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LIFE AND SCIENTIFIC HERITAGE OF A.ZH. MASHANOV

Abstract

The article discusses the life and scientific heritage of Akzhan Zhaksybekovich Mashanov, Doctor of Geological and Mineralogical Sciences, professor, corresponding member of the Academy of Sciences of the Kazakh SSR, honored worker of Kazakhstan, who during his lifetime received the high name of “al-Farabi of the 20th century”. The creative path of a real scientist, vigorous social activity began in the second quarter of the 20th century - during the difficult period of the struggle of the Kazakh people for independence and freedom, the awakening and rising of national identity.

The scientist is widely known not only in Kazakhstan and Soviet science, but also in the global scientific community. His works cover a wide range of subjects of professional interest, such as geology, mining, history, archeology, farabi studies, theology. He spoke Arabic, Old Turkic, Hebrew and a number of other languages. He studied the works of al-Farabi in the primary sources and made a huge contribution to their popularization.

Keywords: A.Zh. Mashanov, P.A. Ryzhov, A.A. Yermekov, Abu Nasr al-Farabi, mine surveying, farabi studies, geomechanics,Academy of Sciences of the Kazakh SSR

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А.Ж. МАШАНОВТЫҢ ӨМІРІ ЖӘНЕ ҒЫЛЫМИ МҰРАСЫ

Аңдатпа

Мақалада Қазақстанның еңбек сіңірген қайраткері, Қазақ ССР Ғылым Академиясының корреспондент-мүшесі, профессоры, көзінің тірісінде «XX ғасырдың Аль-Фарабиі» дейтін жоғары атақ алған геология-лық-минералогиялық ғылым докторының өмірі мен ғылыми мұрасы қарастырылады. Ғалымның шығармашылық жолы, белсенді қоғамдық қызметі 20-ғасырдың екінші жартысы, қазақ халқы үшін қиын-қыстау кезең, тәуелсіздік пен бостандық үшін күресі, ұлттық сана-сезімнің ояну және көтерілу кезеңімен тұспа-тұс келеді.

Ғалым тек қазақстандық және советтік ғылым ортасында ғана емес, әлемдік ғылым қауымдасты-ғында да кеңінен танымал. Оның ғылыми еңбектері кәсіби қызығушылық танытатын түрлі пәндердің кең спектрін қамтиды, атап айтқанда: геология, тау-кен ісі, тарих, археология, фарабитану, теология. Ол араб, ескітүрік, иврит және тағы басқа да тілдерді меңгерген. Аль-Фарабидің еңбектерін негізгі әдебиеттерден зерттеді және олардың кең таралуына үлкен үлесін қосты.

Кілт сөздері: А.Ж. Машанов, П.А. Рыжов, А.А. Ермеков, Әбу Насыр әл-Фараби, фараби туралы зерттеулер, геомеханика, Қазақ КСР Ғылым Академиясы

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ЖИЗНЬ И НАУЧНОЕ НАСЛЕДИЕ А.Ж. МАШАНОВА

Аннотация

В статье рассматривается жизнь и научное наследие доктора геолого-минералогических наук, профессора, член-корреспондента Академии Наук Казахской ССР, заслуженного деятеля Казахстана Акжана Жаксыбековича Машанова, еще при жизни получивший высокое имя «аль-Фараби 20-го века». Творческий путь настоящего ученого, активная общественная деятельность начались во второй четверти 20-го века – в сложный период борьбы казахского народа за независимость и свободу, пробуждения и подъема национального самосознания.

Ученый широко известен не только казахстанской и советской науке, но и в мирововом научном сообществе. Его работы охватывают широкий спектр предметов, представляющий профессиональный интерес, такие как: геология, горное дело, история, археология, фарабиеведение, теология. Он владел арабским, старотюркским языками, ивритом, а также рядом других языков. Изучал труды аль-Фараби в первоисточниках и внес огромный вклад в их популяризацию.

Ключевые слова: А.Ж. Машанов, П.А. Рыжов, А.А. Ермеков, Абу Наср аль-Фараби, маркшейдерское дело, фарабиеведение, геомеханика, Академия Наук Казахской ССР

In the history of mankind there were many personalities whose life and fate was a reflection of the life of his people. An example of this is the life of Akzhan Zhaksybekovich al-Mashani, who became one of the founders of science and education of the contemporary history on Kazakh land. More than a century has passed since his works came out. Akzhan Zhaksybekovich is one of those who made an indisputable contribution to the development and prosperity of his native country. One can envy his life and be surprised at the same time. The scientist was born on November 2, 1906 in the village of Nurken, Karkaraly district, Karaganda region. The family of Akzhan Zhaksybekovich was quite well-known: his grandfather Mashan bi, Zhaksybek's father, was the foreman of the village [1, p.11]. When remembering his father, Akzhan Zhaksybekovich always said that it was his father who was the first teacher for him, "my father laid the initial foundations of knowledge in me" [2, P.3].

In the years 1922-23 he studied at the Soviet school. After graduating from school in 1924, he entered a teacher training college in Karkaralinsk, that was opened in 1922 by Alimkhan Yermekov, the famous scientist and social activist. At the school, students were taught by prominent scientists such as Alikhan Bokeikhanov, Akhmet Baitursynov, Manan Turgynbaev, Vyacheslav Kolpytin [2, P. 3]. As a student at the teacher training college Akzhan Zhaksybekovich begins to work from January 1, 1926 to June 1, 1930 as a teacher at a first-level school in aul №1 of the Karkaraly district [3, P.59 rev.]

After graduating from the teacher training college, the scientist is sent as an instructor to the Abralinsky district department of education in Semipalatinsk, then as an instructor to the Semipalatinsk regional department of public education. Here, in the autumn of 1933, preparatory courses for admission to the institute are opened at the Semipalatinsk Geological College. After completing training in these courses, Akzhan Zhaksybekovich enters the Kazakh Mining and Metallurgical Institute as a mining engineer-geological prospector. Recalling the years of study at the institute, Akzhan Zhaksybekovich wrote: "Among the students, I was one of the eldest,

because I worked for 5-6 years. Moving and studying in Almaty was a new beginning for me....” [2, P.7].

Here, a young, talented person is noticed by Petr Aleksandrovich Ryzhov, Doctor of Technical Sciences, professor, head of the Department of Geodesy and Mine Surveying. Without waiting for the graduation of engineers of the mine surveying profession, Petr Aleksandrovich begins to prepare his students from among students of a related specialty. First of all, he drew attention to the geological exploration specialty. The choice of Petr Alexandrovich fell on A.K. Kayupov, K.F. Ermolaev, A.Zh. Mashanov [4, p.2]. After graduation, all three entered graduate school at the Department of Geodesy and Mine Surveying. It should be noted that during the training period, due to the specifics of the specialty “mine surveying”, A. Mashanov had to additionally study some applied disciplines, such as: subsoil geometry, mathematical statistics [4, p.5], which subsequently helped him to develop a geometric method in geology.

After graduating with honors from the institute in Geological Exploration specialty in 1939, the scientist was enrolled in graduate school at the Department of Mine Surveying and at the same time worked as an area engineer at the Leninogorsk mine and as a head of geological detachments of the KazFan of the USSR (the Kazakh branch of the USSR Academy of Sciences) [3, P.58]. When shooting in the Chubartau region A.Zh. Mashanov and R.I. Mukhamedzhanova discover the Akbastau-Kusmuryn polymetallic deposit of one of the largest gold deposits in Kazakhstan. Thus, the first steps of the independent work of Akzhan Zhaksybekovich were marked by “gifts of the native land”. It is worth noting that Akzhan Zhaksybekovich did not work for these objects for very long, various reasons contributed to this, and most importantly, the war began. Only in 1953 Akzhan Zhaksybekovich was able to return to the research of this object. Subsequently, in 1978 A.Mashanov was awarded the title of discoverer of Akbastau-Kusmurun deposit.

In addition to the open deposits, in the period since 1940, under his leadership and direct participation research was carried out on ore deposits in the Leninogorsk, Turgai, and Karatau regions.

In 1944, under the leadership of P.A. Ryzhov at the Scientific Council of the Institute of Geology of the Academy of Sciences of the Kazakh SSR [5, P.110] A.Mashanov brilliantly defends his thesis for the degree of Candidate of Geological and Mineralogical Sciences. The dissertation of the scientist is devoted to the structure of the Turgai ore field. Kassin N.G., Doctor of Geological and Mineralogical Sciences, and Bok I.I., Professor, Doctor of Geological and Mineralogical Sciences, acted as opponents [5, P.110]. Both opponents gave good feedback, noted the prospects of the method used by scientist.

In his work, Akzhan Zhaksybekovich developed and applied a new original methodology for the structure of mineral deposits [5, P.49], this technique is based on mechanical-mathematical, mining geometric principles. Later, this method was called the "geomechanical method" and was widely used in mine surveying, in mining geometry and in the geometrization of mineral deposits.

The technique developed by A.Zh. Mashanov formed the basis of the work of a number of his followers: A.K. Kayupov, Gazizov, etc. The same method was used to study the structure of Akbastau and Kusmuryn deposits discovered by Akzhan Zhaksybekovich himself [5, P.72]

The geomechanical method developed by the scientist was used when studying the stability of the highwall slopes of such quarries as:

1. Counrad Quarry
2. Buurdun quarry
3. Leninogorsk / Andreyevsky / quarry
4. Zyryanovsky quarry
5. Dzhezkazgan quarry
6. Coal quarries of the Karaganda region
7. Karazhal / Atasuisk /
8. Sokolovsky

9. Sarybai
10. Altyntapkan
11. Ekibastuz quarry [5, P.73].

In the "Mechanics of rock mass" monograph Akzhan Zhaksybekovich summarized the experience of many years of use and development of the geomechanical method, the methodology of the scientist was also reflected in "Geometry of the bowels" by P. Ryzhov, "Engineering geology" by Panyukov P.N.

In 1946, A. Mashanov defended his doctoral dissertation on the “Study of the structure of ore fields by the method of subsoil geometry” theme at the Moscow Geological Prospecting Institute. The work of the scientist is written at the junction of three complex disciplines such as geology, mine surveying and applied mechanics. In this regard, the official opponents were L.S. Leibenzon, academician-mechanic, P.K. Sobolevsky, professor, doctor-mine surveyor, V.M. Kreiter, professor, doctor-geologist [5, P. 49]. Opponents noted that the thesis has scientific value [6, P.25].

Based on scientific research data Akzhan Zhaksybekovich becomes the founder of a new branch of mining and processing science - geomechanics. In the essay “Memorable milestones of my path to science”, the scientist, speaking about geomechanics, noted that this science “is the most promising direction in the mining and geological cycle” [2, P.33]. Thus, Akzhan Zhaksybekovich is the founder of the Kazakhstan school of geomechanics, which he has been developing for over fifty years.

In 1946, the Academy of Sciences was opened in Kazakhstan. The opening of the Academy of Sciences is one of the important pages in the history of our country, “this circumstance spiritualized us to the limit and we, young scientists, worked tirelessly, because it was an unprecedented spiritual rising in the science and culture of our native people” [2, P.37 rev.]. By the Decree of the Presidium of the Supreme Soviet of the Kazakh SSR, the Council of Ministers of the Kazakh SSR and the Central Committee of the Communist Party (Bolsheviks) of Kazakhstan dated May 31, 1946 “On the establishment of the Academy of Sciences of the Kazakh SSR” A.Mashanov becomes a corresponding member [7, P.17].

In the Academy of Sciences of the Kazakh SSR, Akzhan Zhaksybekovich is appointed to the post of senior researcher and head of the sector in the department of geological-geographical, technical and chemical sciences (department of mineral resources) [7, P.56].

In 1950, by the request of the director of the Kazakh Polytechnic Institute and the decree of the Presidium of the Academy of Sciences of the Kazakh SSR, the scientist teaches at KazPTI as an associate professor at the Department of Mine Surveying, and since 1960 becomes the head of the Department of Mine Surveying [5, P.49]. Speaking about Akzhan Zhaksybekovich as an instructor, it is necessary to note that he tirelessly transferred his knowledge, his rich experience to his students, always treated kindly to people, was ready to provide any help to students, graduate students, teachers. Over the course of many years of scientific and pedagogical activity in the native university, scientists have trained more than 1000 mining engineers-mine surveyors. Under his leadership, 25 doctoral and candidate works were defended. Not only those who defended his dissertations belong to his students, but also those to whom he taught. Many of them have become prominent scientists and make a great contribution to the development of world science, thereby continuing the work of Akzhan Zhaksybekovich.

Marzhan Baysanovna Nurpeisova, Doctor of Technical Sciences, professor of Satbayev University, speaking of her mentor as a teacher and then the head of the department, noted his wide range of thinking, an indefatigable thirst for knowledge. So, for example, he wrote history based on historical facts, exploring mountain-rocky terrain, relying on historical monuments, heard legends, thereby writing the true history of the past. In this regard, works of A.Zh. Mashanov such as “Babalarga bata” (1933), review by A.Zh. Mashanov on an essay by S.A. Semenov-Zusser (1943), “Qazaqstan zherinde erte zamandarda Kazylgan kender” (1974), “From the history of the ancient East” (1983), “Kargaraly manyndagy mirastar” (1989), “Tekter tegi” , "Qyryqtyn biri - qydyr" (1993), "Tanbalar" (1993) are especially interesting. In addition,

the scientific heritage of Akzhan Zhaksybekovich has many works devoted not only to geology and mining, but also to farabi studies.

Elbasy N.A. Nazarbayev in his “The Seven Facets of the Great Steppe” article noted that “many nations are deservedly proud of the names of great ancestors who have become the unique ambassadors of their countries” [9]. One of the personalities who glorified Kazakhstan in the world and left a deep mark in world culture is Abu Nasr ibn Muhammad al-Farabi. The name of Abu Nasr al-Farabi is known to everyone, but only a few know that only thanks to Akzhan Zhaksybekovich we can proudly say that the Republic of Kazakhstan is the homeland of al-Farabi.

For the first time, the name Abu Nasr al-Farabi Akzhan Zhaksybekovich heard in 1943 from the Czechoslovak mathematician Ernest Kolman, “in those difficult years of the war, I first heard the name al-Farabi ....a native of Kazakhstan” [10, P. 3 rev] - recalled Akzhan Zhaksybekovich. From that moment on, the scientist considered it his duty to study the scientific heritage of the Great Thinker, “there were individuals before and after Farabi. However, among them, such as Farabi, in four areas of science and art ....it is difficult to name any of the scientists who made a major contribution....” [11, p.6]. It was A. Mashanov who was one of the first to study the scientific heritage of al-Farabi: “Is anyone forbidding us to study the scientific heritage of al-Farabi and is this not a direct and honorable duty for scientists of Kazakhstan - his homeland? It is our duty to the people and to the memory of one of their great sons. And I set myself the task to begin research on the heritage of Farabi. That was in 1956. [12, pp. 105-106]. From this moment, the scientist begins the search "in the footsteps of al-Farabi." So, as a result of painstaking work in the period 1958 - 1968 scientists have acquired more than fifty scientific works of al-Farabi, among which there were works that had not previously been included in the scientific circulation and unknown to researchers. It should be noted that despite the work done, studying the scientific heritage of al-Farabi was slow. This was facilitated by such factors as the lack of a center of oriental studies, specialists who know the Arabic language, for example, “the works of al-Farabi written in Arabic in their homeland simply could not be read, not to mention their scientific study” [10, P.68]. Despite these problems, Akzhan Zhaksybekovich began to study the scientific heritage of a medieval thinker. To this end, the scientist begins to study actively the book depositories of libraries not only in Kazakhstan and the USSR, but also in the countries of Europe, Asia, America, and Africa. By 1960, in the hands of Kazakhstan’s scientists there was a significant amount of al-Farabi’s works, previously unknown to scientists and not included in the scientific community: “Comments on Ptolemy's Almagest,” “Methods for constructing geometric figures”, “Astrology”, “On the unity of views of two philosophers, Plato and Aristotle” , “Views of the inhabitants of a virtuous city”, “The origin of sciences”, “Pearl of science”, “Comments on the works of Aristotle” [10, P.58]. In addition, articles appeared in the periodical press announcing the beginning of the study of the scientific heritage of Abu Nasr al-Farabi, for example, in 1961 the “Bilim zhane Enbek” magazine published an excerpt from the philosopher’s treatise in Kazakh.

Under the Soviet regime, it was not easy for Akzhan Zhaksybekovich to collect and research the works of al-Farabi. His works were criticized, they were given negative reviews: “... the genre of the work as a whole is unclear, ... with surprising insistence it evades the main theme, ... the general theme is not disclosed, and it is hard to expect that this can be done by forces of one author...”[13, P.1]. “Claiming that the eastern culture of Mesopotamia and Egypt was the primary source for al-Farabi, A. Mashanov forgets how much this cultural heritage received from radical processing by the Greeks, after all, Marx and Engels wrote about it ... Light speculation, hypotheses, and ... - the author’s weakness” [14, P.4-5] - these are the words that characterized A.Zh. Mashanov’s "In the footsteps of al-Farabi", "Al-Farabi and music". Despite the negative reviews, the scientist continued to collect materials about al-Farabi, send requests to different countries in order to find the works of a medieval scholar. So, he sent letters to France, Great Britain, Italy, the USA, Egypt, Czech Republic, Holland, Syria, Lebanon and other countries. For example: “Dear Dr. Kessen! I beg you to send me a microfilm of manuscript №1427 of your

library containing al-Farabi's treatise on music. I really need this microfilm for my research on the scientific work of my fellow countryman al-Farabi " [15, p. 287]. And there are a lot of such search letters, which gives reason to testify to a high civic position, devotion and love for science, the spiritual heritage of the great scientist of the East - al-Farabi.

To fully understand the heritage of his great ancestor, Akzhan Zhaksybekovich at the age of 50 begins to study the Arabic language. "Is it possible to protect the heritage of al-Farabi without reading what he read, without writing what he wrote?" [1, p.74]. So, for two years he has sufficiently learnt Arabic.

A. Mashanov did not stop and continues to search for information about the great ancestor. So, in 1968, the scientist made his famous trip to Damascus in order to find the burial place of a great ancestor and bring land from his grave to the small homeland of al-Farabi, the city of Otrar. Speaking about the trip to Syria, A. Kekilbaev noted the following: "this trip, undertaken on the personal initiative of A. Mashanov, was a decisive event in intensifying the study of the scientific heritage of al-Farabi, the great thinker of the East". [14, P.6]

Getting acquainted with the legacy of al-Farabi, the scientist analyzes issues on world history, the statements of famous scientists, such as Aristotle, Pluto, about society and politics, man and nature. Without this analysis, it is very difficult to understand the teachings of al-Farabi, to evaluate his contribution to the development of mankind. "Traveling in the footsteps of al-Farabi, the author boldly penetrates deep into the history of science, extracts the most valuable information from there" [14, P.7]. Therefore, Akzhan Zhaksybekovich conducted a comprehensive study of worldview, historical thinking about the world around him. Religious views in medieval historical thinking, the periods relating to mythological and rationalist understandings that existed before him were studied widely by the scientist. Analyzing the work of al-Farabi, the scientist comes to the conclusion that the center of the philosophical system of al-Farabi is a person, their intellectual and moral perfection, their desire to achieve freedom, personal and public happiness. So, thanks to the persistence of Akzhan Zhaksybekovich, the general public got to know the name of the great medieval scholar Abu Nasr al-Farabi. There is no doubt that it was Akzhan Zhaksybekovich who returned the name of Abu Nasr al-Farabi to his historical Motherland and did a lot of work during the preparation and holding of the 1100th anniversary of Abu Nasr al-Farabi. "A group of farabists led by A.Zh. Mashanov carried out a tremendous amount of work during the preparation and holding of the 1100th anniversary of al-Farabi from the day of his birth, in the collection, translation and publication of the works of a scientist … after 1100 years, the great thinker returned to his homeland" [14, P.6]. This conference, which was held in Almaty on September 11-13, 1975, was only the first stage in studying the scientific heritage of the Great Oriental Thinker, "this conference gave us a noble and prestigious right and entrusted us with a responsible mission: to become a center for studying the scientific heritage of al-Farabi" [16, P.1].

When studying the scientific works of Akzhan Zhaksybekovich devoted to Abu Nasr al-Farabi, his words about al-Farabi and Abay are recalled: "When difficult days come for the people, we will certainly be supported by two names: the first is al-Farabi, the second is Abay. In my concept, Abay is a great genius, an adviser to Kazakhs, a teacher, a support of the people, their faith, a fair connoisseur of honor and conscience" [11, p. 80]. The same words can be attributed to Akzhan Zhaksybekovich. The scientist's legacy clearly reflects the cultural values of the Turkic people, his works teach us to be proud of the history of our people, to preserve our national spirit.

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