

Medicine in Stamps

Rhazes (835-925 A.D.): Medical Scholar of Islam

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Looking back we may say that Islamic medicine and science reflected the light of the Hellenic sun, when its day had fled, and that they shone like a moon, illuminating the darkest night of the European Middle Ages." (Arnold and Guillaume: "Legacy of Islam," in *Muslim History* by A. Zahoor, 1997).

Medicine languished for many centuries after the death of the Greek physicians Hippocrates and Galen, medicine's founding fathers. The bubonic plague, which started around 500 A.D., was partly to blame. It took its toll over the next 200 years and signalled the beginning of Europe's Dark Ages. War, disease, superstition and religious zealotry were rife. Physicians practised in isolation, and monks were the principal guardians of both the spiritual and physical health of the population. Around the 7th century, however, a newly inspired and emboldened sect - Islam - spread its influence over much of the Middle East and Europe. Islam resuscitated the dying culture of Greek medicine and richly fortified it with astute observations and scholarship.

A Page in History: Islam began in Mecca with Muhammad (570-632), to whom was revealed the spiritual teachings of the Qur'an (Koran). After an assassination attempt in 622, Muhammad and his followers fled Mecca for Medina and this became the first year of Islam, referred to as Hegira. Adherents of Islam are known as Muslims, and by the time of Muhammad's death, Islam had won over all of Arabia. Within the next 100 years, the Arabic Caliphs (Muhammad's successors) established the Saracen empire by extending the Muslim conquest to half of Byzantine Asia, Persia, Egypt, North Africa and Spain. The first Caliph was Abu Bakar, who immediately invaded the East Roman Empire and Persia. Successive Caliphs preserved Islam's hold for several more centuries but it eventually lost its influence, depleted by, even if triumphant over, the Christian Crusaders.



The Muslims were the cultural, literary and scientific leaders of their time. They introduced not only their religion and culture, but also the windmill, fireworks (also claimed by the Chinese), windowpanes, street lights and fruit cultivation. Arabic scholars were prodigious in philosophy, chemistry, astronomy, mathematics and medicine. For example, Jabir, an Arab alchemist, discovered nitric acid, arsenic and antimony, and invented numerous chemical techniques such as distillation. The Arabs gave us words like algebra, zero, syrup, algorithm and alcohol, and they bequeathed the Arabic numeral system, the alphabet of mathematics. And the world inherited the famed fables of the Arabian Nights, precious fairy-tales that immortalised their best known Caliph (the fifth), Haroun Al-Raschid.

Conduits of Greek medicine to the Western world, the Arabs came into possession of the original scientific and medical texts mostly through displaced Christian scholars, in particular the followers of Nestorius, a priest of Byzantium. They facilitated the translation of these texts into Syriac, Hebrew, and then into Arabic. These included the Corpus of Hippocrates and the writings of Galen, including his commentary on Hippocrates, and the works of Aristotle, Euclid and Ptolemy. Eventually, these writings were translated into Latin and propagated for widespread use throughout all of Europe.

It was during this period of Islamic ascendancy that Europe ushered in its first medical hero of the Dark Ages - Rhazes.

Rhazes, the Man: Rhazes, known formally in Arabic as Abu Bakr Muhammad ibn Zakaria Al-Razi, was born in Al-Rayy, a city only a few miles south of Tehran, Persia (now Iran). Little is known of his childhood except that he loved music, and that he was an accomplished lute player. At an early age, he developed an interest in philosophy, chemistry and medicine, and later trained in Baghdad under the

inspiring tutelage of Al-Tabari, the author of a famous book "Paradise of Wisdom." Upon returning to his hometown, Rhazes soon headed the local hospital, but the Caliph Al-Mansour recruited him to direct a new hospital in Baghdad. In order to choose the best site for the hospital, Rhazes hung fresh meat at several locations, and watched for putrefaction to occur. He then chose the site where this was slowest to develop, on the correct hypothesis that putrefaction was linked to the environment, and a hospital should be erected where the air was least noxious.

The great Rhazes became blind as he aged. The story is told of his being repeatedly struck on the head with one of his own books after the Caliph learned of a failed experiment. This was reputed to eventually cause him to go blind. Another theory attaches blame for his failing eyesight to his fondness for reading. In truth, it was probably glaucoma that led to visual loss. Rhazes distrusted his colleagues and steadfastly refused to seek medical attention. He died a blind pauper at the age of 90.

Rhazes, the Clinician: Rhazes was renowned for his clinical acumen, and many patients came from afar to seek his expertise. He was a fastidious worker and took great pains to elicit a detailed medical history. He put his observations in writing and paid special attention to the social, family and psychological history. He was a revered teacher and was insistent on using the differential diagnosis approach, a methodology that continues to underpin modern day clinical medicine. Moreover, he recognised that similar signs and symptoms could be caused by a variety of conditions, and so spent considerable effort in learning to differentiate between colitis, renal colic, and ileus. Most of all, he understood the importance of listening to and examining every patient. In so doing he rejected the custom of the time that promoted the examination of the urine but not of the patient himself.

Although a staunch follower of Galen, Rhazes did not hesitate to disagree with his Greek predecessors. In some cases he was correct, as when he concluded that copious urine formation in the winter was due to less perspiration, rather than to excess sediments as the Greeks believed. He was sometimes wrong - as when he challenged the Hippocratic teaching that it was a poor prognostic sign when an edematous patient developed a cough as it indicated that "water had reached the lungs." Rhazes thought that water had accumulated below the diaphragm (he must have observed ascites in some of his patients with heart failure), and concluded that it pushed the diaphragm upwards to cause coughing and difficulty in breathing.

Calling the art of healing "a sage and solid science," Rhazes cautioned that: "If a patient consults too many

physicians, then he becomes confused and his recovery is delayed." He was one of the first to appreciate the influence of the psyche on the physical condition, and he used the salutary role of music to promote healing. As teacher, he urged his students "to behave in manner and virtues, stressing on the holiness of the medical profession, opposing all kinds of jugglery, caring much with healing the poor free of charge and even give them money."

Rhazes, the Author: It should come as no surprise that Rhazes the careful clinician was also a prolific author. His best known work was the encyclopaedic 22-volume "Continens" (Al-Hawi) which was completed only after his death by his disciples. Continens was translated and reprinted several times, and became the reference textbook of medicine in Europe well into the mid 16th century. This encyclopaedia was not a mere translated version of Galenic thoughts. It contained all recorded teachings in Greece, Persia, India and Syria, as well as Rhazes' personal observations and experiences regarding physiology, diagnosis and treatment. Unfortunately, only ten of the 22 volumes have survived to the present day.

Rhazes was known for another important book, one describing smallpox and measles. His keen observations of these two diseases allowed him to describe their presenting signs and symptoms, and the ways to tell them apart. He recorded the relationship between fever, contagiousness and rash, and the precautions for reducing the spread of the diseases and scar formation. He had many other books to his name: books on philosophy, nutrition, drugs, chemistry and spiritual medicine. In total, Rhazes wrote some 224 books, including a treatise entitled: "Reasons for catching cold in Spring after smelling roses." Through sheer force of logic and careful observation, he had stumbled upon the condition of pollen allergy. And like his brilliant hypothesis on the relationship between putrefaction and air purity, the genius of Rhazes was on full display - "a moon, illuminating the darkest night of the European Middle Ages."

REFERENCES

Materials for this essay were excerpted or adapted from the following sources: Asimov's Chronology of the World 1991; The Doctor in History by Howard W. Haggard 1986; A Short History of Medicine by Erwin H. Ackerknecht 1982; The Greatest Benefit To Mankind by Roy Porter 1997; A History of Medicine by J. Sutcliffe and N. Duin 1992; Muslim History by A. Zahoor 1997; El Gammal SY. Rhazes' Contribution to the Development and Progress of Medical Sciences. Bull. Ind. Inst. Hist. Med. 25:135-49, 1995.