

# Avicenna, the Genuine Author of al-Nabḍ and the Highlights of his Life

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**Abstract:** In Islamic civilization, during the Arabic language domination, throughout Islamic territories, four medical writers emerged who wrote in their own vernacular language. They were: Ḥakīm Maysarī (born: c. 935 AD/ 324 AH) composed *Dānīshnāma* (an encyclopedia of medical poems) in 980 AD/370 AH; Abū Maṣṣūr Muvaḥḥaq Hirawī (c. 10th and 11th century AD/4th and 5th AH) wrote “*Kitāb al-Abnīya an Ḥaqāyeq al-Adviya*” in 1055 AD/ 447 AH; and Rabī ibn Ahmad Akhawaynī Bukhārī who authored *Hidāyat al -Mut-‘līmīn* in 10th century AD and Avicenna (980-1037 AD/ 370-429 AH) authored “*On the Science of Pulse*” (*Risāla-i Fī al-Nabḍ*) at the request of governor of Isfahān, ‘alā’al—Dowla Abū Ja’far Muḥammad (d. 1041 AD/ 433 AH) Sayyīda Shīrīn’s cousin. According to the authentic references and sources, it is the real medical work of Avicenna.

*Al-Nabḍ* (*On the Science of Pulse; Andar Dānīsh-i Rag; (Risāla-i Fī al-Nabḍ)*) is masterly arranged into nine chapters. The first three of them affords a common view of the functions of the human body, a prologue to the main subject, to say, the study of pulse. The following three chapters argue with the pulse itself. The chapters seven and eight, summarize the ideas regarding the pulse from his famous medical work “*The Canon of Medicine.*” Chapter nine of *Risāla-i Fī al-Nabḍ* (*On the Science of Pulse*) closes the book with complementary remarks on the relevant in the *Canon of Medicine*.

Avicenna, called the prince of physicians wrote many medical and philosophical texts, among them “*the Canon of Medicine*”, *Kitāb al-Shifa* (*The Book of Healing*), “*On the Science of Pulse*” (*al-Nabḍ*) are distinguished. Although Edward G. Browne (1862-1926) English orientalist and many other researchers consider *al -Nabḍ* to be a genuine work of Avicenna, some of them suggest that the authorship of this medical work would be more ascribed either to Abū ‘Alī bin Muskūya or Abū ‘Alī Mandūya. In this verification, we have proved that *al-Nabḍ* is the real medical work of Avicenna. This article includes an abstract, an introduction, the body including Avicenna’s life highlights and a conclusion.

**Keywords:** *Al-Nabḍ* (*Andar Dānīsh -i Rag*, *Risāla-i Fī al -Nabḍ*), Avicenna, Muskūya, Mandūya, Sayyīda, ‘Alā’al-Dowla, Hamadān, Isfahan.

## Introduction

“Since the information which the pulse affords is of so great importance, and so often consulted, surely it must be to our advantage to appreciate fully all it tells us and to draw from it every detail that it is capable of imparting” (F.A. Mahomed 1872). Pulse has been a topic of great importance since antiquity and is described in almost every art of medicine (Khazir, P.1). Ayurvedic Medicine, Chinese physicians would analyze illness by examination of pulse. Hippocrates (460-377 BC) the father of medicine and Greek teacher, described the characteristics of the arterial pulse. Herophilus (c. 335-280) Greek anatomist, Erasistratus (300-250BC)

another Greek anatomist, Archigenes (98-117 AD) and Galen (129-200) famous Greek doctor, described the pulse as an integral part of the art of medicine. Medieval physicians would predict seizures, death and various measure illness just by examination of the pulse. Avicenna (980-1037) Iranian physician, called the prince of physicians, in his *Risāla-i Fī al-Nabḍ* (treatise on pulse) attributed the nature of the pulse to the interaction of four humors: blood (dam), phlegm (balgham), yellow bile (ṣafṛā) and black bile (sūdā). He believed that arteries contain blood and rūḥ (air). Ibn Sīnā also described four phases of pulse including two movements and two pauses.

William Harvey (1578-1657) British physician who described the blood circulation, attributed the generation of arterial pulse to the left ventricle and discovered the source of heart beat in the right arterum. Sir John Floyer (1649-1734) British physician for measuring pulse rate invented the Physician’s Pulse Watch. (Lee. P.

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37).

Avicenna authored about 450 works of which 240 works have survived. Of the surviving works 150 works are on philosophy and 40 of them are on medicine. Some are very well-known: their smaller size assured them of wide circulation. Among the most widely diffused are treatises on the pulse, the medical pharmacopoeia, advice for the conservation of health and the study of diarrhoea; in addition, monographs on various remedies, chicory, oxymel, balsam and bleeding. The virtues of wine are not neglected. (Encyclopedia of Islam, P. 942.) The treatise on the pulse, “Andar Danish-i Nabḍ”, “Risāla-i Fī al -Nabḍ”, (“On the Science of Pulse”) which includes nine chapters on the science of pulse, a condensed synopsis is one of his genuine medical works. But several sources, specially, Nāma-i Dānishvarān erroneously, contrary to the worldwide suggestions ascribe it to others.

### Pulse From Historical Point of View China

In China, the physicians analyzed disease by examining the volume, strength, weakness, regularity or interruption of the four main varieties of pulse beats (superficial, deep, slow and quick). (Figure 1)

The examination was on both wrists simultaneously and the best time for the examination was thought to be the early morning. The description of the pulse is based upon the various stages of interaction between yin (disease; the passive dark female principle of the universe) and Yang (health; the active bright male principle of the universe) as per Chinese medicine. (Khazir, PP. 1-2).



**Figure 1. Doctor shown examining patient by feeling the pulse, perhaps to most important feature of ancient Chinese medical diagnosis.**

### India

In India Medical history Ayurveda, meaning “knowledge of life”, which began about 2400 years ago and reached its basic present form by 500 AD and mainly

based on the Caraka Samhita and Susruta Samhita texts describes the examination of the pulse as an integral part of Ayurvedic Medicine. In this system of medicine illness is seen as an imbalance of the body’s three main humors-bile, phlegm and wind (Parker, P. 14). Methods of diagnosis included questioning and feeling the pulse, observing the voice and body and in some circumstances touching the affected parts. In almost all times and cultures physicians have used similar approach for all healers have sought to know as much as possible about a patient in order to understand his or her illness and advice treatments (Lyons, P. 127).

### Egypt

In Egypt, a historical country in Africa, the physicians thought that there are two types of vessels in the human body; the veins which carry the products of digestion to the body and the arteries which carry pneuma (air) from lungs to other organs. The left part of the heart was thought to draw the air from the lungs and propelling it into the arteries (Ibid, P. 2).

### Greece

The Greek physicians discovered that pulsation only occurs in the arteries (any of the tubes carrying blood from the heart to all parts of the body) not in the veins (any of the tubes carrying blood from all parts of the body to the heart).

Praxagoras of Cos (fl. C. 340 BC) was among the first to separate the functions of arteries and veins, but he believed that both systems contained air. He extended the number of humors to eleven and used bleeding extensively, but he placed emphasis on the pulse, showing that disease affected its characteristics - one of his most important contribution (Lyons, P. 219). Hippocrates (460-377 BC), Chrysipos and Praxagoras have sometimes been grouped as proponents and innovators of dietetics as a method of treatment (Ibid, P. 207).

Archigenes (c.AD 100), one of the early electics was principally active in Rome, as we know from Galen, his observations on symptomatology, physical diagnosis and drug therapy were brilliant discovered the dicrotic pulse (Khazir, P. 3).



**Figure 2. Taking the pulse at the brachial artery. As the text explains, this procedure is relatively late stage in examining a patient (11th century).**

Rufus of Ephesus (98-117) Greek physician who authored “On the interrogation of the patient” gave the earliest description of the thymus, wrote on the eye, liver, heart and pulse, gout, bubonic plague and erysipelas (Lee, P. 32). He recognized the heart-beat as the cause of the pulse and discussed its many properties (Lyons, P. 249).

Galen (129-200), “The prince of physicians” revered as the supreme medical authority until the 16th century, born in Pergamum in Asia Minor. His diagnostic method included palpation, pulse-taking, occasionally the inception of urine, all subject to a clear-head logic (Porter, P. 62).

Paul of Aegina (625-690) famous Greek physician and surgeon (Lee, P. 2) famed for his encyclopedia “*Epitome medicae libri septem*”, which contain almost all the medical knowledge of his time, including descriptions of lithotomy, trephining, tonsilotomy, paracentesis and mastectomy and also dealt with pediatrics and obstetrics, apoplexy and epilepsy and pulses associated with various diseases. (Sebastian, P. 5.)

### Medieval Medicine

Arterial pulse continued to be one of the most important clinical tools in medieval medicine (Figure 2). A medieval physician would predict seizures, death and various measure illnesses just by examination of the pulse. (Khazir, P. 4.)

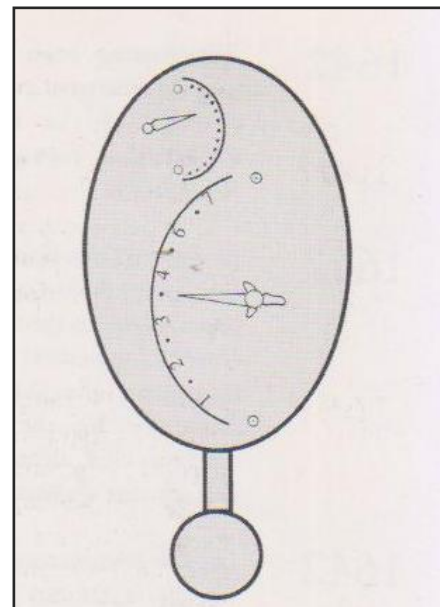
### Renaissance

The soaring prestige of the physical sciences stimulated the urge to measure the operations of the body machine. Sanatorius (or Santorio) (1561-1636), the great Italian pioneer who settled in Venice in 1599 after 14 years as physician to the King of Poland and moved to Padua as

professor of theoretical medicine in 1611. Santorio carried out an elaborate series of calculations of his own weight, food intake, and excreta, in particular so as to quantify weight loss through insensible perspiration. A friend of Galileo, he invented instruments to gauge humidity and temperature, and a pendulum for measuring the pulse rate. In addition, he invented a weighing chair and syringe for extracting bladder stones (Lee, P. 89). Early in the eighteenth century, Gabriel Daniel Fahrenheit, a German man of science, improved the reliability and accuracy of the alcohol thermometer and, in 1714, invented the mercury thermometer and the temperature scale still associated with his name. Around the same time, an Englishman, John Floyer, developed a watch for quantifying the pulse. (Porter, P. 146).

In the 17th century, William Harvey (1578-1657) the brilliant English physician and anatomist, demonstrated that blood circulated through the body and was pumped by the heart (Sebastian, P. 20). He attributed the generation of the arterial pulse to the left ventricle and discovered the source of heart-beat (pulsation) in the right atrium.

Herophilus was the first physician who counted the pulse rate by using his clepsydra. Sir John Floyer (1649-1734) British physician, measured the pulse rate using a specially invented Physician’s Pulse Watch (Figure 3), making many observations on pulse frequency (Lee,P.37).



**Figure 3. Floyer’s pulse watch (Sebastian, P. 30).**

The Herison’s sphygmomanometer and the kymograph of Carl FW Ludwig (1816-1895) pioneer German physiologist designed to measure the arterial pulse in relation to its force, rhythm and graphical recording of the

hemodynamic measures of pulse (Khazir, P. 6). Crighton Bramwel described the pulse wave velocity (PWV) and related it with arterial wall tension and blood pressure as an indirect measure of arterial wall elasticity (Ibid, P. 7).

In general, eighteenth century physicians rested content with the traditional diagnostic uses of the “five sense”; they would feel the pulse (Figure 4), sniff for gangrene, taste urine, listen for the breathing irregularities, ties and attend to skin and eye color-looking out for the facies Hippocratica, the cast on the face of a dying person. These time-honored methods were almost exclusively qualitative. Thus, what standardly counted in “pulse lore” was not the number of beats per minute (as later), but their strength, firmness, rhythm, and “feel”. Some attention was given to urine samples, but the historic art of urine-gazing (uroscopy) was now repudiated as the trick of the quackish “pisse prophet”: serious chemical analysis of urine had barely begun.



**Figure 4. This etching of 1799 lampooning a physician telling his patient that his treatment will continue. The patient is visiting the physician in his surgery, there are medicines behind him.**

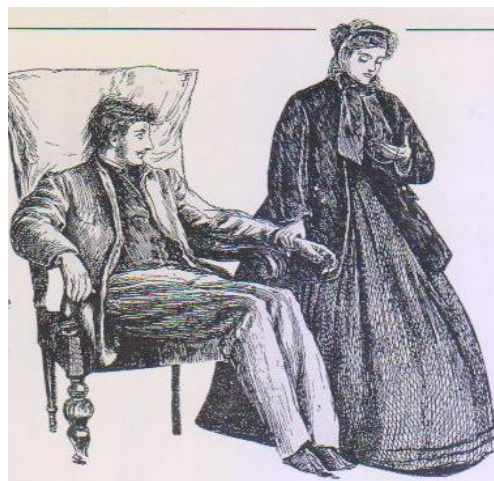
Qualitative judgements dominated, and the good diagnostician was he who could size up a patient by acuity and experience. (Porter, P. 168.)

An influential clinician of the Dublin school was Dominic Corrigan (1802-1880) who is best remembered

for his description of the pathologic cause and characteristic pulse, called “Corrigan’s pulse” of a disease of the aortic valves of the heart. (Lyons, P. 515.)

As nurses became more knowledgeable during the latter half of the 19th century, they administered medicines prescribed by the doctor, and measured important features such as heart-beat (pulse), body temperature and hearing rate. (Figure 5)

Pulse rate was one of the doctor’s first diagnostic tests to feel the “quality” of the pulse and count its rate. Floyer’s “Physician’s Pulse Watch” 1707 ran for exactly one minute, but it had little success until the 19th century, when pulse rate and quality were recognized as important. (Figure 6)



**Figure 5. Here Elizabeth Garret (Later Garret Anderson, 1837-1917), Britain's first woman doctor is using a watch to take a pulse (Her long campaigns did much to remove prejudice and legal constraints against women becoming physicians). (Parker, P. 29.)**

### Islamic Territory

Abū Zayd Ḥunayn ibn Ishāq al -‘Ibadī, a physician and “translator parexcellence” lived in early 19th century and 2nd century AH (after Hijra), during the Abbasid Caliphate. Ḥunayn was a product of the crucible of early Islamic civilization that fostered advancement of art, science, medicine and philosophy like no other civilization before it. The practice of medicine that evolved during this period came to be termed “Islamic Medicine” (Nagamia-Pūyān, P. 9). His al -Masā’il fī al-ṭibb Iil-Muta’allimīn (Question and Answer In Medicine) (Ibid, P.12) provided a valuable insight into the medical knowledge of earlier Islamic medicine including pulse. (Sebastian, P. 6).

The most widely influential contributor to world medi-

cine was Avicenna (980-1037) whose standing both in Islamic and Christendom was equal to Galen (129-200), the famous Greek physician and prolific writer (Pūyān, P. 23), who wrote *al-Nabḍ* in Persian. The book discussed regarding pulses and vessels and definitely belongs to Avicenna. Manuscript of this medical work are available in the libraries of Iran and abroad. It consists nine chapters (Pūyān, PP. 41 and 42).



**Figure 6. A well-to-do young patient is being treated by a physician (wearing a wig) who is taking her pulse.**

Avicenna could detect the change in the rhythm of pulse on mentioning the name of the house and the particular person while palpating the pulse of a lover. Ibn Sīnā believed that health and disease was based on the interaction of four types of body humors - blood (Dham), phlegm (Balgham), yellow bile (Ṣafrā) and black bile (Sūdā). In his treatise “*Risāla-i fī al-Nabḍ*” (On the Science of Pulse), Avicenna attributed the nature of pulse to the interaction of these four humors. He believed that arteries contain both blood and Rūḥ (air/soul). Avicenna also described four phases of pulse cycle: two movements and two pauses. (Khazir, P. 4).

### Andar Dānish-i Rag

In Persian languages (Pārsī=Fārsī) two leading famous colloquial (or every day) language works have come down to us:

Andar Dānish-i Rag (“On the Science of Pulse”, also known as *Risāla-i Nabḍ*).

Dānishnāma-i ‘Alā’ī (Book of Science), on philosophy. No problem of authenticity exists in the case of either works. Avicenna’s authorship was confirmed by his disciple and friend Abū ‘Ubayd ‘Abd al -Wāhid b . Muḥammad Jūzjānī (Gūzgānī) and has never been called into question (Ibn al-Qiftī, P. 418; Ibn Abī Ūsaybi’a, P. 2; Bayhaqī, PP. 59-60). The preface of the two works show that they were written at the request of ‘Alā’al-Dowla Kākūya (The Buyid ruler of Isfahān,

1030 AD/ 422 AH, master and mentor of Avicenna), i.e., during the last 14 years of Avicenna’s life, which he spent in Isfahān. Comparison of these prefaces, both addressed in eulogistic language to the ruler of Isfahān, indicates that *Dānish-i Rag* was probably composed before the *Dānishnāma-i ‘Alā’ī*, because Avicenna states in the preface to the latter that “in the prince’s shadow he had achieved all his ambitions-for security, dignity, respect for science ...” Thus implies that he has spent many happy years at Isfahān before he completed the *Dānishnāma-i ‘Alā’ī*.

### The first three chapter of the book

The book’s first three chapters are a prologue to its main subject, study of the pulse. They describe:

**Chapter one:** The substances which, when in harmonious synthesis, constitute the human body, the vital spirits, which animate it, and the soul (ravān, naḥs which dwells in it).

**Chapter two:** The necessity of inhalation, nutrition and elimination.

**Chapter three:** The functions of the lungs, heart and arteries as regulators of the pulse, illustrated by the example of the black smith’s bellows, and the way in which, at every beat, these regulators cause movements of expansion and contraction, each followed by a pause.

**Chapter four, five and six:** Here Avicenna gives simplified summaries of the thorny problems which he had examined in detail in the first chapter of the third lesson of the eleventh section (fann) of the first volume of the Canon, namely, (1) why every beat comprises the aforesaid four moments; (2) a list of ten types of pulse condition with descriptions of symptoms which permit diagnosis of each; (3) explanation of the causes of these ten types and of varieties and sub-varieties to be found in each, together with the appropriate Persian and Arabic technical terms, such as long (derāz) pulse and short (kūtāh) pulse in conditions identifiable by the length (andāza) of the beat, rapid (tīz) and slow (derangī) in conditions identifiable by its frequency, even (hamvār) and uneven in conditions identifiable by the symmetry or dissymmetry (mustawī-mānanda būdan wa nabūdan) of the beats.

**Chapter seven:** This chapter is a summary of discussion of regular and irregular (mustawī wa mukhtalif) pulse behavior in the second chapter of the above-mentioned third lesson in the Canon, and chapter eight, which enumerates varieties and names of composite pulse conditions, is a summary of the third chapter of the same lesson. Some of the descriptive terms for pulse conditions used in this book correspond to those used in modern medical textbooks, e.g., mūrḥagī (Ar. al-namlī, formicant), sitabr ‘azīm (large), dum-i mūshī (myurous), mawjī (bounding, undulating), do-zakhmī

(dicrotic).

**Chapter nine:** This Chapter which concludes the work, is a summary of all the questions studied in the remaining sixteen chapters of the lesson in the Canon, namely, the best pulse condition, the constituents of the pulse, the factors which influence these constituents, the pulse in males, females, and pregnant females, the pulse in different ages, life-stages, seasons, temperatures, and temperaments, and the effects of climates, sleep, being awake, bathing, physical exercise, pain, inflammations, and emotions on the pulse.

This short book's plan of three introductory chapters, three chapters on the more difficult problems, and one final chapter dealing concisely with easier matters shows that Avicenna intended it to be a condensed synopsis. He accomplished his task with great skill. (Avicenna XI. Persian works-Encyclopedia Iranica, 2 of 10 and 3 of 10.)

### Authenticity

Achena, in the aforementioned article on the Persian works of Avicenna in Encyclopedia Iranica, accepts the authenticity of only two Persian works attributed to Avicenna, “*Andar Dānīsh-i Rag*” (On the Science of the Pulse) and the *Dānīshnāma-i ‘Alā’ī*, without it must be remembered, having seen the *Mi‘rājnama*. He points out that Avicenna’s Persian works, were not intended for specialists. They were “manuals written for the use of an uninitiated person and possessing appropriate qualities: Clear language, near-colloquial phraseology... choice of themes and questions which gives access to relatively elementary knowledge in each field, exclusion of subjects which could only be of interest to specialists, reduction of chapter length and frequent use of explanatory description rather than logical definition.” (Iranica, P. 205).

### Contradictory Speaking and Historical Error

Browne considers “*Andar Dānīsh-i Rag*” a genuine work of Avicenna, but the opening words, if correct, show that this is impossible. “There came to me a command from ‘Azud-al-Dawla Daylamī that I should write a book on the pulse. So I have written the following work on the knowledge of blood vessels.” Azdud-al-Dawla died in 982 (372AH) when Avicenna was only two years old. It was two other members of the Daylamī family whom he served in Hamadān and Isfahān. The author of the *Māṭrah*, a modern Persian collection of medical biographies, suggests that the authorship of this treatise would be more rightly ascribed either to Abū ‘Alī bin Mishawayah or ‘Abū ‘Alī bin Mandūyah. (Elgood, P. 193.)

### Historical Realities

Fannā (Pannāh) Khusraw, better known by his “*laqab*” of ‘Aḍud al-Dawla ( “Pillar of the [Abbasid] Dynasty”) (936-983) was an “Amir” of the Buyid dynasty, ruling from 949-983, and at his height of power ruling an empire stretching from Makran as far as Yemen and the shores of the Mediterranean Sea. He is widely regarded as the greatest monarch of the Buyid dynasty and by the end of his reign was the most powerful ruler in the Middle East (‘Aḍud al-Dawla- Wikipedia, 1 of 7).

**Ibn Miskawayah** (full name: Abū ‘Alī Aḥmad ibn Muḥammad ibn Ya‘qūb ibn Miskawayah) (932-1030) was a Persian chancery official of the Buyid era, and philosopher and historian from Parandak, Iran. As a Neoplatonist, his influence on Islamic philosophy is primarily in the area of ethics. (Ibn Miskawayah-Google Search, 1 of 1).

**Ibn Mandūyah Isfahānī** (10 and 11th century) (The Great Islamic Encyclopedia, Vol. 4, P. 697) Iranian poet, physician, philosopher and botanist was a prominent figure of his time. When ‘Aḍud al -Dawla Daylamī (reign: 949-983) founded the ‘Aḍudī Hospital in Baghdad in 981, 24 prominent physicians from different parts of Islamic territory were invited to work in the hospital. One of them was Mandūyah Isfahānī who travelled to Baghdad at the invitation of the Buyid king.

### More Historical Research about Buyid

- The founder of the Great Seljuk Dynasty, Tughril Bey, was formally recognized in 1055 by the head of the Abbasid Caliphate as Sultan of the Muslim Empire. The power of this dynasty extended over the eastern provinces of the Abbasid Caliphate (with the exception of Kerman in Iran) and continued under Tughril’s two successor, Alib Arslān (d. 1072) and Malik Shah (d. 1092). The main achievement of the Great Seljuks was destruction of Buyid (Buwayhid) regime and their reinvigoration of the orthodox (Sunni) form of Islam. (Encyclopedia International, Vol. 16, PP. 341-342.)
- At the beginning of the 10th century a body of sturdy Persian warrior emerged from the forest of Gilān, overran most of Iran, and in 945 captured Baghdad. For a century the Abbasid caliphs were puppets in the hands of these Buyid rulers, including ‘Aḍud al-Dawla Daylamī (reign: 949-983).
- Three years before ‘Aḍud al -Dawla’s death in 983, Avicenna was born in 980 (e.g. Avicenna was about three years old).

### Confirmers of Avicenna’s Authorship

Four widely admired historian and people who con-

firmed al-Nabḍ as the genuine medical work of Avicenna:

1. Abū ‘Ubayd ‘Abd al-Wāḥid ibn Muḥammad al-Jūsḡānī (c. 11th century AD/ c.5th century AH) that world owes the detailed information that it now has of the life of Avicenna and also his many works including al-Nabḍ and Dānishnāma-i ‘Alā’ī.
2. Abū al-Ḥasan-i Bayhaqī in Tatama Sevan aḤikma (1164-1190 AD/ 586-611 AH).
3. Shams al-Dīn Muḥammad Shahrzūrī (12th and 13th century AD / 6th and 7th century AH) in Tārīkh al-Ḥukamā’.
4. Jamāl al-Dīn Qifṭī (1153-1248 AD/ 548-646 AH) in Akhbār al-Ḥukamā’.

### Rejectors of Avicenna’s Authorship

Three sources that rejected al-Nabḍ as Avicenna’s real medical work:

1. Nāma-i Dānishvarān -i Naṣīrī : Shams al-‘ulimā’ ‘Abd al-Rabābādī, Abū al-Faḡl-i Savūjī, va Grūhī Dīgar az Dānishmamān, Haft jeld, Tehran 1296-1324 Q (1878-1906 AD), ch. 2, Mū’asasa-i Maṭbū’āt-i Dār al-Fikr, Qum.
2. Fīlsūf al-Dawla, ‘Abd al-Ḥusaīn, Maṭraḡ al-Anzār Fī Trājum Aṭebba’ al-A’sār, Maṭb’a-i Ḥusaīnī, Tabrīz, 1334 Q (1910 AD).
3. Elgood, Cyril, A Medical History of Persia and The Eastern Caliphate, Cambridge University Press, 1951.

### Avicenna and the Highlights of his Life

The most widely influential Persian contributor to world medicine was Avicenna, (Figure 7) whose standing both in Islam and Christendom was equal to Galen (129-200) the famous Greek physician and prolific writer. Ibn Sīnā, the prince of physicians, whose great work, the Canon of Medicine was widely read, and in Latin translation, formed the foundation of university medical course in the West from 1250 to 1600. (Porter, P. 68.) Say, he was one of the greatest men that this world has ever seen. It is not court of the caliphs nor one of the noble families of Baghdad that produces this prodigy. He is the son of a middle-class countryman in a far-away trans-Caspian province, a tax-collector's son. Here is a man who starting with none of the advantages of life becomes, while still a youth, the adviser and confident of his ruler, who, change his city though he may, yet always becomes the leading citizen within a few months, and whose writings influenced all over the world, although he never travelled outside central Asia. He was hailed by his compatriots as the Second Teacher, the Chief Master; he has been set by Dante in Paradise along with the greatest intellects of the non-Christian

world; and William Harvey (1578-1657) brilliant British physician will say 600 years after his death to his friend Aubrey: “Go to the fountain-head and read Aristotle (384-322 B.C.) Greek philosopher and scientist, Cicero (Marcus Julius Cicero, 106- 43B.C. Roman orator, author, and statesman) and Avicenna.” Ḥusayn bin ‘Abd Allāh Ḥasan bin ‘Alī bin Sīnā was the son of a citizen of Balkh. His mother's name has been preserved; she was one Satāra, the daughter of a householder in Afshana, a village not very far from the modern town of Bukhārā. Avicenna himself was probably born in the village of Kharmesan, also in the province of Balkh, being the elder of two sons. His brother's name was Maḥmūd. His father moved his family to Bukhārā in A.D. 985, and Avicenna began his education. From the very first he was instructed in the Qur’ān. ‘Alī’s extraordinary memory at once displayed itself. He was one of those remarkable children, who learn to recite the whole Qur’ān by heart. His next subject was rhetoric. Then he was sent to the geometrician, from whom he also learnt algebra and arithmetic, and under whom he studied astronomy. Within a few years was considered fit to start theology under Ismā’īl and logic under al-Nātilī. At the age of sixteen, on the advice of Abū Sahl ‘Isā bin Yaḡyā al-Masīḡī a Christian physician of Jurjān, Ibn Sīnā started medicine and took as his tutor Abū Sahl. He besides the glory that is rightly his as the adviser and companion of Avicenna, was himself no mean physician. His knowledge of medicine was acquired chiefly at Baghdad. Later he left the court of the caliph for that of Ma’mūn ibn Muḥammad Khwārizmshāh and here he became acquainted with Avicenna. Avicenna in his autobiography writes: “At first I treated patients not for fees, but for my own instruction. During this period of my studies I never passed a whole night in sleep nor passed a whole day in any other occupation but study. Whenever I met with an obscure point, it was my custom to perform the total ablution and then proceed to a mosque where I would pray to God to grant me comprehension and unlock for me the gates of difficulty. I found medicine an easy subject.”

At the early days of Avicenna’s practice, Nūḡ bin Maṣūr Sāmānī, the seventh of a successful line of Sāmānīds rulers fell ill, and the regular physicians having failed to bring about a cure, Avicenna was called in. He effected a cure to the intense delight of the ruler. He was given a place of honour in the court and was further rewarded by being granted the right of access at any time to the royal library. By this time the library was well stocked with useful and scarce manuscripts, including many Greek volumes. Avicenna writes “I went there, and found a great number of rooms filled with books packed up in trunks.

I then read the catalogue of the primitive authors and found therein all that I required. I saw many books, the

very titles of which were unknown to most people, and others which I never met with before or since.” Avicenna was then just eighteen. The library was destroyed by fire and most of the manuscripts perished. Avicenna according to later writers had a hand in the outbreak, being desirous that his rivals in the medical world should have no access to the texts which he had studied there. But this is probably mere slander, although a Persian historian, Mas‘ūd Aurrāq, states that the story was related of him also by contemporary writers.



**Figure 7. Avicenna (980-1037), one of the Islam’s greatest intellects, authored al-Qanun (the Canon), probably the most influential text of all the time, Shifā, and “Andar Dānish-i Nabḍ.”**

Anyhow, after Avicenna finished his education, he entered the court of the king of Khwārizm and never returned to his native land. In A.D. 1001, his father died and he left Bukhārā. Ibn Sīnā in his diary writes: “the necessity forced me to leave my native land ,” but he does not describe its nature. At that time Abū al-Ḥusayn Aḥmad bin Muḥammad al-Suhaylī, a man of scholarly tastes, was prime minister at Khwārizm. Here Avicenna turned and was treated with the greatest respect. The tyrant Maḥmūd Ghaznavī who in the art of war had been so completely successful, was determined to make his court as brilliant in intellect as it was rich in spoils. The court of Khwārizm, far inferior in power, was yet vastly superior in art and science, for Abū al-‘Abbas Ma‘mūn, the Khwārizmshāh, was himself a philosopher and a friend of scholars . Maḥmūd sent an imperious summons to the Khwārizmshāh, bidding him send to Ghazna certain of his leading scientists and men of learning. Abū al-‘Abbās heard of this before the arrival of the ambassador. He called his philosophers, astronomers and physicians into his presence and with a

pathetic courage explained that he dare not resist Maḥmūd, but that he would shut his eyes to any who might wish to escape before he was officially informed of Maḥmūd’s command. For “Maḥmūd hath a strong hand and a large army: he hath annexed Khurāsān and India and covets Iraq, and I cannot refuse to obey his order or execute mandate. What say ye on this matter.” Among the physicians who preferred liberty to the court of the tyrant Maḥmūd Ghaznavī were Avicenna and his old master Abū Sahl ‘Isā bin Yaḥyā al -Masīhī, and the physician Abū -‘Alī bin Miskawayah. So the little group of refugees set out for Jurjān. On the way Abū Sahl died, but Avicenna after suffering much from the winds, dust and thirst arrived in Tūs and finally made his way to Nīshābūr. But the hue and cry was raised throughout the land and Avicenna thought it more prudent to push on to Jurjān (Gurgān where Qābūs was reigning). For a while Avicenna remained in hiding living in a caravanserai and earning his daily keep by treating the sick around him. His success led to his downfall, for he was called in to treat a member of the court. Now, among those who had obeyed the Tyrant Maḥmūd’s summons was a young man named Abū Naṣr ‘Arāq a nephew of the Khwārizmshāh. He was summoned because of his fame as a physician , but it seems that his skill as an artist was the greater and more useful gift. For Maḥmūd, finding that Avicenna had eluded him, bade Abū Naṣr draw his portrait, and, having forty copies of it painted by lesser artists, had these distributed in all districts together with a proclamation, which ran: “There is a man after this likeness, whom they call Abū ‘Alī bin Sīnā. Seek him out and send him to me.”By this portrait Avicenna was recognized. According to Nizāmī, Qābūs sent for Avicenna and loaded him with honours. But Avicenna himself relates that he reached Jūrjān just too late to see Qābūs, who had been deposed and cast into prison a short while before. (Pūyān, PP. 166-167.)

#### **The treatment of Qābūs’ Nephew and Niece**

In Gurgan, Avicenna stayed in an inn and began practicing medicine. In the city one the relatives of Qābūs fell ill. Physicians tried to treat him but there was no positive result. One of the servant of the court told Qābūs there is a young physician in the carvanserai and added that several patients have been treated by him. The king ordered to bring the physician to the court. When Avicenna arrived in the court saw the patient is a cute and handsome young man. He felt the patient’s pulse (Figure 8) and examined his urine. Then Avicenna said I need a person who is familiar with the districts and alleys of the city of Gurgān. Such a man was brought. Avicenna as feeling his **pulse**, the man began calling the alleys names. At the name of the particular alley, the patient’s **pulse** jumped. Then Avicenna or-

dered the man to call the owners of the houses one by one. At a specific house, the patient's **pulse** jumped again. Then Avicenna ordered to bring somebody who knows the members of this house. Avicenna said: "that is all." Eventually, Avicenna said to the court men: "this young man is in love with a girl by certain name", and added: "his remedy is marriage." The patient who was listening carefully, turned red. When they inquired, Avicenna was right.

Qābūs invited Avicenna to the court. At the court the king in Arabic said: "Anta Bū 'Alī?" Avicenna replied in Arabic: "Neam yā Malik al-Mu'zziz." He descended from the throne and came near to Avicenna and became very happy. Qābūs as was astonished said: "the lover and loved one both are my nephew and niece. Let them marry, arrange for the time. Avicenna founded the suitable time and the marriage took place. The young man was cured. Afterwards, Avicenna left Gurgān for Rey (Rayy).

#### **Likeliness between the love stories of Avicenna and Erasistratus's**

Seleucus I, called Nicator ("Conqueror"), (c. 358-280 BC) had a young and beautiful wife. His young son and crown prince fell in love with her and became sick. Erasistratus of Ceos (250-300 BC) the famous Greek physician and anatomist was summoned to treat him. Erasistratus after examining the young prince and including taking his pulse much anxious thought revealed the King Seleucus he was in love with his stepmother, Stratonice. The King, out of love for his son and to save his life, gave him his wife to marry. (Loudon, P. 32).

#### **Avicenna's Extraordinary Treatment**

Avicenna's work "The Book of the Origin and the Return" which he dedicated to Abū Muḥammad Shīrāzī, contains a chapter on "the possibility of the production of exceptional psychological phenomena" which Jāmī (1414-1492) Iranian famous poet, borrowed for his poem The Chain of Gold: A curious anecdote hath reached me which I have heard related. A certain physician was attached to the court of the house of Sāmānī, and there attained so high a position of trust that he used to enter the women's apartments and feel the pulses of its carefully guarded and closely veiled inmates.



**Figure 8. Avicenna feeling the young patient's pulse.**

One day he was sitting with King in the women's apartments in a place where it was impossible for any other male creature to penetrate. The King demanded food, and it was brought by hand-maidens. One of these who was laying the table took the tray off her head, bent down and placed it on the ground. When she desired to stand upright again, she was unable to do so, but remained as she was, by reason of a rheumatic swelling of the joints. The King turned to the physician and said "you must cure her at once in whatever way you can." Here was no opportunity for any physical method of treatment, for which no appliance were available, no drugs being at hand. So the physician bethought himself of a physical treatment, and had them remove the veil from her head and expose her hair, so that she might be ashamed and make some movement. This condition being displeasing to her to with that all her head and face should thus be exposed. As however, she underwent no change, he proceeded to something still more shameful and ordered her trousers to be removed. She was overcome with shame and a warmth was produced within her such that it dissolved and regained her normal conditions. (Elgood, P. 194-195).

#### **The Flight of Avicenna from Jurjan to Rayy**

Either the death of Qābūs or undesirable publicity caused Avicenna to flee again. This time he turned west and passing through the forests of Māzandāran made his way across the Elburz Mountains and came to Rayy, the capital of 'Irāq-i' Ajam [Iraq of non-Arab]. Here he found himself in that great mountain plain which embraced the great cities of Persia of those days Rayy,

Isfahān and Hamadān. All these were under the rule of a member of the Būyid family. In Rayy a woman, named Sayyida (Figure 9), the widow of Fakhr al-Dawla, was ruling on behalf of her infant son, Majd al-Dawla Daylamī. Avicenna was received respectfully. Sayyida Shīrīn (Sayyida Malik Khatūn), also simply is known Sayyida, a Bavanid Princess, who was the wife of Buyid ruler of Ray (Ray or Rayy, also known as Rhages and formerly as Arsacia, today has been absorbed in the Greater Tehran metropolitan area), Fakhr al-Dawla. She was the de facto ruler of Ray during the reign of her son Majd al-Dawla (reign: 997-1029). Sayyida Shīrīn and Fakhr al-Dawla and two sons named Abū Ṭālib Rustam and Abū Ṭāhir in the 990s. Fakhr al-Dawla later died in 997 and was succeeded by Abū Ṭālib Rustam who was given the “laqab” of Majd al-Dawla. Abū Ṭāhir also was given the laqab as Shams al-Dawla, and became the ruler of Hamadān. Since Majd al-Dawla and Shams al-Dawla were in the age of minority, power was assumed by Sayyida.

#### Sayyida Rejects Avicenna’s Marriage Request

Avicenna for achieving more political power and gaining secret information from the court requested Sayyida to marry him. But Sayyida’s reply was “no.” And she added: I am telling you Ḥakīm (physician) and philosopher, this marriage is not advisable, the best thing to do is to remain silent. (Najmī, P.193.)



Figure 9. Sayyida Shīrīn (d. 1028 AD/ 419 AH), the widow of Fakhr al-Dawla.

#### Avicenna's Viziership

Majd al-Dawla took Avicenna as his Vizier (minister) and that this became the cause of an open war between him and the queen mother. When the latter was victo-

rious Avicenna was obliged to flee from Rayy. Whatever may have been the cause, again necessity made him pass on to Qazvīn, less than 100 miles away; and from there he moved on to Hamadān.

At that time Shams al-dawla, another son of Sayyida, was ruler of Hamadān. Following the example of his mother, he welcomed Avicenna and soon gave him ministerial rank. But this rule was troubled. A revolt among the underpaid and underfed soldiery broke out and Avicenna’s house was attacked and looted. He was forced into retirement, from which, however, he was soon summoned to undertake the treatment of Shams al-Dawla who was attacked by severe colic, which baffled his doctors. Again Avicenna triumphed and he was restored to his high office of state. The death of his patron led him to trouble. Taj al-Dawla, who succeeded, preferred another to Avicenna and Avicenna was forced to hide in the house of a druggist Abū Ghālib. But he could not remain concealed for long. His flight gave rise to suspicions and, search being made, he was found and condemned to imprisonment. He was lodged in the fortress called Farajān, but after four months escaped in disguise and fled to Isfahān, where another member of the Daylami family was reigning. This was ‘Alā’ al-Dawla Ḥasām al-Dīn, often known as Ibn Kākūya or son of Kākūya, because his father was the Kākū or uncle of the famous queen Sayyida. Again Avicenna rose triumphant over his misfortunes. He was received with the greatest respect by ‘Alā’ al-Dawla who placed at his disposal a palace with gardens and a guard, such as he merited, as he himself said. He had now no further desire to meddle in politics and was the prince’s confidential adviser without assuming the obligations of the viziership. Thus affairs of state had not robbed him of his scientific tastes nor now did they occupy too much of his time. It was impossible, even for Avicenna, thus to burn the candle at both ends.

Avicenna accomplished ‘Alā’ al-Dawla as physician and general literary and scientific adviser in his numerous campaigns. While in company of ‘Alā’ al-Dawla, Avicenna fell ill with colic. He treated himself by employing the heroic measure of eight self-administered celer-seed enemas in one day. However, the preparation was either inadvertently or intentionally altered by an attendant to induce five measures of active ingredient instead of the prescribed two. That caused ulceration of the intestine. Following up with a mild opium remedy, a slave attempted to poison Avicenna by surreptitiously adding a surfeit of opium. Weakened but indefatigable, he accompanied ‘Alā’ al-Dawla on his march to Hamadān. On the way, he took a severe turn for the worse, lingered for a while, and died in the holy month of Ramaḍān in 1037. (Avicenna, the Most Significant Polymath of the Islamic Golden Age..., 4 of 12)

According to “A Medical History of Persia” it has been suggested that the cause of all this trouble (Ducastel,

1929) was a cancer of the stomach. Nevertheless he felt himself well enough to accompany his patron on a journey to Hamadān. On the road he was again struck down with colic, never regained his health and entered to Hamadān only to die a few days later. During the last fortnight of his life he refused all medical treatment. He gave alms to the poor, freed his slaves and read through the entire Qur’ān once every three days (he was one of those remarkable genuines who learn to recite Qur’ān by heart). His tomb in Hamadān is shown to this day. (Elgood, P. 191.)

A wit of the day wrote the following upon Avicenna: “I found Ibn Sīnā contending with men, but he died in prison (or, of constipation) the most ignoble death. What he attained by the Shifā (or, by Healing) did not secure his health, nor did he escape death by his Najāt (or, Deliverance).” In this verse there are three ingenious word-play, for ḥabs means both “imprisonment” and “constipation” while two of his most famous works are entitled Shifā (“Healing”) and Najāt (“Deliverance”). (Elgood, P. 192.)



**Figure 10. In this edition (Venice, 1522), Avicenna is pictured as a medieval professor dictating to a student the later commentator, Gentile da Foligno (d. 1348).**

### The Exact Date of Avicenna's Demise

Concerning Avicenna's date of death there are not equal opinions. A number of historians and authors report it: Sha‘bān 428 AH (1036 AD) in Isfāhān; Yāqūt writes his death date 6th Sha‘bān 428 AH (1036 AD), but the others have recorded it, on Friday, the first of Ramaḍān. Ibn Khallikān says that at the end of Avicenna's life, ‘Alā’al-Dawla became nervous at him and imprisoned this great physician. At last, he expired during captivity. According to “Ḥujjat al-Ḥaq Abū‘Ali- bin Sīnā” (P.593), as narrated from the book Tatemma (P.46) “Sheikh (i.e.

Avicenna) finished his life in the court of ‘Alā’al-Dawla and died in Hamadān on Friday, the first day of Ramaḍān 428 Higira (1036 AD) due to colic, luxurious life, disregarding his health and taking erroneous medicine.” He lived around 58 years.

### Birth and Demise Date of Avicenna

The exact birth year of Avicenna (Figure 10) is not known precisely. The author of the Ṭabaqāt al-Aṭibba’ gives on the authority of Abū ‘Ūbayd Jūzjānī 375 AH as his birth and 428 AH as his death that is 985 AD and 1036 AD respectively. But it is generally agreed that Ibn Khallikān, who makes the date of his birth five years earlier, is the more correct. He agrees in the date of his death, adding that it was on a Friday in the month of Ramaḍān, for Avicenna's first recorded case is said to have been his attendance at the death-bed of Nūḥ bin Maṣūūr. This prince reigned from 976 AD (366 AH) to 997 AD (387 AH). In al-Qiftī's Tārīkh al-Ḥukamā' is found an extract of Avicenna's autobiography. He there states that he was seventeen when he was called in to attend upon the prince. This would therefore fix 980 AD as the date of his birth. (Pūyān, P. 168.)

### Burial Place

About the burial place of Avicenna, the oldest text inform us such as this: His tomb is in Hamadān and is located in the middle of the new city, beside the road. On the floor of the tomb, there are two stones: one covers the remains of Avicenna and the other one belongs to the grave of Sheikh Abū Sa‘īd who was a druggist son and a mystical poet. He was a contemporary of Avicenna and said to have been acquainted with him. These two once met, Avicenna, speaking of the poet said: “All I know, he sees.” But the poet capped the remark by saying: “What I see, he knows.” A modern inscription records that the tomb had fallen into disrepair, a fact noted by al-Kashmīrī when he passed through Hamadān in 1741 AD (1154 AH), and that it was restored by Princess Nigar Khanum of the Qājār family in the year 1877AD (1294 AH). It has since been restored again, thanks to the interest which the late Sir William Osler showed in Avicenna and all connected with him. (Pūyān, P. 168.)

### Prodigy of Learning

Avicenna is said “to have mastered Qur’ān by the age of ten” (Lyons, P.310) and “nearly all the sciences of his day by the age of 19.” (Encyclopedia International, Vol. 2, P. 278). It was he, we are told, and who explained logic to his master al-Nātilī. He had no teacher in the natural sciences or in medicine, in fact, famous physicians were working under his direction when he was

only sixteen. He did, however, find difficulty in understanding Aristotle's *Metaphysics*, which he grasped only with the help of al-Fārābī's commentary. Having consulted him on medical matters, the princes had recourse to him also in matters of politics.

### Restless Person

Abū 'Alī essentially was a restless person, he left Bukhārā to Gurgānāj, and to Khurasān, and then he went to Gurgān, Rayy, Hamadān, and Isfahān. Avicenna while served as a royal physician to various kings, princes, and governors, when he travelled widely in the eastern Islamic lands, wrote nearly 270 different books and treatises, and mostly were in Arabic. "The most famous of these works were the *Canon* (the Norm), a medical compendium, and the *Shifa'* (the Cure), a lengthy account of Aristotelian logic, metaphysics, and psychology. Avicenna's own psychology was Neo-Platonic mysticism constructed on an Aristotelian base, which he out attempted to reconcile with the main doctrines of Islam." (Encyclopedia International, Vol. 2, P. 278.)

### Vagabond Life

He was a minister several times, his advice being always listened to; but he became an object of envy, sometimes persecuted by his enemies and sometimes coveted by princes opposing those to whom he wished to remain loyal. He took flight and was obliged to hide on several occasions, earning his living by medical consultations. He was imprisoned, escaped, lived for fourteen years in relative peace at the court of Isfahān and died at Hamadān. (Encyclopedia of Islam, P. 941.)

### National and International Honorific Physician-Scientist

Avicenna who standing in both Islam and Christendom was equal to that of Galen (Lyons, P. 310), "believed that surgeons were less important than physicians, and his influence lasted for almost ten centuries" (Chocrane, P. 58). Avicenna in his lifetime and after his demise was respected by all classes of people. The scholars and scientists honored him because of his profound knowledge in medicine, philosophy and his governmental positions. Avicenna's true scientific position revealed itself after his demise. Physicians, philosophers and scientists all over the world do honour to him. His works are considered among the best sources in the world. Erudites boasted of reading of Avicenna's works. Not only Islamic world honoured Avicenna, the West and the philosophical and scientific circles respected him as well. His "*Canon of Medicine*" printed in Latin language 16 times in the 15th century and 20 times in the 16th century. This work was the textbook of Montpellier and Louvain universities until 1650. In Europe

Avicenna is celebrated to Aristotle of Islam and called the second Hippocrates. Abū 'Ubayd who was Avicenna's pupil and companion for 25 years introduces Avicenna such as this: "Sheikh [Avicenna] was handsome and graceful, such a man that, when he lived in Bukhārā ravished everybody's heart. People when met him stared at his size and stature. He was a strong, sturdy, delicate, and a pleasure seeking man. In all, his qualities were beyond description."

Some historians and writers report us that Avicenna was so rough that the armies revolted against him and tried to kill him, but he hid himself and was saved. A number of historians like Abū al-Hassan Beyhaqī inform us regarding Avicenna's scurrilous language, dishonour, heedlessness, and harshness to the scholars and scientists of before and his time. Avicenna attacked Rhazes and called this Iranian famous man of knowledge idle talker. For instance Avicenna says: "What is Rhazes' business with theology, it is better for him to engage in his own job which is searching at urine and excrement." Regarding his religion, according to historians he believed in Ismā'īlism. (Poūyān, PP. 169-170.)

### Qur'ān

According to his autobiography, Avicenna (Figure 11) had memorized the entire Qur'ān by the age of 10. He also studied Islamic Fiq (Islamic jurisprudence) under the Sunnī Hanafī scholar Ismā'īl al-Zāhid. In such moments of baffled inquiry, he would leave his books, perform the requisite ablutions, then go to the mosque, and continue in prayer till light broke on his difficulties. Avicenna made an argument for the existence of God which would be known as the "Proof of the Truthful" (Arabic: al-Burhān al-Ṣiddīqīn). Avicenna argued that there must be a "necessary existence" (Arabic: Wājib al-wujūd), an entity that cannot exist and through a series of arguments he identified it with the Islamic conception of God. Present-day historian of philosophy, Peter Adamson called this argument one of the most influential medieval arguments for God's existences and Avicenna's biggest contribution to the history of physiology. (Avicenna, Wikipedia).

Avicenna's theology on metaphysical issues (ilāhīyyāt) has been criticized by some Islamic scholars, among them are al-Ghazālī, Ibn Taymiyya, and Ibn al-Qayyim. While discussing the views of the theists among the Greek philosophers, namely Socrates, Plato, and Aristotle in *Al-Munqidh min ad-Dalāl* ("Deliverance from Error"), al-Ghazālī noted that the Greek philosophers "must be taxed with unbelief, as must their partisans among the Muslim philosophers, such as Ibn Sīnā and al-Fārābī and their likes."

He added that "None, however, of the Muslim philosophers engaged so much in transmitting Aristotle's lore as did the two men just mentioned [...] The sum of what we regard as the authentic philosophy of Aristotle, as

transmitted by al-Fārābī and Ibn Sīnā, can be reduced to three parts: a part which must be branded as unbelief; a part which must be stigmatized as innovation; and a part which need not be repudiated at all. (Avicenna-Wikipedia)



Figure 11. Miniature of Avicenna.

Therefore, Avicenna was accused as being atheist (a person who does not believe in a beginning of the creation nor an end, nor does he believe in a Lord of the creation, nor any prophet sent from Allah) by a number of Islamic scholars. But according to Cyril Elgood “during the last fortnight of his life, he refused all medical treatment. He gave alms to the poor, freed his slaves and read through the entire Qur’ān once every three days. He was interested in some short Sūra (Sūrat) of Qur’ān including the following Sūra under the title al-Nās (Humankind):

In the Name of God, the Merciful the Compassionate  
Say: “I take refuge with the Lord of humankind, the King  
of humankind, the God of humankind From the evil of the  
slinking whisperer who whispers in the breasts of humankind of jinn and humans.

### Poetry

Almost half of Avicenna’s work are versified. His poems appear in both Arabic and Persian. As an example, Edward Granville Browne claims that the following Persian verses are incorrectly attributed to Umar Khayyām (5th/6th century AH, 11th/12th century AD) and were originally written by Ibn Sīnā.

“From the depth of the black earth up to Saturn’s apogee,  
All the problems of the universe have been solved by me;  
I have escaped from the coils of snares and deceits;  
I have unraveled all knots except the knot of Death.  
(Browne, P. 61)

### The Loyalty of Jūzjānī to Avicenna

At the age of 32 in 1020 (411 AH) while still was living in Jurjan, Avicenna met Abū ‘Ūbayd ‘Abd al-Wahīd bin Muḥammad al-Jūzjānī, his famous disciple. It is to Abū ‘Ūbayd that the world owes the detailed information that it now has of the life of Avicenna and also of his many works. For Avicenna was careless. His time was much taken up with statecraft and less creditable occupations. Without Abū ‘Ūbayd’s spur much that he wrote would have been left unwritten and without Abū ‘Ūbayd’s industry and prudence much that was written would have been lost. For Avicenna was in the habit of giving away his manuscripts without keeping any copy. Not only did Abū ‘Ūbayd complete Avicenna’s autobiography from the time of their meeting until the day of his death, but he also completed his most important Persian work, the *Dānishnāma-i‘Ala’ī*, and collected and edited the minor works which his friend had scattered about so liberally during his lifetime. (Elgood, P. 188-189, Pūyān, P. 22)

### Avicenna 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) 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 *Kitāb al -Hāwī*; and Ibn Sīnā (980-1037) Iranian physician, called the prince of physicians who wrote an enormous and influential Ca-

non of Medicine. Here is Chaucer's prologue to the Canterbury Tales:

“With us ther was a Doctour of phisyk  
In all this world ne was ther noon him lyk  
To speke of phisyk and of surgyerye  
Wel knew he the old Esculapius,  
And Deiscorides, and eek Rufus,  
Old Ypcras, Haly, and Galien,  
Serapion, Razis, and Avicenna.  
(Pūyān, P. 3 of 5.)

## Conclusion

The ancient Greek physician Herophilus (c. 280-335 BC) developed his master's pioneering work and became the first to organize the full importance and impact of the pulse as a clinical sign in prognosis and diagnosis. He developed a systematic classification of different types of pulse employing the four main indications of size, strength, rate and rhythm and is credited with making the first known attempt to measure the frequency of the pulse by means of a portable water-clock. (Loudon, P. 36.) In the Far East (China, Japan), the physicians felt 12 pulses, six in each wrist, before treating the patient. (Parker, P. 15).

In Persia (Iran), “*Andar Dānish-i Rag*” (“On the Science of Pulse”) was wisely and minutely written by Avicenna in Persian language. The author, as described George Sarton the writer of “*The History of Science*”, was Ibn Sīnā “one of the greatest thinkers and medical scholars in history and “the most famous scientist of Islam and of all races, places and times.” He was one of the Islamic World's leading writers in the field of medicine and similarly to earlier Islamic writers he followed the approach of Galen (and Hippocrates as transmitted through Galen). Along with Rhazes, Albucasis, Ibn al-Nafis and al-'Ibadi [Hunayn], Ibn Sīnā is considered an important compiler of early Muslim medicine. He is remembered in the western history of medicine as a major historical figure who made important contributions to medicine and European Renaissance. His medical texts were unusual in that where controversy existed between Galen and Aristotle's views on medical matters (such as anatomy), he preferred to side with Aristotle, where necessary updating Aristotle's position to take into account post-Aristotelian advances in anatomical knowledge. Aristotle's dominant intellectual influence among medieval European scholars meant that Avicenna's linking of Galen's medical writings with Aristotle's philosophical writings in the Canon of Medicine (along with its comprehensive and logical organization of knowledge) significantly increased Avicenna's importance in medieval Europe in comparison to other Islamic writers on medicine. His influence following translation of the Canon was such that from the early fourteenth to the mid-sixteenth centuries he was ranked

with Hippocrates and Galen as one of the acknowledged authorities, (prince of physicians). (Avicenna, *Circumstance, Legacy, Poetry*, 1 of 1.)

Emphatically and without any uneasiness, according to the following document supported reasons, Avicenna probably the most influential Islamic physician-philosopher whose medical works became the major medical texts in the European medical schools for more than five centuries is the real author of “*Andar Dānish-i Rag*” (“On the Science of Pulse”):

1. Ibn Sīnā wrote the aforesaid medical text on the request of ‘Aḍud al -Dīn ‘Alā’ al -Dawla Muḥammad (d. 1041 AD/ 433 AH), the ruler of Isfahān who died four years after Avicenna's passing away.
2. ‘Aḍud al -Dawla-i Daylamī (reign: 949-982 AD/ 372-338 AH), the eminent ruler of Islamic Emire at Baghdad, died when Ibn Sīnā was only about two years old. Pannāh (Fannāh) Khusraw was his Persian name and ‘Aḍud al -Dawla was his “laqab” (title of honor).
3. In other words, when Avicenna in a definite manner says “there came to me a command from ‘Aḍud al-Dawla Daylamī that I should write a book on pulse” [al-nabḍ] (Elgood, P. 193), he means ‘Alā’ al-Dawla not ‘Aḍud al -Dawla (to mean the upper arm of dynasty) which was ‘Alā’ al-Dawla's laqab (title of honor) not his original name.

## Transliteration

Transliterate is to write word or letters in or as the letters of a different alphabets. In this article transliteration of Persian and Arabic names into English are as follows:

**Al-Dawla:** The Arabic title al-Dawla (often rendered ad-Dawla, ad-Daulah, ud-Daulah, Dahola, etc.) means “dynasty” or “state” and appears in many honorific and regnal titles in the Islamic world. Invented in the 10th century for senior statesmen of the Abbasid Caliphate, such titles soon spread throughout the Islamic world and provided the model for a broad variety of similar titles with other elements such as al-Din (“Faith”).

**Walī al-Dawla:** Friend of the Dynasty.

**‘Amīd al-Dawla:** Support of the Dynasty.

**Nāsīr al-Dawla:** Helper of the Dynasty.

**Sayf al-Dawla:** Sword of the Dynasty.

**Mu’izz al-Dawla:** Fortifier of the Dynasty.

**‘Imād al-Dawla:** Support of the Dynasty.

**Rukn al-Dawla:** Pillar of the Dynasty.

**‘Aḍud al-Dawla:** The upper arm of the Dynasty.

**Mukhlis al-Dawla:** Devoted servant of the State.

**Shams al-Dawla:** Sun of the Dynasty.

**Amīn al-Dawla:** Trusted supporter of the Dynasty.

**Sāhib al-Dawla:** Lord of the State.

**‘Izz al-Dawla:** Honor of the State.

**Tāj al-Milla:** Crown of the [Islamic] Community.  
**‘Alā’ al-Dawla:** Eminent of the Dynasty. (al-Dawla, Wikipedia, PP. 1 of 3 - 2 of 3.)  
**Fakhr al-Dawla:** Glory of the State.  
**Sayyida:** Well-born, nobly-born.  
**Sayyida Khatūn:** Well-born leader, nobly-born leader.  
**Risāla:** A treatise.  
**Dānishnāma (Dānish-nāma):** An encyclopedia.  
**Nabḍ (Nabz):** Pulse, beating.  
**Mi‘rājnāma:** An epistle of ascension.  
**Danish:** Science, knowledge, learning.  
**Rag:** A blood vessel, a vein, an artery.  
**Abū:** Father; in Arabic is used to make nicknames of person like Abū ‘Alī or animals.  
**Sultān:** King, sovereign.  
**Shāhanshāh:** King of kings.  
**Nāsir (Nāsser):** An assister, a defender.  
**Pūyān (Pouyan):** Researcher.  
**Faqīh:** Skilled in (religious) jurisprudence, jurist, a Muslim lawyer.  
**Sunnī:** Sunnite  
**Abbasi:** Abbasside (the Abbassides or Abbasside caliphs (c. 750-1258) who claimed descent from Abbas, the uncle of the prophet Muḥammad)  
**Filsūf al-Dawla:** The philosopher of the state.  
**Shams al-Din:** The sun of the faith.  
**Ḥakīm:** A philosopher, a sage, a wise man, a physician.

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