

Al-Razi (Rhazes), and Independent Medical Thinker Who Gave the First Description of Measles and Smallpox and Distinguished between Them

Nāsir pūyān (Nasser Pouyan)

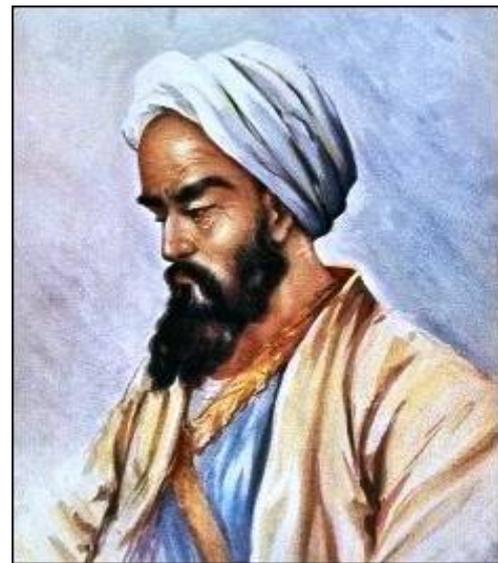
Tehran, Iran

Abstract Among the greatest physicians of Medieval Centuries was undoubtedly al- Razi (Rhazes) who wrote more than 200 books and treatises on a variety of subjects. In his famous “De variolis et morbillis” (A Treatise on the Smallpox and Measles), he gave the first accurate descriptions of smallpox and measles and distinguished between them. Al-Razi’s al-Hawi (Liber Continens) summarized the medical and surgical knowledge of his time. His fame rested on clear-cut clinical description of illness, original observations, and a pragmatic approach to treatment. He was exceedingly generous in treating the poor, and never ceased to stress that a good physician must love and help his patient. Chaucer wrote in his prologue to the “Canterbury Tales” naming the great physicians of the past that his audience could be expected to recognize them. In the list al-Razi was one of the nine international physicians.

Keywords Al- Razi, Rhazes, Chaucer, Smallpox, Measles

Abū Bakr Muhammad bin Zakriyyā known to the Arab al-Rāzī, the Persian Rāzī, and to the Latins Rhazes (c. 250/ 854-313/ 925)¹, outstanding Iranian musician, philosopher, and alchemist that is considered the greatest physician of the Islamic world. He wrote many medical texts on a variety of topics including alchemy (chemistry), anatomy, physiology, and ethics – much of which has been lost and a few of them have been translated. His "al-Hāwī (Liber Continens), an encyclopedia of medical practice and treatment, and "De variolis et morbillis" (A treatise on the Smallpox and Measles) in which he gave the first accurate description of the two diseases and distinguished between them. Al-Rāzī also described diabetes mellitus, pregnancy, the sex organs, and advised dietary regimes. He had some understanding of blood circulation², around 1000 years ago [1].

Al-Hawi was edited at the instance of Ibn al-Amid, the vizier of Rukn al-Dowla. It was translated as the Continens in 1279 by the Jewish physician Faraj bin Salīm employed by King Charles of Anjou to translate medical works, and it was printed at Brescia in 1486 with repeated printing thereafter.



Rhazes, outstanding Iranian physician who distinguished between measles and smallpox

* Corresponding author:

nasser_pouyan@yahoo.com (Nasser Pouyan)

Published online at <http://journal.sapub.org/microbiology>

Copyright © 2014 Scientific & Academic Publishing. All Rights Reserved

1. The Events that Made Al-Rāzī to Study Medicine

Al-Rāzī in his early thirties became interested in music and was a skilful player of lute as well as a singer. He wrote an encyclopedia on music, “Fi Jamāl il-musīqī” (“On the Beauty of Music”), but al-Rāzī abandoned it on the grounds that it "proceeded from between the moustachio and the beard". Al-Rāzī at the same time studied philosophy and

¹The place and date of his death are not certain. The earliest date that any authority gives us is 912AD. Ibn Khalikan made it occur in 923AD. Ibn Juljul and Hājji Khalifa place it 932. Al-Birunī Iranian exact chronologist asserts that it happened on 26 October 925 at Ray.

² William Harvey (1578 – 1657), British physician discovered blood circulation in 1628, after more than 700 years of al-Rāzī’s demise.

ethics from Sahl al-Balkhi and wrote poetry on metaphysics. He earned his living as a money changer³.

When al-Rāzī was about 30 years old, for the first time, he visited Baghdad and Muqtadiri Hospital and became interested in a conversation with the old pharmacist. Next day again he visited the hospital and a physician showed him a human foetus with two heads. These two events made him determined to study medicine. He probably received a thorough grounding in the art of medicine⁴.

On his return to Ray, Rhazes became the mutawallī (administrator) of the hospital of the so-called city. Between 902 and 907 he returned to Baghdad and took charge of the Muqtadiri Hospital⁵ in that city [2].

2. The Most Influential of Al-Rāzī's Medical Works in Europe

Al-Mansurī a relatively small textbook on medicine in ten chapters that al-Rāzī had dedicated to al-Mansur bin Ishāq the Sāmānīd governor of Ray in 930 AD, was translated into Latin in Toledo by Gerard of Cremona. It was known as "Liber ad Almansorem" which became one of the most widely read medieval treatise in Europe. The ninth chapter of this medical work, concerned with therapeutics, was frequently circulated by itself. During Renaissance several editions of al-Mansurī were printed with commentaries by prominent physicians of the time, such as Andreas Vesalius (1514-1564) outstanding Belgian anatomist, surgeon, and the author of *de Humani Corporis Fabrica* (Fabric of the Human body).

Al-Rāzī's *Kitāb al-Hāwī fi'l-tibb* (Comprehensive Book of Medicine), a large private notebook into which he had placed extracts from earlier authors regarding diseases and therapy, together with clinical cases he had recorded from his own experience [3].

Apart from some criticism, Haly Abbas (d.994) important Iranian physician praised al-Hāwī and wrote: "as to this book which is known as al-Hāwī, I found that he mentions in it everything the knowledge of which is necessary to the medical man, concerning hygiene and medical and dietetical treatment of diseases and their symptoms. He did not neglect the smallest thing required by the students of this art concerning treatment of diseases and illnesses... [4]"

³ Ibn abī Usaybi'a says that he possessed a copy of one of al-Rāzī's works inside which was written in the handwriting of Razes himself: "A Compendium of the Mansurī, written by Muhammad bin Zakariyyā al-Rāzī the Money Changer." (Ibn abī Usaybi' a, vol. I, p.314).

⁴ According to al-Qiftī, al-Rāzī studied medicine under Alī bin Sahl al-Tabarī in Ray. All medical historians have been contended to accept al-Qiftī's statement, but Max Meyerhof, seeing that al-Tabarī was at least 15 years old when al-Rāzī began to study medicine, it became unlikely. (Cyril Elgood, A Medical History of Persia and The Eastern Caliphate, p.196)

⁵ Al-Rāzī lived in the Darb al – Nafal (the Street of Lucerne) in Baghdad. This street was almost in the al – Karkh quarter of Baghdad. Because here also to be found some streets with similar names, Myrtle Wharf, the Barley street, and the Pomegranate Bridge. Muqtadiri Hospital, was too situated in this quarter, near the bridge over the Karkhiya Canal.

3. Favorite Authority

Al-Rāzī was a favorite authority of Islamic men and women medical practitioners. In the Islamic world women like men were allowed to practice medicine. The so-called women would have known of herbal remedies recorded by al-Rāzī. Here is a prescription intended to help an inflamed liver:

- Take of red roses, ground fine, 10 drachms;
- Tabasheer, 20 drachms;
- Sumach;
- Broad leaves Dach seed;
- Lentiles peeled;
- Barberries;
- Purslain seed;
- White lettuce seed, each of 5 drachms;
- White sanders, 2 and 1/2 drachms;
- Common Camphor, 1 drachm;

"let the patient take 3 drachms of this powder every morning in an ounce of the inspissated⁶ acid juice of citrons ... or the inspissated juice of pomegranate⁷, or the juice of unripe grapes and the like... [5]"



Rhazes is working in the laboratory. (Imaginary illustration.)

4. Al-Rāzī amongst Chaucer's Great Physicians

Geoffrey Chaucer (c.1340-1400), the founder of the English poetic tradition wrote in his prologue to the "Canterbury Tales" naming the great physicians of the past that his fourteenth-century audience could be expected to recognize. In his list are five Greek medical personalities: Aesclepius (c.1250 BC) ancient Greek physician, mentioned in Homer's Iliad and the focus of a Greek healing cult; Hippocrates (460-377 BC) father of medicine and Greek physician and teacher; Rufus of Ephesus (98-117) in Asia Minor, who wrote "On the Interrogation of the Patient;" Dioscorides (c.AD 40-90) Greek physician who collected plants and produced a *Materia Medica* which formed the basis of pharmaceuticals for centuries; and Galen (129-200)

⁶ Inspissated means thickened or reduced by boiling.

⁷ In Islamic Medicine pomgranate juice was used a great deal.

famous Greek doctor and prolific writer and the most influential figure in the history of medicine.

Chaucer then goes on to name great physicians from the Islamic world: Haly Abbas (d.994) Iranian physician and medical encyclopedist of Islamic world; a Syriac physician of the ninth century named Ibn Sarabiyun (Serapion); al-Rāzī who wrote *Kitab al-Hawi*; and Ibn Sina (980-1037) Iranian physician, called the prince of physicians who wrote an enormous and influential *Canon of Medicine* [6].

Here is Chaucer's prologue to the *Canterbury Tales*:

"With us ther was a Doctour of phisyk
In al this world ne was ther noon him lyk
To speke of phisik and of surgerye ...
Wel knew he the old Esculapius,
And Deiscorides, and eek Rufus,
Old Ypcras, Haly, and Galien,
Serapion, Razis, and Avicen... [7]⁸"

5. Al-Rāzī's Leading Interests

He was theoretically interested in the art and science of medicine (prevention, cure of disease especially by drugs, diet and surgery) as well as medical ethics. Al-Rāzī argued that supernatural forces did not cause ailment and disease, and should be treated only by physician and medicine (including diet). He wrote on the topics such as:

"The reasons for people's preference of inferior physicians,"

"A mistaken view of the function of the physician,"

"Why some people leave a physician if he is intelligent,"

"That an intelligent physician cannot heal all the diseases, since that is not possible,"

"Why ignorant physicians, common folk, and women in the cities are more successful than scientists in treating certain diseases-and the physician's excuse for this."

His ethical writing follows the precedent and procedure in treating ethics as a kind of psychic medicine or clinical psychology of Islamic scholar al-Kindi (9th century); this was an approach later used by Avicenna Latin name for Solomon bin Gabriel (c.1021-c.1069) Jewish philosopher and poet, and Maimonides (Moses bin Maimon, 1135-1204) Hispano- Jewish physician and philosopher [8].

⁸ It is to be noted that in this list are five figures:

Esculapius (Aesculapius or Asclepius), the focus of Greek healing cult; Ypcras (Hippocrates) as Chaucer called him, whose name is associated with a fundamental collection of medical writings; eek Rufus (Rufus of Ephesus) who composed over sixty Greek medical treatise; Deiscorides (Dioscorides) Greek physician and pharmacologist who served as a surgeon in the Roman Emperor Nero's army; and Galien (Claudius Galen), the most famous of the Roman physician who founded the Galenic system of medicine.

Three others are: Haly ('Ali ben al-'Abbas al-Majusi al-Arriyani) commonly known to the West "Haly Abbas" Iranian great physician whose principal work, *Kamil al-Sina'a al-Tibbiya* (The Complete Medical Art) was divided into two sections on theoretical and practical medicine; Syriac Serapion (Ibn Sarabiyun); Razis (al-Razi); and Avicen (Ibn Sina) a famous and influential Iranian physician and philosopher- scientist who wrote a vast scientific and philosophical encyclopedia, *Kitab al-Shifa* (The Book of Healing) and *al-Qanun Fi'l-Tibb* (The Canon of Medicine).

Al-Rāzī became well-known for the humane and successful treatment of the poor and impoverished sick. Not only he was outstanding in his generosity and always willing to treat and help the poor, he stirred movements in many areas including treatment and teaching. Students and physicians thronged to his lectures and apparently he was also a brilliant beside teacher. He revered learning and based his knowledge on the book of authenticics. But he was also an independent thinker, not afraid to rely on his own observations when they contradicted the past; he counseled others that "all that is written in the book is worth much less than the experience of a wise doctor [9]."

Al-Rāzī as a chief physician of Baghdād his fame spread through the lands of Islamic world and his medical services were in constant demand even in distant cities. As Persian doctor he had a warm and helpful corner in his heart for the Persian patients [10].

Towards the end of his life, he was slowly increasing blindness. Eventually, "he became blind in his last years [11]."

Al-Rāzī, despite of large fees and honors he received, his generosity, to less fortunate left him poor at time of death [12].

6. A Selection of Al-Rāzī's Famous and Important Works

The famous and significant of his writings are:

1. *Kitāb al-Hasā fi'l-kulā wa'l-mathāna* (Stones in the kidney and bladder).

2. *Kitāb al-Djadari wa'l-hasba* (Smallpox and Measles) which was translated over a dozen times into Latin and other European languages. Rhzes was the first who described and differentiated smallpox and measles.

3. *Tibb al-ruhāni* (the "Spiritual physick" or "Psychological medicine,") which embodies al-Rāzī's largely Epicurean (fond of pleasure and luxury) ethical system. The *Tibb al-ruhāni* written for al-Mansur as a companion of the al-Mansuri, develops a moderately ascetic ideal from the premise that all pleasures presuppose a prior pain (or dislocation).

4. *Tibb al-fuqarā* ("Medicine for the poor" or "Man lā yahdarahu al-Tabib") means "The one who does not need to visit a doctor." An ethical medical work for a person who may not have easy access to a physician could use the book for self-remedy. This work printed in Iran and abroad.

5. "Bor'os-sā'a" ("Fast treatment" or "Cure within the hour"), a medical work that has received more notice than most. It was translated into Persian under the title *Tuhfa-i-Shāhi* by Shaykh Husayn Jabiri al-Ansāri about 1700 AD for the use of Sultān Muhammad A'zamshāh of Delhi and by Muhammad Husayn bin Karam Alī under the name of *Dastur al-Tibb*. It also has been translated into French by Dr. P. Guigues of Beirut under the title of "La Guérison en une Heure, par Rhazes".

6. Al-Rāzī's pamphlet, "Of habit which becomes natural," anticipates the conditioned reflex theory of Charles S. Sherrington (1857 – 1952) British physiologist and Nobel laureate.

7. Al-Rāzī by writing a monograph on "Diseases in Children" he may be called the founder of paediatrics.

7. Conclusions and Impact

The greatest clinician of early tenth century Iranian physician al-Razi known in the West Rhazes based his medical and anatomical knowledge largely on Galen and was in turn translated into Latin and revered as authority in the medieval Europe. He gave the first accurate description of smallpox and measles, and distinguished between them. Al-Razi also had some understanding of blood circulation. His persuasive *Kitab al- Mansuri* ("Liber ad Almansorem") become one of the most widely read medical manuals for over 1000 years, while its ninth chapter concerned with therapeutics was frequently circulated by itself, and became a major work in European medical schools rivaling Galen and Avicenna. It is also probably the first book since ancient times to discuss dental anatomy.

The most sought- after of his composition was *Kitab al-Hawi fi'l-tibb* ("Comprehensive Book of Medicine") a large private notebook which was translated rather late into Latin, in 1279 under the title *Continens*. It was printed at Brescia in 1486 with repeated printings thereafter.

Through the clarity of writing and his influence over students and contemporary physicians he brought much of Greek medicine to the Arabic and Islamic world.

REFERENCES

- [1] H.S.J. Lee. *The Medical Millennium*. The Parthenon Publishing Group, New York – London, 2000, p.86.
- [2] Cyril Elgood. *A Medical History of Persia and the Eastern Caliphate*. Cambridge University Press, 1951, pp.196 and 197.
- [3] Irvine Loudon. *Western Medicine, An Illustrated History*. Oxford University Press, Oxford-New York, 1997, p.45.
- [4] Cyril Elgood. *A Medical History of Persia and The Eastern Caliphate*. Pp.199 and 200.
- [5] Jennifer Cochrane. *An Illustrated History of Medicine*. Tiger Books International, London, 1996, p.87.
- [6] Irvine Loudon. *Western Medicine, An Illustrated History*. Oxford University Press, Oxford-New York, 1997, p.40.
- [7] Irvine Loudon. *Western Medicine, An Illustrated History*. P.40.
- [8] Irvine Loudon. *Western Medicine, An Illustrated History*. P.40.
- [9] E.J. Brill. *Encyclopedia of Islam*. London, Luzac & Co, 1986, p.475.
- [10] Albert S. Lyons. *Medicine, An Illustrated History*. Abradale Press, New York, 1987, p.310.
- [11] Cyril Elgood. *A Medical History of Persia and the Eastern Caliphate*, p.197. Consult *Encyclopedia International*. Grolier, New York, 1915, vol. 9, p. 35; Roy Porter. *The Cambridge Illustrated History of Medicine*. Cambridge University Press, 1998, pp. 63, 67, 68; Malvin Ring, *Dentistry, An Illustrated History*. Abradale Press, New York, 1985, pp.61, 66 and 105; Anton Sebastian. *Dates in Medicine*. The Parthenon Publishing Group, New York – London, 2000, p.6; H.S.J.Lee. *The Medical Millennium*. The Parthenon Publishing Group, New York – London, 2000, p.86; Mahmud Najmābādī, *Tārīkh – i Tibb dar Iran pas az Islam*. Tehran, Danishgāh- i Tehran, 1375/1996, pp.324-442; MT. Sarmadī. *A Research on The History of World Medicine and Treatment, "Pioneer and Islamic Medicine"* (Book 1). Translated by S.K. Zanjānī, 1st ed. Tehran, Sarmadi Publication. pp. 310 – 343; M.T. Sarmadī and Nasir Puyān. *Al-Rāzī (Rhazes) The Axis of World Medical Works*. Sarmadi Publications. Tehran, 2013, (all pages).
- [12] Albert S. Lyons. *Medicine, An Illustrated History*. P.310.
- [13] *Ibid*. P. 310.