154; Tarikh-e Tibb dar Iran, Vol. 2, 741-742; Tarikh-e Adabiat dar Iran , Vol. 2, 944-947; Nameh-e Daneshvaran, Vol. 8, 1; Tarikh-e Salajeka va Kharazmshahian [History of Seljuks and Kharazmshahs], 420-421; Arabian Medicine, 136-137; Tadjbakhsh's lecture on the occasion of the Congress of Medical History, Iranian National Radio, August 1992).

### **Importance of Zakhireh Kharazmshahi and Al-Aghraz al- Tibbia**

Ever since the creation of the present Persian script, the Zakhireh Kharazmshahi and Al-Aghraz are considered as the best and most important medical



books in Persian. Like any other ancient book, some parts of these books are abolished but some other parts are usable. However, these books are remained to be unique as Persian medical books in the course of time. These books are mostly the medical encyclopedia which includes all medical issues such as general points and details, diseases and symptoms, and causes and remedies all in logical and meaningful descriptions. The author has divided his books into chapters, sections and various entries and has systematically and logically classified the issues under discussion.

With almost 700,000 words, Zakhireh has made an astonishing summary of the world of medicine. In his book, Jorjani has combined repeated experimental methods of Rhazes, scattered ways in Al- Havi, Avicenna's classic and logical (and sometimes difficult) descriptions and his own logical, theoretical, and applied approach to medicine to create a relatively easy and clear medical source. In other words, he has standardized the medical terms in the Zakhireh Kharazmshahi. It did not take long that the Zakhireh, the Khofi Book of Alaii, Al- Aghraz al- Tibbia and the Yadegar rose to fame. Nezami wrote his Four Discourses in 1155, roughly 19 years after Jorjani's death. On the above four books he writes: "Then the physician should be of good deed and creed. To learn the science of medicine he should carefully study medium books such as Rhazes' the Book of Mansuri, the Medical Guide of Abu Bakr Akhaveyni, or Al- Aghraz (Medical Goals) of Sayyed Esma'il Jorjani, with a kind instructor. Then he should prepare voluminous medical books such as Al- Havi of Rhazes, or Kamel al- Sanaat of Ahwazi, or A Hundred Chapters of Abu Sahl Massihi, or the Canon of Medicine of Avicenna, or Zakhireh Kharazmshahi... He should take with himself one of the abridged books written by great masters of science, such as "A Present for Kings" of Rhazes, or the Khofi Book of Alaii...because one should not trust the memory."

Jorjani's works are complete examples of medicine. Soon the Zakhireh was known as a main medical reference, the Al- Aghraz with almost 250000 words as an average medical book, and the

Khofi Book as an abstract medical guide textbook.

Jorjani has used comprehensible Persian equivalents for many medical terms and names of drugs. However, he has not hesitated in using Arabic equivalents where the Arabic word seemed to be clearer. Sometimes, he has written an explanatory sentence in Persian for the Arabic terms. The Zakhireh and Al- Aghraz are indeed treasures of the medical terms. If he did not use special Persian terms in his books, many of these words would have been abolished in the course of time. Some scientists have placed Zakhireh above Avicenna's Canon of Medicine in importance. Siril Elgood says: "This point cannot be denied that Avicenna' Canon is ambiguous, whereas the Zakhireh Kharazmshahi has been written clearly and all its articles are easy to understand." (A Medical History of Persia, Vol 2, 319).

Due to its importance, Zakhireh was translated into Hebrew and Turkish. The Turkish translator of the Zakhireh was Muhammad ibn Edris Daftari (death 1574). There is no translation of the Zakhireh in European languages. Perhaps, it was because of the rumors spread by some critics that the Zakhireh was either a translation of the Canon or it lacked any new point.

Angelus de St. Joseph, the French priest and researcher, introduced the Zakhireh to Europeans. He visited Isfahan in 1664 and learnt Persian from the Carmelite priests to study Persian medical books. He found Zakhireh, the most interesting medical book in Persian. He returned to France in 1679 and wrote Pharmacopoeia Persica (Persian Pharmacology) based on the "Shafaei Medicine" of the sage Muzaffar ibn Muhammad Hussaini Shafaei (d. 1555), in which he has many references to the Zakhireh. He purchased an Arabic typewriter in Amsterdam in 1681 and wrote Persian-Italian-Latin-French dictionary namely Gazophylacium Linguae Persarum. The book was published there in 1683. This book contains considerable medical information. A part of the book reads: "The most common medical books in Iran are the Zakhireh Kharazmshahi, Yousefi's Medicine and Mansuri's Kefayat."

The Dutch Schlimmer picked up the same method



two centuries later to write his French-Persian dictionary. The English Edward Browne has talked about the Zakhireh and its significance in Arabian Medicine and Elgood and in A Medical History of Persia.

The late Abbas Nafisi, wrote his medical thesis in Paris in 1933 on "Les Fondements Theoriques de la Médecine Persane, d' Apres l' Encyclopedie Medical de Gorgani ..." (Fundamentals of Theories on Iranian Medicine According to Jorjani's Encyclopedia and a Summary of Iranian Medical History). P. Horn in his article written in German in 1890 in Vienna talks about the Zakhireh: "Jorjani was only the translator of Avicenna and his book is similar to the Canon of Medicine." This is unfair. The French B.T. de Crussol, in his medical thesis in 1992 discusses Jorjani's views on physiology and ophthalmology given in the Zakhireh and Al- Aghraz. In his thesis, Crussol writes: "Gorgani collected and combined the main and specialized points in the medical books of his predecessors, added his own experiences and made a complete medical book." (P. 468). What can be done better than this?

Zakhireh and Al- Aghraz made Jorjani the torchbearer of the Persian Medicine and in the ensuing centuries many scientists followed him. For instance, Ghiass-e Motetabebe in 1466 wrote his Rules of Recovery according to the second part of Jorjani's Al- Aghraz.

Relying on his long-lasting familiarity with the Zakhireh and Al- Aghraz, coupled with comparative study of Al- Havi, Canon of Medicine and the Zakhireh, the author of these lines believes that: Jorjani's Zakhireh comes after Al- Havi of Rhazes and Avicenna's Canon in scientific significance. The author of the Zakhireh has enjoyed these two medical encyclopedias, combined them with his own experiences carefully and finally has written the new books in fluent Persian language. These books are unique in their language and are other pillars of medicine in the Eastern world next to the Canon and Al- Havi. Jorjani has used Avicenna's Canon and has referred to it as one of the most important sources, but the Zakhireh and Al Aghraz are not the exact translation of the Canon, rather they are the

complementary medical books to Canon and other medical works of the time. Al- Havi, the Canon of Medicine and the Zakhireh and Al Aghraz are treasures in the world of science and medicine and each has its own advantages.

Sayyed Esma'il Jorjani knows his books better than all. In his introduction in Al- Aghraz (a summary of the Zakhireh) he writes: "Any author who writes a book, cites the advantages and strong points of his book in his introduction, and gives reasons for the change he has made in scientific fields. Therefore, it will not be a fault for the author of these lines to describe his book as a source of honor, experience and ornament for himself. This is merely following what predecessors used to do. This book is small in size, but great in content. It is short, but is large in elaborating the difficulties of the science of medicine. It has discussed all medical points. It has made enough discoveries and discussions in the medical field where needed. Any knowledgeable scientist, who is well familiar with the science of medicine and its mysteries, will come to the conclusion that I have paid due attention to each point. This is why I have named the book Al- Aghraz. This modest author claims that there is no brief but perfect medical book like this. The accuracy of the claim can be proven by studying the book and comparing it with similar works." (Al- Aghraz, 2, 3; Zakhireh Kharazmshahi, 281, 314, 690, ...; Chahar Maqala, 70-71; A Medical History of Persia, 313-320, 524-526; Loghat-Nameh, Dehkhoda; Tarikh-e Adabiat dar Iran , Vol. 2: 314-316, Vol. 4: 109; Arabian Medicine, 159-160; L'oeuvre d' Esma'il Gorgani 1-4, 51, 468).

### **A Glance at Zakhireh Kharazmshahi and Al- Aghraz al-Tibbia**

The Zakhireh Kharazmshahi includes nine main books and two appendixes. Sayyed Esma'il Jorjani gives reasons for a delay in the composition of the book at the end of the ninth book. He says that the Zakhireh does not include a separate part on simple drugs and the pharmacopoeia. The reason is to present medical materials in a way that is neglected by other books. If I wanted to present the discourses in this way, I had to wonder around the world,



discover everything about drugs, but I had no time to do this. The above shows that the author has made a lot of research in the nine books of the Zakhireh. As such he says: "And I had no time to wander around the world, to see plants and test drugs, and ask masters and inquire about the drugs from them. And since there came no such opportunity and the predecessors have not explained this duly, the author of these lines cannot write more in this field. And the works of predecessors are available in the hands of the public. This is why this book does not have a chapter on simple drugs." (Zakhireh Kharazmshahi 644).

However, Jorjani compensated for this deficiency and added two chapters to Zakhireh: one on animal organs or animal-based drugs and the another on pharmacopoeia. Al- Aghraz includes four books and the third one's is special for simple drugs and pharmacopoeia.

In these books Jorjani has given references to various Greek and Iranian-Islamic physicians such as: Hippocrates; Galen, Aaron; Aristotle; Massarjuya; Yuhanna ibn Massouyeh; Issa Sahar Boxt; Sabet ibn Qorra; Georges ibn Boxtishu; Ishaq ibn Hunayn; Shapur ibn Sahl; Ali ibn Zeyd Tabari; Muhammad ibn Zakariya Rhazes; Avicenna, whom he refers to in full respect; Abu al- Hassan Toranji; Abu al- Qassem ibn Abi Sadeq; Master Ahmad Farrokh; the book of Biography of Ophthalmologists; experiences of Indian physicians...

Sayyed Esma'il Jorjani has included his conclusions after mentioning the views of the predecessors and this is unique. In some parts, Jorjani refers to his own experiences and discoveries. For instance, disappearance of melancholia in a patient infected by skin helminthiasis (Zakhireh, p. 225, Al-Aghraz, p. 181), treating malaria of his servant by his self-made mixture (Zakhireh, 273), innovative drugs (Al-Aghraz, 362, 404, 748...), the development of pain in the joints by nerve stimulants (Zakhireh, 568). He says "Sumac suppository is useful for scabies, ocular itching... and this medical prescription is a souvenir of the author of this book." (Zakhireh, 741, Al-Aghraz, 541).

The first book of the Zakhireh and Al-Aghraz

read: "On the science of medicine: Medicine is an art that a physician relies on to understand the status of health and diseases in man, to keep the healthy condition and restore the health of the sick." (Zakhireh, 4; Al-Aghraz, 5).

Sayyed Esma'il Jorjani explains the four humors and their influence on the health or development of diseases in the best way possible: "The four elements are fire, air, water and soil. They are the essence of everything which exists under moon." These 'four elements' are the origin of other objects. The dry and hot objects have the dominant fire element, a warm and wet object has the air element dominant in it, a cold and wet object has the water element dominant in it, and the cold and dry object has the soil element dominant in it. Whatever exists on earth is a combination of these four elements. Each of these four elements has its own nature or quality and they oppose each other. "And when two of these four have opposing effects, the one overcoming the other is dominant and the one being affected is the transformed one." The essence of each of these four elements is fixed and unchangeable. If two of these elements are mixed with one another and affect each other, a moderate quality appears in the creature, and this is called "temperament". If one of these overcomes the other, the dominant one will have its effect. Hence four temperaments of four hot, cold, wet and dry appear. These are called single temperaments. If two elements which interact, both appear as dominant elements and two other qualities prove to be subordinate, there will appear four combined temperaments like elements: hot and dry, warm and wet, cold and dry, cold and wet.

If in some temperaments, all four elements mix and affect equally, this is called a moderate temperament. Therefore, we can consider nine temperaments out of the four elements: four single and four combined temperaments plus one moderate temperament. However, the moderate temperament does not exist in the world. Physicians believe that moderation means the existence of hot, cold, wet and dry elements equally in each organ. "And the temperament which is desirable to appear." This is the definition of a healthy organ, or in today's medical



definition the natural combination of body organs, or what we say the normal range.

According to Jorjani, each organ has a special balance and any imbalance in organs would cause diseases. "For example, if the bone temperament changes into the brain temperament or that of liver, the balance of bone is disturbed thus the moderation of the whole body is disturbed."

Body temperament changes according to age, and men and women differ in their temperaments. Also different people have varying temperaments, from which we can identify each person. Likewise, geographical and racial differences bring about differences in temperaments. Jorjani believes that man's temperament is the most moderate one among the living creatures, and among people living on earth, the equatorial people are the most moderate.

Humor is a wet object circulating in human body, mostly in vessels and hollow organs such as stomach, liver and spleen... Humors are four in number: blood, phlegm, choler, and melancholy. Blood is warm and wet. Phlegm is of two types natural and unnatural. The natural phlegm is raw food that stomach digests and finally changes into blood. It is cold in nature and is spread to the whole body by blood vessels. Phlegm is always in the stomach. The unnatural phlegm is secretions in the joints, or the sweats or even the unnatural bodily secretions. Choler is a mucus lighter and warmer than blood, existing in liver. It is mixed with blood and can be found in natural and unnatural natures. Any imbalance in choler or bilious secretion creates the unnatural condition. Atrabile is sediment of blood and lives in liver. It is also of two kinds: natural and unnatural. Black bile is cold and dry. It is black in color with soil temperament. It gets to organs by blood vessels. Any increase or decrease in the amount of black bile causes abnormal condition. Jorjani has discussed humors independently and agrees with the nine temperaments: "then the temperaments do not exceed nine in number." (Al-Aghraz, 5-21; Zakhireh Kharazmshahi, 4-16).

In modern-day medical definition, various temperaments can be coordinated with immunity and endocrinic hormones. The status of these temperaments differs in various individuals probably

due to MHC and Immune Response Antigens. Further discussion on temperaments requires more time and opportunity.

Jorjani talks about cancers, effectiveness of curing cancer from the very beginning, operating cancerous tumors, and return of cancer to other organs (Metastasis). He writes: "On cancer and its treatment. The best method in treating this disease is to avoid operation or cut the tumor and it should be kept intact. Cancer may be cured in its early stages, but a deeply rooted cancer is impossible to cure. In many occasions a cancerous tumor appears and grows slowly in body, and the best thing to do is not to remove the cancerous tumor, then it may live in the patient for longer time, otherwise it will kill the patient. Some cancerous tumors are small in size and they may not affect body organs. These tumors plus a part of flesh surrounding it can be removed by surgical operations. In this case let the blood bleed, apply ointment and then dress the wound cleanly. In many occasions cauterization and cutting the cancerous tumor proves to be deadly. It is said that some previous physicians used to cut the cancerous breast of women, but after some time the disease returned to the other breast." (Zakhireh 588; Al-Aghraz 822-825).

Jorjani says tuberculosis, leprosy, smallpox, rabies, cholera, vitiligo, etc. are among infectious diseases and they are transferred through air, contaminated water, etc. The choleric air is filled with pathogenic agents. Air becomes contaminated with choleric elements when mixing with plants or land or marsh or even steams rising from graveyards or from some lands. Such an air infects blood or humors of body. The harmful water is contaminated when mixing with air and contaminated land and then infects body. The boiled water has lesser infectious elements. Here the issue of sterilization and filtration comes to the fore. (Zakhireh, 124, 245, 246, 278, 594; Al-Aghraz, 77, 213).

On choleric or infectious fevers Jorjani says: "In the first instance, one should know that cholera (infectious disease) means contamination of air. Likewise, if water is kept for long in a pit, its nature changes. The reason is that something of bad plants or



land is mixed with it, its quality changes and it becomes contaminated. Sometimes there might be much wind which carries harmful vapor from graveyards or infectious lands. If the air is infected by one of the above, cholera surfaces." (Zakhireh, 278; Al-Aghraz, 802).

Jorjani believes that blood infection causes infectious fevers. "And sometimes blood is infected and infectious fever develops." (Zakhireh, 239). In Zakhireh we see reference to hectic fever which is still unknown (P. 274), seemingly it is like Malta fever (brucellosis). Of course hectic fever has also some similarities with the symptoms of tuberculosis, cancerous fevers and the like.

Jorjani distinguishes smallpox and measles. He reiterates the theory of fermentation of Rhazes with further details and adds that these diseases are caused by boiling blood as one boils grape juice. Of course he does not mention Avicenna's view who says blood boils when a foreign element enters it: "Smallpox and measles are produced both from the boiling of blood. Measles develop when blood boils naturally, or in hemodilution of blood. Additional heat boils the blood in the body and the ingredients then are distilled. Bulbs come up and the heavy elements are deposited." (Zakhireh 279-280).

In Al- Aghraz, he writes about the same subject: "And a lad's blood is perfect like baked juice, and blood in the elderly is like a juice turning to vinegar. like green wine which boils in pottery and the foam and essence are divided and the concentrated wine lasts for long, the children's blood boils in their body to transform into perfect and more stable liquid." (Al-Aghraz, 806).

In his Zakhireh and in Al- Aghraz, Jorjani provides ample information on anthrax (Nar, meaning fire, in Persian) and says the cause of disease is infected blood. "The seventh book... on anthrax and its treatment: The Persian fire (anthrax) is a watery vesicle accompanied with itching and sever burn because of excessive warmth and infection of blood." (Zakhireh Kharazmshahi 581, Al- Aghraz, 816).

Jorjani elaborates on tuberculosis and its treatment in Zakhireh. "Tuberculosis is development

of wound in lungs. Some may not have such wound in their longs but their health condition is that of tuberculosis-stricken people." (Al- Aghraz, 608).

Jorjani introduces gonorrhea and cites scabies, bladder, urethra ulcer and excessive intercourse among the causes of the disease: "In feeling blennorrhoea when urinating, the causes may be these three: one is the existence of scabies, vesicles or other infectious element in bladder or in urethra, and it is caused by eating a lot of hot, bitter and salty food (Zakhireh Kharazmshahi, P. 552). The cause of blennorrhoea is cabbies and vesicles in the bladder as well as disappearance of mucous wetness of bladder and urethra due to excessive intercourse and eating hot food or even from a bad temperament of hot type." (Al- Aghraz, 746).

Both in Zakhireh and in Al- Aghraz, Jorjani says smell of musk and castoreum are causes of coryza. In this list, he has included smells of drugs, hot perfumes, some foods and drinks, etc. which cause dry coughing and breathlessness. In modern-day definition, it is hypersensitivity (allergy) belonging to hay fever or spring coryza and food and drug allergy: "On coryza: Of the causes of the disease one is entering an enclosed room or smelling a hot material such as castoreum and the like. In this case the wet elements move toward his nose, dry coughing attacks him if he has drunk and eaten hot food and drink and has smelled hot smells, then bad temperament appears in his head and in his respiratory organs." (Zakhireh, 377, 403) "And some lay people say asthma and dyspnea is created by asphyxiation, and the difference is that in asthma breathing is rapid and short such as he who has run, but asphyxiation is excessive heart beat. But the cause of hot asphyxiation is bad temperament and dyspnea is because of any barrier in the way of the air inhaled or hot food and drink or hot smells and even hot air may be the cause of the disease." (Al- Aghraz, 619-620).

Jorjani refers to infectious fevers and to the infectious diseases of the animals and introduces bad air as the cause of disease: "And when the weather changes due to one of the above-said reasons, infectious diseases will appear. This is because no





other element is mixed with animal body more than the air. When the climate is bad, disease and death spread among animals." (Zakhireh, 278, Al-Aghraz, 802).

It takes long and requires much patience, and centuries must pass to make mother Iran give birth to a unique son like Sayyed Esma'il Gorgani to write a book like Zakhireh to Kharazmshahi or Al-Aghraz al Tibbia.

### **Editing and Correction Methods of Al-Aghraz al Tibbia val Mabahess al Allaiia (Medical Goals and Allaii's Discussions)**

There are several manuscripts of "Al-Aghraz" (which is about 250000 words) that most of them are not very old. To edit and correct this book, I have used five old important manuscripts of Al-aghrz and one manuscript of Zakhireh Kharazmshahi with following descriptions.

1. Manuscript of Library of Harjtchi Oghlou of Turkey, No. 1145, Microfilm No. 360, Central Library, University of Tehran, 378 pages, 19 lines per page, including only the first half or first volume of "Al-Aghraz", up to the end of Qarabdin (Pharmacopoeia). This is the oldest manuscript of "Al-Aghraz" written in 1202 A.D., and the scribe is anonymous. This manuscript has no introduction and there are some omissions in it, but many used words are older and more eloquent than those of the other manuscripts.

2. Manuscript of Library of Sepahsalar Mosque, No. 795, 374 pages, 25 lines per page, written by Ahmad son of Mohammad, pen name: "Razzi", in 1253 A.D., Including only the first half of Al-Aghraz.

3. Manuscript of Library of Hagia Sophia, Turkey, No. 3565, Microfilm No. 93, Central Library, University of Tehran. Hagia Sophia manuscript is a complete version of "Al-Aghraz", 534 pages, 25 lines per page, written in 1271 A.D., scribe: anonymous. Generally, these manuscripts (Harjtchi Oghlou, Sepahsalar and Hagia Sophia) are of the same origin, because they have common omissions. In these manuscripts, there are some older and more eloquent Persian words and medical terms. In Sepahsalar's

manuscript, there are more errors than Hagia Sophia and occasionally, some sentences are annexed. On the whole, Hagia Sophia's manuscript is more similar to Harjtchi Oghlou's than Sepahsalar's version.

4. Manuscript of the Library of Medical school of University of Tehran, No. 18, medical, 514 pages, 23 lines per page, written by Mohammad son of Taher in 1255 A.D. In spite of several pages missing, this manuscript is also a complete version of Al-Aghraz.

5. Manuscript of Central Library, University of Tehran, No. 4856, 715 pages, 22 lines per page, written by Saeed son of Jafar Gorgani, photoprinted in 1966 A.D. in Tehran. This is also a complete manuscript, although, its scribe has made some changes in certain sentences.

6. Zakhireh Kharazmshahi (Treasure of Kharazmshah), manuscript of Boniad Farhang Iran (Foundation for Iranian Culture), written by anonymous scribe in 1206 A.D. and photoprinted in 1976 A.D. in Tehran.

### **Methodology**

To edit the first half of the book, the Manuscript of Library of Harjtchi Oghlou has been used, as the principle manuscript, the Hagia Sophia manuscript has been used for the omitted parts. However, in cases that the omitted parts were not found in the latter, the Manuscript of Library of Sepahsalar Mosque or Faculty of Medical School has been consulted. The Hagia Sophia manuscript has been used as the principle manuscript for the second half of the book. This version also has a few words or even a few omitted lines; in these cases, for substitution, the medical or the central library manuscript has been used with respect to Zakhireh Kharazmshahi.

It should be noted that in some cases, there are incorrect words in the principle manuscript which have been replaced by the correct equivalents found in other manuscripts. These have been mentioned in footnotes in the relevant pages. The variants in the manuscripts have also been pointed out as footnotes.

At the end of the second Volume, I compiled the dictionary of Al-Aghraz al Tibbia. The references of this work are various documents including manuscripts or published old and new medical



sources in Persian or Arabic languages and some English or French documents. The references pertaining to the culture and civilization of Iran have also been consulted. I spent about three years or 6000 hours work for the preparation of this book.

Here, I would like to express my gratitude to my wife, Mrs. Shahla Massah, (Tadjbakhsh), who has helped me a lot during this work.

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## سید اسماعیل جرجانی بنیانگذار پزشکی فارسی و تصحیح کتاب "الاعراض الطبیة" ایشان

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سید اسماعیل جرجانی یکی از بزرگترین دانشمندان و پزشکان ایران و جهان است. او در ۴۳۴ ق/ ۱۰۴۲ م در گرگان زاده شد و در ۵۳۱ ق/ ۱۱۳۶ م در «مرو» درگذشت. او با نگاشتن کتاب‌های «ذخیره خوارزمشاهی» و «الاعراض الطبیة» که به ترتیب دایرة المعارف‌های بزرگ و متوسط پزشکی به زبان فارسی هستند، پزشکی نویسی به زبان فارسی را اعتلاداد. اگرچه نوشتن کتاب‌هایی به زبان فارسی حتی قبل از زمان ابوعلی سینا نیز مرسوم بوده ولی آن نه چنان بوده که با آن پزشک‌پرو ورند. ذخیره خوارزمشاهی و الاعراض الطبیة بهترین کتاب‌های پزشکی پارسی هستند که تاکنون نگاشته شده است. اگرچه مانند هر کتاب پزشکی کهن دیگری قسمت‌هایی از این کتاب‌ها اکنون منسوخ شده‌اند ولی اگر آنها را در ظرف زمان بنگریم همانا بهترین کتاب‌های طب کهن می‌باشند که به شیوایی به زبان فارسی بیان شده است. اینجانب کتاب الاعراض الطبیمة جرجانی را با توسل به پنج نسخه کهن تصحیح کرده و همراه با فرهنگ پزشکی اعراض طبی در دو جلد در سال‌های ۱۳۸۵ - ۱۳۸۴ حدوداً در ۱۵۰۰ صفحه به چاپ رسانیده‌ام. قدیمی‌ترین نسخه خطی برای تصحیح نیمه اول کتاب متعلق به کتابخانه حراجچی اوغلوئی ترکیه مورخ ۵۹۹ هجری قمری است و برای نیمه دوم کتاب نسخه خطی کتابخانه مسجد ایاصوفیه ترکیه مورد استفاده قرار گرفته است. نسخه‌های دیگر متعلق به کتابخانه مسجد سپهسالار، دانشکده دامپزشکی دانشگاه تهران و کتابخانه مرکزی دانشگاه تهران است.

واژه‌های کلیدی: دایرة المعارف پزشکی، جرجانی، ذخیره خوارزمشاهی، الاعراض الطبیة.

