Persian Medicine Great Scientists

There were hundreds of Persian scientists who had great contribution to develop Persian medicine during history. Ten of most well knowns and influential ones are briefly introduced in this section as below:

Threata (The symbol of medicine in Persian mythology)

Trearta is a mythical figure in Persian history who is believed that was the first physician in Iranian mythology. According to Zoroastrian beliefs, Ahura Mazda (God) dedicated a jewelry golden knife to him for surgery. Also, it is mentioned that he was familiar with medicinal effects of plants. In the history books he was introduced as a scientist who was expert in medicine, astronomy and philosophy. Mythically, he is known as inventor of medicine in Persian literature.

Borzuyeh (6 century)

Borzouyeh (Borzuya) who is called Perzoes in Latin was a famous physician who was coeval with Khosrow I, the Sassanid king of an-cient Persia who ruled from 531 to 579 CE. Borzouyeh was encouraged to learn medicine when he was 7 years old, and he became a great scientist who was deeply involved with medical ethics. He worked at Jondishapour University as head of the royally sanctioned professional association for physicians for the entire Persian Empire (Iran dorostpad). Borzouyeh travelled to India for research, and brought back with him many Sanskrit books which he translated into Pahlavic. One of these books was the Panchatantra. This book was later translated from Pahlavic to Arabic by Ibn al-Muqaffa (724- 760 CE) under the title Kalila and Dimna in Islamic era. Regarding, it escaped the destruction and accessible nowadays. The description of uterus contractions during Natural vaginal delivery by Borzouyeh in the preface of this book is the earliest remained report of this medical fact in the history.

Rhazes (865-925 AD)

Abu Bakr Muhammad ibn Zakariya Razi (865-925 AD), who is known as Rhazes in the west, was born and died in Rey (near Tehran, the capital of current Iran). He was one of the outstanding Persian physicians, pharmacists, chemists and philosophers in the medieval many eras. There are many discoveries in pharmacy and chemistry. such as ethanol and sulfuric acid. attributed to Rhazes. Furthermore, he had many clinical achievements in medicine. such as ophthalmology, neurosurgery. pediatrics, as well as the treatment of diseases, infectious kidney diseases, hydrocephalus, facial palsy, measles and smallpox, etc. Rhazes also contributed to the surgical procedures performed in the airway including tracheostomy. Rhazes is acknowledged as a prominent scientific writer on various subjects of medicine and philosophy. He wrote over 200 books and treatises. His most well-known manuscripts were Al-Hawi fi al-Tibb (Liber Continens), as a comprehensive medical encyclopedia, and Al-Mansuri fi al-Tibb (Liber Al Mansoori), as a medical teaching text for medical students. Overall, he was known as an empiricist and emphasized clinical observations more than philosophical views. It appears that Rhazes was the pioneer of the experimental views in clinical practice. He had an interesting critical view on science and believed in animal and human studies to evaluate medicines and medical methods. Therefore, he accessed many new findings with the help of his unique scientific view. He broke Galenic taboos, challenged ancient beliefs and presented new advancements in medical sciences and practice. It was a great critical point in the medicine development in history. Also, the history of medical evaluations including preclinical evaluations, animal researches and clinical studies should be reconsidered, and Rhazes can be credited as the first person who included such views into medical practice.

Akhawayni (d. 983)

Akhawayni (who was called as Joveini in Latin) was born in Bokhara, a city in the northeast of Old Persia, in early 10th century AD and thus became known as Al-Bokhari. Bokhara was a great and important city, located on the Silk Road, Persia at that time was ruled by the Samanid dynasty, the first Persian kingdom that rose after the Muslims defeated, in 637 AD, the Sassanid Empire, the last ancient Persian dynasty. Akhawayni lived and worked in Bokhara and also in Tus (a city in eastern Iran). He studied medicine under Abu al-Qasem Maqanei Razi who was the student of Rhazes, the renowned Persian physician and chemist. He documented his 20 years' experiments of medicine in four manuscripts, Kitab al-Nabz (the book on the pulse), Kitab al-Tashrih (the book on anatomy), Qarabadin (pharmacopeia) and **Hidayat al-Muta'allimin fi al-Tibb** (The Students' Handbook of Medicine, the only book surviving today). Hidayat is the first medical textbook written in Persian in the Islamic era. In the Islamic Golden Age most of the scientific writings were in Arabic, the Franca Lingua of that period. But Akhawayni broke this tradition and wrote in his native Persian (Farsi). The book includes 184 chapters (Bab) covering wide aspects of medicine. It seems his main interest in medicine was psychiatry and especially melancholy, thus becoming known as **Pezeshk-e-Divanegan** (Physician to the Insane). He died around 983 AD and was buried in his hometown.

He has many innovations and findings in medical issues like early differentiation between seizure and hysteria, early differentiation between nerves and tendons, early descriptions of meningitis and first report of fever curve.

Hally Abbas(982-949)

Ali ibn Abbas Majusi Ahvazi, also known as Haly Abbas in the west, was a renowned Persian physician of his era. He is regarded as the first scientist who rejected ancient Galenic principles of medicine and who tried to present a new kind of medicine, based on observational data. Haly Abbas was born in Arejan, a city near Ahvaz, southwest of Persia (presently Iran), in 949 AD. Although he was a Muslim, his father (Abbas) and ancestors belonged to a famous family practicing Zoroastrianism (a Persian religion predating the Islam). Therefore, he was known as 'Majusi', a name referring to Zoroastrian followers. After primary schooling in his native town, he moved to Shiraz and was educated in medicine by the prominent Persian physician Abu Maher Shirazi. Later, he set off for Baghdad and became the court physician to Azod od-Dowleh Panah (Fana) Khusraw (936-983), an emir (King) of the Buyid dynasty in Persia. Haly Abbas was also one of the prominent physicians attending the Azodi Hospital in Baghdad. During his time in Baghdad, Haly Abbas wrote a large medical encyclopedia entitled Kamil al-Sinaa al Tibbiya (The Perfect Book of the Art of Medicine) or al-Maliki (The Royal Book), dedicated to the king. The main part of this book was translated into Latin by Constantinus Africanus (1015-1087), under the title of Pantegni, without any reference to Haly Abbas; apparently, this is one of the oldest documented cases of plagiarism in the history of medicine. Around 1127, Stephen of Pisa translated the entire book in Antioch (under the name of Liber Regius or Liber Regalis Dispositionis). This book was frequently reprinted in the west. The Royal Book became one of the main reference books for medical practice and teaching during that period. Although, some historians believe that the Royal Book is more comprehensive and also better classified than The Canon of Medicine by Avicenna (1025 AD), it has for Avicenna's work. On his death, in 982, Haly some reason always been eclipsed by Abbas was likely buried in Baghdad or else in Shiraz (the exact site is unknown). He lived during the period of great Islamic and Persian scholars. He was aware of many sources of ancient medical knowledge, including Persian, Indian and Graeco-Roman. He added his own observations and treatments to this previous knowledge and integrated all this in the comprehensive account of medicine he left to later generations, especially in his Liber Regius. This book had a marked influence on Avicenna (980-1037). Haly Abbas is therefore regarded as the bridge connecting ancient and medieval times, and also between western and eastern worlds.

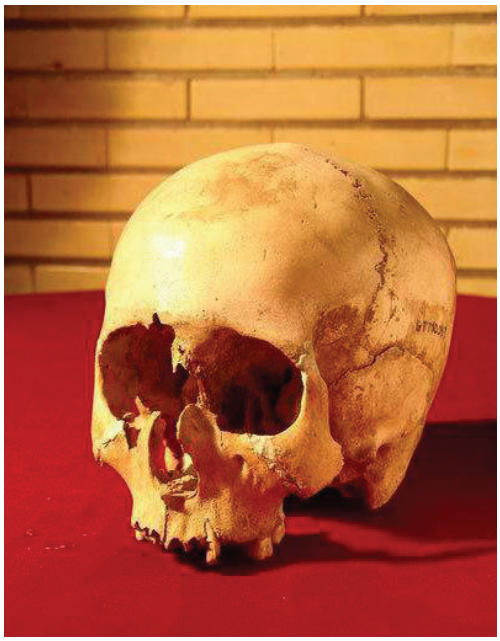
Avicenna(1032-980)

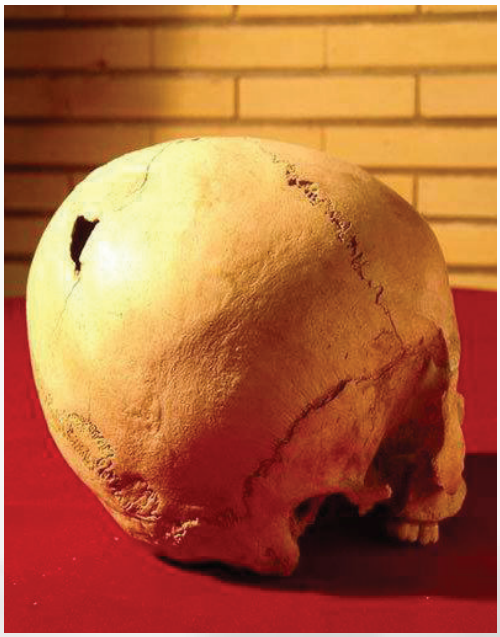
Ibn Sina, called Avicenna in West, was born in Afshaneh, a city in northeast of old Persia in 980 A.D. His father, Abdollah, was a local governor and Setareh was the name of his mother. Avicenna showed his intelligence when he was only a child. He finished learning Persian literatures as well as Quran when he was 10 years old. Then, he started learning philosophy and medicine and became a famous physician at 18 years old. In that age, he gained a special opportunity to use and access unique books in royal library as a gift when he could treat Nuh, the prince of the Samanid dynasty. Later, he went to Jorjan when Samanid dynasty was defeated by Mahmood Ghaznavi, the king of Ghaznavi dynasty. During next years, he traveled around Persia and stayed in Ray (near Tehran), Hamadan (west of Persia) and Isfahan (center of Persia). He had political positions and also related challenges. He became prime minister as well as political prisoner when he stayed in Hamadan when Shams al-Douleh was the king of that era. He wrote some of his books in prison. He stayed in Isfahan in the last years of his life and finally died because of a chronic disease

during his travel to Hamadan, where he was buried. Avicenna was one of the most influential scholars in the progress of medical sciences throughout the history. His great medical encyclopedia, the Canon of Medicine was known as a medical textbook in western and eastern universities until 17th century AD. Due to his crucial findings and great influence on science, he was famed and called as "Sheikh-alRa'eis" in Persia and "Prince of Physicians" in the West. Nowadays, his birthday (23 August) is celebrated as "the day of physicians" in Iran.

Jorjani(1137-1042)

Jorjani (Hussain ibn Muhammad ibn Mahmoud ibn Ahmad Hussaini Jorjani) was born in Jorjan, a city in the northeast of Iran, on April 19, 1024 AD. He completed his medical education under Abd al-Rahman ibn Ali ibn Abi Sadegh (995-1077 AD), who is often regarded as the second Hippocrates, together with Ahmad ibn Farrukh, author of the medical encyclopedia The Essentials. In addition to medicine, Jorjani was also interested in Islamic jurisprudence and Sufism. In 1110 AD, he moved to Khwarazm, the capital of the Kharazmshahi dynasty to become court physician of Qutb al Din Mohammad. There, he was later nominated director of the large municipal hospital and pharmacy. Finally, Jorjani settled in Merv, the capital city of the Seljuk dynasty, where he died in 1137 AD. Although, the lingua franca of the Islamic territories during the medieval time was Arabic, Jorjani changed this tradition and used Persian texts and terminology to describe medical subjects. Therefore, he is documented as the author of the first large medical encyclopedia in the Persian language during the Islamic era. He completed this comprehensive work at the age of 70, using his vast experience in medicine. This work, Zakhireye Kharazmshahi (Treasure of the Khwarazm Shah) is now regarded as the largest Persian medical encyclopedia, comprising more than 750,000 words and ten volumes; it can be compared with the Canon of Avicenna and the Continens of Rhazes. In addition to his own experience, Jorjani expanded on the experimental findings of Rhazes and rational descriptions of Avicenna, while he referred to various Persian, Greek, and Islamic scholars before him, with the intention to create standard medical terms in Zakhireye Kharazmshahi. His book covers nearly all aspects of medicine, including principles of medicine, human anatomy and physiology, etiology of diseases, health and hygiene, and nutrition; it also contains descriptions of medical procedures such as blood sampling, cupping and venesection, disease symptoms and their management, surgical approaches and pharmacology. He made numerous discoveries and innovations in medical issues; for example, he accurately described two types of facial palsy; spastic and paralytic. While the paralytic type would originate in the facial nerve, the spastic variety was muscular and secondary to spasm or inflammation of the facial or cervical muscles. Also, the description by Jorjani of the association between trigeminal neuralgia and arterial movements close to the nerve is a novel theory for his time. He was also the first to describe the relationship between exophthalmia and goiter. In his description of the optic nerve, Jorjani believed that light reached the brain through this nerve and he comprehensively described the optic chiasm.





The operated skull that was obtained from the ancient site of Sokhte city is one of the most important discoveries of archaeologists in the field of medical history. The skull belonged to a young girl aged 12 to 13, and the doctors of Sokhte city operated on her, but this The patient survived for at least several months after the surgery and then died. Archaeologists still do not know the cause of his death and could not answer the question whether he died due to an infection after the surgery or there was another reason.

Qutb al-Din Shirazi (1236-1311)

Qutb al-Din was born in Shiraz, south of Persia in 1236AD, and died and was buried in Tabriz in 1311. He was a polymath and had many manuscripts in the fields of philosophy, mathematics, medicine, astronomy, music, literature, and Islamic studies. He was mainly famous for his contributions to astronomy and philosophy. He also had important works in the field of medical sciences like Resaleh fi Bayan al-Haja ela al-Teb va Adab al-Atebba va Vasayehom [a manuscript on medical ethics], and Resala fi al-Baras [treaties on Vitiligo]. His great medical text is al -Tuhfa al-Sa'diya, a commentary on the first volume of the Canon of Medicine (written by Avicenna in 1025AD). He is called Allama (polymath) for his extraordinary expertise in almost all fields of contemporary sciences. The peaceful and cultural environment of his hometown and family contributed to his development despite a time of horror from Mongolian repeated invasions of the Islamic countries. Qutb al-Din never ceased learning and researching and migrated widely in order to find scientists to learn from them. He worked in many centers as a teacher and researcher. He practiced medicine and educated students, and his books on other fields of science reflect his comprehensive mastery of most of the basic sciences and the humanities. Qutb al-Din's social and political roles make him one of the paramounts of Iranian elites who contributed to the re-establishment of the Persian-Islamic civilization after its destruction by the Mongolians in the thirteenth century.

The artificial eye of the burnt city, as mentioned earlier, is about 4800 years old. Known as the first man-made prosthetic eye, this eye is hemispherical in shape and just over 2.5 cm (1 inch) in diameter. Its ingredients are very light and probably made of bitumen paste.

Mansur (14" century)

Mansur ibn Mohammad ibn Ahmad ibn Yousef ibn Ilyas, Mansur, was an anatomist and physician in Shiraz in the middle of the 14th century AD. He was a descendent of a scholar and of a knowledgeable family. He, a late 14th century anatomist and physician from Shiraz, published his illustrated book on anatomy. Mansur's anatomy (Tashrih-i Badan-i Insan) was written following the Mansur's medical synopsis, Kefaye Mojahedieh. The book is dedicated to Prince Pir Mohammad Bahador who most likely was the grandson of Timur (Tamerlane) and the Ruler of the Fars Province from 1394 to 1409. The book of Mansur is believed to be the first comprehensive anatomical illustrated manuscript containing two-dimensional pictures of the human body. This 14th-century treatise is composed in Persian and is organized into five articles on the skeleton, nerves, muscles, veins and arteries, each illustrated with a full-page diagram and with a final chapter including an image of a pregnant woman delivering a breech baby. These chapters have description part and related figure involving brief explanation. Mansur's illustrations were often used in other Persian or Arabic medical manuscripts for at least two centuries in Persia.

Hakim Mohammad (17" century)

Hakim Mohammad was a surgeon. contemporary with Shah Abbas the Great (1571-1629 CE) and Shah Safi I (1611-1642 CE), the fifth and sixth kings of the Safavid dynasty. He is the author of the book of Dhakhira-yi-Kamilah (The Perfect Treasury or the Treasury of perfection). Dhakhira-yi- Jarrahi (the Treasury of surgery) is another name of his book according to the manuscript of the book in the library Paris. There is insufficient information about this great surgeon, but he introduced himself in the preface of his book .It is only clear that he was born in Persia. Then, according to the contents of his book, it seemed he migrated to the Ottoman Empire in youth and had served as a medical officer in the Ottoman army. He accompanied the Ottoman army at least in one of the failed battles for the capture of Baghdad. In one case, he wrote that at least 20,000 soldiers had been wounded in his army during 3 days of war. In another case, he reported that despite the efforts of 19 surgeons in the Hafiz Ahmad Pasha camp, 4000 people died from 18,000 injuries. Later, he came back to his homeland and dedicated his book to the king of Persia. Dhakhira-yi-Kamilah is a unique clinical book which was totally written about the surgery in the Safavid period. The language of the book is Persian and was dedicated to Shah Safi I, the Persian king. It is one of the earliest written independent books on surgery in the history.