

# CERTAIN ASPECTS OF MEDICAL INSTRUCTION IN MEDIEVAL ISLAM AND ITS INFLUENCES ON EUROPE\*

AYDIN SAYILI

Professor of the History of Science, Ankara University

Speaking of the university, Charles Homer Haskins says, "Universities, like cathedrals and parliaments, are a product of the Middle Ages. The Greeks and the Romans, strange as it may seem, had no universities in the sense in which the word has been used for the past seven or eight centuries. They had higher education, but the terms are not synonymous. Much of their instruction in law, rhetoric, and philosophy it would be hard to surpass, but it was not organized into the form of permanent institutions of learning. A great teacher like Socrates gave no diplomas; if a modern student sat at his feet for three months, he would demand a certificate, something tangible and external to show for it—an excellent theme, by the way, for a Socratic dialogue. Only in the twelfth and thirteenth centuries do there emerge in the world those features of organized education with which we are most familiar, all that machinery of instruction represented by faculties and colleges and courses of study, examinations and commencements and academic degrees. In all these matters we are the heirs and successors, not of Athens and Alexandria, but of Paris and Bologna".<sup>1</sup>

The madrasa, in its standard and typical form, was the school for higher education in theology and law in medieval Islam. It came into official existence in the eleventh century, while the European university was developed over a century later and at a time when already Latin translations of Arabic philosophical and scientific

\* This is, with little changes, the text of the paper read at the 'Conference on the Contributions of Islam to the Culture and Civilization of Mankind and the Evaluation of its Role in the Future' held in Islamabad, Pakistan, from 7 to 10th March, 1981.

<sup>1</sup> C. H. Haskins, *The Rise of Universities*, 1923, pp. 3-4.

works were available. There were certain parallelisms between the features of the madrasa and the university. Moreover, certain essential characteristics of the university were radically new, and the development of the medieval university in Europe was rather rapid. In view of such considerations certain scholars have suggested the possibility that the medieval European university owed much to conscious imitation of the madrasa system.<sup>2</sup>

European universities had medical faculties, and there were also medical universities already in the thirteenth century in Europe. Typical examples of such institutions existed, e.g., at Padua, Bologna, Paris, Naples and Montpellier. In Islam too medical madrasas came into existence, but only at the beginning of the thirteenth century, and apparently these seem never to have become very widespread in medieval Islam. Islam, on the other hand, established the practice of clinical instruction, in the larger hospitals at least, beginning in relatively early dates, while in Europe such a procedure appears only in the sixteenth century. But medical authorities of Islam such as Râzî and Ibn Sînâ were accorded a place of honor in European medical schools.

It seems desirable therefore to look into the question of medical instruction in medieval Islam from this vantage point and to ascertain its characteristic and salient features as far as the source material at our disposal at present makes it possible.

The late medieval and early Renaissance hospitals of Europe appear to constitute a continuation of the prototype of the modern hospital which made its appearance in Islam for the first time in history. Indeed, they were not merely the direct offsprings of the older hospitals of the Roman Empire which represented a much more primitive stage in the development of that institution. It is of interest in this connection that the Islamic hospital building too seems to have served as a model for certain Western European Renaissance hospitals as is evidenced by the architectural planning characteristics and certain features of the architectural decoration of some of these institutions.

<sup>2</sup> See, A. Sayılı, "Higher Education in Medieval Islam", *Annals of Ankara University*, vol. 2, 1948, pp. 30-71.

The hospitals of the Seljuqs as well as their madrasas and other institutions of charity and public welfare were often housed in buildings with a cruciform groundplan which was presumably of Central Asian origin. This plan of construction became widespread not only in Persia and Anatolia but also in Iraq, Syria, Palestine, and Egypt. Again, architectural decoration in the form of lilies, sun and moon rosettes, and animal figures of the twelve-animal calendar cycle used among the Turks in Central Asia from pre-Islamic times on are found in many hospital buildings of these regions.

The cruciform groundplan and the lily motif are also seen in the fifteenth century hospital founded in Rhodes by the Christian religious and military order, the Hospitalers, or the Knights of St. John of Jerusalem, originating about the time of the First Crusade and taking their name from a hospital in Jerusalem. The same cruciform plan is also attested in several Renaissance hospitals of Italy and Spain. These Western European Christian hospitals are, moreover, seen to have in common with the Islamic medieval hospital buildings some of the above-mentioned decorative features as well.

It therefore seems clear, firstly, that these Islamic hospitals bore the stamps of influences from certain Turkish Central Asian characteristics, and, secondly, that the European hospitals of the Renaissance era had received influences from Islam and especially from the Seljuqs who bore the brunt of the earlier phases of the Crusades, from the Mamluk Egypt, and from the Early Ottomans. Moreover, the military ambulant hospitals of the Seljuqs seem to have been adopted by Europe immediately following the first two Crusades, and this serves to confirm the concrete influence received by the Crusaders from their Seljuq opponents.<sup>3</sup>

There is a very interesting combination of a hospital and a medical school built in Anatolia in Kayseri during the reign of the Seljuq king Ghiyâthuddîn Kaykhusraw, son of Qilij Arslan. The

<sup>3</sup> See, Arslan Terzioğlu, "Das Nureddin - Krankenhaus in Damascus (gegr. 1154) aus der Epoche der Seldschuken und seine Bedeutung für die Medizin und Krankenhausgeschichte", *Historia Hospitalium*, Heft 11, 1976, pp. 59-75; Arslan Terzioğlu, "Die Architektonischen Merkmale der Seldschukischen, Mamelukischen, und Osmanischen Krankenhäuser und ihre Einflüsse auf die Abendländischen Hospitäler", *Fifth International Congress of Turkish Art*, ed. G. Feher, Budapest 1978, pp. 827-856.

hospital was built in 1205 (602 H.) by Gevher Nesibe Sultan, sister of Ghiyâthuddîn, and the building next to it by Ghiyâthuddîn himself. The two buildings have been referred to by the people of the region as the Twins (Çifteler), and the Ghiyâthiyya and the Shifâiyya Madrasas. The name Ghiyâthiyya Madrasa refers obviously to Sultan Ghiyâthuddîn during whose reign the institution came into being, while the name Shifâiyya suggests that the madrasa was a medical madrasa. The hospital building may have been called Shifâiyya Madrasa because although it was a hospital it was used as a madrasa building in later centuries. For a few other examples of such an appellation are encountered in Turkey and elsewhere.

This was, so far as is known, a trailblazing achievement and extremely interesting. The two buildings are contiguous, and they are connected with an internal gateway, or door, through the wall adjoining the two buildings. The building bearing an inscription stone giving the name of the founder as Gevher Nesibe together with the date of foundation is specifically stated to be a hospital. This is the larger of the two buildings. The foundation inscription of the other building has not come down to our time. The founder is known, however, to be Sultan Ghiyâthuddîn Kaykhusraw himself.

Sedat Çetintaş, architect and historian of art, and A. Süheyl Ünver, historian of medicine, decided this twin building complex to represent a hospital, as the inscription stone clearly indicates, together with a contiguous medical madrasa for which the hospital part served as a place of practical application in the form of clinical instruction. Professor Ünver later found brief references to this building in certain *waqf* documents and documents of the Ottoman State Archives as "the madrasa of the hospital" and also to the appointment of a professor (mudarris) to the Shifâiyya and Ghiyâthiyya Madrasas.<sup>4</sup>

Thus the evidence at our disposal concerning the foundation of a medical madrasa in Kayseri in 1205 as an annex to a hospital, or, possibly, in the converse situation, the institution of a hospital as an annex to a medical madrasa, is not by any means insignificant or meager. Yet it would be desirable undoubtedly to find additional corroborative evidence either of a direct or circumstantial nature

<sup>4</sup> See, A. Süheyl Ünver, *Selçuk Tababeti*, Ankara 1940, pp. 52-55.

concerning the character and functions of the building next to the hospital.

A preliminary investigation had led Sedat Çetintaş to venture the guess that the hospital founded by Keykâwûs I in Sivas in 1217 also conformed to the pattern of the Gevher Nesibe hospital and madrasa complex of Kayseri and that it too had a medical madrasa contiguous to it. This guess was wrong, however, for the second building whose remnants had led to the impression that it was a madrasa turned out to be a bath house when a more elaborate excavation was carried out at the site.<sup>5</sup>

The Kayseri type hospital and medical madrasa combination is apparently not unique, however. There is, first and foremost, the example of the hospital built for the Ottoman king Bayezid II in Edirne in the years 1484-1488. There is a madrasa next to this monumental hospital building which has survived to our day, and there is a passageway between the two buildings or an entrance from the hospital to the madrasa. There should be no doubt concerning the nature of this madrasa. For Evliyâ Çelebi (born in 1611), famed traveller, informs us that students studied the works of Hippocrates, Aristotle, and Galen in this madrasa.<sup>6</sup>

'Alî Shir Nawâ'î, illustrious Turkish poet, founded in Herat, in 1476, a hospital, together with a madrasa, apparently a medical madrasa (the Shifâiyya Madrasa), as well as another madrasa called the Ikhâlâşîyya Madrasa, a *dâr al huffâz*, a mosque, and certain other buildings forming, together, a collection of charitable institutions.<sup>7</sup> Zeki Velidi Togan, to whom Terzioğlu refers in this connection, speaks of "the school of higher education in medicine called the Shifâiyya (Madrasa) and its hospitals".<sup>8</sup>

<sup>5</sup> See, Süheyl Ünver, *op. cit.*, pp. 56-63; Arslan Terzioğlu, "Ortaçağ Türk-İslam Hastahaneleri ve Avrupaya Tesirleri", *Belleten* (Turkish Historical Society), vol. 34, 1970, p. 133.

<sup>6</sup> Arslan Terzioğlu, "Ortaçağ İslam-Türk Hastahaneleri ve Avrupaya Tesirleri", *Belleten*, vol. 34, 1970, p. 137.

<sup>7</sup> A. Terzioğlu, "Ortaçağ İslam-Türk Hastahaneleri ve Avrupaya Tesirleri", p. 134.

<sup>8</sup> Z. V. Togan, "Herat", *İslâm Ansiklopedisi*, vol. 5, Istanbul 1950, p. 436; see also, p. 437.

Medicine, pharmacy, and the natural sciences are reported to have been taught at the Mustanşiriyya Madrasa of Baghdad, built in 1234 by the Abbasid caliph Mustanşir.<sup>9</sup> This appears somewhat strange. For this madrasa was founded primarily for instruction in the four orthodox rites or schools of jurisprudence. But it is very probably indicative of the spread of the new trend of founding medical madrasas. The Mustanşiriyya Madrasa was equipped with bath houses and kitchens, and it included a hospital and a library. The alleged medical instruction may therefore be connected with the hospital, and, again, the hospital may have been a private one for the Madrasa's students and functionaries.

The elaborate madrasa founded in Istanbul shortly after 1453 by Muhammed the Conqueror does not seem to include a medical school, though it provided certain facilities for a limited number of medical students.<sup>10</sup> But the Kullîyya i. e., madrasa or university, built by Suleyman the Magnificent (1520-1566) in the same metropolis included a medical school.

A very interesting example is a medical madrasa built by a certain Shamsuddîn Ebû Muẓaffer (also Abû Shujâ') Bâtkîn ar-Rûmî. The Abbasid caliph Nâşir made him governor of Basra in 607 (1210-1211), where Abû Muẓaffer distinguished himself with a rich program of building activity. Among others, he had a medical madrasa built.<sup>11</sup>

Knowledge concerning the existence of three other medieval medical madrasas has come to my attention. All three belong to the thirteenth century, and all three were located in the city of Damascus. The first, i.e., the earliest, of these was the Dikhwâriyya Madrasa, founded in 1225 by Muhadhdhabuddîn 'Abdumun'im ibn 'Alî ibn Hâmid ad-Dikhwâr, physician and bibliophile (1169-1230). He himself taught in this madrasa, and there is some knowledge

<sup>9</sup> See, Asad Talas, *La Madrasa Nizamiyya et son Histoire*, Paris 1939, pp. 53, 54; Guy Le Strange, *Baghdad During the Abbasid Caliphate*, 1900, p. 268.

<sup>10</sup> See, A. Sayılı, "Bizde Tıp Öğrenimi Üzerine", *Bellekten* (Turkish Historical Society) vol. 35, 1971, pp. 229-234.

<sup>11</sup> See, Muştafâ Jawâd, "Al-Madrasa an-Nizâmîyye", *Sumer*, vol. 9, 1953, p. 326.

concerning the continuation of instruction in this school after its founder's death.<sup>12</sup>

The other two were the Lâbûdiyya and the Rabî'yya Madrasas. The Lâbûdiyya Medical Madrasa was founded by Najmuddîn Yaḥya ibn Muḥammed ibn al-Lâbûdî, physician and author of medical books, in 1265-1266, and the Rabî'yya Madrasa owed its existence to one 'Imâduddîn Abû 'Abdullâh Muḥammed ibn 'Abbâs ibn Aḥmad ar-Rabî' ad-Dunaysirî (d. 1287), physician and author of medical works composed in versified form. These two madrasa are mentioned as medical madrasas. The Rabî'yya Madrasa was located to the west of the Nûruddîn Hospital of Damascus, one of the most remarkable hospitals of medieval Islam which is also of special historical importance from the standpoint of the establishment and spread of the clinical method of medical instruction.<sup>13</sup>

It thus seems that the Gevher Nesibe-Ghiyâthuddîn medical school and hospital combination of Kayseri constituted the first example of a medical madrasa in Islam and the Abû Muẓaffar Bâtkin Medical Madrasa of Basra was probably the second in chronological order.

There were examples of madrasas concentrating in certain special fields. There existed, e.g., madrasas for the teaching of grammar and the correct use of Arabic exclusively, so to say, and they were called the syntax madrasas (*madrasa an-naḥw*). There were madrasas devoted to instruction in exegesis (*madrasa at-tafsir*), and some specializing in the teaching of Tradition (*madrasa al ḥadîth*), and others concentrating on the teaching of jurisprudence (*madrasa al fiqh*). But, with the logical and possible exclusion of the last named, these were exceptional and relatively rare; and such, it would seem, was the case also for the medical madrasas.

It seems somewhat strange that three medical schools should have been set up within the same century in Damascus, while no others

<sup>12</sup> H. Sauvaire, "Description de Damas", *Journal Asiatique*, series 9, vol. 4, 1894, pp. 460-503, pp. 497-498, 500. See also, Lucien Leclerc, *Histoire de la Medecine Arabe*, vol. 2, Paris 1876, pp. 177-179; Ahmed Issa Bey, *Histoire des Bimaristans (Hôpitaux) à l'Époque Islamique*, Cairo 1929, pp. 96-97; A. Issa Bey, *Ta'rikh al - Bîmâristânât fî'l-Islâm*, Damascus 1939, pp. 38-41.

<sup>13</sup> See, H. Sauvaire, "Description de Damas", *Journal Asiatique*, series 9, vol. 4, pp. 479-503.

seem to be reported at all for other major cities such as Cairo. This inevitably creates the suspicion that serious lacunas probably exist in our information concerning this topic at present. Such an impression would very likely be exaggerated, however, although sources will undoubtedly reveal important new items of knowledge in the future.

The picture emerging from our present-day information is probably not misleading in its general features. For apparently medical teaching was, to a large extent, not institutionalized and organized, or incorporated or integrated within the madrasa system of higher education in medieval Islam. There was much medical teaching of high quality. Ibn Abî Uşaybi'a's book is full of sketchy accounts concerning the details of many isolated cases. And much of it, perhaps an overwhelming majority of it, is apparently of the nature of private teaching. According to Khondmir, Tekûdar, Ilkhan ruler (1281-1284), deprived Christian and Jewish physicians and astronomers from *waqf* revenues.<sup>14</sup> This may possibly supply us with a partial clue as to why the teaching of medicine was not merged and combined with the madrasa system, although the principle of utility carried great weight in Islam as a pragmatic test and as a basis for value judgments, and there was no doubt whatever as to the utility of medicine. But at times there seems to have been medical teaching in mosques and ordinary madrasas also.

From a passage in Ibn Abî Uşaybi'a it seems that Abû Muḥammad 'Abdullaṭîf ibn Yûsuf al-Baghdâdî (1161-1231), scientist, philosopher, and physician, taught medicine in the Azhar Mosque of Cairo at about the time of the death (1192) of Şalaḥuddîn, Ayyubid sultan famed for his struggle with the crusaders. The text does not make it clear, however, that this instruction was given in the Mosque; it could be interpreted that 'Abdullaṭîf gave the medical instruction in his house, for instance. Indeed, he clearly states that he gave certain courses in the morning hours in the Azhar Mosque on subjects which are not specified. Then he continues as follows: "Around noon time those studying medicine and other subjects come. And at the end of the day I return to the Azhar Mosque, and

<sup>14</sup> See, A. Sayılı, *The Observatory in Islam*, Ankara 1960, pp. 209-210.



others read [receive instruction (from me)]; and during the night I work by myself.<sup>15</sup>

When Ḥusāmuddīn Lājīn al-Manṣūrī restored the Mosque of Ibn Ṭūlūn in Cairo at about 1300 A. D. he also established in it a lectureship on medicine. This is stated in clear and unequivocal language.<sup>16</sup> At a later date ‘Umar ibn Manṣūr ibn ‘Abdullāh as-Sarrāj (or Sirājuddīn) (1361-1431) taught medicine in the Tulunid Mosque. The physician Muḥammad ibn Aḥmad ibn Ibrāhīm Abū'l-Barakāt al-Makhzūmī (born ca. 1390) also taught medicine there.<sup>17</sup>

Rafī‘uddīn Abū Ḥāmid ‘Abdul‘azīz ibn ‘Abdulwāḥid al-Jīlī (d. ca. 1244) lectured probably on medicine in the Adhrāwīyya Madrasa in Damascus.<sup>18</sup> And, as mentioned previously, in the Mustanṣirīyya Madrasa of Baghdad medical teaching is said to have been available.

It is sometimes stated by modern scholars that medical and astronomical teaching was available in Al-Ma'mūn's time in the House of Wisdom of Baghdad (founded at the time of Hārūn ar-Rashīd), the House of Science founded by the Fatimid caliph Al-Ḥākim in Cairo in 1005, and, as mentioned above, in the Azhar Mosque of Cairo, constructed in the second half of the tenth century, beginning from the early years of its foundation. But evidence in support of these views is insufficient.

One also occasionally meets the general statement that medicine was taught in mosques and "schools" from early times on following the period of translation activity from Greek to Arabic at the middle of the eighth century. As a matter of fact, schools of higher education came into existence only with the creation of the madrasa system, and even then the distinction between organized schools and private teaching never became sharp in Islam. But if an organized and per-

<sup>15</sup> Ibn Abī Uṣaybi'a, *'Uyūn al-Anbā' fī Ṭabaqāt al - Aṭibbā'*, Müller and Cairo editions, 1884, 1883, vol. 2, p. 207. See also, George Sarton, *Introduction to the History of Science*, vol. 2, 1931, p. 599.

<sup>16</sup> See, Maqrizī, *Khiṭaṭ*, Bulaq 1854, vol. 2, p. 269; Johs. Pederson, "Masjid", *Encyclopaedia of Islam*, vol 3, 1936, p. 360.

<sup>17</sup> A. Issa Bey, *Histoire des Bimaristans (Hôpitaux) à l'Époque Islamique*, Cairo 1929, pp. 164-165; A. Issa Bey, *Ta'rikh al - Bimaristānāt fī'l-Islām*, Damascus 1939, pp. 161, 163.

<sup>18</sup> Ibn Abī Uṣaybi'a, Müller and Cairo editions, 1884, 1883, vol. 2, p. 171.

manent institution of teaching is meant by the word "school", I have found no evidence that medicine was taught in "schools" prior to the thirteenth century. Nor is there any evidence of medical teaching in the mosques, medical teaching that was organized and systematic to any considerable extent, outside of rare and more or less qualified exceptions.

The assertion that such instruction existed before the thirteenth century seems to be based, at least in some cases, on the indirect evidence that such teaching was available from pre-Islamic times on in Christian centers of learning and that it must have been adopted and preserved by the Moslems.

Max Meyerhof writes, "As for medical learning in Baghdad, an interesting passage in Hunayn's recently published *Missives of the Galenic Translations* shows us the Greek tradition fully alive there in 856. Thus he gives a picture of how the *Twenty Books* of Galen were being studied. 'The reading of the students of the Medical School at Alexandria was confined to these books, keeping to the order which I have followed in my list. They were accustomed to meet daily to read and interpret one of the standard works, as in our days our Christian friends meet daily at the educational institutions known as *scholê* (*uskul*) to discuss a standard work from among the books of the Ancients. The remainder of Galen's books they used to read each for himself, after an introductory study of the aforementioned books, just as our friends today do with the explanation of the books of the Ancients'. At this period, as well as later, full liberty to teach was granted in the schools and mosques of Baghdad".<sup>19</sup>

It is not clear, however, what Ishâq means by the "books of the Ancients" discussed in the *scholê*, whether he refers to medical, scientific, philosophical, or religious books.<sup>20</sup> There was medical instruction in Alexandria in pre-Islamic and early Islamic times, and this activity was transferred to Antioch and Harran. There is mention of an *uskul* in Jundisapur, but it is not clear whether this

<sup>19</sup> Max Meyerhof, "Science and Medicine", *The Legacy of Islam*, Oxford 1931, p. 319.

<sup>20</sup> The text where the above - quoted passage occurs has been edited and translated by Bergstrasser in *Abhandlungen für die Kunde des Morgenlandes*, vol. 17, number 2, 1925. See, text, pp. 18-19. translation, p. 15.

refers to a medical school or to a theological school. There was medical instruction in Jundisapur, but this was apparently limited to the members of certain families, and it may have been in the form of private teaching and apprenticeship, mostly from father to son or within the circle of relatives.

There was a Christian school in Nisibis, and it apparently was to some extent an organized institution as far as theological teaching was concerned. There is mention of physicians, but it is not known for certain that medical teaching was one of the activities of the school. The situation at Edessa is not very different either.<sup>21</sup>

Islam undoubtedly profited very much from the medical traditions and physicians of such cultural centers as Jundisapur and Alexandria. But as far as I have been able to ascertain, we have less detailed and specific knowledge concerning the Christian schools and pre-Islamic medical instruction in the Near East in general than we have concerning medical teaching in Islam itself. The fact therefore that in Islam medicine was not taught in organized and permanent institutions before the thirteenth century would tend to corroborate the impression that the same situation prevailed in the pre-Islamic Christian centers of the Near and the Middle East.

In the Roman Empire lay medical instruction was organized to some extent. Toward the end of the Augustan age (14 A. D.) the first official medical school, the *schola medicorum*, was formed. This organization is said to have gradually improved. Under Vespasian (70-79 A. D.) the medical teachers became civil servants. This organization reached a high status under Alexander Severus (222-235), and it probably continued to exist until the death of Theodoric the Great (526). Provincial schools were established at Marseille, Bordeaux, Saragossa, etc. Medical teaching was given mainly in Greek, the use of Latin increasing gradually, but very slowly.<sup>22</sup>

Undoubtedly, however, this tradition of medical instruction was not comparable in scientific quality and level either to that of medieval Islam or to that of thirteenth century Western Europe, and even had it continued unabated, it could hardly have given

<sup>21</sup> A. Baumstark, *Geschichte der Syrischen Literatur*, Bonn 1922, pp. 113-114; E. R. Hayes, *L'Ecole D'Edesse*, Paris 1930.

<sup>22</sup> G. Sarton, *Introduction to the History of Science*, vol. 1, 1927, pp. 230-240.

rise to the late medieval medical faculties of Europe such as Bologna and Montpellier. For the emergence of these much more advanced institutions of medical instruction the Renaissance of the Twelfth Century, i.e., the intense and systematic cultural contact with Islam, was indispensable as an intermediary phase of transition. The so-called School of Salerno and the Medical School of Naples were probably centers where the Arab world was influential in particular in the taking shape of the teaching of medicine in Europe. But the medical madrasas of Islam exerted, very likely, no direct influence of special moment in the creation of the medical faculties of the late medieval universities of Western Europe. For one thing, their appearance in Islam was a bit too late for the exercise of such an influence. Moreover, the European medical faculties were apparently somewhat different from the medical madrasas of Islam. For the former formed part of the universities, and they were the scenes of more elaborate theoretical instruction. Indeed, they are supposed to have been notorious at times in the emphasis they placed upon theoretical and bookish learning, and the European physicians and surgeons of that era have been criticized for having belonged to the category of armchair scholars enamored of bookish learning, as opposed to medical practice and practical knowledge.

In Islam, on the other hand, the situation was rather different. The distinction which was made between theoretical medicine and the purely practical side of it in Islam is clearly reflected in Arabic medical terminology. In almost every page of Ibn Abî Uşaybi'a one meets the term 'the art of medicine' (*şinâ'a at-tıbb*) several times. In contrast, the expression 'the science of medicine' is used by him very rarely.

As we have seen, there occurs in a waqf document the expression "the madrasa of the hospital" in connection with the Ghiyâthuddîn Madrasa contiguous to the Gevher Nesibe Hospital. Only a medical madrasa could be considered an appendix to a hospital, and it is understandable that in Islam the medical madrasa should be looked upon as an adjunct to the hospital, and not vice versa.

Indeed, this madrasa of Kayseri was apparently, the first exclusively medical madrasa of Islam, whereas clinical instruction in Islamic hospitals had developed about two centuries prior to the

foundation of the Gevher Nesibe Hospital. Hence, it would be natural to consider the medical madrasa as completing the clinical teaching of the hospital through a complementary and systematic course of instruction. It would be reasonable to assume that, at least in the case of initiated students, the theoretical teaching in the hospital was subordinated to clinical instruction.

In Europe, on the other hand, clinical instruction in medicine started only in the late sixteenth and early seventeenth centuries. This may have been the result of influence proceeding from Islam. For it was in this era that the European hospital buildings show clear signs of adopting certain architectural and decorative features of the hospitals of Islam.

