Entry Title:

Medicine in Islam

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Synonyms:

Islamic medicine, History of Islamic medicine, Islam and medicine, Arabian medicine.

Question 1: *(Description)*

Medicine in Islam includes, firstly, a study of the history of Islamic medicine; the medicine practiced during the Islamic era stretching between the Greco Roman Alexandrian times and the era of European Renaissance. Related to this first field of study is a sub-discipline in Islamic philosophy that serves to describe and clarify in objective, contemporary terms the methodological and philosophical principles that have guided the cultivation of medicine and other sciences in Islamic civilization.

Secondly, the term Islamic Medicine, also designates the currently reemerging concept of medical sciences as influenced and regulated by the worldview and ethical principles of Islam. As stated by Setia (2007), this meaning pertains to the subject matter of a discipline that serves to

reformulate the concept of Islamic medicine and other sciences as a long-term creative research program dedicated toward a systemic reapplication of Islamic cognitive and ethical values to medicine, science and technology in the contemporary world [1]. This will involve critical integration of the scientific endeavor into the conceptual framework of the Islamic worldview, and the concomitant explication of the cognitive, methodological, and axiological implications of such integration for present and future scientific research. This operative redefinition of Islamic science as well as Islamic medicine will render it into a new over-arching 'paradigm' or 'research program' pregnant with novel methodological and empirical implications (and hence, novel discoveries) for re-manifesting the Islamic worldview in everyday individual and societal life through the vision and practice of a new, authentically Islamic science and technology geared first and foremost toward identifying and solving the true problems and satisfying the real needs of humanity.

Many Western authorities on history of medicine have acknowledged and documented the close relation and integration of medicine and other natural science, with the religion of Islam. This relation stems from the unique nature of Islam and its underlying unity in all domains of knowledge based on the Qur'anic concept of *Tawhid*, Oneness of God, and the most fundamental principle of Islamic epistemology. Islam, as a religion is distinguished by being a way of life that goes beyond the mere performance of rituals. The Arabic word for religion "din" appears in Quran, Islam's Holy Book, in contexts that place it outside the purely ritual. Din in essence describes an integrated code of behavior, which deals with personal hygiene, at one end of the spectrum to the relationship of mankind with the natural order at the other. It provides a holistic approach to existence, it does not differentiate between the sacred and the secular and neither does it place a distinction between the world of mankind and the world of nature. The motivation provided by Islam for the study of natural phenomenon and pursuit of empirical knowledge is, thus, tremendous. This explains the harmonious relationship between epistemological dimensions of science and the Islamic worldview as well as between ethical and societal dimensions of science and Shari'ah (the Islamic Divine law).

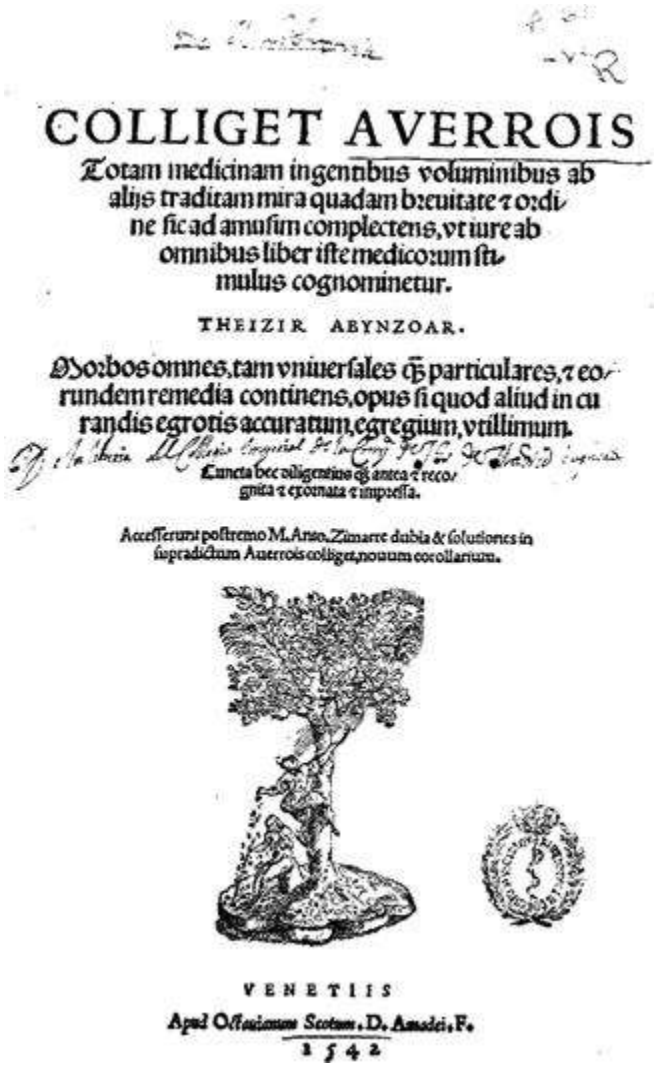
As detailed by Bakar (2003), the word Islam not only refers to its normative teachings that allow for fresh interpretations, but also to its culture and civilization as these dimensions have been manifested throughout Muslim history. If Islam is understood in this sense, then it has to

be inclusive of its past intellectual culture, of which medicine and science used to be an integral part. It is a position that is informed by a solid knowledge of the history of Islam the religion and Islam the civilization. This civilizational approach to the Islam and science discourse which is sensitive to tradition is based on the conviction that past formulations of the relationship between religion and science have an intrinsic value that make them relevant to contemporary attempts to arrive at the same conceptual goal. On the other hand, a discussion of Islam and medicine in the background of definitions rooted in the post-Renaissance understanding of religion in the Western world will be unrepresentative [2].

Several recent studies in the History of Medicine illustrate that Islam's contributions were richer, more profound and more lasting than was previously thought. As recent research has shown, there is a continuum between Islamic medicine and modern medicine. Science in Islam is not just a forerunner', something strangely distinct and distant, from science today but an integral part of modern science.

Focusing on the history of our surgical specialty, urology, we performed several primary source studies utilizing the already published original medical works of eleven Islamic medical scholars who lived and practiced between the ninth and the thirteenth centuries.

Our study critically evaluated their contributions to the progress of not only urology but also other surgical and medical subspecialties. Their original works were compared with those of their predecessors and with those who came after them. Their influence on Medieval Europe and European Renaissance was traced, evaluated, and documented. Furthermore, original translations into English were made of relevant excerpts of all the works studied. The Latinized works of all those Islamic scholars (Figures 1-3) were available in Europe as early as the twelfth century, with their influence lasting until the eighteenth century as documented by Sarton, Cumston and several other Western scholars [3-4].



COLLIGET AVERROIS

Totam medicinam in gentibus voluminibus ab
alijs traditam mira quadam breuitate & ordi
ne sic ad amussim complectens, vt iure ab
omnibus liber iste medicorum stu
mulus cognominetur.

THEIZIR ABYNZOAR.

Morbos omnes, tam vniuersales q̄ particulares, & eo
rundem remedia continens, opus si quod aliud in cu
randis egrotis accuratum, egregium, vtillimum.

Cuncta hec diligentius q̄ antea & recog
nita & exornata & impressa.

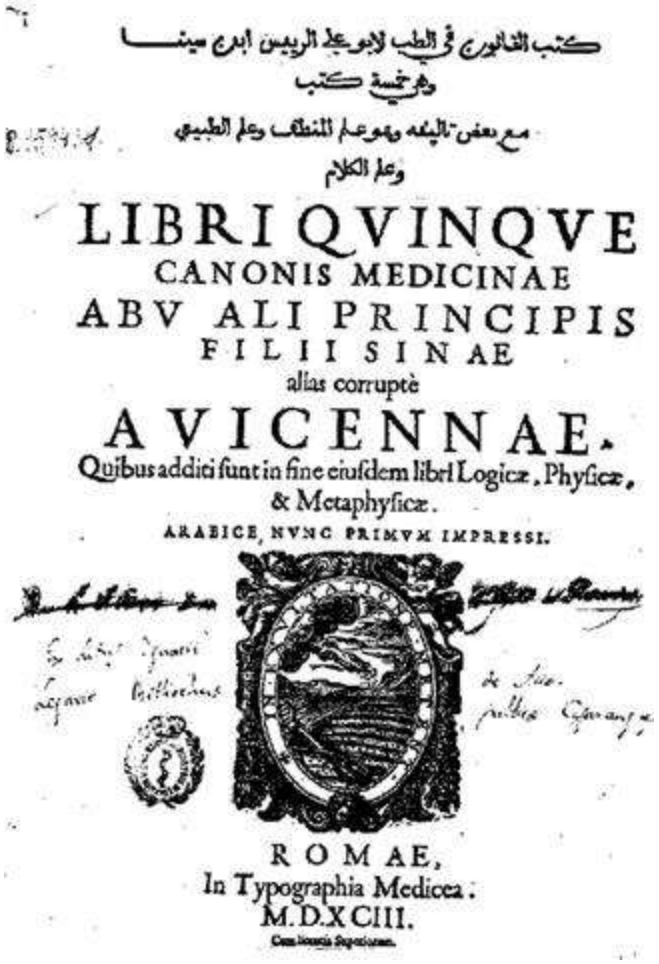
Accesserunt postremo M. Anto. Zimarre dubia & solutiones in
supradictum Auerrois colliget, nouum corollarium.

VENETIIS

Apud Octauianum Scotum. D. Amadei. F.

1542

Fig. 1
A Latin edition of the Kulleyyat of Ibn Rushd and the Taisir of Ibn Zuhr; the first-ever example of joint authorship of a medical textbook (Printed in Venice in the year 1542, courtesy of Biblioteca Histórica de la Universidad Complutense de Madrid)


كتب القانون في الطب لابو علي الرييس ابن سينا
وهي خمسة كتب
مع بعض تاليفه وهو علم المنطق وعلم الطبيعي
وعلم الكلام

LIBRI QVINQVE
CANONIS MEDICINAE
ABV ALI PRINCIPIS
FILII SINAE
alias corruptè
AVICENNAE.
Quibus additi sunt in fine eiusdem libri Logicæ, Physicæ, & Metaphysicæ.
ARABICE, NVNC PRIMVM IMPRESSI.

ROMAE,
In Typographia Medicea.
M.D.XCIII.

Fig. 2
A Latin edition of Ibn Sina's Canon of Medicine printed in Rome in 1593 (Courtesy of Biblioteca Histórica de la Universidad Complutense de Madrid)

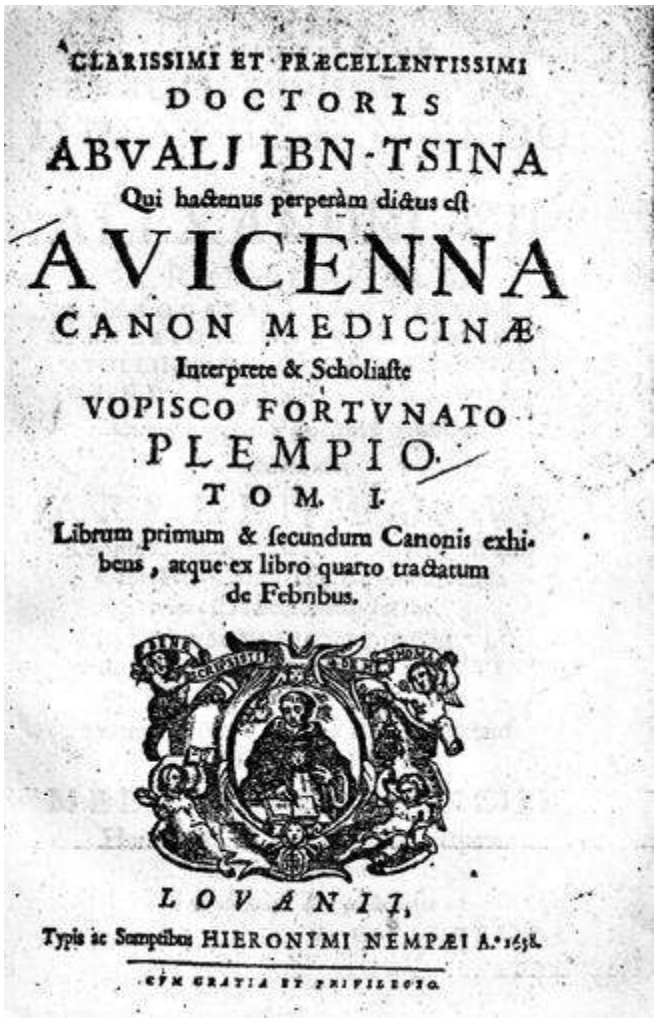

CLARISSIMI ET PRÆCELLENTISSIMI
DOCTORIS
ABVALI IBN-TSINA
Qui hactenus perperàm dictus est
AVICENNA
CANON MEDICINÆ
Interprete & Scholiaste
VOPISCO FORTVNATO
PLEMPIO.
TOM. I.
Librum primum & secundum Canonis exhibens, atque ex libro quarto tractatum de Febribus.
LOVANII,
Typis ac Sumptibus HIERONYMI NEMPÆI A.° 1658.
CVM GRATIA ET PRIVILEGIO.

Fig. 3
Another Latin edition of Ibn Sina's Canon of Medicine printed in Louvain in 1658
(Courtesy of the Koraes collection, Koraes Central Library of Chios)

Out of this long-term study, several original contributions to the progress of urology by those scholars during the Medieval Islamic era have been documented [5]. This includes contributions to the progress of anatomy, physiology, pathology, clinical urology, therapeutics, operative urology, and instrumentation.

Our results also confirm that those scholars of the Islamic era were not mere compilers or sheer transmitters of Greco-Roman medical literature. On the contrary, they critically reviewed the translated heritage of previous civilizations rejecting what is superfluous and accepting only what proves to

be true. They added original contributions to the progress of medicine and surgery and pioneered new fields of medical knowledge and practice such as medical ethics, medical education, medical certification, health education, preventive medicine, social medicine, hospitals and hospital training, mobile hospitals, medical-practice quality control, clinical medicine, differential diagnosis (Figure 4), experimental medicine, experimental surgery, beginnings of specialization, ophthalmology, pharmacology, and use of anesthetics.

Fig. 4
The opening page of a manuscript of the first-ever book written on differential diagnosis: Kitab Ma Al-Fariq, Kalamun Fi Al-Furuq Bain Al-Amrad (A discourse on differential diagnosis) by Al-Razi (Rhazes)

Over the last 3 decades or more and coinciding with the beginning of the 15th Hejri century an increasing interest in Islamic Medicine has been

noticed in different parts of the Islamic World as well as in few Western research centers. This scientific activity that seemed to be a product of the Islamic revival movements in various Muslim countries took the form of seminars, conferences, books and other scientific publications organized and published through individual and organizational scholarly efforts.

This ongoing contemporary discourse on Islamic Medicine, Islamic Science and Islamization of knowledge in general is enriched by the contributions of many scholars in different parts of the Muslim world as well as in the West. Among those who significantly contributed to the advance of this reemerging discipline are Al-Attas, Nasr, Bakar , Al-Faruqi, Golshami, Muzzafar, Setia, Kamali, Kazi, Sardar, Kalin and many others. They all provided important background knowledge that helped in the construction and growing understanding of the concept of Islamic science including medicine. However, what remains and is essential for this Islam-science discourse to move forward is the actual emergence of a scientific tradition based on the foundational principles of the study of nature anchored in the Qur'an and the Sunnah.

Several scholars formulated their viewpoints on how to implement the concept of Islamic science. According to Setia (2007), the true operative essence of Islamic science including Islamic medicine is that it has to be involved in an unapologetic, proactive construction of empirico-conceptual frameworks for interpreting and interacting with the world in a way that is self-consciously inspired by, and hence, in harmony with, the ethico-cognitive principles of Islam . For that purpose, Setia formulated a proposed Islamic Science Research Program (ISRP). It consists of an unchanging core metaphysical component underpinning the program, and a surrounding network of auxiliary explicative theories and hypotheses for relating the metaphysical abstract core to the concrete physical world. The role of the network of auxiliary theories is to provide directions for the conceptual clarifications and empirical investigations of various aspects of this permanent metaphysical core by relating them to corresponding aspects of the physical world. In other words, it is in this creative middle circle where the discursive reason (fikr) and contemplative intellect ('aql) mediate between the book of revelation and the book of creation [1].

Setia, also, emphasized the role of the twin Qur'anic cognitive principles of tabayyun (investigation, scrutiny) and burhan (proof, evidence) in implementing the concept of scientific objectivity in the ISRP with

respect to cultivating a critical attitude toward contemporary science. He stated that it will be irresponsible to take reports of promising new methods, discoveries and techniques at face value without undertaking investigation (tabayyun) into the often hidden underlying context of these reports and ascertaining their empirical adequacy (burhan) and "epistemological autonomy" (al-istiglal al-'ilmi) from powerful forces geared less toward global scientific enlightenment than narrow political economic enrichment [1]. Creative understanding and practice of tabayyun and barhanah, as practiced before by the Medieval Islamic scholars, will help Muslim scientists to separate the wheat from the chaff of Western science and incorporate it into the ISRP.

In this context further help can be obtained by undertaking evidence-based medical research into the well documented but largely neglected vast corpus of the very successful one thousand years' old Islamic cosmopolitan medical tradition.

Cognitive evaluation and ethical evaluation are both intrinsic to the scientific enterprise in Islam, as is quite evident in the studied scientific methodology of the Medieval Islamic medicine. The realization that scientific objectivity and methodological probity are not possible without concomitant ethico-moral integrity has been growing in the West and is now moving more toward the Islamic position thus allowing room for mutual constructive engagement on this important meta-scientific issue.

Question*2 (a): (Self Identification: Science)*

Islamic Medicine self identifies as a science. This is well documented by Western authorities on history of medicine who studied the medicine of the Islamic era between the 8^{th} and the 15^{th} century. As stated by Cumston, the majority of the orientalists who have studied the works of the Arabs admit that long before Roger Bacon they were in possession of that method which later on led to so many discoveries. Speaking of the school of Baghdad, he quoted Sedillot (Histoire des Arabes, Paris, 1854) as saying "what specially characterized the Baghdad school at its beginning was the truly scientific spirit which presided over all. To go from the known to the unknown, then from the effects to the causes, and only to admit as true what had been demonstrated by experimental work; such were the principles taught by the masters" [4]. Similarly, in his classic work on the Intellectual

Development of Europe, John William Draper acknowledged Europe's scientific obligations to Islam [6].

The Islamic system of medicine, well established as a discipline for over 800 years, was constructed in a logical, scientific and regular manner, taking the consecutive steps of first translating all the works of the predecessors, followed by critical evaluation of those works, rejecting what is superfluous and accepting only what proves to be true. Then original contributions started and flourished.

From the days of Al Razi (Rhazes; 865-925 AD) and onward, the medical scholars of the Islamic era were keen on direct observation and experimentation. Ibn al Nafis, the 13th century Muslim scholar emphasized that *"as regard the function of organs, we rely only on what is dictated by investigative observations and accurate research; Not caring whether it conformed with, or differed from, the opinions of those who came before us"*. Therefore, more than 600 years before the time of Vesalius (1514-1564), the interest and experience of the Muslim scholars in the study of anatomy led them to contribute to the advance of this important medical science by correcting many of Galen's erroneous anatomical concepts. Ibn Al-Nafis, like his predecessors in the Islamic era, critically appraised the views of those who came before him in the light of his own experimentation and direct observations. Accordingly, in his book Sharh Tashreeh Al-Qanun (A Commentary on the anatomy of Ibn Sina's Canon), we find the first correct description of the pulmonary circulation. He also laid the seeds of the proper understanding of the systemic greater blood circulation. Ibn Al-Nafis was also the first to describe the coronary vessels and the true concept of the blood supply of the heart. Those discoveries of Ibn Al-Nafis were translated from Arabic to Latin by the Padua-University-professor Andreas Alpagus; the translation was printed in Venice in 1547. Six years later, Ibn Al-Nafis' description of the pulmonary circulation appeared in the Christianismi Restituto of Servetus and, in 1555, in the second edition of the De Fabrica Humani Corporis of Vesalius. Similar descriptions were also given by Valvarde in 1554, Columbus in 1559, Cesalpino in 1571 then, finally in 1628 by Harvey [5].

Furthermore, the presence of anatomical drawings within medical textbooks is a trend that started and flourished in the Islamic era reflecting the role of direct observations and experience. During the whole of the Islamic era, with the increase in practical experience, the illustration of

anatomical findings continued to progress in quality and in fine details [5] (Figures 5,6).

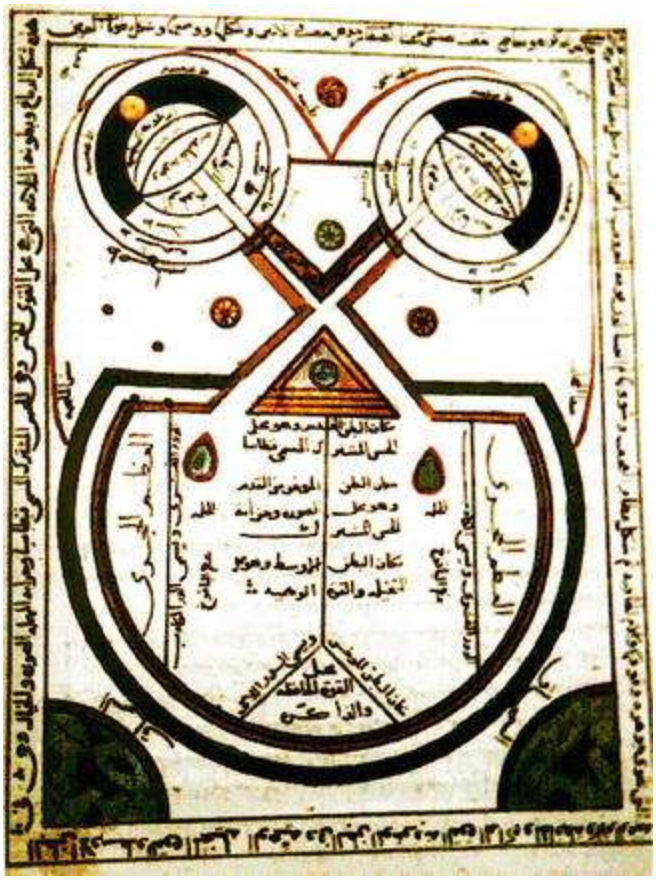


Fig. 5
The drawing of the cross section of the brain and the eyes made by the thirteenth century Khalifa ibn Abi Al Mahasin Al Halaby (from Aleppo) in his book Al Kafi Fi Al-Kuhl (The Book of Sufficient Knowledge in Ophthalmology)

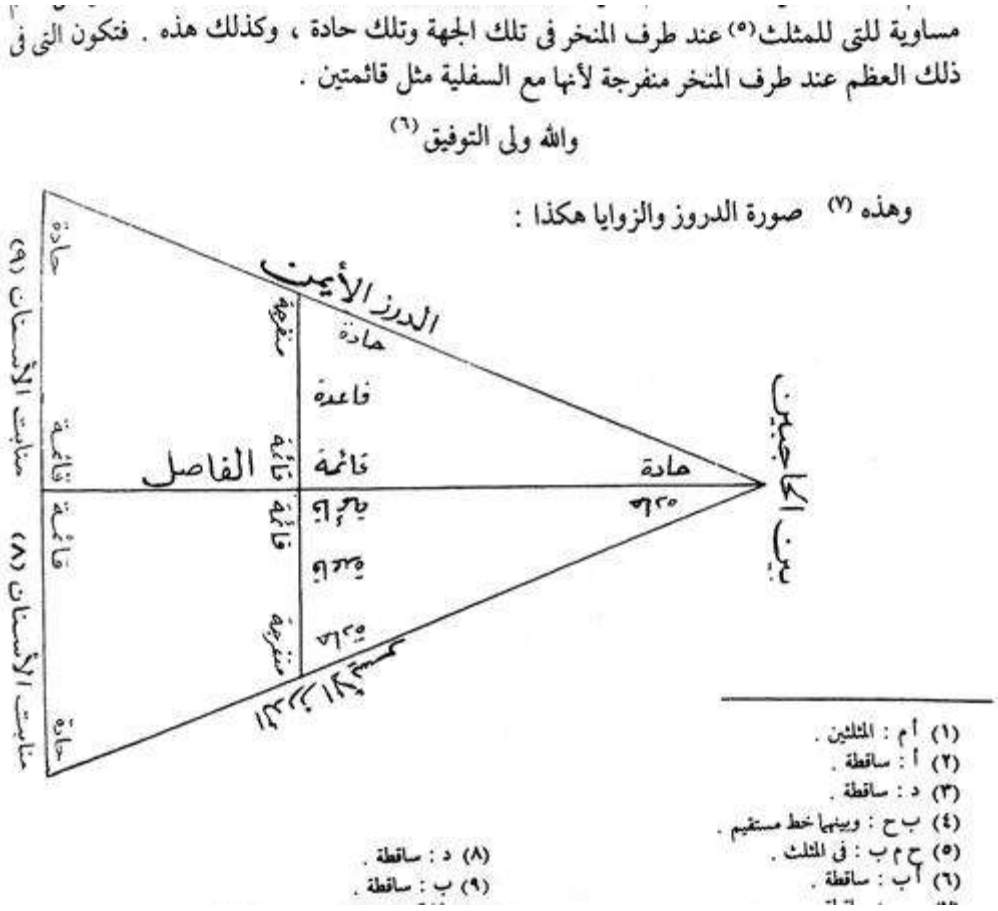


Fig. 6
Anatomical drawing of the maxillary sutures in one of the original manuscripts of Ibn Al-Nafis' book Sharh Tashrih al-Qanun (a commentary on the anatomy of Ibn Sina's Canon)

Another example of the originality and sound scientific nature of the medieval Islamic medicine is the 11th century Ibn Zuhr (Avenzoar)'s application, for the first time, of experimental methodology in evaluating new, or controversial surgical procedures. He performed the operation of tracheotomy on a goat in order to confirm the safety of the operation and disprove its condemnation by the Greco-Roman scholars. This unique experiment represents a further step in the development of the experimental school started by Al-Razi of Baghdad in the 9th century, who is known to have given monkeys doses of mercury to test it as a drug for human use. Ibn Zuhr's application of an experimental animal model to a clinical problem was the forerunner of the method by which many current surgical procedures were developed.

The investigative mind and reliance on experimentation in seeking evidence during the Islamic era is also represented by the post mortem

examinations done by Ibn Zuhr in the course of his clinical and therapeutic research on ulcerating diseases of the lung.

Question*2 (b): (Religion)*

Islamic medicine is the practical application of concepts of Islamic belief based on the divine revelation contained in Quran and explained in Sunna. Both forms of revealed knowledge and their value system of Islam strongly support observation, inductive reasoning and experimentation in the study of natural phenomenon. Search of truth is the method of Islam and, therefore, pursuit of scientific knowledge strengthens the faith of the believer. The quest of knowledge, creativity and innovation has a sanction of the Holy Quran and is extolled by the Holy Prophet. It must, therefore, be pursued vigorously and with full commitment and dedication. One of the Prophet's main prayers was "O God increase me in my knowledge". History is witness to the fact that Muslim philosophical thought and scientific knowledge of its golden period had essentially a moral and religious base.

According to Sarton, Cumston, Sedillot, and other Western medical historians; with the spread of Islam in the seventh century AD, a great revival of the sciences took place in the Islamic empire; knowledge of medicine flourished and acquired a truly scientific spirit and doctors were highly esteemed [3,4]. As stated by Guthrie, the progress in medical knowledge during the Islamic era was, motivated and inspired by Divine Revelation. In documentation for that statement, Guthrie cited the translation of an authentic Prophetic tradition saying: ”O, servant of God, use medicine because God has not created a pain without a remedy for it” [7]. Islamic medicine was stimulated by the concepts of faith. Learning and practicing medicine is an act of worship. Wisdom is highly appreciated and always sought-for. In most of the Muslim countries, up till very recently, before the spread of the modern word “doctor”, the physician’s commonly used title was “ Al-Hakim” meaning in Arabic: the man of wisdom.

According to Castiglioni, this historical period of Islamic medicine, which lasted more than seven centuries, coincided with the most flourishing period of Islam. Likewise, emphasizing the religious context of medieval Islamic science, Sarton said: "How could we reach a correct understanding of Muslim science if we did not fully grasp its gravitation around the Qur'an?”. Medieval theology, he noted, was the core of science as well as the prop of religion. Science is positive knowledge, but scholarly inquiry

cannot be restricted to the modern, Western definition of positiveness. Medieval scholars (both Muslim and Christian) regarded theology as positive knowledge [3].

In Islam, the human body is a source of appreciation, as it is created by Almighty Allah (The God). Hence, all activities contributing to the well-being and preservation of health as well as the relief of sufferings of individuals and societies are virtuous acts of worship and essential religious duties. Muslim physicians therefore came to look upon medicine as the science by which the dispositions of the human body could be discerned, and to see its goal as the preservation of health and, if health should be lost, assistance in recovering it (Figure 7).


يتصرف في الطب من ذلك
المقالة التاسعة والعشرون
في نسبة العقاقير وبدلها والاكيال والاوزان
المقالة الثلاثون
في العمل باليد من الشق والبط والبزو الخلع مشروح مختصر
ابتدا المقالة الاولى
فصل في حد الطب قال الرازي يحفظ
صحة الاصحا ورد ها على المرضى بقدر طاقة الانسان
فصل في قسمة الطب
بنقسم قسمين علم وعمل والعلم ينقسم ثلاثة اقسام
علم الامور الطبيعية وعلم بالاسباب وعلم بالدلايل
والامور الطبيعية تنقسم ثمانية اقسام العناصر
والاركان والامزجه والاخلاط والقوي
والاعضا والافعال والارواح
فصل في العناصر
اعلم انه قد بانى كثير من كلام الاطبا العناصر
والاسطقسات والاركان والجواهر والامهات
والطبيعية وهم يريدون بها معنى واحدا على الاستعارة
لا على الحقيقة لان العنصر غير الاسطقس فان افلاطون
ذكر الفصل بين العنصر والاسطقس فقال ان العنصر
هو قابل للكيفيات واذا قبل الكيفيات صار اسطقس
وقال جالينوس ان العنصر هو جوهر بلا كيفيه والاسطقس
جوهر بكيفيه والعناصر اربعة وهي اسطقسات هذا

Fig. 7
A page from an original manuscript of Al-Zahrawi's book Al-Tasrif showing the beginning of the fist volume. It starts with a citation of Al-Razi's definition of medicine: "medicine is preserving health unto healthy individuals and returning it to the sick within the limits of human abilities"

The close integration and unity of knowledge between Islam and Medicine is also evident in the development and spread of health education during the Islamic era. Health education has always been an integral element

of Islamic teaching, and its spread was inextricably linked with the spread of Islam itself (Figures 8-10).

Fig. 8

The cover page of an original manuscript of “kitab muntakhab min kitab al hawi” (Selections from the Continens), a compilation meant for the spread of health education to the public. As stated by the author, he was inspired to write this book because God said in the Holy Qur’an: “Whosoever saves a human life, saves the life of the whole mankind” and also because of the Prophet’s saying: “The best among people is the most devoted to their benefit”

Fig. 9

A page from the manuscript of “kitab muntakhab min kitab al hawi” (Selections from the Continens) shown in Fig. 8. The text shown is the author’s statement enjoining a sick person to seek treatment and maintain the body in good health because it is his means for faith and knowledge being the abode for the honored self and revered soul and it is the way to obey the divine commandments, acquire courage, and achieve a good life here and hereafter

Fig. 10
A page from an original manuscript of the thirteenth-century book “Pearls of Prophetic wisdom for guidance on rules of medicine.” The title shown on this page is “a section on what is narrated on enjoining people to study medicine and the command to seek treatment”

Another example of the unity of medical sciences with Islamic faith is the statement of Ibn Rushd (Averroes, 1125-1198) that: "Anyone who practices anatomy will increase his faith in Allah”. This is of particular importance, because he was, at the same time, the Grand Qadi (Chief Magistrate) of Cordova and a well known authority on Islamic jurisprudence in the whole Muslim world; then, and up till now. Accordingly, contrary to several contemporary medical historians, the practice of dissection for medical teaching was not prohibited in the religion of Islam [5].

Furthermore, the chapter devoted for physiology in the encyclopedic book Al-Mukhtar Fi Al-Tibb authored by Muhadhdhabul Din Al-Baghdadi (1117-1213), was titled: the Gained Benefits of the Wisdom of Creation and likewise, the chapter on Embryology was titled the Creation of Human

Being. This example shows how Islamic faith and medicine were closely integrated in the minds and hearts of the Medieval Islamic medical scholars [5]. They had no conflict at all in their minds between religion and science. Indeed many of them were, also, pioneers in religious sciences.

Question *3: (Characteristics)*

The following distinguishing features of Islamic medicine as practiced during the Islamic era are evident and well documented:

- Motivated and inspired by Divine Revelation
- Ethically based on values from Divine Revelation
- Exalted the soul, the mind and the body at the same time
- Constructed on a regular scientific way
- Strongly opposed to magic and quackery. The Prophet (PBUH) stated that: *"If anyone carries out medical treatment, yet previously he was not known as a medical man, then he takes the responsibility*"[8]
- Also, derived from 'the medicine of the Prophet' is the primary attention given to preservation of health and prevention of disease [8]

Question *4: (Relevance to Science and Religion)*

A major factor in the misuse of modern science and technology for destructive ends is its supposed value-neutral framework. The renaissance of science and learning in Europe was accompanied by a separation of the religious and the secular, due to the peculiar conditions then prevailing. Knowledge has increasingly come to perform a utilitarian function, whose ends are determined largely by the prevalent and dominant distribution of societal power. Modern science, mistakenly based on the separation of the secular from the religious, has cut off its moral mooring. The world needs to re-think the assumptions that led to the creation of this value-neutral framework.

According to Patricia Marshal, the current dissatisfaction with the limitations of the analytical philosophical utilitarian approach to bioethics, has led recently to explorations of religion-based philosophies with increased attention to moral phenomenology and a recognition of the importance of social, cultural, and historical determinants that shape moral questioning [9].

The highly integrated and holistic framework of Islamic science including Islamic medicine provides an alternative model, which permitted the growth of science and learning, as well as, protected society from its misuse.

There are so many verses in the Holy Quran and many sayings of the Prophet that are highly relevant to contemporary controversies in medical ethics, bioethics as well as ethics of modern science and technology.

Furthermore, as stated by Bakar, unlike the modern trend of easily falling into the pitfall of reductionism, the Muslim search for premises has usually been guided by more holistic views of reality and knowledge. The result is a more solid intellectual foundation for sciences which also embraces issues beyond the domain of applications to include other aspects of the societal dimension of knowledge [2].

There is, also, a great need to revise the way university science and medical students are educated so that they know how to integrate their scientific knowledge and expertise into the more fundamental and higher goals of human life and thus avoid the destructive pitfalls of scientism. True science is beneficial knowledge (al-'ilm al-nafi') that is geared toward serving rather than subverting these higher, human goals.

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Furthermore, there is a lot to learn from the experience of the Islamic medical scholars who developed their own original school of knowledge and practice more than 1000 years ago. The way they critically evaluated cultures and civilizations before and around them, in the light of their own experience, rejecting what is superfluous and accepting only what proves to be true, is a good example for scientists today to stop blind imitation and lead the way for originality, innovation and new inventions.

The study of the history of Islamic medicine will be also rewarded by progress in the fields of bioethics, medical ethics, ethics of medical education, ethics of experimental research, philosophy of medicine, psychological and mental health, care of the terminally ill patients, social medicine, holistic medicine, care for the environment, nutrition, and many other areas related to public health and health services.

Moreover, there is a lot to learn from medieval Islamic medicine in relation to its greater emphasis on the art of maintaining health and the care to prevent illness. Another lesson is that the least we use drugs the better. The illness that can be remedied by regulating diet should not be treated by medicines, and what is relieved by a simple medicine should not be treated by a compound drug whereas surgical intervention should always be kept as the last resort. Furthermore, the vast experience of the medieval Islamic scholars well recorded in hundreds of extant Arabic works on pharmacy constitute a treasure of information and provide a range of topics for modern pharmacological research bound to enrich our present day pharmacopoeias with simple and safe herbal medicines.

Paying attention to spiritual as well as bodily health will, also, help us to minimize and control the high incidence of psychosomatic disease complicating the spiritual deprivation of our contemporary materialistic way of life.

Question *5:(Sources of Authority):*

With regard to the ethical and societal aspects of Islamic medicine, the sources of authority are the moral (akhlaq) and legal (ahkam) codes derived from Quran and Sunna. Within this metaphysical and ethical framework, it will be easy to accept, assimilate, integrate and advance any subject matter the truth of which has been confirmed by critical evaluation, experience and experimentation.

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Question *6: (Ethical Principles):*

The moral part of Islamic teachings (akhlaq) constitute the commands and teachings relating to the spiritual and moral characteristics of human beings, such as, justice, God-fearing *(taqwa),* courage, chastity, wisdom, endurance, loyalty, truthfulness, trustworthiness, etc., and prescribe how a human being should be.

In an Islamic context, the Qur'anic term *khuluq* is closest to the term "ethics"[1]. Also, some other terms referring to fundamental ethical principles

[1] The first independent work on medical ethics was authored by Al-Razi under the title of Khuluq Al-Tabeeb (The Physican's Good Manners). Ishaq ibn Ali al-Ruhawi who lived around 1200 AD used the tilte Adab al-Tabib for his famous book on medical ethics. The word "Adab" is closely related to "Kuluq" hence the title here also means The Physician's Good Manners.

referenced from Qur'an and describing the concept of good are *khayr* (goodness), *birr* (rightousness), *qist* (equity), and '*adl* (equilibrium and justice). The Islamic moral philosophy served as a basis for defining and suggesting solutions of the ethical and moral problems facing individuals in all various walks of life whether they are professionals, scientists, practitioners, businessmen or workers.

Islamic medical ethics is integrated within the framework of Ihsan (good personal conduct), that aspect of Islamic creed, which is, described as the act of worshipping Allah as if you see Him, knowing that even if you do not see Him, He sees you. Consequently, the strict adherence to ethical principles becomes inspired and internally monitored by the love to do what is pleasing to Allah, who is ever present, ever watchful.

Question *7:* ***Key Values:***

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- Islam emphasizes on the sanctity of human life and considers access to health care as a fundamental right of the individual.
- Islam emphasizes on the respect of a person's rights and dignity.
- Another main principle is the emphasis on seeking a cure. This is further emphasized by the fact that three of the goals of the Islamic Shari`ah" are the protection and preservation of life, intellect, and progeny. The other two are the protection of property and religion.
- The physician is an instrument of God's mercy on earth. So are the scientist and every individual in his own career.
- Five key values govern Islamic ethics: unity, equilibrium, free will, responsibility and benevolence.
- In the framework of Ihsan, the above mentioned principles and values has lasting effect both on the personal, professional and day to day activities of individuals.

Question *8:(Conceptualization):*

Nature/World

Nature/world has been created for a purpose and is blessed with a meaning. Man is entrusted by God to take good care of nature for himself and future generations as well as for animals, plants and environment.

Human Being

Human being is Created by God and has a transcendental nature. Man is dignified. He is made the center of the Universe. He is not completely part of nature. Dignity and nobility are part of each human being's birthright.

Life and Death:

Life is a Divine gift from the Creator. The first leg of its journey starts in a womb then from the darkness of the womb to the light of this present world. With death the soul, then, leaves the body but life continues in a different form until the Day of Judgment when it will rejoin the recreated body and come out from the darkness of the grave to the light of the Hereafter; the final eternal abode.

Reality

To accept the metaphysical dimension of reality is an integral aspect of the Islamic worldview, and the Qur'an clearly demands that. In a similar vein, to acknowledge the reality of the human psyche and thought is just as natural as acknowledging his physical existence. This is bound to be ultimately a wholesome and a more meaningful approach to the understanding of reality and a sound foundation, therefore, of a valid epistemology.

Knowledge

The Islamic concept of knowledge encompasses transcendental knowledge as well as knowledge that is based on sense perception, observation experimental knowledge and rationality. Islam also lays emphasis on beneficial knowledge that advances human welfare and seeks to utilize the resources of the universe for sound and beneficial purposes.

Truth

The fundamental truth and essential message in life is so expressively placed before humanity in the Qur'an and Sunna. It is the same message that had been revealed to all other Prophets during the long course of human history.

Perception

Human perception and knowledge are of two kinds: perception by the senses and knowledge through the contemplative intellect. It is important to have a philosophical framework through which to give meaning to the data

of sense perception and a sense of coherence to our understanding of reality, science, and religion. Islam's perception of knowledge is thus value-oriented and informed by ethical and theological concerns.

Time

Time is life. It goes on for a fixed term in the present world then continues to eternity in the Hereafter.

Consciousness

Muslim religious consciousness is essentially the consciousness of the Unity of God. The scientific spirit is not opposed to this religious consciousness, since it is an integral part of the latter.

Rationality/Reason

In Islam, the word 'intellect' (reason) is used in its traditional sense, viz., as related to contemplation. The modern connotation of the words intellect and reason as logical analysis or discursive thinking is the result of the emptying of their metaphysical content. The attitude these words imply toward Nature is the one that Goethe was to deplore as late as the early nineteenth century- that attitude that resolves, conquers, and dominates by force of concepts. It is, in short, essentially abstract, while contemplative knowledge is at bottom concrete.

Mystery

With regard to the origin, purpose and end of life, the Divine revelation in Quran and in Sunna left no unsolved mysteries in the human mind. The Creator also provided humankind with the mental tool to discover, understand and resolve mysteries of nature.

Question 9: (Relevant Themes)

The major medieval scientific and medical treatises, usually quite lengthy, still await reliable translations and editions, and a great deal of potentially important material lies unexamined. Furthermore, the latest research and the last few years have seen revolutionary findings that pushed forward the date for the beginning of a decline in Islamic science well into the sixteenth century. Moreover, as documented by Saliba, in the field of astronomy, and many others in the field of medicine, it is becoming more and more apparent that the scientists who were responsible for the production of original scientific discoveries in

Medieval Islamic science and Islamic medicine were mostly religious men at the same time and religious scholars in their own right [10]. Accordingly, works exploring the relationship between science and religion and between Arabic science and Western science have to be rewritten in light of these new findings.

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