DOI 10.31489/2022HPh4/181-188

UDK 930

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A.Zh. Mashanov (1906—1997): biography pages and scientific and pedagogical activity

The article analyses individual pages of Akzhan Zhaksybekovich Mashanov's biography as well as his research and pedagogical activity. He was born in village No. 1 of the Karkaraly district of the Berkala volost; in 1924, as an excellent student, he entered the Karkaraly Pedagogical College, and later in 1934, the Kazakh Mining and Metallurgical Institute. A.Zh. Mashanov is one of the founders of geomechanics in the Soviet Union, the founder of Kazakh science fiction. He was one of the first Kazakh engineers-mine surveyors who had the degree of doctor of geological and mineralogical sciences. A.Zh. Mashanov developed and practically applied a new method for studying the structure of ore fields, which was subsequently applied in studying the structure of the vast majority of mineral deposits and the geological structure of individual regions. On the basis of archival documents and memoirs of students, many of which are introduced into scientific circulation for the first time, the authors consider the scientific and pedagogical activity of A.Zh. Mashanov, his great contribution to the development of a new scientific direction in mining, i.e., geomechanics. An extensive research outlook, knowledge of the Arabic language allowed A.Zh. Mashanov to open the great scholar Abu Nasyr Al-Farabi to the world community. A.Zh. Mashanov in his works was able to prove that the main primary source of science in Kazakhstan were the works of Al-Farabi. He created a scientific school of engineers-mine surveyors of Kazakhstan.

Keywords: history of Kazakhstan, A.Zh. Mashanov, geomechanics, scientist, mine surveyor, Academy of Sciences of the Kazakh SSR.

Introduction

The recent interest in A.Zh. Mashanov's scientific heritage is explained by the fact that at present there has been a decisive turn toward the humanization of history as a science, which means the emergence of a steady trend toward the personification of historical problems. Until recently, questions of history have been studied irrespective of historical figures, their deeds, and this was due to the fact that the analysis of the historical process was carried out in non-personal terms. The objective laws of social development were studied without considering the individual originality, the uniqueness of the personality, the psychological characteristics of the historical person, the motives and moral aspects of his activity were almost not considered. When studying the place and role of historical figures in society, attention was focused not on revealing their uniqueness, but on "concentrating in it the typical features and characteristics of a representative of a particular class" [1]. At the present stage, the problem of studying great personalities and their role in history is one of the leading in scientific research. Therefore, it is no coincidence that the scope of research is aimed at obtaining objective and comprehensive knowledge about the life and fate of great personalities who left a noticeable mark on the history of their people.

Akzhan Zhaksybekovich Mashanov, a Kazakh scientist, mine surveyor, farabianist, can be attributed to a galaxy of outstanding personalities, whose life and scientific activity left a deep mark on history, religion, philosophy, world literature and science fiction. The modern interest in this figure is due not only to the scale of the personality itself, but also to the fact that all his scientific and journalistic works and activities have not been thoroughly studied in domestic historiography, and the existing estimates need to be adjusted.

Experimental

With the help of interdisciplinary techniques (prosopography, microhistory, content analysis, etc.), a complex of historical sources was analysed, which made it possible to study the main milestones in A.Zh. Mashanov's biography, the principles of forming his views and worldview, as well as general/private social

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and civil features characteristic of him. The method of interpretation was applied, which is the basis for a correct understanding through the text of the views, worldview, the author's political position and helps to critically understand the ideological and content features of the text. The paleographic and codicological methods allowed to obtain more detailed information about the manuscripts; through the bibliographic method, a review, systematization, and classification of works related to A.K. Mashanov's life and legacy were obtained.

Results

The future scientist and researcher of the scientific heritage of the "Second Teacher of the East", Abu Nasr al-Farabi, Akzhan Mashanov was born in the family of Zhaksybek, the youngest son of Mashan biy, in village No. 1 of the Karkaraly district of the Berkala volost. Akzhan's childhood years cannot be called calm. He was born in November 1906. During this period, the First Russian Revolution was taking place. Later, not only Russia but the entire Kazakh steppe was overwhelmed by the revolutionary events of 1917 and the Civil War (1917—1920). Despite the unrest that took place on the territory of Kazakhstan, Akzhan was able to get a secondary education.

After finishing school in 1924, Akzhan applied for the Karkaraly Pedagogical College, which opened in 1920 on the initiative of a prominent public figure, professor of mathematics Alimkhan Abeuovich Yermekov [2; 28]. It taught children not only from Karkaralinsk, but also from Bayanaul, Balkhash districts. At one time O.A. Zhautykov, Sh. Shokin, A. Sembaev, K. Boshaev, and other prominent representatives of the Kazakh intelligentsia graduated from this educational institution.

A.Zh. Mashanov started his first steps in the pedagogical field in 1925. These were difficult years for Soviet Kazakhstan. The restoration of the national economy of the republic, destroyed by the Civil War, which urgently needed its own cadres of qualified workers, began. Therefore, it is no coincidence that in the 1920—1930s the Soviet government began a general campaign to eliminate illiteracy [3; 47 back side].

The decree "On the elimination of illiteracy among the population of the RSFSR" stated that the entire population of the republic aged from 6 to 50 years old who cannot read or write "is obliged to learn to read and write in their native or Russian language, if desired" [4; 250]. The fight against the elimination of illiteracy was seen as an indispensable condition for ensuring the conscious participation of the population in the political and economic life of the country. In this regard, Narkompros had the right, based on labour service, to involve all educated people in the education of the illiterate population. The organizer and main ideologist of Soviet education N.K. Krupskaya, speaking at the All-Union Methodological Conference on the elimination of illiteracy and low literacy, noted that "these years we have paid main attention to the elimination of illiteracy in cities. It is necessary that this work be carried out in the countryside as well" [5; 13]. After this speech, teachers and students of pedagogical specialties — excellent students — are sent to the villages of the country. One of these students was Akzhan Zhaksybekovich, a student at the Karkaraly Pedagogical College. In 1925 he was sent to the school of the first stage of Zharly village.

Sh. Abdiraman, a student of A. Mashanov, in the book dedicated to the life of his teacher, describes this episode as follows: "A new teacher arrived in the village, the news about this spread very quickly among the population. People began to ask questions: "Who is this young teacher? For what purpose did he come to the village, because the school already has a teacher? What will happen to the old teacher? Who will be taught by the new teacher"? How surprised people were when they found out that this young teacher was Akzhan Mashanov. "This is the son of Zhaksybek Akzhan. He is studying in Karkaralinsk. He loves studying very much. You know that the Soviet government is conducting a campaign to eradicate illiteracy, sending teachers to villages to teach adults literacy. I asked them to send Akzhan to our village. He will teach you how to write and read," the chairman of the state farm, Yesen, introduced Akzhan to the people [6; 99].

From that moment, the pedagogical activity of Akzhan Mashanov began. The development of scientific and educational views became life credo for A.K. Mashanov. He went from one house to another, "shared one notebook for two, one pencil for three, taught adults and children to hold a pen correctly" and gradually, step by step, opened the world of knowledge to people. One of the first tasks of the young teacher was to teach people how to write the uppercase and lowercase Latin letter "Aa", as well as how to count from one to ten. "If you learn to write and distinguish from one to ten, you will be able to write a hundred, a thousand and many other numbers," Akzhan told his students [6; 100].

Initially, it was challenging for him. Firstly, it was connected primarily with material and organizational difficulties. All adult students gathered in one of the houses of the village, where there were no conditions for classes: no blackboard, no chalk, no stationery. Secondly, the burden of responsibility to fellow villagers

felt on the young educator. Upon learning that Akzhan was actively involved in the campaign to eradicate illiteracy and worked as a teacher, the residents of his native village of Mashan were divided into two groups. The first group was proud of him, the second was worried that he would not be able to do his job conscientiously and would not justify the trust of the Soviet authorities. Time has shown that these fears were unfounded.

After graduating from the Pedagogical College, Akzhan worked as an instructor for the Department of District National Education of the Abralinsky District, and then as an instructor for the Department of Regional National Education in the city of Semipalatinsk.

In 1934, he entered the Kazakh Mining and Metallurgical Institute with a specialty in geological exploration*. Since then, his whole life had been inextricably linked with that university. In 1939, he graduated with honors from the university and entered graduate school at the Department of Mine Surveying and Geodesy, where Professor P.A. Ryzhov became his scientific supervisor. Under his leadership, Akzhan successfully defended his candidate's thesis titled "Structure of the Turgai ore field". It should be noted that when preparing his candidate's thesis, the scientist developed and applied a new original method for studying the structure of mineral deposits, based on mechanical-mathematical, mining-geometric principles [3; 49]. With further development, that method was called the "geomechanical method" and found wide application in mining geometry, mine surveying and in the geometrization of mineral deposits.

According to protocol No. 1 of the decision of the Council of the Institute of Geological Sciences of the Kazakh Branch of the USSR Academy of Sciences dated February 8, 1944, A.Zh. Mashanov was awarded the degree of candidate of geological and mineralogical sciences [3; 55]. It was during this period that A. Mashanov became a future major scientist.

After defending his candidate's thesis A.Zh. Mashanov continued his scientific activity. In 1945, A.Zh. Mashanov, summarizing the empirical data obtained and theoretically substantiating the method of "mechanics of the rock mass" or in other words "geomechanics", published the monograph "Fundamentals of a new methodology for studying the structure of ore fields". The main provisions of the monograph formed the basis of a doctoral dissertation on the topic "Geometric methods for studying the structure of ore fields".

In his dissertation, the scientist presented the fundamental basis of the science of soil as some kind of mathematical natural science. Some prominent scientists of the Soviet Union supported the idea proposed by A.Zh. Mashanov and rendered all possible assistance. At the same time, others warned him of impending formal difficulties. They said that that problem was new for Soviet science and it would take a lot of time to study it, since mining and geological science at that time was mainly empirical in nature, with a poorly developed theoretical and methodological basis.

Difficulties did not stop A.Zh. Mashanov. On January 2, 1946, Akzhan Zhaksybekovich wrote a statement addressed to the director of the Moscow Geological Prospecting Institute named after S. Ordzhonikidze, Doctor of Geological and Mineralogical Sciences, Professor F.V. Kotlov: "I ask you to allow me to defend my dissertation at the Academic Council of the Institute, submitted for the degree of Doctor of Geological and Mineralogical Sciences on the topic "Geometric methods for studying the structure of ore fields". The dissertation work with abstracts, annotations and reviews, as well as other necessary documents are attached. Candidate of Geological and Mineralogical Sciences, Senior Researcher A.Zh. Mashanov" [7; 70].

The first president of the Academy of Sciences of the Kazakh SSR K.I. Satpayev provided A.Zh. Mashanov with great support in defending a doctoral dissertation. On March 10, 1946, Professor F.V. Kotlov received a letter from the Chairman of the Presidium of the Kazakh branch of the USSR Academy of Sciences Academician K.I. Satpayev: "The Presidium of the Kazakh Branch of the Academy of Sciences of the USSR asks you to accept for the defense at a meeting of the Academic Council of your institute the dissertation of the candidate of geological and mineralogical sciences A.Zh. Mashanov for the degree of Doctor of Geological and Mineralogical Sciences. The topic of the dissertation is "Geometric methods for studying the structure of ore fields". Addressing you with this letter, the Presidium of the Kazakh branch of the USSR Academy of Sciences considers it necessary to bring to your attention that, in accordance with the Decree of the Council of People's Commissars of the USSR and the Council of People's Commissars of the Kazakh SSR, the Kazakh Branch of the Academy of Sciences of the USSR by the end of April of this year will have been reorganized into the Academy of Sciences of the Kazakh SSR, so it is highly desirable that comrade Mashanov A.Zh., as a representative of national Kazakh personnel, would have managed to defend his dis-

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sertation by this date. For its part, the Presidium of the Kazakh branch of the USSR Academy of Sciences recommends Comrade A.Zh. Mashanov, as a well-established researcher and highly qualified specialist in his field" [7; 73].

Information about the forthcoming defense of the dissertation appeared on April 25, 1946, in the newspaper Vechernyaya Moskva: "On May 8, 1946 at 19.00 in room number 20, located on Mokhovaya street 11, building "Zh", at a meeting of the Council of the Moscow Geological Prospecting Institute named after S. Ordzhonikidze a public defense of the thesis of Mashanov A.Zh. for the degree of Doctor of Geological and Mineralogical Sciences" will be held" [7; 72].

A.Zh. Mashanov's dissertation titled "Geometric Methods for Studying the Structure of Ore Fields" was an experience in applying the basic principles of physical, mathematical and geomechanical sciences to solve problems of geotectonics in general and study the structure of ore fields in particular. The author theoretically developed and practically applied a new method for studying the structure of ore fields, which was accessible and objective, reliable enough to be used in studying the structure of not only the vast majority of mineral deposits, but also the geological structure of individual regions.

The applicant devoted the introductory chapter of the dissertation to a general formulation of the question and a brief review of the main literary sources on geotectonics and the application of the principles of dialectical materialism to it, the theory of deformation, geochemistry and, in part, some other related disciplines that are somehow related to the problem of the dissertation (in physical chemistry, crystallography, etc.).

In the first part of the manuscript, the author gave a theoretical justification for the new technique, brief descriptions, and conclusions about the structure of atoms (ions) and the crystal lattice, on the theory and practice of elastic and plastic deformation. In addition, issues of the development of geological forms (structures) and the formation of cracks, the problem of "energy and form" were considered. The applicant, relying mainly on the principles of modern geochemistry and mechanics, proposed an original concept for the development and relationship of tectonics and mineralization of ore fields. In the last two chapters of the first part of A.K. Mashanov cited experimental data and elements of the mathematical (geometric) apparatus of the new technique.

In the second part of the dissertation, extensive material was given on the practice of applying the new method by the author to the study of the structure of ore fields in the most important industrial regions of Kazakhstan (Ore Altai, Dzhezkazgan, Central Karatau, etc.).

In conclusion, the author indicated the objects and elements of geological structures to which the technique developed by him and the main ways of its further development could be applied [7; 77]. Thus, the work of the scientist was written at the intersection of three complex disciplines, i.e., geology, mine surveying, and applied mechanics. Therefore, the council appointed as official opponents: academician-mechanic L.S. Leibenson, professor-mine surveyor P.K. Sobolevsky, professor of geology V.M. Kreiter. According to the reviews of opponents, the doctoral dissertation of A.Zh. Mashanov gave several interesting indications of a geological nature, which already at that time should have been applied in the field: the study of the intensity and nature of fracturing, the shape of fracture surfaces, observations of specific slip zones, etc.

Reputable scientists, well-known experts — opponents of A.Zh. Mashanov emphasized that the dissertation work met all the requirements for doctoral dissertations, and its author was worthy of being awarded the degree of Doctor of Geological and Mineralogical Sciences. Among the merits of the work, the following points were noted: the original concept of the relationship between energy and form, suitable for use in the analysis of geological structures; development of the theory of the mechanism of deformation of the earth's crust in the light of new views being developed in the field of plastic deformation; new interesting indications of the geological order for the study of the intensity and nature of fracturing and fracture shapes; great erudition of the author in a very diverse range of scientific dissertations [7; 95]. At the same time, the opponents drew the attention of the Academic Council to the shortcomings of the work, i.e., an incomplete description of the drawings and their inconsistent placement; lack of conclusions, basic formulas obtained by the author; the ambiguity of some interpretations of the author on the issues of cleavage and rupture cracks, on the equivalence of the concepts of mineralization and the phases of crack development; the lack of a complete and harmonious idea of the formation and location of structural blocks, along with individual original provisions proposed by the author; somewhat confusing and unclear presentation, due to the imperfection of language skills [8; 95, 96].

Archival documents allow us to conclude that there was a heated scientific discussion at the meeting of the council and, obviously, not all members of the council held the same views on the problem as the appli-

cant. This conclusion can be reached by looking at the voting results, which were as follows: 12 votes in favour, 9 against, one ballot was declared invalid [7; 96].

According to an extract from protocol No. 13 from May 8, 1946, of the meeting of the Academic Council of the Moscow Geological Prospecting Institute named after S. Ordzhonikidze a resolution was approved: based on the results of a secret ballot, Akzhan Zhaksybekovich Mashanov should be awarded the degree of Doctor of Geological and Mineralogical Sciences [9; 69].

After defending his dissertation and receiving a degree, A.Zh. Mashanov returned to Alma-Ata. By the Decree of the Presidium of the Supreme Council of the Kazakh SSR, the Council of Ministers of the Kazakh SSR and the Central Committee of the CP (b) of Kazakhstan dated May 31, 1946 "On the establishment of the Academy of Sciences of the Kazakh SSR", the Academy of Sciences of the Kazakh SSR began its work, in which A.Zh. Mashanov continued his career from the moment of its opening [10; 17]. Here, under the guidance of Academician A.B. Bekturov, he went from a senior researcher, head of a sector in the department of geological, geographical, technical and chemical sciences (department of mineralogical resources) to a corresponding member of the Academy of Sciences of the Kazakh SSR [9; 56].

During his work in the Academy of Sciences of the Kazakh SSR, he was characterized as a person who treated his duties conscientiously, did a lot for the development of mountain geometry, took a systematic part in the work of the Department of Mineral Resources of the Academy of Sciences of the Kazakh SSR: "Politically literate, developed person fulfilling party orders" [3; 59].

A.Zh. Mashanov successfully combined scientific activity with teaching. Since 1946, he began working part-time at the Department of Geography of the Faculty of Natural Geography of Abay Kazakh Pedagogical Institute. It should be noted that he was one of the organizers of the opening of this faculty [11; 3]. Later, in 1952, he was elected as deputy chairman of the Academic Council of the Kazakh branch of the USSR Geographical Society [3; 86].

In 1947, the leadership of the Kazakh Mining and Metallurgical Institute invited him to give lectures to first-year students of the Geological Exploration Faculty. A.Zh. Mashanov was a highly qualified teacher. For many years he taught the general course "Structure of ore fields". In lectures, he presented the main points of geomechanics with a wide coverage of empirical and experimental materials on structural geology [9; 18]. At the moment, lectures by A.Zh. Mashanov are in the archival funds of the scientific and museum center "Gylym Ordasy".

In 1950, at the request of the director of the Kazakh Polytechnic Institute, he returned to his native institute, where he worked as an assistant professor, then head of the department of mine surveying (1960—1987). Under his leadership, the staff of the department was formed, which successfully coped with the preparation of mining engineers-mine surveyors for Kazakhstan. It should be noted that for many years the main staff of the department was Akzhan Zhaksybekovich's students, whom he gave a start in life. The department of mine surveying headed by him was one of the leading centres for training personnel in the field of mine surveying in the country and trained specialists not only for Kazakhstan, but also for the republics of Central Asia [3; 51]. Over time, under his leadership, the department of mine surveying became one of the leading departments of the Kazakh Polytechnic Institute. Prior to his arrival, the department did not have a single-degree specialist. With his arrival, only in the first years, the department prepared six candidates of sciences [3; 76, 77].

During his teaching career, he trained many talented mining engineers and mine surveyors. Under his scientific guidance, 25 candidates and doctors of technical sciences successfully defended their dissertations: B.R. Rakishev, M.B. Nurpeisova, T.T. Ipalakov, Zh.D. Baigurin, A. Kurmankozhaev, Sh. Abdraman, M.B. Estaev, A.A. Mashanov, and many others [12; 136].

A.Zh. Mashanov was an experienced and authoritative teacher and the founder of the scientific school of geomechanics. "He was a born teacher", recalled his students. — "He taught us the ability to deal with people, the ability to see the best qualities in people, to be attentive to students and colleagues. Forgiving people's mistakes and shortcomings. His attentive and respectful attitude towards people was an excellent example of education for us, and his diligence clearly showed that a person can achieve success in his work thanks to honest work" [12; 195, 196].

A. Mashanov's students continued the work of their teacher. Many of them taught at the Department of "Mine Surveying and Geodesy" of K.I. Satpayev Kazakh National University, made a great contribution to the development of the mining and metallurgical complex of our republic, led a team of mining engineers-mine surveyors. Even today they continue to introduce the achievements of mining geometry and geomechanics into production, taking the life credo of their teacher as the main principle in their activities [12; 156].

A.Zh. Mashanov is the author of more than 70 textbooks and teaching aids, monographs, technical explanatory dictionaries, popular science and science fiction stories, essays on the history of science, geology, mining, astronomy, metallurgy in the Kazakh language. He discovered 3 mineral deposits. He studied and translated from Russian into Kazakh the fundamental works by I.V. Mushketov titled "Short course of general geology", "Fundamentals of Geology" by V.A. Obruchev, "Geology and Mineralogy" by I. Potemkin. Familiarising himself with the ground-breaking work of the world's mining scientists, A.K. Mashanov applied the acquired knowledge when writing educational and methodological literature in relation to Kazakhstani reality. For example, in the work "Crystallography, mineralogy and petrography", the scientist focused on local Kazakhstani mineral deposits [12; 137].

One of the important studies in mining and mine surveying was the study of the influence of fractures of a rock mass containing mineral deposits on mechanical properties. A. Mashanov wrote and published a number of works on this important issue. Thus, in the book "Mechanics of the rock mass" he not only characterized the main works of Soviet and foreign scientists on the mechanics of the rock mass, but also determined their shortcomings in a comprehensive study of the fissure tectonics of the rock mass. This work made many mine surveyors re-evaluate the importance of rock fractures in solving topical issues of mining [3; 15]. In Soviet times, this work received universal international recognition and high praise from colleagues. A. Mashanov repeatedly received requests from India and the GDR for permission to republish the work.

The work "The Structure of the Earth" is considered to be the first textbook on geology published in the Kazakh language. It has become a real discovery for students and colleagues. Not coincidentally, it was republished twice. Honored Worker of Science and Technology of the Ukrainian SSR D. Ogloblin, speaking about this book, noted: "Mashanov created a useful book on geology and the origin of the Earth, familiarized his fellow Kazakh citizens with modern cosmogonic theories. The fact that this book by A.Zh. Mashanov was published twice, which objectively testifies to its usefulness. The creation of this book is quite convincing evidence of the scientific and pedagogical maturity of A.Zh. Mashanov" [3; 21, 22].

The book "The Secret of the Earth" was written back in 1940, but because of the Great Patriotic War, it was published only in 1948. The preface to it was written by the academician K.I. Satpayev. The work was interesting because in it the author considered history and astronomy, the origin of the names of the zodiac constellations, legends and the history of the 12-year cycle of the chronology of the Eastern peoples. It was one of the first works of science fiction and a popular genre in the Kazakh language [12; 139]. After the publication of this book, he was rightfully considered the founder of science fiction in Kazakhstan, and famous writers and literary figures evaluated this work as one of the first works of the science fiction genre written in the Kazakh language. In addition, he is the first scientist in Kazakhstan who developed terminological dictionaries for the mining and geological cycle in the Kazakh language [3; l33].

Fiction stories "Journey to the bowels of the earth" were popular. In them, he described in a public form the inexhaustible wealth of the bowels of our country, as well as their practical use. In the periodical press, flattering reviews about this work repeatedly appeared, as well as requests for its reprint [3; 76].

The scientific works of the scientist in geology and geomechanics, which summarized the results of many years of field, industrial, research work that led to the discovery of new deposits, served as the basis for the creation of a new scientific discipline, i.e., Geomechanics, as well as the emergence of the Kazakh school of geomechanics. Subsequently, the discipline "Geomechanics" was included in the compulsory program of technical universities, and the works of the scientist are still used by students as the main educational literature [13; 68].

In 1961, at the All-Union Conference at the Research Institute of Geomechanics and Mine Surveying, dedicated to the problem of studying rock fracturing, prominent scientists of the USSR noted and emphasized the initiative of A. Mashanov in studying the fracturing of the massif and its influence on the displacement of rocks. "The meeting considers it necessary to note the initiative of the Kazakhstan Polytechnic Institute and, in particular, the initiative of comrade Mashanov A.Zh. on the study of the fracturing of the massif and its influence on the displacement of rocks in the development of ore deposits" [3; 74]. The importance of studying fracturing was also emphasized at the II All-Union Conference at the Institute of Mining named after A.A. Skochinsky in 1964 [3; 71].

During his life, he wrote more than 200 works. His works: "Taular kalay kurylgan", "Zhanar tau", "Zhersilikinu", "Zher kurylysy", "Tirshilik kalay shykan", 'Petrography, mineralogy, crystallography", "Mechanics of the rock massif", "Al-Farabi", "Taboo", "Sundial of Kazakhstan", "Cosmology of Al-Farabi", "Ogizkhan", "In the footsteps of Al-Farabi", "Musical heritage of Al-Farabi", "Al-Farabi zhane Abai", "Al-Farabi and modern science" are popular not only in Kazakhstan but also abroad. For example, in 1984, one of

his works was published in Kuwait, after which his research became known and popular in the Arab scientific world [14; 146]. An extensive scientific outlook, knowledge of the Arabic language allowed A.Zh. Mashanov to open to the world community the great scientist Abu Nasyr Al-Farabi. A.Zh. Mashanov in his works was able to prove that the main primary source of science in Kazakhstan was the works of Al-Farabi. Thus, the name of this great scientist was forever entered into the history of science of the Republic of Kazakhstan. For in-depth studies of the heritage of Al-Farabi, Arab scientists assigned him a new surname al-Mashani.

A.K. Mashanov's contribution to world science was significant that, by decision of UNESCO, 2006 was declared the year of the centenary of al-Mashani.

For successful scientific and pedagogical activity in 1961 A.Zh. Mashanov was awarded the honorary title of Honored Scientist of the Kazakh SSR. Merits of A.K. Mashanov were recognised by diplomas of the Supreme Council of the Kazakh SSR, the Presidium of the Academy of Sciences of the USSR and the Kazakh SSR.

Conclusions

Akzhan Zhaksybekovich Mashanov was one of the founders of geomechanics in the Soviet Union and the author of numerous educational and teaching aids, monographs on the problems of geotectonics in general. He wrote the first science fiction novels in Soviet Kazakhstan about the origin of the Earth, about the lunar cycles, he introduced his fellow Kazakh citizens to modern cosmogonic theories, to the history of the 12-year cycle of the chronology of the eastern peoples. He was one of the leading researchers of the scientific heritage of the great scientist of the East Al-Farabi. Akzhan Zhaksybekovich possessed truly encyclopedic knowledge, rich scientific erudition, he was able not only to grasp the new, but also successfully used the knowledge and skills gained in his scientific and pedagogical activities. The results of scientific research by A.Zh. Mashanov received wide popularity and recognition abroad. Deep knowledge in the field of geology, mathematics, geometry, and mechanics allowed him to create a new scientific direction in mining — geomechanics. He made a huge contribution to the development of mine surveying and geodesy in Kazakhstan, having developed geometric methods for studying the structure of ore fields.

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А.Г. Шабамбаева, Ж.О. Хасенова, Ж.С. Мажитова

А.Ж. Машанов (1906–1997): өмірбаян беттері мен ғылыми-педагогикалық қызмет

Мақала Ақжан Жақсыбекұлы Машановтың өмірбаяны мен ғылыми-педагогикалық қызметінің жекелеген беттерін талдауға арналған. Ол Беркалы болысының Қарқаралы уезінің № 1 ауылында дүниеге келген. 1924 жылы оқу үздігі ретінде Қарқаралы педагогикалық техникумына, кейін 1934 жылы Қазақ тау-кен металлургия институтына түскен. А.Ж. Машанов — Кеңес Одағында геомеханиканың және қазақ ғылыми фантастикасының негізін қалаушы. Ол геология-минералогия ғылымдарының докторы,

ғылыми дәрежесі бар алғашқы қазақ инженер-маркшейдерлерінің бірі болды. А. Машанов кен алаңдарының құрылымын зерттеудің жаңа әдісін ойлап тапты және іс жүзінде асырды. Оны кейіннен пайдалы қазбалар кен орындарының басым көпшілігін және жекелеген аймақтардың геологиялық құрылымын зерттеуде қолданды. Көптеген ғылыми айналымға алғаш рет енгізіліп отырған оқушылардың архив құжаттары мен естеліктері негізінде авторлар А.Ж. Машановтың ғылыми-педагогикалық қызметін, оның тау-кен ісіндегі жаңа ғылыми бағыттың — геомеханиканың дамуына қосқан зор үлесін қарастырды. Ғылыми кең ой-өрісі мен араб тілін білуі А.Ж. Машановтың әлемдік қауымдастыққа ұлы ғалым Әл-Фарабиді танытуға зор үлесін қосты. А.Ж. Машанов өз еңбектерінде Қазақстан ғылымының негізгі қайнар көзі Әл-Фарабидің еңбектері болғанын дәлелдей алды. Қазақстан инженер-маркшейдерлерінің ғылыми мектебін қалаушы.

Кілт сөздер: Қазақстан тарихы, А.Ж. Машанов, ҚазССР Ғылым Академиясы, геомеханика, ғалым, маркшейдер.

А.Г. Шабамбаева, Ж.О. Хасенова, Ж.С. Мажитова

А.Ж. Машанов (1906–1997): страницы биографии и научно-педагогическая деятельность

Статья посвящена анализу отдельных страниц биографии и научно-педагогической деятельности Акжана Жаксыбековича Машанова. Он родился в ауле № 1 Каркаралинского уезда Беркалинской волости, в 1924 г. как отличник учёбы поступил в Каркаралинский педагогический техникум, позже в 1934 г. — в Казахский горно-металлургический институт. А.Ж. Машанов — один из основателей геомеханики в Советском Союзе, а также казахской научной фантастики. Кроме того, он один из первых казахов инженеров-маркшейдеров, имевших учёную степень доктора геолого-минералогических наук. А.Ж. Машанов разработал и практически применил новый метод изучения структуры рудных полей, который впоследствии использовали при изучении структуры подавляющего большинства месторождений полезных ископаемых и геологического строения отдельных регионов. На основе архивных документов и воспоминаний учеников, многие из которых вводятся в научный оборот впервые, авторы рассмотрели научно-педагогическую деятельность А.Ж. Машанова, его огромный вклад в развитие нового научного направления в горном деле — геомеханики. Обширный научный кругозор, знание арабского языка позволили А.Ж. Машанову открыть мировому сообществу великого учёного Аль-Фараби. А.Ж. Машанов в своих работах смог доказать, что главным первоисточником науки Казахстана явились труды Аль-Фараби. Создал научную школу инженеров-маркшейдеров Казахстана.

Ключевые слова: история Казахстана, А.Ж. Машанов, Академия наук Казахской ССР, геомеханика, учёный, маркшейдер.

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