

**MEDIEVAL THE FIRST SCIENTIFIC RESEARCH
INSTITUTIONS IN AZERBAIJAN - THE MARAGHA
OBSERVATORY AND ITS LIBRARY****E.E. Mammadov****Employee of Scientific Library of BSU,
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In this article, using a brief historical excursion investigated the role of the medieval (XIII-XIV centuries) the first research institutions in Azerbaijan – the Maragha observatory and its library in the development of Azerbaijan culture and library science in the period of their activity.

Keywords: *Scientific library, library, history of librarianship, Library Science, Maragha observatory, Nasiraddin Tusi, medieval.*

In the XIII century in Azerbaijan the scientific library of Maragha observatory, which could contend with the biggest libraries of the world for its rare and rich fund and had no equal in the East, began its activity. That library was the first one in Azerbaijan, which had exact history of origin and duty, own aim in history of librarianship. The base of that scientific tomb, which was well-known in the East that time, was laid down by a prominent son of our nation, a scientist, having an encyclopedic knowledge, Nasiraddin Tusi.

Nasiraddin Tusi (1201-1274) was a very prominent thinker of his time, a famous scientist, who investigated scientific areas such as - maths, astrology, cosmology, mineralogy, trigonometry, geography, history, law, medicine, morality, logic, theology, poetics, calligraphy and etc., he brought world fame to Azerbaijan science, raised it to summit.

In authority period of Atabey's state in Azerbaijan culture achieved great progress, science, literature, poetry, architecture and art prospered. Azerbaijan culture reached its golden age just in Nasiraddin Tusi's - the cleverest and wise person, master of humanity, the sultan of scientists, active period.

Nasiraddin Tusi achieved powerful development and progress of Azerbaijan science in Azeri Atabey's - Jahan Pahlavan, Kizil Arslan and Abu Bakr period, enriched the science with new inventions and could raise to higher summits. Being busy with natural sciences directly, Nasiraddin Tusi was a prominent person, who knew also the humanities and political science, showed a serious affect on educational system of his time, and he was a patriotic educated man. Nasiraddin Tusi was a great poet, a master of poetry theory, a scientist of poetics, too.

Nasiraddin Tusi's greatest scientific achievement was his Maragha observatory and new scientific investigations, which were given with that

scientific memorial. This scientific centre was built under Nasiraddin Tusi's leadership. The foundation of this grandiose monument in all Eastern culture was laid in 1259 year, and the building was finished in 1271, for 12 years. Besides having serious scientific works in Maragha, Tusi invented some new exact apparatus, gave the project of the observatory, and took the hardest work, such as strengthen its material and technical basis.

To build the observatory and supply it with necessary technical means requested big sum. To get that sum, Tusi applied to Hulaku khan, who he had good relations with. Hulaku khan asked about the sum. When Tusi told him the sum, Hulaku khan was surprised and asked: "Is the science about stars really so useful, that so great amount would be used for an observatory?". For answer Tusi said: "Let someone to climb this mountain absolutely secretly and bring him a large copper basin, but no-one must know about it".

And they did that. When a large cooper basin was coming down the mountain, a great sound rose. It caused great panic among Hulaku khan's army. Nasiraddin Tusi and Hulaku khan observed that noise calmly. That time Nasiraddin Tusi applying Hulaku khan said: "We know the reason of this noise but your army is anxious. If we know the secrets of heavenly bodies, we will be calm here". This event influenced Hulaku khan and he agreed to part 20 000 dinars for building an observatory.

After allocations for an observatory were parted, its building began soon, and the architect of the observatory was Fakh al-Addin Ahmed ibn Osman Maraghai.

That observatory was in activity for about 50 years, and gave very valuable inventions and scientific works for astronomy. Specialists show that, there were very valuable apparatus and equipment in that observatory for its time. Scientific researches, which were done in that observatory showed a big affect on development of European science. More than 100 Tusi's valuable works, which were written there, such as "Ilkhanid tables", "The picture of intersection", "Akhlaq-i Nasiri", "Javahirname", "Philosophical booklet", "The rules of medicine", and etc. enriched Azerbaijan science.

A prominent scientist wrote monumental works about music, financial problems and etc. The books, compiling for astronomy and geometry attained importance as education means. N.Tusi's geometric methods were used as an educational means at the library for a long time.

Scientists-investigators show that, a special madrasa was established in Maragha observatory to bring up personnel sing. The noblest students were chosen and sent to that medrese. Leading the medrese works directly, Nasiraddin Tusi also taught there. Also, very prominent scientists were invited from interior of the country and from the outside to teach at medrese and work at the observatory. Tens of foreign students were studying at that education

institution, too. There was paid special attention on translating valuable books from foreign languages. Under Tusi's leadership lots of rare books were translated from Greek into Arabian and Persian languages. A big scientist army was having activity under Tusi's leadership there, and they were busy with work of scientific research. There is information, in historical sources, about 100 persons working there. A prominent mathematician H. Mamnadbeyli defined 20 ones of them.

Giving a large place on learning the activity of Maragha observatory in his researches, academician Ziya Bunyadov revealed very valuable facts about this observatory. In his article, called "Nasiraddin Tusi and development of science in Azerbaijan in the XIII century" (The news of Academy of Sciences of Azerbaijan SSR. Series of history, philosophy, and law, 1982, №1, p.3-8) he writes: "With Nsireddin Tusi's suggestion Hulaku khan invited prominent scientists of that time - Fakhreddin Maraghai, Fakhreddin Akhlati, Muayyaddin Urdi, and Najmeddin Gazvini to the capital of Ilkhans - Maragha. They formed head scientists council for preparing the project of Maragha observatory and finishing its building under Nasiraddin Tusi's leadership".

Hulaku khan gave the order to begin the building of the observatory in May of 1259 year. The whole building of the observatory finished in 1273. Hulaku khan separated a great amount of money for building the observatory and also the library, named "The house of science and wisdom".

"The house of science and wisdom" and Maragha observatory, founded by Tusi, can be considered as the first academy in Eastern countries for their status and system. Nasiraddin Tusi took care on choosing and placing the workers of the both science hearths, paid special attention on providing them, and improving conditions of work. Scientific researches, surrounded lots of comprehensive and voluminous scientific areas were running in the observatory. The richest and rarest scientific library of that academy had an important role in great achievements of the academy in middle ages".

The origin of the library is directly closed with Nasiraddin Tusi's name. Being the author of more than 100 works, Nasiraddin Tusi was a great amateur of book, a book lover, and a person, who appreciated books. We won't be mistaken, if we say that he spent most of his life in libraries, among books, he read hundreds of books and he was a great reader. Even in youth, being kept at "Alamut" castle, he led "Sayiddane" library there and spent all his life in that library. He was a person, who knew librarianship and works of forming it. When he began to create an observatory, he also kept on mean to open a big library, too. Getting 20 thousand dinars from Hulaku khan, Nasiraddin Tusi spent it on establishing an observatory and especially a library. Having wide relations with big libraries of Eastern countries and

prominent scientists helped him not only on establishing the library, but also made circumstances to get new valuable books.

Having experience on carrying big scientific researches, Nasiraddin Tusi knew that, no scientific research institution can work without a library. A deep scientific research work demands establishing a rich libraries. Nasiraddin Tusi went to lots of big Eastern centres of science and culture, and was acquainted with construction of their libraries. Especially, deep acquaintance with scientific rules at the library of "Nizamiyye" academy in Baghdad, and a well-known library of caliphate, named "Book treasury", gave a positive affect on foundation the library of the observatory on scientific basis.

Just because of it, on a result of Nasiraddin Tusi's effort, a library, known as Fundamental Scientific Library in the East and having incredibly big fund for that period, was established at the observatory. 400 000 manuscripts were collected at the library. Having 330 square metre place, that library was situated in a wonderful building, built near the observatory. During excavation, carrying in library building, was defined that, it was impossible to save 400 000 volumes of books there. So, a share of library books was kept at the observatory. It was considered as an unattainable peak for those times.

This big temple of science and politeness, treasury of knowledge may be considered as great Nasiraddin Tusi's masterpiece. The scientist spent a very productive and valuable part of his life on establishment and development of that temple.

According to historical sources, this great scientist had very valuable own library. He gave his rich own library, which he founded for years, to the observatory library, too.

He was also a great politician, too. Appreciating political events by him correctly, gave big profit on development of Azerbaijan science and culture, saving Azerbaijan national riches - books and libraries. When the Mongolians occupied Azerbaijan, being under arrest on "Alamut" castle, the scientist was serving for Ismails. He understood the state being in the decline and he proved the last ruler Ruknaddin Khurshakh that opposition would be useless. Finally he could persuade him to surrender to Hulaku khan in 1256 year. Fazlullah Rashidaddin wrote about it in his work "Jami-at-Tavarikh" (Collection of dates): "Hulaku khan appreciated Tusi's prescience and permitted him anything, he wanted. Nasiraddin chose the sole and the most honest way - the Ismail's rich library was rescued". The rich fund of rescued "Sayyidane" library was included into the observation library.

Academician Ziya Bunyadov shows that, when the Mongolians occupied Baghdad in 1252 year, Nasiraddin Tusi based the conquest of the capital of Abbasid caliphate and especially he agitate the ruler on this work. When

Hulaku khan asked Tusi's opinion he said that, getting Baghdad wouldn't cause any danger for Hulaku. For his wiseable advice Nasiraddin's award was rescuing a great number of books, kept in Baghdad libraries. In 1258 after capturing Baghdad Hulaku khan had the books removed, kept in caliphate library to Maragha city with Nasiraddin Tusi's request. Nasiraddin Tusi wrote in his "Ilkhanid tables": "Hulaku khan ordered to bring books from Baghdad, Sham and Mosul for the observation".

As it known from history of world libraries, the richest libraries, collecting and keeping ancient and middle age books for hundred years in Eastern countries were in Baghdad. The most valuable and rarest manuscripts of the world were kept in those libraries. Bringing the books, kept in those libraries, to the library of Maragha observatory turned its fund to stock of gold of that time. Besides books, brought from Baghdad, also the books from Iran, Syria, Middle Asia and other states of the world were included into observatory library.

As the fund of the library formed a great number quantitatively, it was very rich and valuable by quality, too. The books, collected at The Baghdad Caliphate Library for hundreds of years, and manuscripts, considered approximately as the most valuable pearls of the East, enriched the fund of the library. One of the greatest achievements of that library was collecting and saving books of Azeri authors and becoming the treasury of Azerbaijan book culture.

According to academician Ziya Bunyadov's writings, among manuscripts in Maragha observatory, the works of Azeri authors such as Abu Ali Ahmed ibn Muhammad Bardai's "History", Shamsaddin Muhammad ibn Osman Saravi's "Sijili Fatan al fityan" (Collection of admonitions for the youth), Muhtasaddin Abulkehr's "Tarikhi Azerbaijan" (Azerbaijan history) and others were kept. After Nasiraddin Tusi's death, his little son Fakhraddin Abulqasim Ahmed Maraghai led the observatory and its library. Ahmed Maraghai was a perfect astronomer, scientist and doctor. Giving superiority to being busy with mathematical sciences, Ahmed Maraghai had a perfect gift of speech. After his death (1301) Nasiraddin Tusi's second son Sadraddin Abul Ali, and later, the third son Asiladdin Hasan led the observatory.

The libraries of Eastern countries in middle ages have operated as scientific centres, served free of charge for readers, being busy with science, and gave them scientific advice in necessary times and formed lectures. Just because of it, the most prominent persons of that time led the libraries, the most educated persons and scientists of that time worked in libraries. Nasiraddin Tusi led Maragha library directly himself. Very prominent scientists were working at the library. Investigators show names of librarians, working at observatory library such as Kemaleddin Mesud ibn - Muhammad

Tiflisi, Najmaddin Baghdadi, and Kemaludovle Abu Ali ibn Abu Faraj. Collecting 400 000 books at that library informs about forming the library work on scientific basis. No doubt, there was used special scientific classification, special technique of librarianship science, to keep books at the library. Investigations show that, as Nasiraddin Tusi had close relations with Kemaleddin Abdulrezzag ibn Ahmed Baghdadi, who headed caliphate Motesim's world-wide famed library, called "Book treasury" in Baghdad, he was informed about structure, scientific classification, technology of Baghdad library and other scientific rules, used at the library, the information system of it. And by the way, he used that wide experience at his observatory library. Using scientific classification in order of books at the library, and using the rules of giving a separate code on each book, having description rules, compiling of book catalogues, informs us about origin of scientific basis of Azerbaijan librarianship, maybe in embryo, even in those time. The works, which were prepared by the library in type of bibliographic information, and had an encyclopaedic character, also attract attention. From this point of view, the head librarian of the library, a prominent explorer scientist al-Fuvat's written work "The famous of the East", which was written on the base of books, kept at the library, attracts attention especially. This valuable encyclopaedic work, consisted of 53 volumes, not only caused big interest of great Eastern scientists, but also has great scientific importance in learning the life and activity of prominent Eastern scientists. No doubt, to find such works, to get them from big libraries of the world, must be our modern explorers' duty.

The library of Maragha observatory showed activity till 1335 year, until Sultan Abu Said Bahadur khan's death. After Abu Said's death, getting shattered the Ilkhanid state and its weaken, destroyed the observatory and its library because of desolation. An explorer scientist M. H. Musaddiq shows that, after coming Jalairis, Teymurids and Aghgoyunlu dynasties to Azerbaijan one after another, the observatory and its library in Maragha got destroyed. A part of the library was sent to Soltan Ahmed Jalair's and Ulugh bey's library in Samarkand. From seals, set on copies, which came to our days, it is possible to define the following adres of observatory libraries. It's very pity that, we don't have wide information about the fund of the library, arranging service work to readers, the work of information-bibliography and other activities. Further scientific researches, doubtless, will give an opportunity to learn the activity of the library comprehensively.

In authority period of Mongolian Hulaku khan and Gazan khan rulers, big work was done in development of science and culture in Azerbaijan, also in establishing new scientific and cultural institutions, 5 great scientific and cultural areas were founded. An explorer scientist M. H. Musaddiq, who had researches about it, shows that, our scientists founded 5 big scientific hearths

in authority period of Mongolians in Azerbaijan. One of them was an observatory, the second one, was the university, established in Alishakh mosque in Tabriz, on purpose to research literary and historical sciences. The third one was a scientific centre in Shanbe-Gazan, the fourth was the university in Rabi-Rashidi settlement near Tabriz, which was established by Rashiddaddin Fezullakh. And the fifth, was a scientific centre in Sultaniyye city of Azerbaijan. Establishing such big scientific centres and their activity, informs about very big achievements of Azerbaijan science. A fact, excited curiosity on library historians, attracts attention that, all those scientific institutions had rich libraries, which earned world-wide fame. The most prominent scientists took part closely, on establishing and activity of those libraries and took on themselves the leading of them. Scientific institutions appreciated the libraries as sections of structure of institutions, considered as one of basic factors in founding scientific institutions. Such a scientific thought was formed in those times, that, before establishing a scientific – research institution, first its library had to be founded. As those libraries took a duty to serve the duties and purpose of institutions, to answer the questions and requirements of scientists, working at scientific institutions, they carried the status of a scientific library.

The libraries of scientific institutions, founded and formed in XIII-XIV centuries, may be called as the first scientific libraries for their activity status, duties and purpose. As scientific libraries served directly to scientists, scientific workers, who had a scientific-research work at institution, and educated men, to work in such libraries demanded a wide professionalism. Just because of it, only prominent scientists, experienced educated men worked in scientific libraries and led them.

So, being the first Azerbaijan scientific library, established on a result of Azerbaijan scientist Nasiraddin Tusi's great work and strong will, the library of Maragha observatory takes an honest place as the first library for richness and rarity of its fund in history of librarianship, which was open not only for scientists of the observatory, but also for other readers and it is praised as one of world libraries pearls. Having historical facts, arguments and historical sources, about learning the activity of the library, give an opportunity to say a thought that, the library of Maragha observatory, built by Nasiraddin Tusi, is the first scientific library in Azerbaijan, which had exact history. That library was one of the biggest libraries in the East for richness of its fund, difference and status of methods and new forms, used in formation of service work for readers. Saving books in the library, their scientific classification, arrangement, scientific methods and rules about usage the information at libraries, is a thorough argument about rising the librarianship science to a high scientific level.

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**Orta əsrlər Azərbaycanında ilk elmi-tədqiqat müəssisələri-marağa
rəsədxanası və onun kitabxanası**

E.E. Məmmədov

Xülasə

Məqalədə konkret olaraq orta əsrlər (XIII-XIV əsrlər) Azərbaycanının ilk elmi-tədqiqat müəssisələri – Marağa rəsədxanası və onun kitabxanasının tarixinə qısa bir ekskursiya edilərək onların Azərbaycan mədəniyyətinin və kitabxanaşünaslıq elminin inkişafında hansı rol oynadığı məsələsi araşdırılmışdır.

Açar sözlər: *Elmi kitabxana, kitabxana, kitabxana işinin tarixi, kitabxanaşünaslıq, Marağa rəsədxanası, Nəsirəddin Tusi, orta əsrlər.*

**Средневековые первые научно-исследовательские учреждения в
Азербайджане - обсерватория марага и ее библиотека**

Э.Э. Мамедов

Резюме

В этой статье с использованием краткого экскурса исследована роль средневековых (XIII-XIV веков) первых научно-исследовательских учреждений в Азербайджане - обсерватория Марага и ее библиотека в развитии Азербайджанской культуры и библиотековедение в период их деятельности.

Ключевые слова: *Научная библиотека, библиотека, история библиотечного дело, библиотековедение, обсерватория Марага, Насирəддин Туси, средневековье.*