Islamic Tradition in Medicine and its Influence on Europe

H. S. Virk

Department of Physics
Guru Nanak Dev University
Amritsar-143005

Abstract—After the fall of Rome, learning was no longer held in high esteem, experiment was discouraged and originality became even a dangerous asset. The early Christian era had an adverse effect upon medical progress because disease was regarded as a punishment for sin. The Arabs made observation and experiment the cornerstone of their studies and investigations.

The great Islamic tradition of medicine was established during the 8th century at Jundi-Shapur in Persia by a school of translators. It was propagated during the 9th and 10th centuries throghout the Muslim Empire by great philosopher-clinicians such as al-Rhazes and Ibn-Sina. During the golden age of Islamic tradition between 10th to 12th centuries, Islamic medicine flouris hed in Arabia from Persia to Spain, the important centres being Baghdad, Cairo and Cordoba in Spain. Ibn-Sina revolutionised the concept of medicine and his principal work, *al-Qanun fi'l-Tibb* became a classic which was used in most of the medical schools of Medieval Europe for teaching and practice for over seven centuries.

The greatest contribution of Islamic medicine was in materia medica and ch emistry. The Arabs were the first to introduce organo-therapy, dry dressing, anaesthesia and processes of distillation and sublimation. Arabs did also contribute to the advent of surgery. It is no exaggeration to remark that the Islamic tradition in medicine can be easily considered the harbinger of first Renaissance in Europe in the history of medicine.

Introduction

Historically speaking, Islamic tradition in medicine was enriched by rich oriental traditions such as Egyptian, Byzantine, Persian and Indian whereas in its turn it proved to be a precursor of European medical tradition during the Renaissance period. After the fall of Rome, learning was no longer held in high esteem, experiment was discouraged and originality became even a dangerous asset. During the dark ages medicine passed into the widely contrasting hands of the Christian church and the Arab scholars[1].

The early Christian era had an adverse effect upon medica progress : disease was regarded as a punishment for sin and such chastening demanded only prayer and repentance. Furthermore, the human body was held sacred and dissection was forbidden. Perhaps the greatest service rendered to medicine by the church was the preservation and transcription of the classic Greek medical manuscripts. These works were also translated into Arabic by the Nestorian Christians. This famous school and a great hospital were located at Jundi-Shapur in southwest Persia, where the chief physician was Jurjis ibn Bakht-Yishu, the first of a dynasty of translators and physicians that lasted for six generations. A later translator of great renown was Hunayn ibn Ishaq, or Johannitus (b. A.D. 809), whose translations were said to be worth their weight in gold. However, there was a great set back to experimental medicine during early Christian era as the church sought to replace the signs of the zodiac, to which parts of human body were referred, by various patron saints and a large number of them were associated with miraculous cures for different organs of the human body.

Islamic Tradition

Islam's first image in Europe was rather a distorted one[2]. By the twelfth century however the Latins discovered another image of Islam, namely, philosophy. The Latin West became aware of Aristotle gradually when scholars like Gerard of Cremona went to Toledo (Spain) in search of Arabic versions of Greek texts. About the same time, Ibn Sina's *Kitab al-Shifa* began to be translated into Latin and by about 1180, the first corpus of Ibn Sina's philosophical works was completed and began to circulate in Europe. Its influence was immense and translations of other philosophers

followed in quick succession. Thus, an image was formed in Europe of Islam as "the cradle of philosophers of great stature". Commenting on Islamic science in the Middle Ages, J. D. Bernal remarks[3] : 'On reading Islamic scientific works one is struck by a rationality of treatment that we associate with modern science . . . It is, however, interesting to notice that, though the two great mystifications of early science, astrology and alchemy, were also pursued by the Arabs, the greatest figures of Islamic science such as al-Kindi, Rhazes, and Avicenna explicitly repudiated the extravagant claims of the pseudo-sciences."

Golden Age of Islamic Medicine

During the rise of great Muslim empire, which extended from Persia to Spain, Islamic medicine flourished in Arabia and had its golden age between 10th to 12th centuries. One of the earliest was Rhazes (c. 865-932), who wrote a voluminous treatise on medicine, *al-Hawi* (Comprehensive Book). His most famous work "A Treatise on the Smallpox and Measles" deals with the distinction between these two diseases and gives a clear description of both. Like Rhazes, Ibn-Sina (c. 980-1037) was also a Persian, born near Bukhara. He has been called, and not without good reason, "the prince of physicians". It is not surprising that his principal work, *al-Qanun fi'l-Tibb* (The Canon of Medicine) became a classic and was used in most of the medical schools of the Medievel Europe until modern times when experimental science began, and because it remained more accessible than Hippocrates and Galen, it served as a basis for seven centuries of medical teaching and practice.

Ibn-Sina was a great theoriser of medicine[4]. He may be considered as the last of the three great philosopher-clinicians who laid the foundation of modern medicine, his predecessors being Hippocrates and Galen. *Al-Qanun* is the clear and ordered "Summa" of all the medical knowledge of Ibn-Sina's time, augmented from his own observations. It is divided into five books. The first contains generalities concerning the human body, sickness, health and general treatment and therapeutics. The second contains the materia medica and the pharmacology of herbs. The third book deals with special pathology, studied by organs, or rather by systems. The fourth book opens with the famous treatise on fever; then follow

the treatise on signs, symptoms, diagnostics and prognostics, minor surgery, tumours, wounds, fractures and bites, and that on poisons. The fifth book contains the pharmacopoeia[5].

In Greco-Arabian medicine, constitution is established in terms of humors, temperaments and elements[6]. Ibn-Sina expounded the theory that the body and soul form one complete whole, one single being. He specifically dealt with psychic states in relation to various humors and temperaments. His physiologic approach to psychology is evident in his "*Advia Qalbia*". He is the only Arab physician who has analysed the emotional and behavioural aspect of human nature in the light of humors and temperament and has seen the efficiency of certain drugs in altering the abnormal states. The conception of elatives/exhilarants and cardiac as well as nervine tonics is unique in Arabian system of medicine.

The greatest contribution of Arabian medicine was in meteria medica and chemistry; many drugs now in use are of Arab origin, as also are such processes as distillation and sublimation The Arabs were the first to introduce organotherapy, dry dressing and anaesthesia[7]. The patients were rendered unconscious before surgical operations by using *Cannabis Indica*, *Ergot Atropa Belladona* and opium.† Along with wine, two such prescriptions are given in Ibn-Sina's *al-Qanun* as well. No mention of anaesthesia is found in Greek writings.

Arabs did also contribute to the advent of surgery. At that period and, indeed, throughout most historical times, surgery was regarded as inferior to medicine. One Arab surgeon, however, Abul Kasim (Albucasis) of Cardoba (c. 936-1013), wrote the first illustrated book on surgery, *al-Tasrif*, which was widely used. He was a careful and conservative surgeon who did much to raise the status of surgery in Cardoba, an important centre of commerce and culture with a fine hospital and medical school equal to those of Cairo and Baghdad.

Another great doctor of Cardoba born just as the sun of Arabian culture was setting, was the Jew named Maimonides (c. 1135-1204). Banished from the city because he would not become a Muslim, he

†Arabic terms : *qanneb*, *shelam*,, *yabrooj* and *afyun*..

eventually went to Cairo where he acquired a reputation so high that he became court physician to Sultan Saladin. He was the original *El Hakim* in Sir Walter Scott's "Talisman". A few of his works (Guide for the Perplexed), written in Arabic, were eventually translated into Latin. In Toledo, Spain, where in the 12th century Christians, Jews and Moors co-existed in harmony, the College of Translators carried on the great task of turning classical medical lore from Syrian and Arabic into Latin. During the golden age, Arab contribution to medical progress were – medical chemistry, the organisation of pharmacy and hospitals provided with music, fountains, and storytellers. The Arabian Nights provides an enlightening survey of the medical wisdom of Persia and Arabia. The Arabs made observation and experiment the cornerstone of their studies and investigations.

Influence of Islamic Tradition on Renaissance

The transmission of Greek science by the Arabs, and the translation of the works of the Arabs into Latin, produced the first Renaissance in southern Europe, which began in the 10th century in Sicily, flourished in the 12th round Toledo, and soon afterwards in France[8]. The two principal works of Ibn-Sina, the *al-Shifa* and the *al-Qanun* made him an undisputed master in medicine, natural sciences and philosophy.

From the 12th to the 17th century the teaching and practice of medicine were based on *al-Qanun* in most of the European medieval schools of medicine which were founded at Salerno, Montpellier, Bologna, Padua and Paris. The Salerno school reached the zenith of its fame in the 10th or 11th century so much so that no one was allowed to practise medicine under a decree issued by Roman emperor Frederick II in 1221 until he had been publicly approved by the masters of Salerno. This school also produced a literature of its own and the best known work was the *Regimen Sanitatis Salernitanum*. Salerno drew scholars from far and near. One of the earliest was Constantine the African (c. 1020-1087), who translated many of the Greek classic writings from Arabic into Latin.

In the West several physicians learned Arabic for the sake of the works of Avicenna. The works of Abu Bakr Muhammad (al-Razi) were also known, and he was considered to be a better clinician. *Al-Qanun* provided an irreplaceable didactic corpus, for the *Kitab al-Kulliyat fi'l Tibb* of Ibn-Rushd corresponded with the first part of it. This book was translated between 1150 and 1187 by Gerard of Cremona and, in all, eighty-seven translations of it appeared in different languages in Spain, Italy and the south of France. Almost all the doctors, in fact, possessed either fragments of the *al-Qanun*, especially the "Fevers" and the "Diseases of the Eyes", or shorter treatises on the "Pulse" or the "Diseases of the Heart".

It is interesting to recall that Hellenic literature which was translated into Arabic during the 8th to 10th centuries, was again translated into Latin from the Arabic texts during the Renaissance. The first known influence appears in the works of a Dane, Henrik Harpestraeng, a royal physician who died in 1244. Arnold of Villeneuve, born at Valence, translated the treatise on the diseases of the heart, as well as some of the books of al-Kindi and other Arab authors. Not only the medicine but also in surgery, Arab scholars were quoted as authority. At the University of Bologna, anatomy was still being taught in Arabic terms in the 14th century.

Though the Islamic tradition in medicine and surgery can be easily considered the harbinger of Renaissance in Europe, yet it also brought a violent reaction against this tradition. Leonard da Vinci rejected Avicenna's anatomy, but, for want of another vocabulary, used the Arabic terms. Paracelsus burned the *al-Qanun* at Basle. Ultimately, Harvey dealt a severe blow to Avicennism by publishing his discovery of the blood circulation in 1628. Despite these facts or fiction, the role of Islamic tradition in medicine during Renaissance deserves a fresh reappraisal by the historians of medicine.

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