Geological Expeditions Organized in the Tashkent Oasis during the Colonial Period
(Second Half of the XIX – First Half of the XX Centuries)

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Abstract: The article is devoted to the geological expeditions of the colonial government carried out in the Tashkent oasis, which analyze the policy for the mastering of the natural resources of the region.

Keywords: geology, expedition, raw materials, ore, clay soil, limestone, cement, coal, etc.

Significance: Central Asia is rich in natural resources and since ancient times has served as an important source of economic potential for the region, as well as a source of increasing external aggression against the country. In particular, the Russian Empire and the Soviet government, which conquered the country, used these natural resources for colonial purposes for 120 years.

Methods: The research employed a problem approach and methods of comparative-critical, hermeneutic and dynamic analysis in analysing archival, statistical and periodical material. In conducting this study, the imperial government and the colonial policy of the Soviet era were primarily studied comparatively. From this point of view, the tsarist administration concentrated on issues such as identifying and gathering information about the country's natural riches, whereas under the Soviet administration the issues of exploiting these resources, bringing them into the economy and, finally, industrialising the area were seen as a priority.

Historical-comparative, statistical and chronological research methods were also used in the research process. The cohort method was particularly effective. The data selected for the cohort analysis were grouped and then aggregated. This made it possible to present an overall picture of the study.

In addition, it was possible to visualise the scientific findings of the expeditions using comparative-statistical and social analysis methods. This method is particularly useful when analysing research in Soviet times.

In addition to the statistical method of research, methods such as periodisation, division into types, variation in the application of tables and graphical systems were also used.

Another historical research method has been used to draw conclusions such as summing up production volumes, calculating percentages and determining differences between groups by means of mathematical analysis. In addition, personal conclusions were drawn from the objective or subjective findings of previous researchers who had dealt with the issue, using the method of social analysis.

Research Findings: Scientific expeditions were first organised to the region to exploit the Turkestan region of the Russian Empire as a raw material base. In particular, the focus of the researchers was the mountainous-piedmont area covering most of the Tashkent oasis in the north-east of the province. This area is surrounded by the Chotkal, Kuram, Pskom and Ugom ranges of the Tien Shan range from the north-east and east, while from the south and south-west
these ranges border the Syrdarya River and adjoin the Mogultag, Turkestan and Farkhad ranges. Several rivers and streams flowed from these mountains to the south and west, and these water sources have always played an important role in the way of life of the local population. These river-beds and the minerals they contained were, in addition to being a source of agriculture, an important raw material for the economic life of the population.

In the second half of the 19th century the Russian authorities, conquering the country, started the first scientific research on the composition of these waters. In particular, the tsarist government relied on rumours amongst the local population that the Chirchik River was rich in gold, and in 1866-1870 the Tsarist government appointed a gold prospector S.O. Solovyov expedition to study the river [2:224-230]. This expedition was led by the goldsmith Pervushin from 1867. At the next stage the composition of the soil along the river was studied [3:8]. Based on his findings, it was determined that the soil was combined with important elements detrimental to the economy. Studies were also conducted in the basins of other rivers such as Keles, Ugom and Ohangaron draining from the mountains in the region [4:348-369]. These have been proven to contain copper, iron, lead, silver, gold and other precious base metals. These findings necessitated a study of the mountainous regions that are the main source of the river [5:71-86]. Thus, the mountainous areas in Tashkent province were taken under the control of the Russian authorities.

In the next phase, preliminary geological surveys were organised to determine the reserves of natural resources here, and to exploit them for the benefit of the empire. At first, research was carried out at the foot of the Mogiltag and Turkestan mountain ranges near the present-day town of Bekobod. At this address was Hilkovo station of railway connecting Krasnovodsk city on the Caspian Sea coast with Skobelev (Fergana) city [12:11]. Russian authorities organised a scientific expedition to study the mountainous areas around the station and identify natural resources there. The expedition proved that the area was rich in natural resources, such as lime, yellow earth and ganch. Further, a policy of resettlement of Russian population to the area was pursued, and Russian settlements like Stretenskoye, Kolpakov were established around the station [10:12]. In 1908, after the installation of a steam power plant near these settlements, a limestone crushing plant with a capacity of 7-8 tonnes per hour was commissioned. The plant was producing 150,000 barrels of cement per year until the events of February 1917 [9:76].

These processes were particularly intensified during the period of Soviet rule. At the same time, the programs developed by the government gave practical results. Initially, geological prospecting expeditions were organized in the 1920s and 1930s to determine the country's natural riches. These expeditions explored the country's mountainous and foothill areas and identified the sources of raw materials needed for the country's economy there.

Above all, he sought to pursue a policy of turning the country into a cotton raw material base. Therefore, in 1918 he decided to organize irrigation works for development of Mirzachol and Dalvarzin deserts adjacent to Turkestan and Mongol ranges [9:16]. Cement was primarily required for construction of irrigation structures (canals, dams, dikes). For this reason, 1 million from Tashkent is at the discretion of the cement plant at the station. It was decided to transfer the sum. In addition, projects were prepared to increase the capacity of existing power plants for continuous operation of industrial enterprises in the region [6]. However, due to the civil war in the country and the national liberation movements [15:400], the plant could not be started up until 1924-1925. Finally, in 1926 the factory was commissioned [12:17].

However, the factory workers faced another serious problem. Now the documents of cement plant, which had been operating in 1914-1917, were lost. First, limestone was brought from Djizak and clay soil from Tashkent to keep the cement plant running. An expedition led by Engineer Popov, a representative of the Central Asian Geological Committee, again began exploring the Farhod Mountains. However, this expedition concluded that the amount of limestone in the mountains could supply the plant for a maximum of 2-3 years.
On the one hand the transport of raw materials for cement from afar made the product more expensive and on the other hand the lack of experienced personnel led to grossly inadequate technology. Around the plant there were piles of clinker unfit for grinding. In the end, the plant was forced to close down.

To rectify the situation the Soviet government sent an experienced specialist They sent researchers led by I.E. Gulbin. The director of the factory, V.V. Vasiliev, chief engineer was appointed F.I. Kubitz. By 1927 F.I. Kubitz’s efforts resulted in the clinkers being ground and turned back into cement.

However, the question of importing raw materials for cement production remained open. The researchers sent into the country decided to re-examine Mount Farhad, despite Papov's findings, based on the question of why the imperial government had chosen Bekobad for cement production. Papov's conclusion soon proved wrong and a large deposit of limestone suitable for factory quarries was discovered in the mountain. The quality of this limestone was very high. Within a year 7 mines for its extraction were discovered. The expedition also discovered hard, mixed rocks such as magnesite and dolomite, which were difficult to melt even at high temperatures. In 1928 - 1929, Tsibishev I.V. and Petrov N.P. concluded that the limestone is homogenous and of good quality, and the total volume of the mine is 6.5 million cubic metres. That is, 1 million a year. in a barrel of cement was enough reserves to keep the plant running for 40 years. However, these mines were the starting point of the Dalwarzin irrigation network, which was used by the Soviets for cotton plantations. Conducting blasting and demolition work in the open ground threatened the integrity of the riverbed.

In 1933 the Institute of Cement Design in Moscow presented a project of closed-cut extraction of raw materials by the "Slava Gol" system, which was tested on the basis of American experience. However, it required a lot of money to put it into practice. 1.2 million for preparation and mechanical equipment alone. After much debate and negotiation, the project was frozen.

In the meantime, exploration of the mines continued. As a result, the Uchtepa valley, which is much lower, was identified. The reserve there was 6mn was more than a tonne. The only problem was that the beginning of the hill made construction difficult. Limestone with a unique chemical composition was also found on the southern side of the mountain. I.V. Tsibishev came to the conclusion that investigations should also be carried out on other fields adjacent to the farm.

Finally, thanks to research between 1934 and 1935, a mine was discovered behind a bluff far below the source of the canal, about a mile from Farhad Rock. 800,000 tons of cement could be produced from the limestone in the deposit. Indeed, this mine served as the main source of limestone until mid-1945, when a dam was built to release water to the Farhad hydropower plant.

As a result of further research by geologists, engineer Dragunov calculated in 1937 that the last mine to be discovered contained a total of 855,000 tonnes of limestone of three types. A total of 16 million tonnes of limestone reserves were discovered.

In addition, since 1928, the idea of using the sandy-yellow soil common in Bekobod was put forward instead of the clay soil in the cement. This idea had a positive outcome. By using yellow soil, transport costs were reduced. After Bekobad was granted city status, it was forbidden to extract healthy soil from its territory. The queue was oriented towards neighbouring countries. And great was the merit of such geologists as Kadushin, D. Koevin and I. Bogomolov. In 1932 it was proven that gypsum in cement could be replaced by gypsum that was widespread in the foothills of Syr Darya. Prior to that gypsum had been brought into the country from the Kuvasoy cement factory. Geological surveys at the start of the Oratepa mine have identified 224,000 tonnes of gypsum reserves. In general, extraction of cement-bearing ganche continued until 1952. In addition, the addition of gleye to the clinker proved effective in increasing the chemical resistance of the cement. To obtain the gleye substance, it was necessary to burn the clay soil, which is common in the mountains.
Thus, as a result of the research carried out by Bekobad geologists, a unique hard form of cement emerged in the country.

In addition, the impetus for geological research in the area came from the numerous discoveries of mineral deposits in the foothills of the Karamozor Mountains in Tashkent oblast.

In 1924-1925, a geologist N.B. Expedition led by Nasledov discovered copper mine Sarik Chokhki, Golden Topkan and lead mines in the area. Extensive excavations and research had been carried out by 1927, based on Nasledov's instructions. This expedition involved H.M. Abdullayev, A.V. Korolev, K.N. Pozharsky and N.M. Rusakov [13:1]. In addition, in 1925-1926, the expedition of the Sakhalin Energy, headed by S.M. Abduallaev, was carried out by S. Pozharsky [13:1]. As a result of the expedition led by S.V. Mashkovtsev, large and small Kalmokgyr copper mines [14:2]. In 1931, based on the results of investigations, it was established that copper reserves in Karamozor exceeded all mining reserves in the Urals, and on the scale of the entire Union were second only to Zhezkazgan in Kazakhstan [9:143-144]. Between 1931 and 1933, the geologist A.B. Explored as part of the Royal Expedition. At the same time, in 1933, geologist F.I. Wolfson discovered a very large deposit of oxidised copper [14:2]. Soon a battalion of miners from the All-Union republics arrived here and the construction of the Almalyk mining and construction trust was started. In 1931-1934, 126 exploration pits with a total length of 1600 metres were discovered in the mountain basins. By 1939, the Construction Department of the Copper Smelting Combine was established.

The foothills of the Chotkal and Kuramin ranges in Tashkent oblast are also an important source of natural raw materials for the energy, mining, oil and chemical industries. Geological expeditions were organised in the area by Soviet geologists in the 1920s. In 1928, Soviet geographer S.F. Mashkovtsev was the first to scientifically analyse the geographical position of the region [16:29]. In 1932, the Soviet geologist D.M. Kaolin Bogdanovich came across the territory of Dzhigaristan while searching for building materials for the 'construction of the Almalyk mine' [16:22], [16:22]. Thus, the scientist was the first among the Soviet geologists to receive the first scientific conclusion about the presence of kaolin and coal deposits in the region.

In 1934-1935, Z.A. Kochnev and V.I. continued exploration expeditions under the leadership of Soviet geologists F.I. Zandler.

A detailed map of the Chotqala-Kurama Range was made on the basis of research by the Soviet geologist Adelung in 1935-1937. [8:113]. In 1938, the territory was visited by T.A. from the Geological Survey of Uzbekistan. An expedition led by Sisktel arrived [16:29]. By 1940, G.S. Drilling was underway in the coal deposits identified by Chikrizov. From that year V.A. Geologists led by Zakharevich: I.S. Turkin, V.A. With the Belyaevs began to work Central Asia Coal Exploration Trust [11:26].

Thus, in 1940, the Angren Mining Construction Trust was established on the site of the village of Dzhigaristan, located on the bank of the Angren River at the foot of the Chotkal and Kuramin mountain ranges [1]. In addition, the 1st mine in the trust was completed and commissioned that year [16:32]. In 1941, geologist D.M. Bogdanovich led an expedition to discover kaolin raw materials. This expedition, with the help of Minerals Trust of Central Asia, investigated building stones on the lands of aul Turka, limestone on the lands of aul Novgarzonsoy and kaolin mines on the lands of Chochkabulok area [7:5]. In addition, by this time another coal mine had been built near Oppartak settlement [11:76].

During the Great Patriotic War many scientific works were carried out to improve the methods and mechanisms of coal mining. In particular, G. Z. Chikrizov received his PhD on the basis of research he had carried out in Angren. In addition, D. N. Karaulshchikov, D. N. Scientists such as Kruglov carried out scientific work on groundwater seepage in coal basins. Employees of the Geological Institute of Uzbekistan H.Z. Feigelman and N.V. Popova studied the physical and chemical properties of Angren coal [11:77]. In the first years, coal mining was forbidden. As a
result of research carried out by geologists under the direction of Toropov, it was proved in 1943 that coal could be extracted by open pit mining [11:78]. By 1944, a government decision was made on open pit coal mining. On its basis, the Angren Coal Mining-Construction Department was established as part of the Uzbek Mining and Construction Company. In addition, the Uzbek Coal Combine was established under the Central Asian Coal Company in 1945.

The foothills of the Chotkal and Kuramin Ranges near the town of Angren in Tashkent Province are important sources of natural raw materials for the power, mining, oil and chemical industries. Soviet geologists organised scientific expeditions to this area in the 20s of the 20th century. In 1932, the Soviet geologist D.M. Bogdanovich came across kaolin soil in Jigaristan while searching for building materials for the "construction of the Almalyk mine" [11:22]. Thus, the scientist was the first among Soviet geologists to reach the first scientific conclusion about the presence of kaolin and coal deposits in the region.

**Conclusion:** Thus, after the geological research expeditions carried out in the mountainous and foothill regions of the country during the colonial period found their scientific confirmation, the process of industrialization began in Uzbekistan. This process was particularly accelerated when the country was involved in the Second World War. After the end of the war, thanks to the favourable conditions created here, production increased year by year. The Tashkent oasis thus became the raw material supply base of the centre under Soviet rule. All production from the factories was distributed through the centre.

**Reference**


