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## Acid Test

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## Ibn Sina (Avicenna) 980-1037

### A Great Physician and Scholar of the Medieval Era

There is no doubt that Western civilization has made invaluable contributions to the development of modern sciences; however, scientific progress did not start suddenly, exclusively, in Europe, or appear out of nowhere in the 16th century. European and American history acknowledges the work and scientific advancement done by Greek and Roman scholars until the 3rd century A.D. It picks up again in 1500 A.D. at the beginning of the Renaissance.

Did nothing happen in the sciences between 300 and 1500 A.D.? Very little is mentioned about the history of social, political or scientific development in traditional history texts. Historian Harold J. Morowitz described this phenomenon as "History's Black Hole." He asserts that the impression given is that the Renaissance arose, phoenix-like, from ashes smoldering for a millennium of the classical age of Greek and Rome.<sup>1</sup> In fact, the period between 300-1500 A.D. is regarded as the Dark Ages for Europe, as scientific progress there remained dormant. Virtually no progress was made especially in the field of medicine. During this time, the powerful and authoritarian Roman Catholic Church viewed care of the soul as far more important than care of the body; thus, actual treatment of physical illness was little valued. Prayers became the primary mode of treatment. The study of disease and patient care were neglected. Any knowledge of medicine was limited to studying the writings of ancient physicians; consequently, the practice of surgery was almost abandoned.<sup>2</sup>

In another part of the world, the Islamic civilization was emerging. During the 6th and 7th centuries, medicine was the first of the Greek sciences to be studied in depth by Islamic scholars. After Plato's academy was closed in 529 A.D., some European scholars, including physicians, found refuge in Jundeshapur, the old capital of Persia, in what is now known as the Middle East. Jundeshapur became part of the Muslim world in 636 A.D. and, for the next two centuries, took its place as one of the greatest centers of medical teaching. Muslim physicians studied Hippocrates, Galen and other Greek physicians. They were also exposed to the acquired medical knowledge of Roman, Indian and Chinese scholars. These physicians translated all the great texts into Arabic, preserving this body of knowledge from extinction. The medical works of Galen and Hippocrates were reintroduced to Europe through Latin translation of the Arabic translations of Hippocrates and Galen, along with the original research and scientific study of Muslim scholars.

These early Muslim physicians recognized that the knowledge of medicine included studying the human body, diagnosing ailments and treating them with appropriate medications as well as surgical interventions. They established hospitals, medical schools and written medical textbooks. These books were widely used in Europe until the 16th century. Muslim physicians made accurate diagnoses of a variety of illnesses such as plague, diabetes, gout,

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epilepsy, cancer, various infections and surgical disorders. They set down the principles of observation, clinical investigations and drug trials. They mastered surgical skills and devised new tools, filled teeth with gold, introduced optics and described in detail the fundamentals of diet and hygiene, many of which are still valid today.

Among well-known Muslim physicians, the most famous is Ibn Sina (Avicenna). Abu Ali Hussain Ibn Sina was born in the Persian province of Balk (now in Afghanistan) in 980 A.D., and moved to Bukhara (now Uzbekistan) during childhood. Ibn Sina was the most brilliant medical scholar, philosopher and educator in the world at the beginning of second millennium. He is also called Al-Sheik-Al Rais (The Prince of All Learning), because of his vast knowledge, which included medicine as well as many other disciplines such as mathematics, philosophy, logic and religion. He did original research and contributed to the development of all sciences. Through his efforts, medicine recorded an unprecedented progress.

Ibn Sina would be considered an intellectual prodigy by any standard. By the age of 10, he had mastered the Arabic language and the Qur'an. By age 14, he had studied philosophy, mathematics, astronomy and the Greek language. He examined Aristotle's philosophy and logic, Porphyry's Isagoge, Euclid and Ptolemy's Astronomy and other sciences. At age 17, he learned medicine, and within a few years, his reputation as an expert physician was so well-established that he was appointed as King's physician. He traveled to several large cities in the region, including Jargon, Ray, Hamadan, Isfahan (Iran) and Baghdad. Ibn Sina started writing at the age of 21 and wrote more than 200 books on philosophy, astronomy, theology and medicine. He excelled in the knowledge of logic and philosophy, and reintroduced Aristotle to Europe through his writings.

Ibn Sina's most significant contribution to medical science was his famous book "Al-Qanoon Fil Tibb" ("The Canon of Avicenna"). It was the pre-eminent medical encyclopedia of that time and remained a standard textbook of medicine for the next 700 years. In addition to bringing together all of the current knowledge, Ibn Sina made original contributions to this five-volume text. The first volume deals with anatomy, physiology and pathology, with emphasis on the importance of dissection of the human body. The second volume describes the general principles of treatment, and pharmacology. The third and fourth volumes consist of diseases of all organs of the body, special pathology of fevers, and signs and symptoms of known diseases. The fifth volume describes a disease that starts in one part of the body but subsequently affects several parts of the body.

Unique for its time, Ibn Sina's work indeed gave a different perspective and clarified the knowledge of medicine. He made a

comprehensive attempt at collecting, systematizing, as well as updating, the data with personal observations and original research. The fragmentary and unorganized Greco-Roman medical literature that had been translated into Arabic was reorganized in order to produce a coherent and orderly medical system. The encyclopedic work of Ibn Sina included the entire medical knowledge available from ancient to the most current sources. Due to Ibn Sina's systematic approach for perfection and its intrinsic value, the Qanoon (Canon) superseded the work of Galen and remained superior for six centuries.

Ibn Sina was the first physician to describe guinea worm infestation and anthrax. He was the first physician to discuss the theory that small organisms may be responsible for infectious diseases, 1,000 years ago, and advocated the use of broad mold organisms in the treatment of non-responsive open wounds. He described trigeminal neuralgia and facial paralysis of central and peripheral types. One important, original contribution included his recognition of the contagious nature of phthisis and tuberculosis; the distribution of diseases by water and soil; and, the interaction between psychology and health. Ibn Sina wrote separate chapters on cardiac drugs for the elderly. He also discussed the treatment of anxiety, depression and melancholia.

The Qanoon was translated into Latin and Hebrew. About 30 editions were published in Europe. The last Italian edition was published in Rome in 1593. Until the 17th century, half of the medical school curriculum in Islamic and European countries was based on Ibn Sina's book Al-Qanoon.

Other noteworthy books by Ibn Sina include "Isharat," focusing on philosophy and logic. He contended that logic does not discover truth but helps man make best use of his qualities and prevents him from making wrong decisions. In another, "Kitab Al-Shifa" ("A Book of Healing"), he described a detailed method of preparation of medications (simple and compound), medical ethics and philosophy. Ibn Sina writes his observations and encourages discussion on Platonic philosophy and Islamic theology.

Sir William Osler, the father of modern medicine, sums up Ibn Sina's personality in this way: "We cannot understand  
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the sway exercised by Avicenna (Ibn Sina) for three or four centuries. Mentally to live and move in the medieval mind is not given to many, and the knowledge most of us have of Rais (The Chief) is a third or fourth hand. Students like Carre de Vaux were eloquent over the precocity of Ibn Sina's talents, the quickness and loftiness of his intellect, the clarity and force of his thought, the multiplicity and extent of his work, the impetuosity and variety of his passion. Regarded as a resume and symbol of all human activities, he stands out as one of the great personalities in a great civilization. His enthusiastic biographer, Carre de Vaux, does not hesitate to say, "Netemps, ne presentment plus de figure." Translated, this means, "Never time will present a comparable figure since encyclopedic knowledge no longer exists."<sup>4</sup>

A fitting closing to this article is Ibn Sina's opening of the Qanoon: "Medicine is a science from which one learns the status of human body with respect to what is healthy and what is not, in order to preserve good health when it exists and restore it when it is lacking."<sup>3</sup>

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M. Basheer Ahmed, MD, was born in Hyderabad (DN), India. He obtained his medical degree from Dow Medical College, Karachi, and completed his postgraduate studies at Glasgow University, Scotland. He is board certified in psychiatry and is a distinguished life fellow of the American Psychiatric Association. He was assistant professor at Albert Einstein College of Medicine, NY, and Prof. of Psychiatry at Southwestern Medical School, Dallas. He recently retired from private practice in Fort Worth. Dr. Ahmed is the past president of the Islamic Medical Association, North America. He is the Vice President of the Institute of Medieval and Post Medieval Studies. He edited a book, "Muslim Contributions to World Civilization," which was published in 2005.

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