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THE HISTORY OF INDUSTRIAL OIL EXTRACTION IN AZERBAIJAN (the 19th - beginning of the 20th centuries)[1]

The issue is devoted to the historical study of oil industry development in Azerbaijan. The main stages of development of oil and gas production in Absheron were considered, and the international contribution of industrialists and engineers, including Azerbaijani and Ukrainian, was also considered. Particularly, the authors analyze a great donation in oil deposits' development made by the industrialists and engineers from different countries and of different nationalities, among them mining engineer Mykola Voskoboinikov; Azerbaijan industrialists: A. Mamedov, H. Tagiyev, M. Nagiev, M. Muchtarov, S. Asadulaev; Russian industrialists: V. Kokorev, P. Gubonin, K. Zubalov and Nobel's brothers, Rothschild's family, Rylsky's family, Vishau family; Armenian's financiers and industrialists: O. Mantashev, M. Aramiants, S. Lianosian (Lianozov); Ukrainian mining engineers: Konon Lysenko, Oleksiy Doroshenko, Semen Kvitka. The powerful oil industry was highlighted to appear in Baku's oil district at the end of the 19th century and occupied the second place after the USA in oil output and oil processing as well as in the innovation technical development and oil extraction technology enhancement. Owing to the capitals' diversification and involvement of foreign professionals, scientists and entrepreneurs from different countries, the gas and other oil products demands were secured not only within the Russian Empire, Azerbaijan and neighboring countries, but also came into the world trade markets. The role of a unique pipeline "Baku - Batum" for its time was highlighted in the success. The main burden of titanic and abundant work of the most powerful oil industry establishment was entirely on Azerbaijan nation that had eternal traditions of oil extraction, processing and usage. Nowadays, they have successfully continued the started traditions under the realities of the 21st century.

Key words: *a history of oil extraction; Azerbaijan; the developmental stages of oil and gas extraction in Absheron; a pipeline "Baku - Batum".*

Introduction

An intensive development of economic, political and cultural connections between Ukraine and Azerbaijan, which have been observed for the recent years, need better consideration of history and crucial achievements of our nations. The beginning of the world oil industry should be mentioned among the most prominent achievements of the second half of the 19th century. It was almost simultaneously born in the three main centers - the Carpathian region (Ukraine, Romania), Absheron (Azerbaijan), Pennsylvania and Ohio (the USA)[2]. Oil industry development in the USA has already been depicted on the pages of "Skhid" scientific journal (*Haiko, Biletsky, 2018a; 2018b*) and has a powerful resource base in different languages. The numerous publications on the development of oil and gas extraction in Ukraine, including the authors' accomplishments (*Biletsky, Haiko, 2019; Biletsky, Haiko, Orlovsky, 2019*), sufficiently reveal the main issues and only require the wide popularization and the positions' consolidation in the world scientific circulation. The history of oil extraction in Azerbaijan, despite its unique value in the world oil industry development, remains controversial and mostly unknown for the general public. Russian interpretation of Absheron's deposits development based on the prevailed Russian achievements was the most wide spread (according to the powerful informational possibilities) (*Igolkin, Gorzhaltsan, 2003; Matveychuk, Fuks, 2008; Matveychuk, Fuks, Tyshchenko, 2010; Mesnyanko, 2015*). Even the best works created with the help of the oil company "UKOS" (before its liquidation) did not depart from the mentioned paradigm. The instance is in an eloquent title of the fundamental work covered the history of oil district development in Baku - "Russian Oil, We Barely Know About" (*Igolkin, Gorzhaltsan, 2003*). The more objective are the accomplishments of Azerbaijan's authors (*Mir-Babayev, 2007; 2011; Alieva, 2012*) who are scarcely known in the world as well as in Ukraine. American publications (*Daniel, 1991; Vassiliou, 2018*) prove the fact with the predominant

[1] The project of Shevchenko Scientific Society (USA) (http://shevchenko.org/): "The History of Mining in Ukraine: from the First Communities to the Achievements of the Industrial Era"

[2] The authors connect the beginning of oil industry with the gas discovery and its usage under industrial conditions that enhanced rapid increase in oil extraction.

orientation on some investors' activity of Absheron's oil extraction (namely the Nobels, the Rothschilds, the Montashevs, etc.) and unreasonably underestimate the contribution of Azerbaijan's professionals, entrepreneurs and financiers. The first Ukrainian attempt of the world oil and gas extraction history revealing (*Biletsky, Haiko, Orlovsky, 2019*) was based on the comparative analysis of various views on the events and provided the fullest possible information that did not contradict the traditional facts. The refined and updated material is the base of the presented issue.

The aim of the issue is a research in the sphere of the history of oil extraction industry in Azerbaijan. The main tasks of the issue are to follow the developmental stages of oil and gas extraction in Absheron and define a contribution of Azerbaijan's and Ukrainian's engineers to the work.

Methods

The combination of such methods as historical genetic, historical comparative and historical systematic is used in the issue.

Particularly, a consistent notification of events and key persons (industrialists, engineers) who determined oil industrial development in Azerbaijan in the 19th - at the beginning of the 20th century was applied. Moreover, a causal movement of acts and events is followed on the base of the facts (namely the descriptive elements, photo and empirical facts). Furthermore, the analogy of oil extraction development in different regions: Carpathian region, the USA and Azerbaijan (Absheron) at that time was used in the issue. The introduction of historical systematic approach ensures the whole historical situation coverage and a developmental vision of oil extraction industry as a one of ground-breaking in general, combined with energetics, transport, etc.

Results and Discussions

The Ancient Evidences about Caspian Oil. The permanent oil extraction began in Caspian region in the 1st century BC. Moreover, according to the Persian and Arabic sources the handicraft industry continued during the Middle Ages on Absheron's peninsular. For this reason a name of the country Azerbaijan means "the land of fire" or "protected by fire" (and has its origins in the fires of ancient places oil and gas release, and the fire sanctification process by the fire-worshippers). The most ancient data about "eternal fires" of Absheron came from the first half of the 5th century (the descriptions of Prisc from Pania who accompanied Byzantine's ambassador to Attila's camp).

During the High Middle ages we could follow the numerous written mentions of Baku's oil in the works of Arabian scientists (Baladzori, Al-Masudi, Istachri-Abu, Abu-Dulaf, Bekran, etc.) who depicted oil self-extraction on the earth and the early well extraction on Absheron's peninsular. For instance, Al-Masudi in his work "Book of the Middle" (the first half of the 10th century) mentioned that "… there were two main sources in Baku; yellow and white oil was extracted from one source, black and blue oil was extracted from the other. The annual income from each source was more than one thousand dirchems". Al-Masudi and Istachri who visited Baku district in the 10th century mentioned that oil and gas used for water boiling, cooking, ag-lime making, for military and medicine purposes. "Light oil" was extracted in Balachan's village, and "heavy oil" was extracted in Surachan's village at the 10th-13th centuries. A geographer of the 13th century Ibn Bekran wrote that Baku's oil was purified for bad smell eliminating and general usage for treatment.

Marko Polo, a merchant of Venice and traveler, was a witness of oil extraction leaked on the surface during his voyage across Baku to Persia in 1264. He saw the process of oil obtaining on the banks of Caspian Sea on the territory of modern Azerbaijan. Marko Polo wrote in "Description of the World" about the huge ponds filled by oil that could be placed on a hundred of ships. Furthermore he mentioned that oil was applied for house lightning and skin diseases treatment. Among others, he noted about oil wells building and oil obtaining from them.

The Caspian Sea maps appeared in the Early Modern Europe from the 16th century, particularly a map of English A. Jenkinson (1562) and Dutch J. Struys (1668 or 1681) who in the book "Three voyages" mentioned Caspian's oil development. Turkish scientist and traveler of the second half of the 16th century Katip Celebi informed that "there were 500 wells from which white and black oil was extracted near Baku's fortress". The first detailed description of Baku's oil industry was provided by German naturalist E. Kempfler, a secretary of Swedish embassy in Persia (daily oil production was approximately 700 pounds). The first map of Absheron's peninsular with the detailed marks of oil wells was created by Russian military cartographers in 1729. The vast part of Azerbaijan was included into the Russian Empire after the Peace Treaty of Gulistan with Persia (1813) that influenced on gradual involvement of Baku's oil into the processes of industrial development in Russia.

Almost all oil wells belonged to Baku's Khan Gussein by 1813. In 1825 they were enclosed to Russian treasury and given to paid usage to Tarumov (at that year 102 wells gave 240 000 pounds of oil). In 1827 a mining engineer, Mykola Voskoboinikov released in "The Journal of Mining Engineering" a crucial research "Mineralogical Description of Absheron's Peninsular Included into Baku's Khanate" (*Voskoboynikov, 1827*). Here he gave a detailed description of oil treasure of a peninsular, namely, types and qualities of oil, the places of oil release, numerous well's crafts and oil export directions were presented. He addressed to the history of Baku's oil extraction, having considered the literature sources as well as the local artifacts (for instance, a stone that was found near Galafi's well with the inscription that the well was reconstructed 200 years ago), Azerbaijan craftsmen evidences about stable technology of ditches digging, wells building and the ways of oil obtaining (by horsepower in particular). There was a prominent comparison of Baku's oil district with "oil from different parts of the world" - from Galichina (modern Ukraine), Transilvania and Moldova (modern Romania), and some parts of India. Voskoboinikov gave vast amount of particular Azerbaijan (Turk origin) surnames of workers, craftsmen, entrepreneurs, and tenants of Absheron's oil crafts. It could be considered a sign of a developed tradition and skills in a particular craft in people of Azerbaijan.

Later, the entrepreneurs became the biggest tenants, namely A. Mamedov, the brothers Mirzoevs, V. Kokorev, P. Gubonin, etc. Simultaneously, the State Direction of Baku's and Shirvan's oil and salt industries retained control under "the sufficient keeping of oil wells, oil extraction and its delivering in Baku with further selling at the places for it equipped".

Oil industry establishment. The official re-paid system existed to 1872 and owing to imperial decree of Alexander II was substituted by "Oil Industry Policy" that was coordinated by a task of modern oil industry creation based on Austro-Hungarian and American experience and introduced private property on the oil sources and extractive miners. The first auction of Absheron's oil sources took place in 1873.

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Absheron's oil wells gave the main part of oil production till the last quarter of the 19th century; their exploitation was not stopped even at the time of oil shafts introduction. Generally, the wells were deep pits with unstrengthen walls. The old walls had at an average 60-80 meters in diameter and the depth about 10-11 meters. Their deepening (to 35-40 meters sometimes) needed a secure of the side rocks stability by wooden logs or masonry. A well's construction had the widening at the bottom part for increasing of oil coming. Later well's construction began from pit's digging at the bottom of which was a wooden log (that came to the surface). A typical hand drill and bags from sheepskin were used for oil obtaining. In some cases horsepower and huge bull-skinned bags were used, and the steam-powered machines and bailers were exploited at the beginning of the 20th century.

When oil stream had dried up, a well would have been deepened. The technology encompassed the periodical purification of oil wells from land displacement, coagulated (thicken) oil products and mineral supplementations that could pollute the ways of oil coming. The manual work of well cleaners was tough and dangerous, as they were working in limited space of a pit with oil pollution and gas around, experiencing the lack of oxygen.

The beginning of technical enhancement of Baku's oil production, processing and transporting was connected with the name of a mining engineer, the first director of Baku's and Shirvan's oil and salt industries Mykola Voskoboinikov. He designed a project, according to which the first oil-refinery plant was built in Absheron (in Balachans) in 1837, improved the system of oil preserving and releasing, introduced oil collection from the wells using the pumps (the last one was not applied due to the lack of pumping devices with the relevant capacity), invented fans and a "breathing device" for the wells' cleaners. Voskoboinikov's perspective project that forestalled the time was about an oil terminal creation on the shore of Caspian Sea with a dock on the logs and conducted railway to it. (The railway transport had not yet been existed in the Russian Empire at the time of the project creation). Nevertheless, the greatest merit of Voskoboinikov is supposed to be an idea of drilling of boreholes for deepening of oil wells and oil deposits' searching. His propositions were supported by Russian government in 1845 and financial resources were directed for buying the necessary drills. The drilling was provided in Bibi-Heybat district for three years (the head of the works was a new director Alekseev). In July 1848 the Viceroy of Caucasus, Duke M. Vorontsov informed that the first well which found oil was drilled in Bibi-Heybat. Unfortunately, as in the case with Romania oil well in 1821, the oil deposit was limited and did not gain further industrial meaning, that had stopped the development of well's oil extraction on Baku's deposits for a while.

A new wave of interest in well's extraction technologies appeared in 1860-s after successful experience of well's drilling in Galichina (beginning from 1854) and especially in Pennsylvania (from 1859). The second Russian oil well with a depth of 198 m. was created by the blowing cable method in Kuban (in 1864, engineer A. Novoseltsev). The drilling was also introduced by the private industrialists Vasil Kokorev and brothers Mirzoevs in Absheron. In 1868 the engineers L. de Bur and A. Burmeister began the first oil drillings according to "the method of Lents" developed by a mechanic of "Caucasus and Mercury Partnership" Otto Lents. Having used rod drilling an engineer-colonel with German origins Alexander fon Burmeister achieved the high effectiveness and wide dissemination of a well's drilling method on Baku's deposits. His fantastic ability to "get" into the rich oil deposits (often with oil fountains) glorified his already suitable surname with the new nickname "fountain-meister".

One of the most successful Russian oilman, the actual head of the first joint-stock company "Baku's Oil Association" Vasil Kokorev had bought the vast majority of rich oil deposits, invited the best specialists in the sphere of drilling technologies for beginning of wells' drilling oil production. Some wells gave good results; however there were no American super powerful "fountains". Kokorev was inclined to introduce the modern scientific and technological innovations into oil production and processing. Having performed the task, he sent his engineers for internships in Austria (Galichina) and the USA. Moreover, Kokorev himself invited D. Mendeleev for a scientific explanation of further oil industry development in Absheron and enhancement of the oil processing methods (the result of it was an appearance of Mendeleev's work "Oil Industry in the South-American State Pennsylvania and Caucasus" and "Baku's Oil Industry in 1886").

V. Kokorev provided the scaled extraction and processing of Baku's oil and built several big refineries. Oil transportation from the deposits to the plants, its selling for lightning became lucrative business that appealed a big amount of workers. His lightning oil "fotonaftil" successfully competed with Austrian (from Galichina) and American production that had considerably reduced gas import to the Russian Empire.

The real oil boom started in Baku's industry after oil fountains from the wells of "Mirzoev Brothers Partnership". Their first well was founded on Balachan's deposit in 1869 and was immediately able to give huge amount of oil. However, the water streams broke through a well during the test bailer usage; stones and sand were flowing accompanied to unbearable hum. The frightened workers closed a well with stones, clay, and sand, and blocked "an entrance of evil spirits" (a wooden cross was put for the reliability above a well).

The second well of Mirzoevs was made on Balachan's deposits in 1871 and had a depth approximately 45 m. It gave unprecedented oil output in Absheron: the first day - 11.2 tons, the second - 32 t. with further daily increase.

An unimaginable rush in oil wells' drilling began. The workers' flow from Russian, Caucasus, Turkey and Persia went to the industry. Absheron's views "were decorated" by the hundreds of drilling towers and fountains from the wells. It should be mentioned that oil fountains' taming was a gradual process, on the other hand, firing of such pollution had disastrous consequences. In most cases wells' drilling was provided "blindly" without any geological explorations, playing in a peculiar lottery (still the rich oil fields often attracted brave men, especially engineer A. Burmeister "was lucky"). The first staff position "geologist-oil man" appeared in a company of brothers Nobel only at the end of 1870-s.

Nobel's oil empire started in 1873 when Robert Nobel came to Caucasus with the aim of searching walnut wood (for firearms production and decoration). The decline in oil prices ("the higher was fountain on the next well the lower were the prices") and good opportunities for land purchasing inspired him for an oil company establishment. He purchased a refinery together with his brother Ludwig in "Black city" (at the outskirts of Baku) and several oil areas. Having analyzed a state of oil production, preserving and transporting, Nobel's came to a conclusion about a necessity of fundamental changes almost in all organizational and technological stages. In 1879 a partnership of oil production "Nobel Brothers" (abbreviated as "BroNobel") was founded with rather powerful capital -

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3 million karbovants, the vast amount of which was obtained with the help of Alfred Nobel in the western banks (in particular in the bank "Lion Credit").

The multi-dimensional work of industry's modernization began. The manual process of oil transportation in the clay containers (from the deposits to the refineries) was replaced by the pipes with steamed pumps (the first pipeline was launched between Balachan's deposits and Nobel's plant in Black city in 1878 and a pipeline "Baku - Batum" functioned within decades). Aboveground metal cylindrical containers designed by V. Schuchov were applied in lieu of the ground pits for oil preservation and became an example of oil storage facilities around the world. The wagon-tanks were designed for oil railway transportation for the long distances. In 1877 the first iron tanker-steamer "Zoroastr" was built by the brothers Nobel at Swedish shipyard and started bulk method of oil and gas transportation. A crucial step in drilling technique development was the rods' usage that combined foreign and Baku's engineering designs. A steam engine was the main motor of wells' drilling in the Nobel's drafts; here the first electrical equipment appeared. It must be noted that some innovations were introduced by the scientists Dmitry Mendeleev and Konon Lysenko at the end of 1860-s. Nevertheless, the partnership "BroNobel" could put them into practice via having enclosed numerous foreign specialists from Galichina and Pennsylvania. Separately, it should be said about the new opportunities of oil productions' usage and increase in stimulating demand on them. They became possible owing to the inventions of talented engineers, partners of "BroNobel" and strategical thinking of the owners. For instance, an invention of a special injector's construction (so-called "Nobel's injector") permitted to burn fuel oil that was supposed to be waste of refining process much more effectively. Development and enhancement of fuel injections allowed using oil and oil products for heating boilers that created a technical revolution in shipping and on the railroad. The tanker fleet of Nobel's brothers was the first which used the injections that distributed oil via a steam jet under the pressure. Oil industry had been gradually changed from gas industry to fuel oil industry from the beginning of 1890-s. The main attention was drawn to the methods of lightning as well as to the energetic fuel usage which was consumed by "Nobel's injections". The discovery of new perspective possibilities of oil products usage as (fuel oil and petrol) had enforced the oil strategic meaning and multiplied the considerable income of the leading extractive and refinery companies. A partnership "BroNobel" became a leader of Baku's oil industry in 1890-s, the main competitors were "Commercial Corporation of Oil Industry in Caspian and Black Sea" supported by Paris bank house of Rothschild's (on Absheron's peninsular in 1886), companies of G. Tagiyev and O. Montashev. A fierce fight was leading for the world's distribution of oil market and possession of perspective deposits. Baku's oil "played the first violin" at the centuries' shift (Baku's district gave more than 49% of the world's oil production in 1901, it was approximately 11 million tons). There were basically 167 oil companies before the 20th century. Although the Russian Empire conceded its place to the USA in 1902, Absheron's inventions had been keeping their strategic meaning for extended periods (including the pace of technical innovations application). Regarding this, W. Churchill stated rather eloquently: "If oil is queen than Baku will be its throne".

It should be emphasized that the representatives of various nations were involved in Absheron's oil treasures' development, namely among the mining engineers briefly dominated Russians, particularly graduated from Saint Petersburg Mining Institute. Azerbaijan's entrepreneurs A. Mamedov, H. Tagiyev, M. Muchtarov, S. Asadulaev and others; Russian industrialists V. Kokorev, P. Gubonin, K. Zubalov and Nobel's brothers, Rothschild's family, Rylsky's family, Vishau family; Armenian's financiers and industrialist O. Mantashev, M. Aramiants, S. Lianosian (Lianozov), etc. developed and invested into oil industry. However the main burden of titanic and abundant work of the most powerful oil industry establishment was entirely on Azerbaijan nation that had eternal traditions of oil extraction, processing and usage. Simultaneously, Baku's industrial development had greatly influenced on the further fate of Azerbaijan people, having secured their transfer to the new historical and cultural level and prosperity of the capital - Baku (a gorgeous city). It was not a coincidence that Azerbaijan Democratic Republic proclaimed in 1918, was the first democratic secular republic in the Islamic world.

The achievements of Azerbaijan oil establishment are to be briefly considered. Hadzi Zeynalabdin Tagiyev was the one of the richest industrialist and philanthropist in Baku. In 1873 he was the first who began to develop oil deposits in Bibi-Heybat district which were considered to be limited and detrimental. Nevertheless his persistence and organizational talent led to the successful development of the rich district purchased by Tagiyev (the first fountain of "black gold" appeared here in 1878). Hadzi Tagiyev had in his property refineries (a gas plant and a plant specialized on fuel oil production), transport companies oriented on oil and oil products transportation, steamers in Caspian Sea and Transcaucasian railroad (owned a park of wagon-tanks).

Due to "Fuel Oil" firm creation by the trade company of Caspian-Black Sea Partnership owned by Rothschilds in concord with Hadzi Tagiyev's advice, a joint-stock company "Oil Pipeline Baku - Batum" was created by Azerbaijan entrepreneurs with the head of Agabal Guliev for developing a crucial project. A pipeline, which was considered to be a prominent construction, should be stretched from Baku and covered 800 km. - across Kurinskaya hollow, Small Caucasus Mountains, the foot of Suram fortness and Rionskaya hollow, connected the Caspian Sea coast with coast of Black Sea. Baku's gas opened a wide road to the international trade markets after launching a pipeline. The building process of a unique pipeline Baku - Batum took 10 years (1897-1907-s).

The statistical data from the end of the 19th century proved that Tagiyev's oil company was considered to be the biggest in Baku, and even had been staying ahead for some years. According to the general amount of oil extraction in 1892, it yielded only to the firm of Rylsky's family, however outpaced the companies of Mantashev, Lianozov, Nobels, Rothschilds, and others. An average annual oil output from one well did not exceed 1 ml. pounds; on the other hand, Tagiyev had more than 1.4 ml. pounds per well. Having outperformed the biggest company "BroNobel" on oil extraction indicator (28.6 ml. pounds), a company of Tagiyev bet a record with 3 ml. pounds as an average annual oil output from a well. An inventor and entrepreneur Murtuza Muchtarov opened a private drilling firm, which performed the most complicated orders in 1890. It was he who successfully drilled the deepest well with the depth 1100 m. in the Caucasus. An automatic plant of Muchtarov counted almost a thousand workers was opened in Sabuncu in 1891. He was a shareholder of Moscow-Volgskiy Oil Partnership and a business administrator of Baku's oil company. In 1895 an inventor created a modern workbench of rod-beaten method of drilling and obtained a national patent. Muchtarov's drilling workbench

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that got a name of "Baku's drilling system", significantly exceeded all the analogues. The fact permitted an entrepreneur to establish the first plant of drilling equipment in Bibi-Heybat which was unprecedented for the Russian Empire at the end of the 19th century. Moreover he was an author of the other different inventions. The drilling machines and oil equipment from Muchtarov's plants supported Baku's industry and were exported into the other countries. An expert in the drilling equipment he subscribed and brought into Baku the modern machines and mechanisms (predominantly from the USA), having applied them into the process of oil extraction.

The vast majority of oil wells and productive drilling places as well as the refineries were centered in the arms of oilman Musa Nagiev. Nagiev's financial assets in Baku's oil industry permitted him to occupy the second place after Nobel's brothers at the beginning of 1890-s. He began from a deposit development near Bigandi village. Musa Nagiev was a member of the highest authority of Baku's oilmen - The Congress Council along with Hadzi Tagiyev, Emmanuel Nobel, and David Landau (a father of a prominent physicist). His financial contribution to Baku's architectural masterpieces (98 houses were constructed), charity in hospitals and educational institutions' support left good memory about him.

Schamsi Asadulaev was an owner of the famous fountaining wells, the depiction of which became a visiting card of Baku's oil industry and numerous postal marks. He established a firm of oil extraction in Baku in 1874, and built a refinery equipped with the modern machines in 1893. His personal fortune cost 10 ml. Russian rubles till 1913.

Isa-bek Gadzinskiy was an owner of vast land pieces where the considerable oil deposits were found (predominantly in Balachan and Ramana villages). He increased business activity in the sphere of oil industry at the beginning of the 20th century. In 1903 he established a company that had come to a level of oil output amounted to a half a million pounds per year for the first two years of its existence. A company had 11 wells, 5 steam boilers, 5 steam engines with the common capacity of 145 horsepower in 1910. A company was maintained by 30 qualified workers. In addition to Balachan's wells Isa-bek Gadzinskiy was an owner of a gas plant in Baku; moreover he was one of the pioneers of oil extraction on Cheleken island near Turkmen shore. In 1912 an oil company "Isa-bek Gadzinskiy" had a one voice in the Congress Council of Baku's oilmen. The additional voice was given to a firm "Isa-bek Gadzinskiy and Gadimov's Brothers".

A retrospective review of the oil history in Baku will be incomplete without highlighting of Ukrainian participation in a technical progress of Baku's oilmen. Among all prominent persons we are going to mention only three surnames - Lysenko, Doroshenko and Kvitka. A professor of Saint Petersburg Mining Institute Konon Lysenko who had origins in an old noble family in Poltava region, visited oil plants in Baku for several times, consulted the leading oil industrialists and engineers (he was an adherent of well's drilling technology), created a monography "Oil Production" (St. Petersburg,1876) which became a basic manual of high engineering culture, a light of new progressive ideas in oil industry and was one of the first in the world scientific literature. Furthermore it was the first monography about oil extraction in Russian.

A mining engineer Oleksiy Doroshenko controlled the technical works at the first Nobel's refinery; later (upon the invitation of an industrialist Vasil Kokorev) he became a head of Surachan's refinery and created the first technological line of obtaining fuel oil from the industrial remains in Absheron. Moreover he established a laboratory of oil products research and offered the original methods of quality measuring. He was elected a head of Baku's section of The Technological Society of the Russian Empire in 1890-s.

"An Absheron kozak" Semen Kvitka came from the famous Ukrainian kazak and military family lived in Poltava and Slobozanschina regions. His relatives were a nobleman from Ukrainian-Slobozanschina region a colonel Andriy Kvitka, a famous writer Grigori Kvitka-Osnovianenko, a historical Ivan Kvitka (an author of "A Short Description of Malorossiya"), a professor Clement Kvitka (one of the founders of Ukrainian musical ethnography). Semen Kuzmich Kvitka successfully continued his family cultural and scientific achievements, however in another sphere as a mining engineer and inventor. He worked at Kokorev's plant in Suruchan at the beginning. Later, he occupied a managerial position at Brothers Mirzoev Oil Extraction Company and owing to the new technologies introduction had almost tripled productivity for a short time. Kvitka rebuilt an old Mirzoev's refinery to a gas-fuel oil plant which was famous for the production of high quality. He designed a project and created a refinery for "Otto and Ko Partnership" based on the personal constructive decisions at the beginning of 1890-s. The most prominent engineering achievement of Kvitka was a new thermal method of cracking-process invention which permitted to obtain petrol from oil or fuel oil (a patent priority from 1911). The cracking-device was built in Baku in 1925 (after the death of its author) and had successfully worked for years. The fact provided a possibility of the first practical school creation in the sphere of thermal cracking in the former Soviet Union.

Conclusions

Consequently, the powerful oil industry was established in Baku's oil district at the end of the 19th century. It had occupied the leading positions in terms of extraction and processing amounts as well as innovative development of equipment and oil extraction technology. Owing to the capitals' diversification and involvement of foreign professionals, scientists and entrepreneurs from different countries, the gas and other oil products demands were secured not only within the Russian Empire, Azerbaijan and neighboring countries, but also came into the world trade markets (particularly because of a unique pipeline "Baku - Batum" for its time). The main burden of titanic and abundant work of the most powerful oil industry establishment was entirely on Azerbaijan nation that had eternal traditions of oil extraction, processing and usage. Nowadays, they have successfully continued the started traditions under the realities of the 21st century.

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ІСТОРІЯ СТАНОВЛЕННЯ ПРОМИСЛОВОГО НАФТОВИДОБУТКУ В АЗЕРБАЙДЖАНІ (XIX - початок XX ст.)

Стаття присвячена дослідженням історії становлення нафтової промисловості Азербайджану. Простежено основні етапи розвитку нафтогазовидобування на Апшероні та внесок азербайджанських і українських інженерів у цю справу. Зокрема, автори аналізують внесок у освоєння нафтових покладів регіону промисловців та інженерів різних країн та національностей - гірничого інженера Миколи Воскобойникова, азербайджанських промисловців А. Мамедова, Г. Тагієва, М. Нагієва, М. Мухтарова, Ш. Асадулаєва, російських промисловців В. Кокорева, П. Губоніна, К.Зубалова, а також братів Нобелів, родин Ротшильдів, Рильських, Вішау, вірменських фінансистів й підприємців О. Манташева, М. Арамянца, С. Ліаносяна (Ліанозова), українських гірничих інженерів Конона Лисенка, Олексія Дорошенка, Семена Квітки. Показано, що наприкінці XIX ст. у Бакинському нафтовому районі була сформована потужна нафтова промисловість, яка тривалий час мала 2-е місце після США як за обсягами видобутку та переробки нафти, так і за інноваційним розвитком техніки та технології нафтовидобутку. Завдяки диверсифікації капіталів і участі фахівців, науковців і підприємців з різних країн вдалося не тільки забезпечити регіональні потреби Росії та сусідніх з Азербайджаном країн, але й вийти на більш широкі світові ринки гасу та інших нафтопродуктів. В цьому успіху підкреслено роль унікального на свій час нафтопроводу "Баку - Батум". Основний тягар величезної й різноманітної праці щодо створення одного з найпотужніших нафтопромислів світу дістався азербайджанському народові, який мав віковічні традиції видобутку, переробки й застосування нафти і який успішно продовжує ці традиції у XXI столітті.

Ключові слова: *історія нафтовидобутку; Азербайджан; етапи розвитку нафтогазовидобування на Апшероні; нафтопровід "Баку - Батум".*

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