

THE INFLUENCE OF THE XV TH CENTURY SAMARKAND SCIENTIFIC SCHOOL ON THE DEVELOPMENT OF EASTERN AND WESTERN RATIONAL THINKING

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Abstract

In this article, the contribution of the 15th century Samarkand High School to world science, including logic, astronomy, mathematics, and natural science, is widely acknowledged. It was also noted that Mirzo Ulughbek used his rational philosophical views in his scientific work, and that empirical knowledge was central to knowledge, understanding, thinking and drawing conclusions in his philosophical views.

Keywords: exact sciences, empirical and rational knowledge, philosophy, history, logic, astronomy, mathematics, natural sciences.

Introduction

The main purpose of this article is to examine the scientific achievements of Mirzo Ulughbek's Academy in Samarkand in various fields, especially in mathematics and astronomy, its scientific views and its world philosophical influence. The madrasa, observatory and the surrounding school of mathematics and astronomy founded by Mirzo Ulughbek in Samarkand have left an important and indelible mark in the history of philosophy in the Muslim world as well as in the history of world science.[3-4,7]. Such centres are characterised as places that ensure the progress of science, that is, development towards innovation. Samarkand Higher School, the academy of its time, collected and copied mathematical, astronomical, geographical and philosophical knowledge, and disseminated the collected experience to the scientific community, separating ancient scientific ideas from a historical perspective. Show made a great contribution to world science through an in-depth study of its conceptual view.

Literature Review

Mirzo Ulughbek's school is a critical reassessment of the existing "intellectual production" in the modern (civilised) world, in terms of the current era, by bringing new dimensions to the legacy of today's science, developing consciousness, creating skills, turning ideas into reality. His views, such as putting into production, have taken their place in the spiritual education of the current generation, in the increase of knowledge, and in the gradual development of science. The Samarkand school with its unique features united the past and the present, created new discoveries for its time and eventually left an important spiritual heritage for the science of the future. It should be noted that in the words of academician V.V. Bartold "no king in the Islamic world was such a scholar as Ulughbek". [2-134,146]. We will pay attention to the following

fundamental practical research in the Muslim East up to the scientific school of Mirzo Ulughbek. From a historical point of view, it was built 150 years before the Samarkand school of astronomy, i.e. in 1259 the construction of Maroga was started by Nasiruddin at-Tusi, but it was built by his full-blooded son Sadriddin Abul Hassan Nasriddin (Arabic scientist Al-Ordizi would be wise to study the scientific achievements of the observatory [5-316]). In addition, the rational theology of Ad-Din Razi (12th-13th centuries) served to develop scientific and philosophical thinking about existence, time and space in the Samarkand madrasa, particularly in the fields of mathematics, astronomy and optics.

Research Methodology

New astronomical knowledge, terms, new scientific thinking were developed in Ali Kushchi's commentaries to "Zij" and Nasiruddin Tusi's work "Sharh al-Jadid" on theological narratives. It should be noted that during the construction of Samarkand Observatory a great positive scientific experience of Marog Observatory was widely used, including scientific works, as well as the results obtained by comparison and contrast. In the fields of astronomy and mathematics, the consideration of scientific perspective not only stimulated cognition but also scientific debate in a broader sense, gave rise to serious research on the study of cognition and epistemology (scientific knowledge) and subsequently yielded fruitful results. It should be noted that in scientific astronomical observations and experiments in Marogha and Samarkand the following tasks should be considered: manifestation and development of the science of mathematics as the basis of thinking and reasoning; scientific and philosophical debates about the relation of mathematics to natural philosophy can practically be considered in the form of presentation of arguments and discussion of valid proofs; accuracy of mathematics in theological rules, development of a working method reflecting the peculiarities of mathematical philosophy. Especially this process was the period when "mathematics" reached its heyday as the main subject in the Samarkand Scientific Astronomical School. In particular, the development of algorithmic, mathematical methods of calculation, exclusively computational mechanics reached the highest level. [6-122]. For example, Jamshid Koshi's Miftal al-hisab[1] (devoted to a new definition of the algebraic meaning of the numbers "pi" and "sin1"), Gazizadeh's special commentary on Rumi's second treatise, Mirzo Ulughbek's "Zij" [7-445], As theoretical and practical achievements of science of this period, it is appropriate to show the works of Ali Kushchi (who re-evaluated decimals).

Analysis and Results

The scientific achievements of Ulughbek's Academy (mentioned by Zij) were translated into Turkish by the Turkish scholar Abbas Vesim in the early XVIII century and published as a textbook, and educators used them in teaching. It was spread in Europe under the name of "Turkish fractions" by Byzantine mathematicians and influenced the development of science from the 16th century onwards. As a result of the development of mathematical methods of calculation, mathematics acquired its hermeneutic-Pythagorean mysticism, and the classical definition of number was restored to the traditions of Egypt, Aristotle and Euclid. The existing definition of number as a unit or multiple of a unit has been replaced by a more functional, highly

semantic (number editing) definition of meaning. This new definition is based on the ability of the human mind to count and was proposed by Jamshid Koshani and Ali Kushchi. According to them, a "unit" can be numbered, and everything that consists of a unit can be attributed to this numbering system. It is noteworthy that the computer and information technologies being created and developed in the modern world, the digital economy integrating the world economy, are based on the above definition. The wide dissemination of this concept Jamshid Koshi, one of the greatest scholars of Samarkand madrasa, clearly applied the above definitions in his works "Miftohul-hisab" and Ali Kushchi's "Al-Muhammadi al-hisab". It should also be noted that the term 'zaid' is used for 'addition' and 'subtraction' of numbers, and for the use of the terms 'musbet' (positive) and 'nen' (negative)." [8-16,17]. In the Middle Ages, the peoples of which spoke Arabic and Persian, these terms are still used in these countries. These terms were abbreviated and translated into Latin at different times by European, Byzantine mathematicians.

Conclusion/Recommendations

Today, these terms are used in the development of science in modern Turkic-speaking countries. In addition, there is information that these mathematical terms, which were first used by Ali Kushchi, were and are used by Chinese mathematicians. Thus, during the reign of Mirza Ulughbek, socio-political, economic life, science and culture developed at a high level in Movarunnahr and Khorasan. This period was defined by the famous scholar N.I. Konrad "The last period of the Muslim Renaissance and part of the Universal Renaissance" [4-227]. Therefore, a deeper scientific and philosophical study of the life and activities of the Timurids, particularly Mirzo Ulughbek, is one of the important issues facing the present generation and researchers.

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