



Aleppo

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‘Halab,’ says Al-Muqaddasi, in 985:

‘is an excellent, pleasant and well fortified city, the inhabitants of which are cultured and rich, and endowed with understanding. The city is populous and built of stone, standing in the midst of its lands. It possesses a well fortified and spacious castle, provided with water. The great mosque stands in the town. The inhabitants drink the water of the Kuwaik river, which flows into the town through an iron grating, near the palace of Saif al-Dawla. The castle is not very large, but herein the Sultan has his abode. The city has seven gates: Bab Hims (Emessa gate), Bab ar Rakkah; Bab Kinnasrin; Bab al-yahud; Bab al-Iraq; Bab al-Batikh; and Bab Antakiyyah; The Bab Arba’in (gate of the Forty) is now closed.’¹

Idrisi (1100-1165) also refers to the city’s thriving situation:

‘Halab is the capital of the Province of Kinnasrin. It is a large town, and very populous, lying on the high road to Iraq and Fars and Khurasan... Water is led therefrom by means of underground channels going into the town, and is distributed through the markets, streets, and houses. In the castle of Halab is a spring of excellent water.’²

Further on in the century, Ibn Jubayr, who visited Aleppo in 1185, says:

‘Halab is a place of saintly remains, with a celebrated and impregnable castle. It was the city of the Hamdanite princes, whose dynasty is now passed away. Saif al-Dawla made it a bride for beauty of appearance. The castle stands on the hill, where, in ancient times, Abraham was in the habit of retiring at night with his flocks there to milk them (Halaba) giving away the milk in alms. Hence as it is said, comes the name of Halaba. Copious spring water rises in the castle, and they have made two cisterns there to store water. On the city side of the castle is a deep ditch, into which the surplus water runs. In the town are fine and wide markets covered with wooden roofs. Shady streets with rows of shops lead up to each of the gates of the Jami mosque. Very fine is this mosque, and beautifully paved is its court. There are fifty odd doors opening therein. In the court of the mosque are two wells. The wood work of Halab is of excellent renown. The Mihrab (or prayer niche) of the mosque is very beautiful with wood work up to the roof, ornamentally carved, and inlaid with rare wood and ivory and ebony. The minbar (or pulpit) is also most exquisite to behold. On the western side of the mosque is the madrasa of the Hannafites, with a fine garden. In the city are four or five madrasas like this one and a hospital. Suburbs lie around the city, with numberless khans and gardens.’³

Early in the 13th century, the geographer Yaqut (d.1229) gives another account of the city’s original name:

‘Halab, Hims, and Bardh’ah, were three sisters of the Bani Amalik, and each of them founded a city, which was called after their name.’⁴

‘A surname of Aleppo is al-Baida, the White, because of the whiteness of the ground in its neighbourhood’⁵

¹ Al-Muqaddasi: Ahssan Attaqassim; p. 155; in G. le Strange: *Palestine under the Moslems*; Alexander P. watt; London; 1890; pp. 360-1.

² Idrisi; p. 25 in G. Le Strange; p. 363.

³ Ibn Jubayr: *Rihla*; W. Wright edition; Leiden; 1852. p. 252.

⁴ Yaqut al-Hamawi: *Mu’Ajam al-Buldan*; Wustenfled Edition; in six volumes; Leipzig; 1866; ii; 304.

⁵ Yaqut; 1; 792.

Yaqut goes on:

*Verily, I, Yaqut, have visited Halab, and it was of the best of all lands for agriculture. They cultivate here cotton, sesame, water melons, cucumbers, millet, maize, apricots, figs and apples. They only have the rains to water their lands, and yet they raise abundant crops, and of such richness as I have not seen in other lands.*⁶

*The castle of Halab is a wonder to behold, and has become proverbial for strength and beauty. Halab lies in a flat country. In the centre of the city rises a perfectly circular and high hill, which has been scarped artificially, and the castle is built on its summit. It has a deep ditch, which has been dug sufficiently deep to reach the water springs. Inside the castle is a reservoir which is filled with pure water. Also within the castle is a Jami Mosque, and maidan (square), and garden of considerable extent.*⁷

However, writing about 1300, Al-Dimashki tells us:

*Halab is a city that has been laid in ruins by the Tartars. Of old, Halab was the equal in size of Baghdad and Al-Mawsil (Mosul), and its people prided themselves on their fine raiment and personal comeliness and horses and houses.*⁸

Al-Dimashki thus writes of the glory of Halab in the past, and also tells of the woes inflicted upon it by the Mongols. This is part of a history of Halab which will form the focus of the last section of this work after the city's contribution to science and civilisation has been looked at, beginning first with the thriving and imposing forms of civilisation that marked it.

Aleppo, its Imposing Sites and its Thriving Trades

When the Muslim armies captured Aleppo in the year 16 after Hijra, Abu Udaiba, their general, entered by the Antioch gate. This is one of the imposing structures of Aleppo, a city of great sites, sites which impressed for both their majesty and their scholarly role, and also in their role for the promotion and defence of Islam, and sites worthy of a great, thriving city.

All witnesses who saw Aleppo in the middle ages before the Mongol onslaught (in 1260) agree on its thriving trades and wealth, Ibn Hawqal, in the later half of the tenth century stating:

*It was very populous and the people were possessed of much wealth and commerce thrives, for the city lies on the high road between Iraq and the fortresses, and the rest of Syria.... The city had originally five markets and baths, and hostels and quarters and broad squares.... The drinking water of the population comes from the river, and there is a little sediment in it. The prices here are still cheap, for in old days its prosperity was great and its food stuffs abundant.*⁹

The traveller Nasir I-Khusraw, who visited Aleppo in 1047 writes in his diary:

Halab is in appearance a fine city. It has great walls, whose height I estimated at 25 cubits (or fifty feet); also a strong castle, entirely built on the rock, which I consider to

⁶ Yaqut; ii; 308.

⁷ Yaqut; ii; 310.

⁸ Dimashki: *Kitab nukhbat al-dahr fi ajaib al-barr wal bahr (Selection of the age on the wonders of the land and the Sea)*. edited by A.F. Mehren; quarto, 375 p. St Petersburg; 1866. at p. 202.

⁹ Ibn Hawqal; p. 117; in G. Le Strange: *Palestine*; op cit; p. 361.

*be as large as the castle of Balkh. All the houses and buildings of Aleppo stand close one beside the other. This city is where they levy the customs (on merchandises passing) between the lands of Syria and Asia Minor and Dyar al-Bakr and Egypt, and Iraq, and there come merchants and traders from all these lands to Aleppo.*¹⁰

The physician Ibn Butlan writes a few years later, in 1051:

*Halab is a town walled with white stones. There are six gates; and besides the wall is a castle, in the upper part of which is a mosque and two churches.... In the town is a mosque and six churches, also a small hospital.... Of the wonders of Halab we may mention that in the Kaisaryah (or bazaar) of the cloth merchants are twenty shops for the wakils or brokers. These men, every day, sell goods to the amount of 20,000 dinars (£600,000), and this they have done for twenty years. No part of Halab is at all in ruins.*¹¹

The Citadel of Aleppo is one of the great sites, its role highly stressed by the fact that, Aleppo is, with Mosul and Cairo, the city of Eastern Islam that played not just a central, but a decisive, role in the destinies of Islam, a role that will be amply looked at in the final part of this article. The Citadel is a natural mound with its slopes artificially sharpened and deep ditch; its form is oval, about 300 yards by 150 in area at the top, while the ditch encloses an area of 500x350, its height above the bottom of the ditch is 100 feet. The mound does not lie equidistant from the city walls but near the centre of the east wall. The only entrance is in the south.¹² The deep well on the north side, around whose cylindrical shaft a staircase winds, was built in the Seljuk period as an inscription of Malik Shah, found in a passage bellow, near the steps, shows. After the earthquake of 565 AH, Nur Eddin Zangi (ruled 1145-1178 CE) instituted great works of restoration, of which several inscriptions have survived on towers on the west side. In the interior, Nur Eddin built the lower sanctuary of Ibrahim al-Khalil with a splendid mirhab carved in wood, one of the finest examples of this branch of art. The celebrated minbar of the Aqsa mosque in Jerusalem was also originally designed for this sanctuary.¹³ Briggs observes that *the remarkable and incontrovertible fact about Muslim architecture is that in all countries, and in all centuries it retained an unmistakable individuality of its own.*¹⁴ He also explains how much military architecture was produced by the Muslims between the 9th and twelfth centuries, and was copied by the Crusaders. One such feature of military architecture was the 'right angled' or 'crooked' entrance to a fortress through a gateway in the walls, whereby an enemy who had reached the gateway could not see or shoot through it into the inner courtyard. These crooked entrances were first used in places such as the 'Round City' of Baghdad (8th century,) at Salah Eddin's citadel at Cairo, and at the citadel of Aleppo (Syria).¹⁵

In 1260 Hulagu captured and destroyed the fortress so that it had to be entirely restored under the Mamluk Sultan Al-Ashraf al-Khalil; but in the devastating invasion by Timur Lang, The Lame, which took place in the late 14th century, and from which Aleppo never recovered, his hordes destroyed the walls¹⁶ as they devastated the city, slaying its population and raping its women (see further down).

¹⁰ Nasir Khusraw; 2 in G. Le Strange; Palestine; op cit; p. 362.

¹¹ Ibn Butlan in Yaqut Al-Hamawi; Mu'ajam; op cit; ii; pp. 306-308.

¹² M. Sobernheim: Halab; *Encyclopaedia of Islam*; 1st Series; Vol 3; 233-7; at p. 234.

¹³ M. Sobernheim: Halab; at p. 235.

¹⁴ M. S. Briggs: Architecture, in *The Legacy of Islam*, edited by T. Arnold and A. Guillaume, Oxford University Press, first edition, 1931, pp 155-79; p157.

¹⁵ Ibid, pp 167-8.

¹⁶ M. Sobernheim: Halab; op cit; p. 235.

Another imposing site is the Great Mosque of Aleppo, which lies in the bazaars to the west of the citadel. It was founded during the reign of the Umayyad ruler Suleyman Ibn Abd al-Malik. No traces have however survived of this building built after the plan of the Umayyad Mosque in Damascus.¹⁷ According to tradition, partly confirmed by inscriptions, the present edifice was first begun by the Kadi Ibn Al-Khashab, a great personality of Aleppo, to whom it will be returned, whilst the Seljuk ruler Malik Shah is also responsible for the construction of part of the edifice.¹⁸ The lower storey of the minaret bears the date 483 (AH) and its inscriptions mention both Malik Shah and Ibn al-Khashab.¹⁹ The architecture of the whole building and the absence of later inscriptions show that in appearance of the whole mosque has remained practically unaltered for centuries, Kalawun, the Mamluk sultan, who succeeded Baybars (d. 1277) built its mihrab as the old one had been destroyed in 1260 during a fire begun by the Armenians who were allied with the Mongols.²⁰ Four Mamluk maksurahs, which were still seen in 1908, have been removed except the maksurah al-Khatib during the repairs since undertaken.²¹ The haram consists of a hall of three naves each with 18 cross vaultings on solid quadrangular pillars. In Malik Shah's time the hall is said to have had marble pillars.²² The mihrab is a simple deep, round niche, whilst before the haram lies the splendid wide court with old decorative marble pavement, two roofed wells, a sundial and an open prayer estrade.²³ Around it are halls similar to the haram. The two naved east hall belongs to the architectural period of Malik Shah. The north hall with a large reservoir has two naves, it was restored by Barkuk, in 797 hijra.²⁴

Like everywhere else in Islam, mosques and learning went together. Mosques did not just dispense learning, but they also provided books in large numbers in their libraries. In Aleppo, the largest and probably the oldest mosque library, the Sufiya, located at the city's Grand Ummayad Mosque, contained a large book collection of which 10 000 volumes were reportedly bequeathed by the city's most famous ruler, Prince Sayf al-Dawla.²⁵ Where the Muslims surpassed even modern standards, was that they considered that the task of librarian was only for the best scholars amongst them. Muslims, according to Mackensen:

*...chose men of unusual attainment as custodians of their libraries. In fact, much of the splendid activity of Arabic libraries is probably due to the quality of men who were pleased to act as librarians. It speaks highly for the generosity of the patrons as well as for the really important work carried out in these libraries, that men of marked ability in various fields felt it worth their while to undertake the duties of custodian.*²⁶

The Sufiya of the Grand Mosque of Aleppo library, for instance, had Muhammad al-Qasarani, an accomplished poet and a man well versed in literature, geometry, arithmetic and astronomy in charge of it as librarian prior to his death about 460 AH/1153 CE.²⁷

¹⁷ M. Sobernheim: Halab; p. 235.

¹⁸ M. Sobernheim: Halab; p. 235.

¹⁹ M. Sobernheim: Halab; p. 235.

²⁰ M. Sobernheim: Halab; p. 235.

²¹ M. Sobernheim: Halab; p. 235.

²² M. Sobernheim: Halab; p. 236.

²³ M. Sobernheim: Halab; p. 236.

²⁴ M. Sobernheim: Halab; p. 236.

²⁵ M. Sibai: *Mosque Libraries: An Historical Study*. Mansell Publishing Limited: London and New York: 1987, p 71.

²⁶ R.S. Mackensen: 'Background of the History of Muslim libraries.' In *The American Journal of Semitic Languages and Literatures*, 52 (October 1935) 22-33, p. 24.

²⁷ Y. Eche: *Les Bibliothèques Arabes, Publiques et Semi Publiques en Mesopotamie, en Syrie et en Egypte au Moyen Age*. Damascus: Institut Francais. 1967, p. 134.

The madrasas, the precursors of our modern university colleges,²⁸ were first established by the Seljuk leader Nizam al-Mulk (murdered by the Ismailis in 1092). Following his madrasa, their spread was so rapid that at some point in the medieval times, according to Tawtah,²⁹ there were 14 of them in Aleppo.³⁰ The madrasa al-Halabiya was founded by Nur Eddin Zangi the ruler of Aleppo. The Madrasa al-Halabiya lies to the west of the Great Mosque from which it is separated only by a narrow bazaar street. It is in 517 AH that Kadi Ibn al-Khashab (also to be assassinated by the Ismailis) transformed this church into a mosque in revenge for the destruction of Muslim tombs by the crusaders.³¹ In 543 AH, Nur Eddin made it a madrasa. The first madrasa in Aleppo, however, was the madrasa al-Zadjadiya built by Sulaiman b. Abd al-Djabbar b. Ortuk (510-517 AH) of which no traces have survived (a generation later than the Nizamiyah of Baghdad).³² Close behind the Antioch gate lie the remains of the madrasa al-Shuaibiya built by Nur Eddin in 545, which occupies the site of the oldest mosque built in Aleppo built by Abu Ubaida. The importance of this building lies with its luxurious ornament, its architectural features and its kufic inscriptions.³³ Ibn al-Adim (1192-1262) lists a good number of madrasas around his time, briefly outlined here by Blochet.³⁴ The madrasa al-Attabakiya was founded by the Seljuk Shihab Eddin Toghril, a madrasa which was subsequently burnt down by the Mongols. The madrasa Tumaniya was built by Emir Hussam Eddin Ibn Tuman, Emir of Nur Eddin Zangi. Ibn Shihna tells that in this madrasa there was a section reserved for women. The madrasa Ghoutaisiya built by Saad Eddin Masud, son of Emir Izz Eddin Aibek is known under the name of Ghoutais. This madrasa was destroyed by Timur the Lame when he devastated the city in the late 14th century CE. The madrasa Djamaliya was built by Djamal al-Dula Ikbalath Thahiri, who attributed to it waqfs made of three wells, and eight oven bakeries.³⁵

Many madrasas were for women or were financed by them, especially under the Mamluks, and in all parts of Islam, such as the one established in Cairo in 634 AH by the daughter of the Mamluk Sultan Tahir, whilst the daughter of Malik Ashraf, known as Khatun, erected a women's Madrasa in Damascus, and another Madrasa was founded by Zamurrad, wife of Nasiruddin of Aleppo.³⁶

Throughout the land of Islam, and despite the demands of the crusader wars (1096-1291 CE), and despite the Mongol invasions and devastations, the Mamluks added many buildings to those erected before them by the Seljuks, and this combined effort is visible in Aleppo. Thus, there the Mamluks added many mosques, a beautiful hospital, a whole series of large warehouses and shops, dwellings, baths and public wells, which have survived.³⁷ With regard to hospitals, medieval Aleppo had four of them, as recorded by Ahmed Issa

²⁸ G. Makdisi, 1981, *The Rise of Colleges*, Edinburgh University Press.

²⁹ B. Dodge: *Muslim Education in Medieval times*, The Middle East Institute, Washington, D.C. 1962. p. 23.

³⁰ J. Pedersen: *The Arabic Book*, (1928) tr by Geoffrey French; Princeton University Press; Princeton, New Jersey (1984). p. 128.

³¹ M. Sobernheim: Halab; p. 236.

³² M. Sobernheim: Halab; p. 236.

³³ M. Sobernheim: Halab; p. 236.

³⁴ Kamal eddin: *Histoire d'Alep*; translated with additional notes by E. Blochet; Paris; Ernest Leroux; Editeur; Paris; 1900. pp. 235-7.

³⁵ Kamal eddin: *Histoire d'Alep*; pp. 235-7.

³⁶ S.M Hossain: A Plea for a Modern Islamic university: Resolution of the Dichotomy. In *Aims and Objectives of Islamic education*: Edited by S M al-Naqib al-Attas; Hodder and Stoughton, King Abdulaziz University, Jeddah. 1977, pp 91-103; at p. 100.

³⁷ M. Sobernheim: Halab; p. 236.

Bey, who gives us the following outlines on the history of some of them.³⁸ The Hospital al-Nuri, also known as the old hospital in Aleppo, some say that it was built in 1048, by Ibn-Butlan, the physician, under the reign of Nur Eddin Zangi. Ibn Butlan was the physician who later built the hospital in Antioch; here again tradition has it that Ibn-Butlan chose the most favourable site for the hospital by hanging pieces of meat in various parts of the city, and selecting the site where the meat showed the least decomposition. The hospital was built near the market of al-Hawa, in the street which is now called Zukak al-Bahramia. The area above the gateway or entrance to the hospital was decorated with an inscription. It praises the king who ordered the hospital to be built, and lauds him as the protector of the faithful and the enemy of the infidel. From the *I'lam al-Nubala*, a work written in 1880, Issa quotes: 'Today this bimaristan has fallen completely in ruins, and the only thing left is the entrance gateway, or portal, and the outside walls inside which poor strangers live.'³⁹

The New Bimaristan in Aleppo, Issa Bey quotes from the work, *I'lam al-Nubala*, that Prince Arghun al-Kamili, Viceroy of Aleppo, built this hospital in 1344, inside the porte of Qinnasrin. The prince insisted that it should be as perfect as possible. It was built on solid foundations, with wards most carefully planned. It was staffed with physicians and attendants to provide for every need of the sick inhabitants of the city as well as strangers. Flowing water was supplied to the hospital in abundance. The hospital was endowed with many *waqfs* which provided funds in excess of the needs of the institution. High officials were appointed at different times to manage the affairs of the hospital. But decades later as the *waqfs* and endowments were greatly reduced the hospital rapidly went from bad to worse. Until the end of the seventeenth century the hospital had functioned regularly, but after that time it was neglected and part of the building was in ruins. The same work described in detail the condition of the building as in partial ruin, and noted that the rooms formerly used to house the insane patients were so dreadful that the fetid air and darkness would drive a sane person insane if he were kept in them for more than a few hours.⁴⁰

The medical historian, Whipple, inspected the ruins of these two hospitals when he visited Aleppo in December, 1959, in his search for the sites and ruins of the hospitals that had been built in the Near and Middle East during the Middle Ages. The Director of the Museum of Antiquities in Aleppo told about the remains of the only two ancient hospitals in that city. There was little of the Old Hospital remaining, although the inscription over what was left of the entrance gate was still visible. There were three rooms inside the outer wall that may have been part of the original building, but the few more recently built rooms were occupied by indigent Arab families.⁴¹

The New Hospital was in a less ruined state; the entrance gate was still intact. Opening off it was a courtyard, with a small fountain in its centre. On the eastern side of the court was a passageway which led to a smaller court. Opening from this were three small rooms that must have been used for the insane patients, for there were iron rings in the walls, and the single small window in each room was protected with iron bars. There were a number of other rooms in a more ruined state, which were unable to be inspected because they were occupied by three Arab families, indigent and forlorn looking. Certainly there was no evidence of what was supposed to be a large and well-planned hospital. The description of the

³⁸ A Issa Bey: *Histoire des hopitaux en Islam*; Beirut; Dar ar ra'id al'arabi; 1981; p. 190.

³⁹ Issa Bey 205.

⁴⁰ Issa Bey 205 fwd.

⁴¹ A. Whipple: *The Role of the Nestorians and Muslims in the History of Medicine*. Microfilm-xerography by University Microfilms International Ann Arbor, Michigan, U.S.A. 1977. p. 91.

remains of this building, the two courts and the passageway between them, as given by the author of *'Iam al-Nubala*, corresponded closely with what we saw.⁴²

Issa Bey mentions briefly two other hospitals in Aleppo, but gives very little data regarding them.⁴³ The Hospital of Bani al-Daqqaq. This old hospital was incorporated into the residence of Sa'dun al-Dawadar at a later date. It was situated west of al-Halawiyah. No date for the construction of the hospital or its builder is given. Issa Bey quotes the author of *'Iam al-Nubala* as saying that at the portal of the Great Northern Mosque in Aleppo there existed a hospital, having a large entrance gate. It was founded by Ibn-Kharkhar (date not given), but was closed at the time of writing the above statement.⁴⁴

Aleppo, as just seen, has produced large numbers of sites of great renown, and also architects who contributed each in their skills to erect some of such great sites in their variety, whether hospitals, madrasas, bridges, parts of the citadel, fortifications, etc. All these works, in their entirety were the labours of the Muslims, whether Seljuks, Mamluks, or Arabs. Yet, most modern Western historians, apparently here to enlighten on the history of Islam, in reality completely reshape it, turning things upside down, the destroyer of Islamic civilisation, i.e. the crusader, the Mongol, and Timur the Lame turned into forces of good, and the builder, and above all the defender of Islam, who fought and saved Muslims from extinction, turned into an evil, destructive force. Thus, we read one such modern, reputable historian, Ashtor, here lashing at the Seljuk and Muslim engineering ineptness. Thus Ashtor says, for instance:

*'The attentive reader of the Arabic chronicles of the Seljukid age becomes aware of these facts at time and again he comes across reports of bridges falling down and dams bursting. For often the chronicler reveals that it was not simply the consequence of negligence but of bad construction and ineffective repairs.'*⁴⁵

And, from the same author:

*'The technological knowledge possessed in former times by Persian and Babylonian engineers was lost.'*⁴⁶

*'The execution of great constructions in Egypt at the end of the twelfth century, does not contradict the supposition of technological decline. For the citadel and the new walls of Cairo, which were constructed by order of Saladin, were built by Christian prisoners.'*⁴⁷

Yet, reality, shows such construction skills preserved and even improved all over the Muslim world. One need not refer to great lengths to the Seljuk accomplishments in their own realm, primarily Konya, and all over the Seljuk realm, which can be consulted by anyone reading on Seljuk architecture.⁴⁸ One need not dwell on the imbecilic remark that suddenly the Muslims of Egypt could not build a thing, for, as can be consulted in the work by Mayer, there are hundreds of names, all Muslims, and the greatest works in Cairo

⁴² Whipple 91.

⁴³ Isa Bey: *Histoire*; op cit; p. 208.

⁴⁴ Isa Bey 208.

⁴⁵ E. Ashtor: *A Social and Economic History of the Near East in the Middle Ages*; Collins; London; 1976. p. 244.

⁴⁶ E. Ashtor: *A Social and Economic History*. p. 245.

⁴⁷ E. Ashtor: *A Social and Economic History*; p. 245.

⁴⁸As can be found, for instance, in D. Talbot Rice: *Islamic Art*; Thames and Hudson; London; 1979.

were by Muslim engineers.⁴⁹ This work focusing on Aleppo, shows, as outlined by Mayer,⁵⁰ that construction skills prevailed amongst Muslims at a time, when according to Ashtor, it seems the Muslims could not build a wall. Hence, Hasan B. Mufarrasj as-Sarmani in 1091, erected the upper part of the minaret of the great mosque of Aleppo. In the following century, in 1112, Fahd B. Salman as-Sarmani erected the mihrab of the Maqam Ibrahim at Salihin, perhaps even the whole building. In 1150-1; Said B .Abd'Allah erected the Madrsa Shu'aibiya at the Bab Antakiya. In 1159, Isa B, Ali erected the Khanqah of Sunqurjah for Nur Eddin Zangi. In 1193, Abu Abdallah and Abu R-Radja, two brothers, stone cutters and wood workers erected the mihrab of the madrasa Shadhbakhtiya. In 1203-4 Abu Thabit Yaqut erected a building opposite the mausoleum of the Al-Khashab Family. In 1256, Abu Ali Al-Halabi worked at the restoration of the main entrance gate and other parts of the Citadel of Sinop in Asia Minor undertaken by Kaikawus B. Kaikhusrau, and in 1231, he erected the Red Tower at Alanya. In 1236-7, Abu'l Farradj Al-Banna erected part of the walls of Dyar Al-Bakr according to designs made by Ja'afar b. Mahmud al-Halabi. In 1245-6, the architect Muhammad B, Al-Jarrar rebuilt the Hallayiyya Madrasa. Muhammad B, As-Sawwaf who was a master who flourished in the late 15th century, in 1494-5 erected the mosque known as Jami ad-Daraj. Ahmad B, Al-Athar, in the years 1508-1514 restored the Citadel of Aleppo by orders of the Mamluk ruler Qansuh al-Gawri.⁵¹

And it is not just architects that Aleppo produced, but a great number of scholars, of which the following is only an outline. It must be noted, however, that very often it is very difficult to locate the scholars of Islam in one place, for they lived and worked in different places, as they went on pilgrimage, or moved according to the woes of history. But this outline and others on other cities will seek to be as accurate as possible in placing scholars in the places where they thrived most, or are related to the closest.

The Scholars of Aleppo

Al-Farabi

The ruler Sayf al-Dawla provided a house at Aleppo for al-Farabi, known in Latin as Alfarabius. Abu Nasr Muhammad ibn Muhammad ibn Tarkhan ibn Uzlagh al-Farabi was born in Wasit near Farab, Turkestan, of a Turkish family; studied in Baghdad; flourished chiefly in Aleppo; died in Damascus 950-51, aged c. 80.⁵² Al-Farabi, who was keenly interested in the relation between logic and language, also studied Arabic grammar with the noted grammarian Ibn al-Sarraj (d. 929). For reasons not fully known, al-Farabi left Baghdad for Syria in 942,⁵³ where he is said to have been sponsored by the Arab prince of Aleppo, Sayf al-Dawla (who came into power in 945).⁵⁴ "He (Al-Farabi) was the most indifferent of men to the things of this world," says Ibn Khallikan; "he never gave himself the least trouble to acquire a livelihood or possess a

⁴⁹ L.A. Mayer: *Muslim architects and their works*; Albert Kundig; Geneva; 1956.

⁵⁰ L.A. Mayer: *Muslim architects*: pp. 35; 36; 37; 42; 60; 66; 74; 96; 103; 117; and 133.

⁵¹ L.A. Mayer: *Muslim architects*: pp. 35; 36; 37; 42; 60; 66; 74; 96; 103; 117; and 133.

⁵² Carra de Vaux: Al-Farabi; in *Encyclopaedia of Islam*; vol. 2, 1913; pp. 53-5.

⁵³ M. Marmura: Al-Farabi: *Dictionary of the Middle Ages*; Dictionary of the Middle Ages; J.R. Strayer Editor in Chief; Charles Scribner's Sons; New York; 1982 fwd. p. 9.

⁵⁴ M. Marmura: Al-Farabi: *Dictionary of the Middle Ages*; p. 9.

habitation.⁵⁵ Sayf al-Dawla asked him how much he needed for his maintenance; al-Farabi thought that four dirhems (~\$2) a day would suffice; the prince settled this allowance on him for life.⁵⁶

Thirty-nine works by al-Farabi survive. Some of his works, notably *The Enumeration of the Sciences* and the *Treatise on the Intellect*, were translated into Latin and known to medieval Scholastics and to philosophers of the Italian Renaissance.⁵⁷

He wrote a number of commentaries on Aristotle (physics, meteorology, logical treatises, etc.), on Porphyry's "Isagoge," on Ptolemy's *Almagest*, but his own writings deal chiefly with psychology and metaphysics.⁵⁸ His own philosophy is developed in such works as *Tahsil al-Sa'ada* (The attainment of happiness), which forms the first part of a trilogy, *Ihsa al-'ulum* (The enumeration of the sciences), *Kitab al-milla* (The book of religion), *al-siyasa al-madaniyya* (The political regime), and *Ara ahl al-madina al-fadila* (The opinions of the citizens of the virtuous city).⁵⁹ *The Bezels of Philosophy*, (*Risala Fusus al-Hikam*) is a short philosophical introduction.⁶⁰

Al-Farabi is the author of a treatise on the classification and fundamental principles of science, *Kitab ihssa al-'ulum*, "*De Scientiis*," and "*De ortu scientiarum*".⁶¹ It summarizes the knowledge of his time in philology, logic, mathematics, physics, chemistry, economics, and politics.⁶² This work was translated in the 12th century by the Latin translator Gundisalvi.⁶³ A much later translation of this work is into Spanish by G. Palencia who publishes the Arabic text of *Ihssa al-Ulum* or catalogue of the sciences according to MS. Escorial Arab 646.⁶⁴

Al-Farabi was conversant with the whole scientific thought of his day. He wrote a very important treatise on the theory of music (*Kitab al-musiqi*), where he demonstrated knowledge of mensural music and recognized the major third (4:5) and the minor third (5:6) as consonances.⁶⁵

His work *Al-Medina al-Fadila—The Ideal City; (The Model city) (Risala fi mabadi ara ahl al-Madina al-Fadila)*; the organisation of an ideal city, is of great sociological interest.⁶⁶ Al-Farabi discusses the structure of the "virtuous" city, the qualities its leadership must have, and the various types of "non virtuous" cities. The majority of these latter are characterized as "ignorant" because of their leaders' ignorance of the true nature of happiness. Related to this is al-Farabi's eschatology, according to which immortality is confined to

⁵⁵ Ibn Khallikan: *wafayat al-Ayan wa-Anba Abna al-Zaman*, Biographical Dictionary, tr., M. De Slane Duprat, Paris and Allen & Co., London, 1843., iii. 309-10.

⁵⁶ W. Durant: *The Age of faith*, Simon and Shuster, New York; 6th printing; 1950.; p. 253.

⁵⁷ M. Marmura: Al-Farabi; op cit; p. 10.

⁵⁸ G. Sarton: *Introduction to the History of Science*; The Carnegie Institute; Washington; ; vol 1; p. 628.

⁵⁹ M. Marmura: Al-Farabi; op cit; p. 10.

⁶⁰ Friedrich Dieterici: Alfarabi's philosophische Abhandlungen; in *Die Philosophie der Araber*, vols. 14-15, Leiden, 1890-1892. Arabic text and German translation of nine small treatises, including "the bezels of philosophy." p. 219).

⁶¹ P. M. Bouyges: Sur le De scientlis recemment edite en arabe a Saida et sur le De divisione philosophiae de Gundissalinus; in *Melanges de l'Universite St. Joseph*, vol.9, pp. 49-69, Beirut; 1924.

⁶² W. Durant: *The Age*; op cit; p. 253.

⁶³ see Liber Alfarabii de ortu scientiarum, as translated c. 1130-1150 by Gundisalvi; *ISIS*, IV, 135).

⁶⁴ A. Gonzales Palencia: *Alfarabi Catalogo de las Ciencias*. Edicion y traduccion Castellana, Madrid 1932.

⁶⁵ H.G. Farmer: The Arabian Influence on musical theory; in *Journal of Royal Asiatic Society*; 1925; pp. 61-80. and Sarton I; p. 628.

⁶⁶ G. Sarton: *Introduction*; vol 1; op cit; p. 628.

those souls that have knowledge of what constitutes true happiness.⁶⁷ Durant outlines the contents of this work further.⁶⁸ It opens with a description of the law of nature as one of perpetual struggle of each organism against all the rest—; every living thing, in the last analysis, sees in all other living things a means to its ends. Some cynics argue from this, says al-Farabi, that in this inescapable competition the wise man is he who best bends others to his will, and most fully achieves his own desires. How did human society emerge from this law of the jungle? Some thought that society had begun in an agreement, among individuals, that their survival required the acceptance of certain restraints through custom or law; others laughed this "social contract" out of history and insisted that society, or the state, had begun as the conquest and regimentation of the weak by the strong, where states themselves struggle with one another for ascendancy, security, power, and wealth; war is natural and inevitable; and as in the law of nature, the only right is might. Al-Farabi counters this view with an appeal to his fellow men to build a society not upon envy, power, and strife, but upon reason, devotion, and love. He ends safely by recommending a monarchy based upon strong religious belief.⁶⁹

Djamal Eddin Ibn Al-Qifti

During the crusades, Aleppo remained a great centre of Muslim scholarship where many scholars retired to form a sort of fraternity, especially as this city remained protected by the might of the armies of Nur Eddin Zangi (1145-1173), in particular, hence, the one place, which protected Muslim scholarship until 1260 when it was devastated by the Mongols. This fraternity is symbolised by Djamal Eddin Ibn Al-Qifti, a vizier around whom much scholarship thrived in Aleppo. He was born in Egypt, in the year 1172. At a young age, his father took him to Cairo to learn to read and write, then he left Cairo for Jerusalem then, finally Aleppo, where he spent the rest of his life,⁷⁰ first by the side of Emir Maymun al-Kasry. In Aleppo Ibn al-Qifti met another great scholar, who was close to the Emir: Youssef al-Sibt (d. 1226).⁷¹ When the Emir Al-Maymun died, Ibn al-Qifti retired from his functions into utmost solitude, running away from the world, and instead devoting all his time and energies to studies, still, subsequent rulers called upon him to resume his ministerial functions until he died in 1248.⁷²

Ibn Al-Qifti enjoyed the company of scholars and their discussions, and was also the patron of scholars, and he became scholar himself, helped by his own assiduous efforts.⁷³ He is a singular character who only found pleasure amongst books, so much so he never acquired a house despite his ministerial functions, and his morality remained impeccable to the end.⁷⁴ Such was his love for books, he collected them in all their large numbers and variety, and his private library amounted to 50,000 books, which were legated to Malik AnNasir, a collection estimated after his death at 60000 Dinars,⁷⁵ or by Leclerc at the end of the 19th century at nearly a million Francs.⁷⁶ His books were collected from all parts of the world and were all masterpieces; the authorship of the greatest scholars, even written by their own hand. Once, Ibn al-Qifti

⁶⁷ M. Marmura: Al-Farabi; p. 10.

⁶⁸ W. Durant: The Age; op cit; p. 254.

⁶⁹ W. Durant: The Age; op cit; 254.

⁷⁰ G. Sarton: Introduction; vol 2; op cit; p. 684.

⁷¹ L. Leclerc: *Histoire de la Medecine Arabe*; 2 vols; Paris; 1876; vol II; p. 193.

⁷² Leclerc II; p. 194.

⁷³ G. Sarton: Introduction; vol 2; op cit; p. 684.

⁷⁴ L. Leclerc: Histoire; II; op cit; p. 194.

⁷⁵ G. Sarton: Introduction; vol 2; op cit; p. 684.

⁷⁶ L. Leclerc: Histoire; II; op cit; p. 194.

bought a book, which was missing a part. One day a tradesman brought him some pages of this part, which Ibn al-Qifti purchased, asking for the rest. When the tradesman told him he had used them to wrap his goods for sale, Ibn Al-Qifti mourned so much the loss that he suspended his ministerial functions.⁷⁷

Ibn al-Qifti's own scholarship concerns lexicology, grammar, jurisprudence, tradition, the Qur'an, logic, astronomy, mathematics, history, and medicine. He is famed for his biography of scholars, called *Kitab Ikhar al-Ulama bi Akhar al-Hukama*, or "information given to the learned on the history of the wise".⁷⁸ This work is known through the summary made in 1249-50 by Al-Zawzani in a work generally known as *Tarikh al-Hukama* (the history of the wise). *The Tarikh al-Hukama* was edited on the basis of August Muller's investigations by Julius Lippert.⁷⁹ The Spanish orientalist, Casiri, was the first to bring to light this work. The work contains information on the life and works of more than 414 very unequal biographies of ancient and Muslim physicians, men of sciences and philosophers.⁸⁰ The information is very substantive, including very useful and rich information on the lives of such scholars. To have an idea of the length and volume of information in the work, it ought to be reminded that the manuscript at the Escurial in Madrid contains 500 pages, with fifteen lines each of small writing.⁸¹ The richness of this work on the life of Islamic scholarship is obvious, yet, as Sarton rightly observes, there has never been a full English translation of this work, which is very much needed.⁸²

Ibn al-Qifti is also the author of other works, which include:
Annals of grammarians.
Annals of Egypt from the beginning to the time of Salah Eddin
History of the Yemen
Discourse on *Sahih al-Bukhari*
History of the Seljuk
Response to the Christians
The best transcriptions since the invention of writing.⁸³

Kamal Eddin Ibn al-Adim

Kamal Eddin Ibn al-Adim (1192-1262) is the historian of his native city, Aleppo, most especially through his enormous biographical work, not yet published in modern times: *Bughyat al-Talab* (The student's desire), which is a collection of biographies of the famous men of Aleppo arranged alphabetically,⁸⁴ of which only a part remains. He also wrote his history of the city: *Zubdat al-Halab fi ta'arikh Halab* (The cream of the history of Aleppo), which describes the history of Aleppo up to 1243.⁸⁵ Ibn al-Adim also wrote a guide for the making of perfumes, *Kitab al-wuslat (or wasilat) ila-l- habib fi wasf al-tayibat wal-tibb*⁸⁶

⁷⁷ Leclerc II; p. 195.

⁷⁸ G. Sarton: Introduction; vol 2; op cit; p. 684.

⁷⁹ 518 pp; Berlin; 1903.

⁸⁰ G. Sarton: Introduction; vol 2; op cit; p. 684.

⁸¹ L. Leclerc: Histoire; op cit; II; p. 196.

⁸² G. Sarton: Introduction; vol 2; op cit; p. 684.

⁸³ L. Leclerc II; p. 198.

⁸⁴ G. Sarton: Introduction; op cit; vol 2; op cit; p. 683.

⁸⁵ See: E. Blochet: l'Histoire d'Alep de Kamaladdin; *Revue de l'Orient Latin*; 1896 to 1899; French Transation..

⁸⁶ G. Sarton: Introduction; op cit; vol 2; p. 684.

Ibn al-Adim was appointed professor in a madrasa of Aleppo in 1219-20, and later Qadi and Visier to the Ayyubid rulers of Aleppo, Al-Aziz and Al-Nasir.⁸⁷ It is with the latter that he fled to Egypt when the Mongols captured and devastated the city in 1260.⁸⁸ This is only one episode of the very dramatic history of the city, which had earlier played a decisive role in Muslim history during the crusades as the last part of this work will show. Ibn al-Adim gives a very interesting and enlightening account, which is briefly summed up here, of one of the most decisive battles of the first crusade, at Balat in 1119, a battle that saved Aleppo from the crusader onslaught, which devastated much of Syria and Palestine:

‘Il-Ghazi and Tughtikin (The Muslim leaders) went together to Mardin and from there sent messages to the Muslim armies and to Turcoman soldiers far and near to join them in the great army they were mustering.... Messengers arrived from Aleppo begging Il-Ghazi to hurry there as the Franks were raiding al-Athrib, south of Aleppo, and morale was low... Sir Roger, the crusade ruler of Antioch assembled the Frankish and Armenian armies and made straight for the iron bridge (over the Orontes) and went from there to take up his position at Balat, between the two mountains near the Sarmada pass, north of al-Atharib. He camped there on Friday 20 June 1119. The Muslims waited for Tughtekin to arrive but he did not. Il-Ghazi was thus goaded into immediate action against the enemy. He made all the emirs and commanders renew their oath to fight bravely, to stand firm without retreating, and to offer their lives in Holy War. To this they cheerfully swore... At the head of the Muslim army was Ibn al-Khashab, the Qadi of Aleppo, mounted on a mare and carrying a lance, and urging the Muslims on to war. A soldier seeing the Qadi said: ‘So we left home and come all this way to march behind a turban.’ But the Qadi at the head of the troops rode up and down the lines haranguing them and using all his eloquence to summon every energy and rise to the highest pitch of enthusiasm, until men wept with emotion and admiration. Then Tugha Arslan Ibn Dimlaj (Amir of Arzan in the Jazira, and vassal of Ilghazi) led the charge, and the army swept down on the enemy tents, spreading chaos and destruction. God gave victory to the Muslims. The Franks who fled their camp were slaughtered. The Turks fought superbly, charging the enemy from every direction. Arrows flew thick as locusts, and the Franks, with missiles raining down on infantry and cavalry alike, turned and fled.... Roger was killed, and so were 15,000 of his men... A signal of victory reached Aleppo as the Muslims were assembled for the noon prayer in the Great Mosque.... When the prisoners were brought in front of Il-Ghazi, he noticed one of magnificent physique who had been captured by a small, thin, ill armed Muslim. As he passes before the Prince the Turcoman soldiers said to him: ‘are not you ashamed to have been captured by this little man with a physique like yours? The Frank replied: ‘By God, this man did not capture me; he is not my conqueror. The man who captured me was a great man, greater and stronger than I, and he handed me over to this fellow. He wore a green robe and rode a green horse.’⁸⁹

Khalifa Ben Abi Al-Mahassin

Syria produced a number of eminent writers in the field of eye surgery, such as a certain Salah al-Din, who wrote *Kitab Nur al-uyun wa-Jami al-Funun* (light of the eyes), which is most particularly interesting in its mentioning all preceding authorities and their works, including Ali.b. Isa, Ammar, Ibn Jazla... Better known, though, is Khalifa Ben Abi Al-Mahassin (13th century) of Aleppo, who is the author of a large work of 564 pages in which he describes and gives drawings of various surgical instruments including 36 instruments for eye surgery.⁹⁰ He is known to us through his work containing 250 pp on eye surgery; the treatise entitled: *Kitab al-Kafi fi'l Kohl* – “The

⁸⁷ G. Sarton: Introduction; op cit; vol 2; p. 683.

⁸⁸ G. Sarton: Introduction; op cit; vol 2; p. 683.

⁸⁹ Kamal Eddin: *zubdat al-Halab fi ta'rikh Halab*; II; pp. 187-90.

⁹⁰ M. Levey: *Early Arabic Pharmacology*; E. J. Brill; Leiden, 1973. p. 129.

Sufficient Book on the Collyrium",⁹¹ where he mentions eighteen major ophthalmologic texts; his work was very practical, too, with very good descriptions of cataract operations, and the instruments used, and also the steps to be taken after the operation.⁹² A manuscript of it was written by another hand in 1275 (Currently at the BN of Paris); the author was a Muslim the copyist, Abd Al-Aziz, was a Christian.⁹³

Chapters in the treatise deal with diseases, their definitions, descriptions, varieties, causes, symptoms, treatment and medicines and cures for them.⁹⁴ Some chapters deal with the qualities an eye surgeon must have, and also there is a chapter where surgery for the removal of the cataract is described in good detail, including the author's own experience. The last one hundred pages of the manuscript deal with simples and diets.⁹⁵ In the introduction the author cites all his predecessors in eye surgery. The authors cited represent diverse aspects of the science and Al-Mahassin's aim was to provide a compilation of such issues.⁹⁶ The treatise subdivides into two halves: Anatomy and therapeutic Hygiene and also includes a particular chapter for affections and treatment which is for general medical surgery.⁹⁷ The work's first main part on the anatomy of the eye is subdivided as follows:⁹⁸

Definition, colour of the eye.

Tunics of the eye;

The fluids of the eye.

Visual power and its nerves.

Motive nerves.

Muscles of the eye, eyelids and eyelashes.

The second part on treatment is also divided into six chapters:

Generalities.

Hygiene of the eye; things which are useful and things which are harmful.

How to open the eye and introduce drugs into it.

The best kind of probe and its use.

Tools for the handling of the collyria.

Best garments for the eye doctor.

The text generally consists of two vertical texts on the same page progressing in parallel.⁹⁹ The illustrations found in the manuscript of this treatise are very remarkable, chiefly a schematic figure representing the brain with its membranes, together with the eyes and eye nerves (the latter are shown crossed; i.e. the right eye is controlled by the left part of the brain and vice versa).¹⁰⁰ The schema of the brain and eyes occurs only in a late manuscript., but it goes back undoubtedly to an old Arabic tradition and it is the earliest drawing of its kind which has come down to us.¹⁰¹

⁹¹ L. Leclerc: Histoire; op cit; vol 2; p. 145.

⁹² M. Levey: Early Arabic; op cit; p. 129.

⁹³ G. Sarton: Introduction; vol 2; op cit; p. 1101.

⁹⁴ Leclerc; vol 2; p. 146.

⁹⁵ Leclerc; vol 2; p. 147.

⁹⁶ G. Sarton: Introduction; vol 2; op cit; p. 1101.

⁹⁷ L. Leclerc: Histoire; op cit; vol 2; p. 146.

⁹⁸ G. Sarton: Introduction; vol 2; op cit; p. 1101.

⁹⁹ L. Leclerc: Histoire; op cit; vol 2; p. 146.

¹⁰⁰ G. Sarton: Introduction; vol 2; op cit; p. 1102.

¹⁰¹ G. Sarton: Introduction; vol 2; p. 1102.

There are in the work synoptic tables relative to the diseases of the eyes and eyelids, giving for each disease the definition, description, varieties, causes, symptoms, treatments, drugs including narcotics; and other tables relative to surgical cases. Finally there is a list of drugs.¹⁰² The most remarkable synoptic table is the one related to instruments; each table contains 18 such instruments, with its name and its usage.¹⁰³ The instruments are in colour, and perfectly drawn; some instruments are for the operations on cataracts, others for eye infections which do not affect the senses.¹⁰⁴ The author himself is so confident in his own talents as eye surgeon, that he did not fear to operate the cataract of a one eyed man.¹⁰⁵

Al Urdi

Al Urdi (d. 1266) from Aleppo, is famed for his *Kitab al-Hayah* (A Book on astronomy). He was the first astronomer associated with Maragha to initiate constructing planetary models.¹⁰⁶ He built astronomical instruments and wrote *The instruments of the observatory of Maragha*.¹⁰⁷ Al-Urdi is also an architect and engineer who began his technical career in Syria, doing some engineering (Hydraulic) work in Damascus and constructed an astronomical instrument for the King of Hims Al-Mansur Ibrahim (ruler of Hims 1239-45).¹⁰⁸ Following the invasion of Syria by the Mongols in 1259-60, Al-Urdi was taken to Maragha to work in the observatory there. Al-Urdi's description of the instruments at Maragha shows that the Muslims realised the need for precise instruments and methods; and much importance was attached to such matters as the stability and correctness of the instruments and of each of their parts.¹⁰⁹ Al-Urdi also wrote two other treatises:

Risala fi amal al-Kura (Construction of the perfect sphere)

On the Determination of the distance between the centre of the sun and the apogee.

Astronomical treatises and a treatise on Ptolemaic astronomy are also ascribed to him.¹¹⁰

Ibn al-Lubudi

Ibn al-Lubudi was a physician, mathematician, astronomer and philosopher, born in Aleppo in 1210-1; died after 1267.¹¹¹ He studied medicine in Damascus under the famed al-Dakhwar, then Ibn al-Lubudi entered the services of Mansur Ibrahim ruler of Hims (1239-45), and then Najm Eddin Ayyub appointed him government inspector in Alexandria, a post he later occupied in Syria after his return from Egypt.¹¹²

¹⁰² See J. Hirschberg; J. Lippert, and E. Mittwoch: Die arabischen Lehrbücher der Augenheilkunde; *Abhdl. Der preussischen Akademie*, chiefly pp. 12; 73-84; 1905.

See also G. Sarton: introduction; vol 2; pp. 1101-2.

¹⁰³ L. Leclerc: Histoire; op cit; vol 2; p. 146.

¹⁰⁴ Leclerc; vol 2; p. 146.

¹⁰⁵ G. Sarton: Introduction; vol 2; op cit; p. 1101.

¹⁰⁶ B. Hetherington: *A Chronicle of Pre-Telescopic Astronomy*, John Wiley and Sons; Chichester; 1996. p. 159.

¹⁰⁷ See: A. Jourdain: memoire sur l'observatoire de Maragha et les instruments employes pour y observer; in *Magasins encyclopedique*; Vol 6; 43 etc; 1809; Paris; 1810.

¹⁰⁸ G. Sarton: introduction; vol 2; op cit; p. 1013.

¹⁰⁹ G. Sarton: introduction; vol 2; op cit; p. 1013.

¹¹⁰ G. Sarton: introduction; vol 2; op cit; p. 1014.

¹¹¹ See F. Wustenfeld: *Geschichte der Arabischen Aertze und Naturforscher*, Gottingen; 1840; p. 120.

Ibn al-Lubudi wrote a number of medical works: treatises on rheumatism, on Hippocrat's aphorisms, on the questions of Hunayn Ibn Ishaq. Only two of his works have survived: Collection of discussions relative to fifty psychological and medical questions (discussions which are merely theoretical not experimental); Commentary on the generalities (*Kulliyat*) of Ibn Sina's *Qanun*.

The first work (Collection of discussions) is of interest here. This work is found in the Escorial in Madrid. In this work Al-Labudi deals with such matters as:

Question 19: The body and its preservation depend upon blood exclusively, and not upon the four humours as held by the majority of scholars and philosophers.

Question 25: That contrary to what Galen holds, women do not produce sperm.

Question 27: that the movement of the arteries is proper to them and does not depend upon the movements of the heart.

Question 29: That the first limb that forms in the body is the heart, which is contrary to what Hippocrate holds, which in his opinion is the brain.

Question 34: That the bones forming the skull can grow into tumours.

Question 58: That in cases of extreme fever, releases are not advised.¹¹³

Ibn al-Lubidi's mathematical writings include:

An extract from Euclid; An Arithmetical Textbook; A Treatise on Algebra.¹¹⁴

He also compiled astronomical tables: *al-Zahir* (the brilliant) extracted from the tables of Habash Al-Hasib who lived in the early 9th century; and *al-Muqarab* (the approximate) based on his observations.¹¹⁵

In the year 1325, Ibn Sarraj flourished in Aleppo. He devised two kinds of universal astrolabes; developed several varieties of markings for the almucantar quadrant, and devised various highly ingenious trigonometric grids as alternatives to the simple sine quadrant.¹¹⁶

Ahmad al-Halabi (d. 1455) is an astronomer from Aleppo. He wrote on instruments, including: *Bughyat al-Tulab fi'l amal bi rub al-astrolab*, which translates as *Aims of pupils on operations with the quadrant of astrolabe*, which can be located at Leyden (1001/8); Paris (2524/10); Princeton (Yehuda 1168), and the Garrett Collection; the description of the Leyden manuscript accomplished by Ruska and Hartner.¹¹⁷

Another treatise of his is titled *Nubdha fi'l amal bu jawdal al-nisba al-sittiniya*, which is a concise exposition of operations with tables with sexagesimal ratio, which is now found at Oxford University (Oxford I 1035/1).¹¹⁸ A third treatise is on the operations with the sine quadrant titled: *Risala fi'l amal bu rub al-mujayyab*, a treatise that can be

¹¹² Ibn Abi Usaibiya: *Wafayat al-Iyan*; Muller's edition; vol 2; 1884; p. 185.

¹¹³ In L, Leclerc: *Histoire*; vol 2; op cit; p. 161.

¹¹⁴ G. Sarton: *Introduction*; vol 2; . 624.

¹¹⁵ G. Sarton: *Introduction*; vol 2; . 624.

¹¹⁶ B. Hetherington: *A Chronicle*; op cit; p. 172.

¹¹⁷ B. Rosenfeld and E. Ihsanoglu: *Mathematicians, astronomers and other scholars of Islamic civilisation*; Research Center for Islamic History, art and Culture; Istanbul; 2003; p. 281.

¹¹⁸ B. Rosenfeld and E. Ihsanoglu: *Mathematicians*, 281.

located at Princeton University (Yehuda 1168, after A1).¹¹⁹ Al-Halabi also wrote *Jadwal irtifa al-kawakib al-thabita inda tulu al-Fajr* (table of the fixed stars on the ascension of dawn) which is now at Cairo (Falak 8525/2), and a final work to mention here is his table for the Azimuth for the latitude of Damascus, which is also located in the same Cairo library.¹²⁰

Al-Halabi: Ibrahim B. Muhammad is one of the rare, late scholars. He is a native of Aleppo, where he studied, on top of his other learning in Cairo, then he came to Constantinople where he filled the office of preacher and professor and died in 1549 at the age of 90. He is a jurist author of a handbook, according to the Hanafi school much used in Turkey, and often annotated.¹²¹ Its title is *Multaka 'l-Abkur* printed in Istanbul repeatedly. The French translation of this work has been made by Sauvaire, Marseilles; 1882, whilst the Turkish translation was by H. Raghil, printed in Bulak in Istanbul in 1889. Al-Halabi also composed other works, of which little is said.¹²²

Aleppo, City of the Great and Valorous

Aleppo symbolises, and by far, some of the greatest of Islamic history and civilisation. It symbolises the city that during the crusades was with Mosul and Cairo a leading centre of Muslim resistance to the crusades, the home of the great Muslim leaders, who literally saved the land when it was most vulnerable, and the home of the greatest leader of them all, the only one, who of all Muslims leaders at all times, comes the nearest to the first four caliphs: Nur Eddin Zangi (ruled 1145-1173). Aleppo also symbolises the decay of Muslim civilisation but for no fault of its own, but due to the repeated attacks and devastations caused by the Mongols, and later Timur the Lang, who slaughtered the city's population and devastated it for centuries to come.

The great role of Aleppo began during the crusades. It was in the vicinity of where the onslaught of the crusaders occurred, such as at the neighbouring Ma'arrat an-Numan. In 1098, the crusaders took Ma'arrat an-Numan. The siege was valiantly sustained, until, as in Antioch, one night, some defenders began to desert their place, followed by others who saw them.¹²³ The crusaders seized their chance, and scaled the undefended walls; then entered the city. The terrified population hid in their homes, but to no avail. For three days the slaughter never stopped; the crusaders killed more than 100,000 people.¹²⁴ The chronicler of nearby Aleppo, Ibn al-Adim (d. 1262), tells of the carnage:

They (the Franks) killed a great number under torture. They extorted people's treasures. They prevented people from (getting) water, and sold it to them. Most of the people died of thirst... No treasure remained there that was not extorted by them. They destroyed the walls of the town, burned its mosques and houses and broke the minbars.¹²⁵

¹¹⁹ B. Rosenfeld and E. Ihsanoglu: *Mathematicians*, 281.

¹²⁰ B. Rosenfeld and E. Ihsanoglu: *Mathematicians*, 281.

¹²¹ Unauthored note in Encyclopaedia of Islam; first series; vol 3; p. 236.

¹²² Unauthored note in Encyclopaedia of Islam; first series; vol 3; p. 236.

¹²³ Ibn al-Athir: *Kitab al-kamil*, ed K.J. Tornberg; 12 vols; Leiden; 1851-72. vol x; p. 190.

¹²⁴ Ibn al-Athir: Vol x; p. 190.

¹²⁵ Y. Tabba: Monuments with a message, in *The Meeting of Two Worlds*; Ed V.P. Goss; Kalamazoo; Michigan; 1986; pp. 223-40; at p. 233.

The Crusaders sought to take Aleppo, and its fate would have been the same as in Ma'arat an-Numan, Antioch, Jerusalem, Tyre, and anywhere else, the total slaughter of its population as just seen with Ma'arat. The Muslim victory at Balat in 1119 described above saved it. Then in 1124, Aleppo was besieged by Baldwin, St Giles of Tripoli, Joscelyn Count of Edessa and their Muslim allies (led by Dubais ibn Sadaqa.)¹²⁶ The siege lasted nine months, Aleppo reaching the verge of starvation when it was rescued in January 1125 by Il-Bursuqi, governor of Mosul, who forced the Franks and their Muslim allies to retreat to Antioch.¹²⁷ Il-Bursuqi's counter offensive was cut short on 26 November 1127 when he was murdered by the Ismailis.¹²⁸

In these early stages, resistance to the crusades was mostly from Mosul, and all the great leaders of the Muslim resistance came from that city, the last great leader amongst them being Imad Eddin Zangi, who also died assassinated in 1145. Imad Zangi left two sons, and the greatest amongst them, Nur Eddin, became the ruler of Aleppo, and with him the Muslim fight back against the crusades shifted straight from Mosul to Aleppo.

Before Nur Eddin, Aleppo had already produced one of its most valorous men: The Qadi Ibn Al-Khashab (d. 528/1133-4). Not content to sit back in the mosque or madrasa and to preach and teach jihad, Ibn al-Khashab was also closely involved in the running of affairs in Aleppo at a time when the city was extremely vulnerable to external attacks.¹²⁹ Indeed, in the early twelfth century the Aleppan notables had sought military support from Baghdad against the Franks, before turning in desperation to the Turcoman ruler of Mardin, Il-Ghazi.¹³⁰ In these negotiations Ibn al-Khashab was prominent. According to the town chronicler of Aleppo, Ibn al-'Adim, Ibn al-Khashab was responsible for the defence of the city and for taking care of its interests. In difficult times of chaos it is noteworthy that prominent religious figures were ready to shoulder administrative duties and assume civic leadership.¹³¹ Ibn al-Khashab is known to have been present amongst the troops just before the battle of Balat 513 AH / 1119 CE, preaching to them as described above.

It was Ibn Al-Khashab, who in 1111 led people in riots against the inept caliph of Baghdad to demand intervention against the Franks, but was finally assassinated by the Ismailis in 1134.¹³²

Aleppo soon, though, became the home of the great leader, who was, for the first time able to reunite the Muslim world into a strong power, by bringing Egypt and Syria together, the ruler of Aleppo: Nur Eddin Zangi (d. 1173). It is needless to dwell on Nur Eddin's Zangi character, nor on his military achievements, which will fill a whole encyclopaedia, he, just like his father, Imad, and just like the Mamluk leader, Baybars, a century after him, fought and led Muslim armies in the field of battle from the youngest age until death.¹³³ Nur Eddin continued from Aleppo the decisive role began by Mosul in saving the land of

¹²⁶ The First and second Crusades from an Anonymous Syriac Chronicle: Translated by A.S. Tritton; with notes by H.A.R. Gibb: pp 69-101. *Journal of The Royal Asiatic Society (JRAS)* 1933. p.96.

¹²⁷ The first and second Crusades.p.96.

¹²⁸ S. Runciman: *A History of the Crusades*; Cambridge University Press; 1951 fwd; Vol ii; p. 175.

¹²⁹ C. Hillenbrand: *The Crusades; Islamic Perspectives*; Edinburgh; 2001; p. 109.

¹³⁰ Hillenbrand: the crusades; p. 109.

¹³¹ Ibn al-'Adim: *Zubda*, op cit; Dahan edition; vol II, p. 185.

¹³² C. Hillenbrand: *The Crusades*, op cit; p.110.

¹³³See, for instance:

The First and second Crusades from an Anonymous Syriac Chronicle: Translated by A.S. Tritton; with notes by H.A.R. Gibb: pp 69-101. *Journal of The Royal Asiatic Society (JRAS)* 1933.

Islam; Nur Eddin continued his father's role winning crushing victories against the crusaders. At the head of his armies, and assisted by his able general Shirquh (the Kurdish Uncle of Salah Eddin El-Ayyubi), in June 1149, Zangi crushed the combined forces of the crusades led by Raymond and the Ismailis led by Ali Ibn Wafa; the whole military elites of both forces eliminated at a stroke.¹³⁴ The year after Nur-Eddin recaptured many advanced positions around Antioch, capturing Tell-Bashir, and inflicting another defeat on Joscelin of Edessa and his army, taking the blinded king into captivity until his death, hence in a year depriving Christianity of two of its greatest crusader leaders.¹³⁵ It is under Nur Eddin that Damascus was defended from crusader attacks, and it is under Nur Eddin that the young officer, Salah Eddin rose, who was sent by Nur Eddin to Egypt to terminate Fatimid power there in 1174, and unite at last the Muslim world against the crusaders.

When he died, Nur-Eddin, had at last unified, and for the first time in centuries, a wide stretch of Muslim territory from Egypt to Damascus, and large Muslim populations brought together in the fight to repulse the Franks. Nur Eddin had achieved much else as in Gibbon's narration:

*“In his life and government the holy warrior revived the zeal and simplicity of the first caliphs. Gold and silk were banished from his palace; the use of wine from his dominions; the public revenue was scrupulously applied to the public service; and the frugal household of Nouredin was maintained from his legitimate share of the spoil which he vested in the purchase of a private estate. His favourite sultana sighed for some female object of expense. "Alas," replied the king, "I fear God, and am no more than the treasurer of the Moslems. Their property I cannot alienate; but I still possess three shops in the city of Hems: these you may take; and these alone can I bestow." His chamber of justice was the terror of the great and the refuge of the poor. Some years after the sultan's death, an oppressed subject called aloud in the streets of Damascus, "O Nouredin, Nouredin, where art thou now? Arise, arise, to pity and protect us!" A tumult was apprehended, and a living tyrant blushed or trembled at the name of a departed monarch.*¹³⁶

Aleppo having resisted the crusades was however to fall to the Mongols in 1260. Aleppo, once one of the thriving trading cities of Syria, rich in crafts and craftsmen, scholars and scholarship, was occupied by the Mongols three times and reduced to destitution. In 1260 the citadel, the walls, the grand mosque, and surrounding structures were destroyed; according to accounts and the population was systematically slaughtered.¹³⁷ What remained was finished off by a second Mongol invasion, in 1280, when mosques, madrasas, the houses of emirs, and the sultan's palace were pillaged and burned.¹³⁸

Then, just as it began to recover under the Mamluks, Aleppo was devastated by further Eastern invasions, the worst by Timur the Lame at the end of the century (14th). Here is the narration by the historian Gibbon:

“Timur's front was covered with a line of Indian elephants, whose turrets were filled with archers and Greek fire: the rapid evolutions of his cavalry completed the dismay and disorder; the Syrians fell back on each other: many thousands were stifled or slaughtered in the entrance of the great street; the Moguls entered with the fugitives; and after a short defence, the citadel, the impregnable citadel of Aleppo, was surrendered. Among the suppliants and captives, Timur distinguished the doctors of the law, whom he invited to the dangerous honour of a personal

Ibn al-Qalanisi: *Dayl tarikh Dimashk*; ed. H.F. Amedroz; Leiden; 1908.

S. Runciman: *A history of the Crusades*, Cambridge University Press; 1951 fwd.

¹³⁴ S. Runciman: *A History*; vol ii; op cit; p. 326.

¹³⁵ S. Runciman: p. 328.

¹³⁶ E. Gibbon: *The Decline and Fall of the Roman Empire*; 1922; Vol 6; p. 336.

¹³⁷ I.M. Lapidus: *Muslim Cities in the later Middle Ages*. Harvard University Press; Cambridge Mass; 1967. p. 14.

¹³⁸ I.M. Lapidus: *Muslim Cities*. p. 14.

*conference... During this peaceful conversation the streets of Aleppo streamed with blood, and echoed with the cries of mothers and children, with the shrieks of violated virgins. The rich plunder that was abandoned to his soldiers might stimulate their avarice; but their cruelty was enforced by the peremptory command of producing an adequate number of heads, which, according to his custom, were curiously piled in columns and pyramids: the Moguls celebrated the feast of victory, while the surviving Moslems passed the night in tears and in chains.'*¹³⁹

But these continuous woes never lessened the valorous tradition of the city and its population. Centuries on, the city produced one of the great and little known heroes of Islam: Suleiman Al-Halabi. This man came in the wake of the French invasion of Egypt in 1798. In that year, the French invaded Egypt claiming that they had come to liberate it from the despotic rule of the Mamluks. Their leader's Napoleon's proclamation to the people of Egypt went:

*'For very long, this collection of slaves (the Mamluks), purchased from Georgia and the Caucasus has inflicted its tyranny upon the most beautiful part of the world People of Egypt I have come to restore your rights, punish the usurpers; and more than the Mamluks I only have respect for God, his Prophet and the Qur'an.'*¹⁴⁰

*In truth, other than seeking to destroy Islam and conquer the Holy land, the French had come to loot Egypt. Ten years before the French invasion, Count St Priest, on returning to France, in 1778, presented the minister, count Vergennes a report where he favours the conquest of Egypt; his major argument in favour of this project, which keep re-occurring in all documents of the time: the fertility of the land 'where can grow every single crop,' and the easy nature of the conquest in view of the anarchy of political power in Egypt.¹⁴¹ In 1787, Lauzun, Duke of Biron reminding Count Montmorin how the conquest of Egypt was 'for Choiseul; the acquisition of this superb, fertile country, was his favourite project, the political romance which filled his dreams.'*¹⁴²

Instead of the promised liberation of Egypt from the despotic Mamluks, the French pursued a systematic policy of loot and slaughter. The French hanging Egyptian notables, burning alive of entire populations in Egyptian towns and cities, their despoliation of Al-Azhar and other mosques were countless and have been summed up in the forthcoming article on Cairo on this web-site.

The French invasion of the Holy Land, however, failed in front of a concerted resistance by the Mamluks, the Turks, and Arab volunteers from Arabia, the Yemen, Tunisia, Algeria and Morocco, who fought together. The French were forced to retreat back to Egypt on 13 June 1799. Forced to return to France, Napoleon left Egypt, leaving command in the hands of General Kleber. Kleber was assassinated by a Syrian Muslim, Suleiman al-Halabi; a man, which Western historians, as Morsy points out, fail to tell, was not guillotined nor shot, but was, instead impaled; his slow, long drawn out death

¹³⁹ E.Gibbon: *The Decline and Fall of the Roman Empire*; Methuen and Co Ltd; Vol VII; 1920; pp. 55-6.

¹⁴⁰ G.Hanotaux: (vol 5 written by H. Deherain): *Histoire de la Nation Egyptienne*; Paris; Librairie Plon; 1931. p. 254.

¹⁴¹ G. Hanotaux/H. Deherain; p. 204.

¹⁴² G. Hanotaux/ Deherain; p. 203.

*intended to strike terror into the hearts of Muslims.143 Suleiman was condemned to have his right fist cut off and burned, and to be impaled alive. At the moment of his execution, and while it lasted, four hours, he showed courage and calmness which only the knowledge of having committed the most praiseworthy and glorious act, and the assurance of having earned the rewards promised to martyrs could give him.144 Suleiman showed no change of expression as his wrist was cut off, though he did cry when a burning fragment struck his neck.145 Suleiman uttered no cry as the stake was driven in, and when it was raised and set in its hole he called out the shahadah and verses from the Koran.146 `He was one of many heroes,' Morsy adds, `whom official history tends to bypass with embarrassment, not so much because their acts were bloody, as because they are an implicit indictment not only of foreign oppression, but also of the betrayal of political leaders engaged on the path of compromise.'*¹⁴⁷

Bibliography

- Ibn Abi Usaibiya: *Wafayat al-Iyan*; Muller's edition; vol 2; 1884; p. 185.
- Ibn al-Athir: *Kitab al-kamil*; ed K.J. Tornberg; 12 vols; Leiden; 1851-72.
- E. Ashtor: *A Social and Economic History of the Near East in the Middle Ages*; Collins; London; 1976.
- E. Blochet: *l'Histoire d'Alep de Kamaladdin*; *Revue de l'Orient Latin*; 1896 to 1899; French Translation.
- P. M. Bouyges: *Sur le De scientlis recemment edite en arabe a Saida et sur le De divisione philosophiae de Gundissalinus*; in *Melanges de l'Universite St. Joseph*, vol.9, pp. 49-69, Beirut; 1924.
- M. S. Briggs: *Architecture*, in *The Legacy of Islam*, edited by T. Arnold and A. Guillaume, Oxford University Press, first edition, 1931, pp 155-79.
- N. Daniel: *Islam, Europe and Empire*; Edinburgh University Press; 1966.
- Carra de Vaux: *Al-Farabi*; in *Encyclopaedia of Islam*; vol. 2, 1913.
- Friedrich Dieterici: *Alfarabi's philosophische Abhandlungen*; in *Die Philosophie der Araber*, vols. 14-15, Leiden, 1890-1892. Arabic text and German translation of nine small treatises, including "the bezels of philosophy."
- Al-Dimashki: *Kitab nukhbat al-dahr fi ajaib al-barr wal bahr (Selection of the age on the wonders of the land and the Sea)*. edited by A.F. Mehren; quarto, 375 p. St Petersburg; 1866.
- B. Dodge: *Muslim Education in Medieval times*; The Middle East Institute, Washington, D.C. 1962.
- W. Durant: *The Age of faith*, Simon and Shuster, New York; 6th printing; 1950.
- Y. Eche: *Les Bibliothèques Arabes, Publiques et Semi Publiques en Mesopotamie, en Syrie et en Egypte au Moyen Age*. Damascus: Institut Francais. 1967.
- Kamal Eddin: *Histoire d'Alep*; translated with additional notes by E. Blochet; Paris; Ernest Leroux; Editeur; Paris; 1900.
- H.G. Farmer: *The Arabian Influence on musical theory*; in *Journal of Royal Asiatic Society*; 1925; pp. 61-80.
- E.Gibbon: *The Decline and Fall of the Roman Empire*; Methuen and Co Ltd; Vol VII; 1920 edition.
- A. Gonzales Palencia: *Alfarabi Catalogo de las Ciencias*. Edicion y traduccion Castellana, Madrid 1932.
- G. Hanotaux: (vol 5 written by H. Deherain): *Histoire de la Nation Egyptienne*; Paris; Librairie Plon; 1931.
- Yaqut al-Hamawi: *Mu'AJam al-Buldan*; Wustenfeld Edition; in six volumes; Leipzig; 1866.
- B. Hetherington: *A Chronicle of Pre-Telescopic Astronomy*; John Wiley and Sons; Chichester; 1996.
- C. Hillenbrand: *The Crusades; Islamic Perspectives*; Edinburgh; 2001.

¹⁴³ M Morsy: *North Africa 1800-1900*; Longman; London; 1984; p. 94-5.

¹⁴⁴J. Miot: *Memoires pour servir a l'Histoire des expeditions en Egypte et en Syrie*; Paris; 1814; in N. Daniel: *Islam, Europe and Empire*; Edinburgh University Press; 1966; p. 106.

¹⁴⁵ N. Daniel: *Islam, Europe and Empire*; Edinburgh University Press; 1966. p. 107.

¹⁴⁶ N. Daniel: *Islam, Europe and Empire*; p. 107.

¹⁴⁷ M Morsy: *North Africa*; op cit; p. 94-5.

- J. Hirschberg; J. Lippert, and E. Mittwoch: Die arabischen Lehrbücher der Augenheilkunde; *Abhdl. Der preussischen Akademie*, Chiefly pp. 12; 73-84; 1905.
- S.M Hossain: A Plea for a Modern Islamic university: Resolution of the Dichotomy. In *Aims and Objectives of Islamic education*: Edited by S M al-Naquist al-Attas: Hodder and Stoughton, King Abdulaziz University, Jeddah. 1977, pp 91-103.
- A Issa Bey: *Histoire des hopitaux en Islam*; Beirut; Dar ar ra'id al'arabi; 1981.
- Ibn Jubayr: *Rihla*; W. Wright edition; Leiden; 1852.
- A. Jourdain: Memoire sur l'observatoire de Maragha et les instruments employes pour y observer; in *Magasins encyclopedique*; Vol 6; 43 etc; 1809; Paris; 1810.
- Ibn Khallikan: *wafayat al-Ayan wa-Anba Abna al-Zaman*, Biographical Dictionary, tr., M. De Slane Duprat, Paris and Allen & Co., London, 1843.
- I.M. Lapidus: *Muslim Cities in the later Middle Ages*: Harvard University Press; Cambridge Mass; 1967.
- L. Leclerc: *Histoire de la Medecine Arabe*; 2 vols; Paris; 1876.
- G. Le Strange: *Palestine under the Moslems*; Alexander P. watt; London; 1890.
- M. Levey: *Early Arabic Pharmacology*; E. J. Brill; Leiden, 1973.
- R.S. Mackensen: 'Background of the History of Muslim libraries.' In *The American Journal of Semitic languages and Literatures*, 52 (October 1935) 22-33.
- G. Makdisi: *The Rise of Colleges*, Edinburgh University Press; 1981.
- M. Marmura: Al-Farabi: *Dictionary of the Middle Ages*; Dictionary of the Middle Ages; J.R. Strayer Editor in Chief; Charles Scribner's Sons; New York; 1982 fwd.
- L.A. Mayer: *Muslim architects and their works*; Albert Kundig; Geneva; 1956.
- M Morsy: *North Africa 1800-1900*, Longman; London; 1984.
- J.Pedersen: *The Arabic Book*, (1928) trslted by Geoffrey French; Princeton University Press; Princeton, New Jersey (1984).
- B.Rosenfeld and E. Ihsanoglu: *Mathematicians, astronomers and other scholars of Islamic civilisation*; Research Centre for Islamic History, art and Culture; Istanbul; 2003.
- S. Runciman: *A History of the Crusades*; Cambridge University Press; 1951 fwd.
- G. Sarton: *Introduction to the History of Science*; The Carnegie Institute; Washington.
- M. Sibai: *Mosque Libraries: An Historical Study*: Mansell Publishing Limited: London and New York: 1987.
- M. Sobernheim: Halab; *Encyclopaedia of Islam*; Old Series; Vol 3; 233-7.
- Y.Tabba: Monuments with a message, in *The Meeting of Two Worlds*; Ed V.P. Goss; Kalamazoo; Michigan; 1986; pp. 223-40.
- D. Talbot Rice: *Islamic Art*; Thames and Hudson; London; 1979.
- The First and second Crusades from an Anonymous Syriac Chronicle: Translated by A.S. Tritton; with notes by H.A.R. Gibb; pp 69-101. *Journal of The Royal Asiatic Society (JRAS)* 1933.
- A.Whipple: *The Role of the Nestorians and Muslims in the History of Medicine*. Microfilm-xerography by University Microfilms International Ann Arbor, Michigan, U.S.A. 1977.
- F. Wustenfeld: *Geschichte der Arabischen Aertze und Naturforscher*; Gottingen; 1840.