



## THE EDITIONS AND THE TRANSLATIONS OF AVICENNA'S CANON OF MEDICINE

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### ABSTRACT

One of the most outstanding names in history of Islamic science of the Middle Ages is without any doubt that of the Persian scholar Ibn Sina, Avicenna (980-1037), and his work *Al-Qanun fi-l-tibb* (Canon of Medicine) is one of the most representative writings of the medieval Arabic medicine. It is due to its importance that this encyclopedic book has had many editions and translations into other languages from the Middle Ages to the present day. This paper is an approach to the study of *Canon of Medicine* and it specifies the manuscripts, the editions and the translations existing about it.

### Indexing terms/Keywords

Avicenna; Ibn Sina; Canon of Medicine; History of science

### Academic Discipline And Sub-Disciplines

Medieval Islamic science; Medieval Arabic medicine; Scientific literature

### SUBJECT CLASSIFICATION

Literature Subject Classification

### TYPE (METHOD/APPROACH)

Historical inquiries, Literary analysis

### INTRODUCTION

One of the most outstanding names in Arabic medical annals is that of Ibn Sina (980-1037), Avicenna, called by the Arabs *Al-Shaykh al-Ra'is* (The Main *Sheykh*) and *Al-Mu'allim al-Thani* (The Second Teacher, after Aristotle).

Abu Ali Al-Husayn Ibn Abd Allah Ibn Sina was the son of an Isma'ili named Abdullah. Born near Bukhara, he spent his life in the eastern part of the Muslim world and was buried in Hamadan, where his grave is still shown and very visited.

Being a young man he had cured the Samanid sultan of Bukhara, Nuh Ibn Al-Mansur, who reigned from 976 to 997, and he was given the privilege of using the ruler's remarkable library. Ibn Sina devoured the contents of the royal library and at the early age of twenty-one was in a position to embark on his career as a writer. This included the systematizing of the knowledge of his time (Ullmann, 1970).

Some Arab sources (Ibn Al-Qifti, 1903; Ibn Khallikan, 1843) as well as the modern bibliographers list under his name a large number of works, and some of them attributed to him over two hundred titles, dealing with philosophy, medicine, geometry, astronomy, theology, philology and art (Ibn Abi Usaybi'a, 1884).

Among his scientific works we can underline two titles: the *Kitab al-shifa'* (Book of healing), a philosophical encyclopaedia based upon the Aristotelian tradition as modified by Neo-platonic influences and Muslim theology, and above all *Al-Qanun fi-l-tibb* (Canon of Medicine), which represents the final codification of Greco-Arabic medical thought (Leclec, 1876). Also, we can mention the *Urjuza fi-l-tibb* (Poeme of Medicine), a compendium of *Canon* written in verse, entitled *Cantica* in Latin. This last work, the *Urjuza*, is the summary of Avicenna medicine in poetry form (including 1326 couplets). It was translated by Gerard de Cremona in Latin and published six times in Europe from the 15th century until the 17th century. The first print of this translation along with the annotations by Ibn Rushd was published in Venice in 1485. The French translation of the mentioned work (along with Arabic text and Latin translation) were also printed and published in 1956. One of the important works of Avicenna is a book about the treatment of kidney diseases which was translated by Andrea Alpago into Latin and published in Venice in 1547. Also, the Latin translation of heart medicines under the title *Medicamenta Cordialis* was translated by Arnaldus de Villa Nova and published in 1482 (Brockelmann, 1889).

The Arabic text of the *Qānūn* was published in Rome in 1593 and was therefore one of the earliest Arabic books to be printed. Translated into Latin under the supervision of Gerard of Cremona (1113/4-1187) in the 12th century, this *Canon* with its encyclopaedic contents, its systematic arrangement and its philosophic plan, soon worked its way into a position of pre-eminence in the medical literature of the age, displacing the works of Galen, Al-Razi and Al-Majusi, and becoming the text-book for medical education in the schools of Europe, such as Montpellier, in France, Salerno, in Italy, Louvaine, in Belgium, and many other Universities of Germany, until the 17th century as late as 1650, as well as even until the 18th century in some institutions of higher medical education in Europe: in Padua, for example, as late as 1715 (Hamaneh, 1977).



The earliest known copy of volume V of the *Canon*, dated in 1052, is held in the collection of the Agha Khan and is to be housed in the Aga Khan Museum planned for Toronto, Ontario, in Canada.

A Persian version of *The Canon of Medicine* is located at tomb of Avicenna in Hamadan (Iran).

In the last thirty years of the 15th century it passed through fifteen Latin editions and one Hebrew.

Among the scientific advances of the *Canon* we have, for instance, the following: The book distinguishes mediastinitis from pleurisy and recognizes the contagious nature of phthisis and the spreading of diseases by water and soil. It also gives a scientific diagnosis of ankylostomiasis and attributes it to an intestinal worm; and so on. Its materia medica includes about seven hundred and sixty drugs.

The Islamic medicine in general and the medical knowledge of Avicenna in particular were based mainly on Hippocrates and Galen; however, according to the views of the researchers of history of medicine, the great Persian scientist surpassed his predecessors in both theoretical and practical medicine (Browne, 1921).

The *Canon* is based on a combination of Avicenna's personal experience in medieval Islamic medicine, the writings of Galen, Sushruta and Charaka, as well as the ancient Persian medicine and the Arabic one (Elgood, 1951). The *Canon* outshone all previous scientific works and is considered one of the most famous and influential books in the history of medicine.

From the 12th century until the 17th century the *Canon* served as the chief guide to medical science in the West and it is still in occasional use in the Muslim East (Campbell, 1974). The principles of medicine described by the *Canon* ten centuries ago are still taught at UCLA and Yale University in USA, among others, as part of the history of medicine. Much of the book was also translated into Chinese as the *Huihui Yaofang* (Prescriptions of the Hui Nationality) by the Hui people during the *Yuan* dynasty (13th-14th centuries) in China. Also, the *Canon* formed the basis of *Unani* medicine, a form of traditional medicine practiced in India.

According to William Osler the *Canon* is "the most famous medical textbook ever written" and it has remained as "a medical bible for a longer period than any other work" (Osler, 1922)..

In every century scores of scholars have been engaged in composing translations, annotations, synopsis and commentaries on it, and the *Canon* (or some parts of it) has been translated into almost all languages of the world. So, commentaries were written in various languages of the world such as Arabic, Latin, Hebrew, Persian, Urdu, Uzbek, French, German and English along all these centuries. And in this regard, should be noted the commentaries on the *Canon* made by the Arab physician Ibn Al-Nafis (1213-1288), who is mostly famous for being the first to describe the pulmonary circulation of the blood; and, especially, his commentaries on the anatomy described in *Canon* are very important.

## CANON OF MEDICINE

### Structure of Canon

The *Canon* is divided into five books which are structured in *jumal* (summae), *fen* (arts), *maqalas* (treatises), and *fusul* (chapters) (Shah, 1966).

#### Book I

The first book, called *Al-Kulliyat*, concerns to general medical principles. It often circulated separately from the rest of the encyclopedia, especially in Europe. This book contains a definition of medicine as a science, which is distinguished in theory and practice. So, it refers to the cosmic elements that make up the cosmos and the human body, the causes of health and disease, the mutual interaction of elements (temperaments), and the fluids of the body (humours), where Avicenna systematized for the first time the teachings of Galen of Pergamum. And, concerning these aspects, the physicians have this five tools: nutrition therapy, fresh air, a balance of exercise and rest, as well as the last treatment by medications or by surgery. Furthermore, the book deals with anatomy and physiology. The Book I is divided in 4 *Fen*: The first one covers the study on the elements: air, fire, water and earth. The second one is on etiology and symptoms. The third one deals with hygiene, the cause of health and sickness, and the inevitability of death. And the fourth one refers to classification of therapy modes.

#### Book II

The second book is on Materia Medica and simple drugs. It lists in 758 chapters about 800 simple remedies and medicines, in alphabetical order: plants, animal substances and minerals. In this book Avicenna took Indian and Greek sources and added his own comments, highlighting differences between recipes from different sources, and sometimes giving his own recipes. He also gave his opinion of the effectiveness of some remedies, and gave details of where particular ingredients came from and how they were prepared. He preferred the remedies which had been tested through experience, cautioning that compounds could have unexpected or much stronger effects than might be expected from the effects of the individual components.

The Book II contains seven rules for experimenting with new drugs, taken partly from Galen:

The drug should not be affected by heat, cold, or proximity to other drugs.



The experiment of any drug must be done on a single status; in other words it should not be tested on a patient who has complex or multiple illnesses.

The drug must be tested on two contrary conditions. A drug not only should act directly on a disease but also it should be effective against a different disease by relieving its symptoms.

The potency of the drug should be appropriate to the strength of the disease.

One should consider the time needed for the drug to take effect. If the drug has an immediate effect, this shows that it has acted against the disease itself.

The effect of the drug should be the same in all cases, or at least at most.

Experiments should be performed in humans, not animals.

### **Book III**

The third book, divided in 22 *Fen*, refers to pathology and therapy, arranged in order of the site of the ailment from head to foot. There are also anatomical descriptions of heterogeneous organs are also given. The anatomy of the *Canon* is found between the Book I and the Book III.

### **Book IV**

The fourth book refers to diseases that affect the whole body, such as fevers. It deals also about purulent ulcers, neuropathy, dislocations, fractures, injuries caused by animals (animal bites, insect bites), skin conditions and even cosmetics, etc.

### **Book V**

The fifth book deals with the preparation of about 650 remedies of diverse components (*Antidotarium*). It contains some very complex medicines, including preparations of theriacs, electuaries, syrups, medicinal oils, pills and ointments, etc. The book concludes with a short collection of formulations against some diseases.

## **Manuscripts of Canon**

### **Arabic Manuscripts**

- 1- The National Library of Medicine in USA has one of the few entire Arabic copies: The **Ms. A 53**, a carefully executed copy, probably made at the beginning of the 15th century in a Timurid workshop in Iran. Each of the five books begins with fine illuminated openings, i.e., decorated panels above the start or the title of the treatise. The intricate design incorporates geometrical and floral motifs that include a rhomb in which the title of the treatise is written, for example, or the *Basmalah* is inscribed. Two of the illuminated headings were done by the same person, possibly the master illuminator in the workshop, while the openings of the other three books were probably executed by other members of the same workshop of calligraphers and illuminators. An extra illuminated heading has been inserted in the middle of the third chapter; it was added later, probably in the 17th century.
- 2- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 44 (former CCXV)** (copied in 584h./1189 by Abu Bakr Ali Ibn Ali Ibn Ahmad Al-Nadi). Entire (Arvide Cambra, 1992).
- 3- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 18 (former CCIX)** (no dated). It contains part of the Book III until the first *maqala* of the fifth *Fen* (art).
- 4- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 56 (former CCX)**. The manuscript is acephalous and apodal and maybe contains fragments of the *Canon*.
- 5- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 144 (former CCXI)** (no dated). It contains the Book III until the first *maqala* of the thirteenth *Fen* (art).
- 6- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 147 (former CCXII)** (copied in 527h./1134 by Muhammad Ibn Mu'farrah Ibn Hasan Ibn Muta'afa Al-Andari). It contains a part of the Book IV and includes a treatise on fevers and tumors.
- 7- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 150 (former CCXIII)**: Part 1 (ff 1r-57r) (copied in 934h./1528 by Muhammad Ibn Al-Amid Ibn Abd Al-Qadir, Ibn Al-Qutbi). It contains part of the Volume IV. Part 2 (ff 58r-291v) (no dated). It also contains the sixth *Fen* of the Book V.
- 8- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 151 (former CCXX)** (copied in 1208 by Yusuf Ibn Muhammad Al-Tunjibi). It contains the 2nd *maqala* of the Volume V.
- 9- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 154 (former CCXXI)** (copied in 923h./1518 by Muhammad Ibn Al-Abid Ibn Al-Qutbi). It contains the 2nd *maqala* of the sixteenth *Fen* of the Book III.
- 10- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 159. Part I (former CCXIX)** (no dated). It contains the *Fen* 10-14 of the Book III. **Part II (former CCCVIII)** (copied in 924h./1519 by Muhammad Ibn Al-Qadir Al-Qutbi). It contains the *Fen* 1-9 of the Book III. The previous MS. (Ms. Or. 159, Part I) contains the remainder *Fen* of the Book III until the *Fen* 14.



- 11- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 184 (former CCXVII)** (copied in 936 h./1530 by Ali Ibn Abd Allah Ibn Husayn). It contains the Book II.
- 12- Florence, Biblioteca Medicea-Laurenziana, **Ms. Oriental 195 (former CCXXXIII)** (no dated). It contains until the chapter 30 of the *Fen* 3 of the Book I.
- 13- London, Wellcome Library for the History and Understanding of Medicine, **Wellcome MS. Arabic 155** (copied in 1632).
- 14- London, British Library, **Harley Ms. 3744**, copied early 14th century-early 15th century. It contains the books I, II, V, and IV of the *Canon* and it is made up of two separate codicological units, independently made and containing respectively Books I, II, V (ff. 6r-135v) and Book IV (ff. 138r-154r). The two units were apparently bound together in the late 14th or early 15th century, since medical notes were added to both units by late 14th and 15th-century (see ff. 5v, 136r-137v, 154v faint), including an Arabic glossary of words and their Latin equivalents and a list of medical drugs (f. 136v). In the first unit, Avicenna's books are preceded by a list of synonyms (ff. 1r-5r), and followed (f. 135) by a few recipes from Ahmad Ibn Ishaq.
- 15- Oxford, Bodleian Library, Oxford University: **Ms. Pococke 47** (copied in 1126). It contains Book II.
- 16- Oxford, Bodleian Library, Oxford University, **Ms. Huntington 196** (no dated). It contains the Book III, sections 1-9.
- 17- Oxford, Bodleian Library, Oxford University, **Ms. Thurston 2** (no dated). It contains the Book III, sections 1-8,17 to end.
- 18- Oxford, Bodleian Library, Oxford University, **Ms. Pococke 131** (no dated) (copied before 1483). It contains the Book I.
- 19- Oxford, Bodleian Library, Oxford University, **Ms. Marsh 138** (copied in 1496). It contains the Book V.
- 20- Oxford, Bodleian Library, Oxford University, **Ms. Marsh 647** (copied in 1536). It contains the Book II.
- 21- Oxford, Bodleian Library, Oxford University, **Ms. Bodl. Or. 702** (no dated). It contains the Vol.I.
- 22- Oxford, Bodleian Library, Oxford University, **Ms. Huntington 23** (no dated). It contains the Books I-II.
- 23- Oxford, Bodleian Library, Oxford University, **Ms. Ind. Inst. Arab. 3** (copied 1790 or 1826). Entire.

### **Manuscripts in Latin translation**

- 1- London, British Library, **Ms. Add. 14424** (copied in the 14th century). It contains "*Liber Canonis*, quen princeps Abhoali Abvisceni [Avicenna] de medicina edidet, translatus a magistro Gerardo Cremonensi, in Toletu, ad Arabico in Latinum".
- 2- London, British Library, **Ms. Royal 12 G. vi**.
- 3- London, British Library, **Sloane Ms. 1933** (copied in the 13th century. Defective). It contains works of Al-Razi (ff.3-114), Avicenna's *Formulae Remediorum* (f.98v) and *Libri Canonis ejus* (ff.184v-275r).
- 4- London, British Library, **Sloane Ms. 2157**.
- 5- London, British Library, **Sloane Ms. 3095**.
- 6- London, British Library, **Harley Ms. 3757**. It contains the Book III according to Gerard of Cremona's translation.
- 7- London, British Library, **Harley Ms. 3744** (copied late the 14th century- early the 15th century). The volume is made up of two separate codicological units, independently made and containing respectively Books I, II, V (ff. 6r-135v) and Book IV (ff. 138r-154r). The two units were apparently bound together in the late 14th or early 15th century, since medical notes were added to both units by late 14th and 15th-century. It contains the Books I,II, V (ff.6r-135v), and Book IV (ff.138r-154r).
- 8- London, British Library, **Harley Ms. 3407** (ff. 92r-101v). It contains excerpts.
- 9- London, British Library, **Harley Ms. 3594** (ff. 7r-53r). It contains excerpts.
- 10- London, British Library, **Harley Ms. 4087** (ff. 39r-108v). It contains excerpts.

### **Manuscripts with commentaries in Latin**

- 1- London, British Library, **Harley Ms. 4144** (copied in 1486). The volume contains the commentary in Latin made by Jacques Despars (c. 1380-1458), regent master of medicine at the University of Paris, about the *Canon Medicinæ*, Book 3, *Fen* iv-vi, of Avicenna in its Latin translation done by Gerardus Cremonensis (Gerard of Cremona) 1113/4-1187). Despars compiled his commentary between 1432 and 1453, and the only existing copy of his full work survives in Harley MS. 3799-3809. This manuscript contains only the Despars' commentary without the original text by Avicenna. It belongs to a set copied between 1486-1487 for the French chancellor Jean Budé (d. 1502), counsellor to the King, auditor of the Chancellery of France, and bibliophile. This collection survives incomplete in four further manuscripts of the National Library in Paris, MS. lat. 6926, 6927, 6928 and 6937, one of which, the MS. lat. 6937, contains the commentary on *Fen* 2-3 of Book III, just prior to the text of the Harley Ms. 4144. The Despars' commentary with additions by Johannes Lascaris was edited by Jacques Ponceau and printed in 1497-1498 at Lyons by Jean Trechsel and Jean Clein.



2- London, British Library, **Harley Ms. 3809** (unspecified date). The manuscript is the eleventh volume of the set of 11 volumes (Harley Ms. 3799-3809) containing the commentary in Latin by Jacques Despars (c. 1380-1458) on the medical summa by Avicenna in the Latin translation by Gerardus Cremonensis (Gerard of Cremona). The volume includes the commentary on Avicenna, *Canon Medicinæ*, Book 4, *Fen* 1.

3- London, British Library, **Harley Ms. 3799** (copied in 1475). The manuscript is the first volume of the set of 11 volumes (Harley Ms. 3799-3809) containing the commentary in Latin by Jacques Despars on the medical summa by Avicenna, in the Latin translation by Gerardus Cremonensis (Gerard of Cremona). The volume includes the commentary on Avicenna, *Canon Medicinæ*, Book I, *Fen* 1.

4- London, British library, **Harley Ms. 3804** (copied in 1475). The manuscript is the sixth volume of the set of 11 volumes containing in Latin the commentary by Jacques Despars on the medical summa by Avicenna in the Latin translation by Gerardus Cremonensis (Gerard of Cremona). The volume includes the commentary on Avicenna, *Canon Medicinæ*, Book III, *Fen* 2-3.

Other copies can be checked in C. Brockelmann (Brockelmann, 1937) and G. Schoeler (Schoeler, 1990).

### **Manuscripts in Hebrew translation**

1- Bolonia, Biblioteca Universitaria, **Ms. 2197** (copied about 1440). Entire.

2- Munich, Bayerische Staatsbibliothek, **Ms. 87**. Entire.

3- Paris, Bibliothèque Nationale, **Ms. 1136**. Entire.

4- Oxford, Bodleian Library de Oxford, **Ms. Can.Or 58**. Entire.

5- London, British Library (copied late 15th century in Rome). It contains Books I-II.

6- Oxford, Bodleian Library (Neubauer 2090) (copied in the 14th-15th centuries in Spain). It contains Books I-II.

In total, there are over one hundred manuscripts with the Hebrew version of *Canon* (Richler, 1982).

### **Editions and translations of Canon**

#### **Medieval and Renaissance editions and translations in Latin**

The *Canon*, as I said, was translated into Latin by Gerard of Cremona between 1150 and 1187 in the School of Toledo with the name of *Canon medicinae*. Later on, in the early 16th century, Andrea Alpago, the physician and orientalist, corrected and edited the translation of Gerard. We should add to the version by Gerard of Cremona the translations and the comments made by Andrea Alpago, Taragona, Jacob Tinus, Protinus, Antonius, Petro Vaterio and Miguel Ledesma. The translation of the *Canon* by Gerard of Cremona was possibly printed for the first time by Philippus de Lavagnia at Milan on 12th February of 1473. The first three books of *Canon* were printed in 1472 and in 1473 was made the complete edition of Philippus de Lavagnia, already mentioned.

The Latin translations of *Canon* (sometimes also along with its Arabic text) have been printed and published about forty times in Europe including Milan (1473), Padua (1476), Venice (1482, 1507, 1544, 1591, 1708) and Rome (1593). In the last thirty years of the 15th century there were twelve editions in Latin. For example, a Latin copy of the *Canon of Medicine*, dated 1484, was located at the P.I. Nixon Medical Historical Library of the University of Texas Health Science Center in San Antonio.

Also we have:

1 - *Liber canonis*, Venedig 1507; reprint, Olms, Hildesheim 1964.

2 - *Liber Canonis, De medicinis cordialibus et Cantica*, Basel 1556; reprint, Teheran 1976 (the first one printed in Venice in 1544, 2nd edition revised by Andrea Alpago, version of the medieval translation of Gerard of Cremona).

#### **Medieval and Renaissance editions and translations in Hebrew**

In addition to several anonymous translations, we have:

1- Natan ha-Meati, translation of the entire *Canon* finished in Rome in 1279 and is conserved in the Ms. 2197 of Bolonia (Books I-V, i.e., translation of the entire *Canon*), the Ms. 87 of the Bayerische Staatsbibliothek in Munich (Books II-V), the Ms. 1136 of the National Library in Paris (Books II-V), and the Ms. Can.Or.58 of the Bodleian Library in Oxford (Book II-V). His translation on the Book I is contained in 16 Mss.; on the Book II, in 15 Mss.; on the Book III, in 20 Mss.; on Book the IV, in 38 Mss.; and on the Book V, in 13 Mss.

2- Zerachiah ben Isaac Shealtiel, partial translation of the Books I-II of *Canon* made in Rome in the 13th. His translation of Book I is contained in 5 Mss.; and that of the Book II, in 4 Mss.

3- Yosef ben Yehosua Ibn Vives ha-Lorquí, partial translation on the Book I and the *Fen* 1-2 of the Book II, made in the 14th century in Spain. His translation of the Book I is conserved in the Ms. 87 of the Bayerische Staatsbibliothek in Munich, the Ms. 1136 of the National library in Paris, and the Ms. Can.Or.58 of the Bodleian Library in Oxford. His translation of the Book I is contained in 31 Mss.; and that of the Book II until *Fen* 3, in 12 Mss.



There are other copies else (Richler, 1982).

The Hebrew Canon was printed for the first time in Naples late 1491-early 1492. This edition is the first Hebrew treatise on medicine and the only published during the 15th century.

## Modern editions and translations

### Modern Edition in Latin

1- *Libri quinque canonis mecininae Avicenna Latinus*, Louvain-Leiden 1968. A Critical edition of Latin Avicenna.

2- (Digitalized Edition): *Libri quinque canonis mecininae*. First edition of the Arabic text, Rome: Typographia Medicea, 1593 (Saab Medical Library, American University of Beirut).

Available in URL: [http://almashriq.hiof.no/ddc/projects/saab/avicenna/640/html/F\\_003.html](http://almashriq.hiof.no/ddc/projects/saab/avicenna/640/html/F_003.html)

### Translations in Persian

The *Canon* was translated into Persian by A. Shrafkandi in eight volumes (Sharfkandi, 2008). Since its first print in 1981, the Persian translation of the Canon has been reprinted several times.

### Translations in Japanese

A translation of some parts of the *Canon* into Japanese was made by Hitoshi Igarashi.

### Translations in Russian

There is one Russian translation in 5 Volumes entitled *Kanon Vrachebnoi Nauki*, published at Tashkent, 1954–1960; and some further editions.

### Translations in French

The anatomical sections (taken from the Bulaq/Cairo printing of 1294h./1877) were printed and translated into French by Pieter de Koning (Koning, 1903).

### Translations in English

1- A translation of the Book I, made from the medieval Latin version and not directly from the Arabic, was published by Cameron Gruner (Guner, 1930).

2- A translation of the Book I, made from an Urdu translation and not directly from the Arabic, was published by Mazhar H. Shah (Shah, 1966).

3- An English translation of the critical Arabic text of the Book II was edited by H.A. Hameed (Hameed, 1998).

4- A translation of the Books I-II was made by Laleh Bakhtiar (Bakhtiar, 1999).

5- A translation of the Book I was made by Mones Abu-Asab, Hakima Amri and Marc S.Micozzi (Abu Hasan, 2013).

### Translations in Spanish

1- A translation of some chapters, made from the Hebrew version in the Ms. 2197 of Bolonia, was published by Lola Ferre (Ferre, 2002).

2- A translation of the Book I, made from the English translation by Cameron Gruner (Guner, 1930), was published by Gabriel Garde Herce. Available in URL: [http://www.sld.cu/galerias/pdf/sitios/histologia/canon\\_de\\_avicena.pdf](http://www.sld.cu/galerias/pdf/sitios/histologia/canon_de_avicena.pdf)

### Translations in German

1- The ophthalmology of the *Canon* was translated into German, with annotations by J. Hirschberg and J. Lippert (Hirschberg & Lippert, 1902), by E. Michailowsky (Michailowsky, 1900) and by T. Bernikow (Bernikow, 1900).

2-One section of the Book V relating to the *Aqrabadhin* (Composite remedies) was translated by J. von Sontheimer (Sontheimer, 1845).

3- A translation of the Book I was made by Johannes Gottfried Mayer and Konrad Goehl (Mayer & Goehl, 2003).

For other translations and commentaries, see: Hakim Syed Zillur Rahman (Zillur Rahman, 1986).

## CONCLUSION

The *Canon of Medicine* of Avicenna is one of the most important and influential writings in the history of science. This is the reason why this encyclopedic book has had many editions and translations into other languages from the Middle Ages to the present day and Islamic medicine of the Middle Ages is lying in a very privileged position within the field of scientific knowledge.



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