

# Ibn Sina

## The Islamic Polymath

– Written by Alan Weber, Qatar

Abu 'Ali al-Husayn ibn 'Abd Allah ibn Sina (980-1037 C.E.) or Avicenna as he was known in the West, was one of the great Islamic polymaths (a person of wide-ranging knowledge). He made original contributions to almost every field of knowledge in his day, including philosophy, medicine, psychology, logic, philology and mathematics. Fortunately he recorded the details of his life in an autobiography that was finished by his student Abu 'Ubayd al-Juzjani. Although some of the details may be exaggerated, the portrait of Ibn Sina that emerges as an exceptional and restlessly ranging intellect can be corroborated by the sheer number and depth of his published works.

The autobiography reveals a man of astounding intellectual and physical energy. By age 10 he had memorised the Qur'an. By the age of 18 he was a recognised authority in the field of medicine. Due to political disputes and intrigue and undoubtedly due to jealousy from other intellectuals that he met at the courts of various Amirs and Sultans, he was frequently on the run from one royal court to another for much of his adult life. Ibn Sina lived in an unstable time when the 'Abbasid Caliphate was disintegrating into smaller empires, such as the Buyid and Samanid dynasties, who served the 'Abbasid Caliph in Baghdad in name only while they controlled their own territory as Amirs or Princes.

Ibn Sina was apparently fond of drinking and dancing parties and sexual exploits. His biographer al-Juzjani writes: "the Master was vigorous in all his faculties, the sexual faculty being the most vigorous and dominant of his concupiscible faculties, and he exercised it often. He was asked about it and about his excesses concerning food and staying up all night and he said, 'God, Who is exalted, has been generous concerning my external and internal faculties, so I use every faculty as it should be used.'" If true, this is somewhat surprising since his main medical theories were based on the principle of balance and equilibrium in both the body and the soul.



Above: Avicenna G. P. Busch Sculp.

Ibn Sina was born in Afshana, near Bukhara (now in modern Uzbekistan) in 980 C.E. His father was a governor serving Amir Nuh ibn Mansur in the Samanid empire and Ibn Sina notes that his father was an Isma'ili. The Isma'ilis were a Shia branch of Islam dominant in the Fatimid empire of Egypt and North Africa. Ibn Sina's own religious orientation has been hotly debated. Although his father's house was the frequent meeting place for discussions about theology and the soul, Ibn Sina writes that he could not accept the Isma'ili doctrines. This intellectual atmosphere, however, which included debates about geometry, philosophy and 'Indian calculation' (mathematics), undoubtedly influenced the young prodigy.

His father recognised his intellectual gifts and provided him with appropriate tutors. When the philosopher Abu 'Abd Allah al-Natili arrived in Bukhara, he invited him to stay at their house and tutor the young Ibn Sina. Before long, however, Ibn Sina began teaching his teacher and explaining to him difficult passages from the books of philosophy that they read together. In his father's house, he was also exposed to one of his father's books the *Rasa'il Ikhwan as-Safa*, or the *Epistles of the Brothers of Purity*, an encyclopaedia based on Greek thought written by a mysterious sect in Basra, Iraq in the 10th century. These works surveyed logic, mathematics, theology, the natural sciences and psychology. Through the writings of the *Ikhwan as-Safa*, Ibn Sina would have been introduced to Greek Neoplatonism, authors such as Porphyry (*Isagoge*), and the works of Aristotle (*De Interpretatione*, the *Prior Analytics* and the *Posterior Analytics*). His intense studies of Aristotle's logical system would develop into his method for the investigation of nature.

Historians in assessing Ibn Sina as a thinker must always confront the question of how much he is indebted to Greek learning: his view of nature and theory of the four elements is drawn from Aristotle



Above Left: Avicenna's Canon.

Above Right: Avicenna, depicted on the far right panel.

and Empedocles; his medical works are essentially the humoral framework that he had inherited from Galen and Hippocrates; and his physics and metaphysics arise out of critiques of Aristotle. For example, Ibn Sina read Aristotle's *Metaphysics* 40 times before abandoning it as incomprehensible. A bookseller, however, persuaded him to purchase a commentary on the *Metaphysics* by the philosopher al-Farabi, and suddenly the ideas of Aristotle became clear to him. Thus classical Greek thought had a profound influence on Ibn Sina, and often framed the questions that he asked about theology, philosophy and the natural world, but he did not accept classical authors uncritically: he frequently argues against Aristotle in many of his own works. He differed with Aristotle on the technical details of his theories of motion (dynamics and kinematics). Ibn Sina also demonstrated the independence and originality of his thought by rejecting Islamic atomism – an originally Greek theory pioneered by Democritus and Leucippus and the Roman Lucretius – popular among the Ash'arite school of speculative theology. Using both conceptual and geometrical methods, he systematically dismantled the arguments for the existence of impenetrable atoms colliding in a void space, just as he had earlier disproven the possibility of a void or vacuum in nature.

Ibn Sina's thoughts on science and

philosophy were collected together in the influential and encyclopaedic work *Kitab Al-Shifa*, which translates as *The Book of Healing*, or *The Book of the Cure*. The volume follows the classical structure of the educational model called the quadrivium (music, geometry, arithmetic and astronomy) and also includes metaphysics, logic and the natural sciences (alchemy and the earth sciences, for example). Although the title sounds like a medical treatise, al-Shifa refers to the healing of the ignorant soul through knowledge. Thus the topics of the book are primarily about the natural sciences, logic, mathematics and metaphysics. His sections on the mind, emotions, the will and the senses – which contain many original thoughts – however, can be related to medicine since Ibn Sina believed that psychological disturbances could cause disease in the body, a phenomenon that today we would call psychosomatic illness.

An example of Ibn Sina's philosophical thought is his famous 'flying man' thought experiment. His experiment resembles Descartes's later *Cogito, ergo sum* ("I think, therefore I am"), although the two philosophical demonstrations are probably not historically related. Ibn Sina asked his readers to imagine a man who is created spontaneously floating in a void space with no sounds, light, odours etc. His arms, legs, hands and feet are splayed out so that

they don't touch one another to indicate the presence of his own body. Ibn Sina argued that the man would still affirm that he existed, even without any sensory input from his environment or means of confirming the existence of his body. Thus Ibn Sina set out to demonstrate that the soul (self) is not dependent on the body for its being, and that the soul in addition is immaterial, unlike the body.

**“he can truly be credited along with al-Razi with developing the idea of modern evidence-based medicine”**

Although ethnically Turkic or Persian, Ibn Sina wrote primarily in Arabic, which was the common language of science and politics in large areas of the Middle East. The cities in which Ibn Sina spent his career—Isfahan, Khwarezm, Rey (now part of Tehran) and Hamadhan were all thriving intellectual centres with extensive libraries rivalling Baghdad, the seat of the 'Abbasid Caliphs. Ibn Sina lived during the period from the 8th to the 13th centuries which is loosely known as 'the Golden Age of Islam' due to the promotion of learning, the development of libraries and institutions such as the House of Wisdom (Bayt al-Hikma) and the translation movement that sought to bring the knowledge of ancient Greece in mathematics, medicine, philosophy and astronomy into the Arabic language. Noteworthy contributions to world culture from this period include: development of algebra by Al-Khwarizmi, advances in sociological and historical

analytical techniques by Ibn Khaldun, perfection of the navigational tool the astrolabe, advancements in optics and astronomy by Ibn al-Haytham and al-Biruni, the systematisation of surgery and the invention of surgical instruments by al-Zahrawi, and the synthesis of the Indian, Greek, Persian and Arabic medical traditions in al-Razi's medical encyclopaedia *al-Hawi al-Kabir*. Al-Razi's large medical collection *al-Hawi* was translated into Latin as the *Liber continens* in the 13th century and it rivalled Ibn Sina's *Canon of Medicine* as a medical textbook in Europe. Al-Razi was the first physician to differentiate measles from smallpox and he put great emphasis on close clinical observation, an idea that may have influenced Ibn Sina.

Ibn Sina turned to the study of medicine at age 16. After his difficult studies in abstruse questions of logic and philosophy, he remarked, "medicine is not one of the difficult sciences, and therefore I excelled in it in a very short time." He mastered the medical knowledge of his time by the age of 18. Prominent physicians began to study under him, and the reason that he was later sought after by so many royal patrons was his ability to successfully cure illness and his reputation as a physician. Later he would systematise his medical knowledge in the encyclopaedia *Al-Qanun fi al-Tibb* or the *Canon of Medicine*. Translated into Latin by Gerard of Cremona, the book became a standard textbook in European medical schools well into the 17th century. The *Canon* is even used today as a reference by practitioners of Unani Tibb ('Greek medicine'), primarily in India. Unani Tibb is recognised as a legitimate medical system along with Ayurveda by the Indian government, and about 40 Unani Tibb colleges in India still teach the humoral model of physiology as developed by Ibn Sina. The *Canon* is divided into five sections: a general introduction, properties of therapeutic substances, localised diseases, systemic diseases and pharmacology. The advantage of Ibn Sina's work for physicians is that it was concise

and systematic compared to some of his source material, such as the rambling and immense collection of medical writings of Galen written in a highly rhetorical Greek style.

While providing a detailed and systematic view of disease and the body based on Greek humoralism (the idea that the body is made up of the four humors blood, phlegm, black bile and yellow bile, and that disease arises from imbalances in the body's humors), he also argued that direct observation and clinical experience are important for the medical practitioner. In this sense, he can truly be credited along with al-Razi with developing the idea of modern evidence-based medicine, since cures for Ibn Sina required some basis in the practical application of medicine, not just an explanatory and theoretical framework. Later European medicine which originated in the universities would place book knowledge and theory above clinical experience; university trained doctors labelled those practitioners who learned their medical knowledge simply through practicing it with the contemptuous term 'empiricks'. Ibn Sina, however, gathered knowledge from wherever he could find it (including clinical experience), and he noted in his autobiography as a young man, "I cared for the sick and there opened to me some of the doors of medical treatment that are indescribable and can be learned only from practice."

Ibn Sina's medical reputation landed him a position treating the Sultan of Bukhara, Nuh ibn Mansur, who in gratitude opened the palace library to the young doctor and philosopher. There Ibn Sina found rare books that he had never heard of before and books that he was never to see again in his lifetime. He seems to have devoured so many of the books available in his day that in his later years he was able to extract knowledge rapidly from new books that came into his possession. His pupil and biographer, al-Juzjani, observed that in the 25 years that he knew Ibn Sina, he never saw him read a new book from beginning

to end but rather he would open the book and go directly to the difficult passages and problems to see what the author had to say about them.

An amusing incident related by al-Juzjani about his master Ibn Sina captures several of the fundamental aspects of Ibn Sina's personality - his need to always maintain his intellectual superiority over rivals, his pride in his learning, his ability to rapidly master any discipline he chose and his love of a good joke:

One day the Master [Ibn Sina] was sitting in the presence of the Amir while Abu Mansur al-Jabban was present. A question concerning philology was raised, and the Master had spoken his thoughts in the matter when Abu Mansur turned to the Master and said, "You are a philosopher and physician, but you have not studied enough philology so that your remarks on it should be accepted." The Master became incensed at this remark and devoted himself to an intensive study of books on philology for three years, even sending to Khurasan for the Correct Philology, one of the works of Abu Mansur al-Azhari. And so in philology the Master reached a stage the like of which seldom occurs. He wrote three odes in which he included words rare in the language and he wrote three letters, the first of which was in the style of Ibn al-Amid, another in the style of al-Sabi and the last in the style of al-Sahib. He ordered them to be bound and their leather made to look worn. He then asked the Amir to present this volume to Abu Mansur al-Jabban while saying, "We came into possession of this book while hunting in the desert: you must examine it and tell us what it contains." And so Abu Mansur examined it carefully, and much of what was in it was difficult for him. So the Master said to him, "Whatever material in this book is incomprehensible to you is mentioned in such-and-such a place in one of the books on philology," mentioning to him well-known books in philology, from which the Master had memorised those passages. Abu Mansur

had been prattling in the philology he had put forward, without authority to back it up; so then he realised that these letters were written by the Master, and that his insulting him that day was what brought it upon him. So he cleared himself by apologising to him. The Master then wrote a book on philology which he called The Arabic Language, which has not been equalled in philology...

After the death of his father, Ibn Sina embarked on a series of journeys to Gurganj, Nasa, Baward, Tus and elsewhere which are not fully explained in the autobiography ("necessity then led me to forsake Bukhara"). His constant movement was partially related to the political turmoil of the time. The Samanid empire in which he was born declined and fell during his lifetime. Ibn Sina eventually entered the service of the Amir Shams al-Dawla, member of the shia Buyid Dynasty which in the 10th century controlled an area which corresponds to the eastern part of modern Iraq and the western part of modern Iran. Ibn Sina became embroiled in the dynastic disputes of the two brothers Majd al-Dalwa and Shams al-Dawla and their mother the regent Sayyida. He treated the Amir Shams al-Dawla for colic and became his close friend. In the Amir's absence, Ibn Sina was placed in control of the government as Vizier, but the troops mutinied against him and would not accept the rule of a foreigner over them. The troops demanded Ibn Sina's execution, but instead the Amir banished him from the court. However, upon another attack of colic, Ibn Sina was recalled to court to treat Shams al-Dawla again and he was restored to his former honours, including the title of Vizier.

He spent the last years of his life at the court of 'Ala' al-Dawla. His decline and death began with an attack of colic which he treated himself with enemas. However, the repeated enemas caused abrasion and ulceration of his intestines. Another doctor treating Ibn Sina added a double dose of celery seed to one of the enemas

which caused further ulceration (al-Juzjani states that he does not know if the addition was intentional or by accident). Ibn Sina was also taking Mithridate, a compound medicine containing opium, and one of his slaves added a double dose of opium to the drug which caused his further decline. Al-Juzjani accuses the slaves of poisoning their master intentionally since they were stealing money from him and did not want to be discovered. On a journey to Hamadhan with 'Ala' al-Dawla, Ibn Sina was seized by his final illness. Upon reaching Hamadhan, he abandoned his self-treatments, saying "the governor who used to govern my body is now incapable of governing, and so treatment is no longer of any use." He died and was buried in Hamadhan in 1037 C.E. A mausoleum has been erected around his tomb in Hamadhan, Iran.

The further reading section below provides accessible sources for learning more about Ibn Sina and his intellectual contributions.

**Further Reading**

1. Goodman LE. *Avicenna*. Routledge, London 1992.
2. Gohlman WE. *The life of Ibn Sina: a critical edition and annotated translation*. State University of New York Press, New York 1974.
3. Langermann YT (ed). *Avicenna and his legacy: a golden age of science and philosophy*. Brepols, Turnhout, Belgium 2009.
4. McGinnis J. *Avicenna*. Oxford University Press, Oxford 2010.
5. Wisnovsky R (ed). *Aspects of Avicenna*. Markus Wiener Publishers, Princeton 2001.

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