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You are remembered by grateful memory, Mr. Betancourt

Mikhail V. Ivanov[1], Igor P. Kiselev[2]✉
[1,2] Emperor Alexander I St. Petersburg State Transport University (PGUPS); Saint Petersburg, Russian Federation
[1] mvifp@mail.ru
[2] kis1347@mail.ru✉

ABSTRACT The article covers the life and certain episodes of the activities of Augustin Betancourt (1758–1814), an outstanding engineer, scientist, architect, teacher, and statesman of Spain and Russia, in Russia. Arriving in Russia at the personal invitation of Emperor Alexander I, and being in the Russian service from 1808 to 1824, A. Betancourt left a notable mark in the history of engineering and construction, in the development of industry and transport of the Russian Empire, and formation of engineering education in the country.

Based on the sources, including those of the XIX century, the article provides information on the main projects implemented by him in Russia, offers characteristics of the relations between Augustin Betancourt and Emperor Alexander I, and other statesmen of that epoch, and reveals some personal and psychological peculiarities of behaviour of the engineer and scientist.

An attempt is made to study the reasons for the tsar's disfavour of Augustin Betancourt and his resignation from government posts. The article describes the conspicuous merits of A. Betancourt, his contribution to speeding up the industrial revolution in Russia, gives the main facts related to the special role of the scientists of Emperor Alexander I St. Petersburg State Transport University (PGUPS),the successor of the Institute of the Corps of Railway Engineers (IKIPS), organised by Betancourt, and the Betancourt's Legacy International Scientific and Educational Project held since 2015 and the annual Betancourt International Engineering Forums dedicated to the development of higher engineering education in the world.

This article is dedicated to the memory of Augustin Betancourt and is published in the year of the 200th anniversary of his passing on July 26 (14), 1824.

KEYWORDS: Augustin Betancourt; Emperor Alexander I; engineering activity; engineering education; industrial revolution; industry; construction; transport

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Обзорная статья

Вас помнят благодарной памятью, господин Бетанкур

М.В. Иванов[1], И.П. Киселев[2]✉
[1,2] Петербургский государственный университет путей сообщения Императора Александра I (ПГУПС); г. Санкт-Петербург, Россия
[1] mvifp@mail.ru
[2] kis1347@mail.ru✉

АННОТАЦИЯ Освещаются жизнь и отдельные эпизоды деятельности в России выдающегося инженера, ученого, архитектора, педагога, государственного деятеля Испании и России Августина Бетанкура (1758–1814). Прибывший в Россию по личному приглашению императора Александра I, и находившийся на русской службе с 1808 по 1824 г., А. Бетанкур оставил заметный след в истории инженерного, строительного дела, развитии промышленности и транспорта Российской империи, становлении в стране инженерного образования.

На основе источников, в том числе XIX в., приводятся данные об основные проектах, осуществленных им в России, дается характеристика взаимоотношений Августина Бетанкура с императором Александром I, другими государственными деятелями той эпохи, раскрываются некоторые личностные и психологические особенности поведения инженера и ученого.

Предпринята попытка исследовать причины царской опалы на Августина Бетанкура и его отставки с государственных постов. Дано описание выдающийся заслуг А. Бетанкура, его вклада в ускорение промышленной революции (промышленного переворота) в России, приведены основные факты, связанные с особой ролью ученых Университета путей сообщения Императора Александра I (ПГУПС) — правопреемника организованного Бетанкуром Института Корпуса инженеров путей сообщения (ИКИПС), проведением с 2015 г. Международного научно-просветительского проекта «Наследие Бетанкура» и ежегодных Бетанкуровский международных инженерных форумов, посвященных развитию высшего инженерного образования в мире.

Статья посвящена памяти Августина Бетанкура и публикуется в год 200-летия его ухода из жизни 26 (14) июля) 1824 г.

КЛЮЧЕВЫЕ СЛОВА: Августин Бетанкур; император Александр I; инженерная деятельность; инженерное образование; промышленный переворот; промышленность; строительство; транспорт

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Augustin Betancourt[1]

BACKGROUND

Augustin Augustinovich Betancourt[2] (1758–1824), as he was called in Russia, an outstanding engineer, scientist, architect, educator, statesman of Spain and Russia, who arrived in the Russian service at the personal invitation of Emperor Alexander I, left a notable mark in the history of engineering, construction, development of industry and transport of the Russian Empire.

Augustin Betancourt was born on February 1, 1858 in Puerto de la Cruz, Tenerife, Canary Islands, Spain, a son[3] of Augustin de Betancourt y Castro y Jaquez de Mesa (1720–1795), lieutenant colonel of the provincial militia, an educated and successful manufacturer. Their ancestor was Baron Jean de Betancourt, King of the Canary Islands, who conquered the archipelago for the Spanish crown in the early 15th century.

In the late 1790s, Augustin Betancourt, who received his university and art education in Madrid[4] and studied engineering in Paris[5], was one of the most educated and successful engineers, scientists, and entrepreneurs in Europe. He excelled in a number of scientific and engineering fields: mechanics, machine theory, thermal engineering, construction, and carried out a number of important building and industrial projects in Spain and France.

In 1801, Betancourt was appointed Inspector General of Roads and Canals of Spain (Minister of Transport). He was directly involved in the collection and creation of one of the first technical museums in Europe — the Royal Cabinet of Machinery in Madrid and one of the first engineering educational institutions in Spain — the School of Engineers of Roads, Canals and Ports.

[1] Platon Tyurin. Augustin Betancourt. 1859. Canvas, oil. 70×60 cm. The Central Museum of Railway Transport of the Russian Federation (TsMZhT RF).

[2] Spanish by *Agustín José Pedro del Carmen Domingo de Candelaria de Betancourt y Molina*.

[3] There were 11 children in the family. Augustin's brothers: Jose (1757–1816), Juan (1759–1759), Pablo (1763–1834), Marcos (1771–1806); and sisters: Maria del Carmen (1758–1824), Maria Magdalena (1760–?), Luisa (1764–1841), Catalina (1765–1837), Maria del Pilar (1768–1850), Leonor (1769–?).

[4] He graduated from the Escuela *Reales Estudios de San Isidro (Reales Estudios de San Isidro)*, a broad-based university-type institution of higher learning, and concurrently from the Real Academia de Bellas Artes de San Fernando (Real Academy of Fine Arts of San Fernando).

[5] The Royal School of Bridges and Roads (École royale des ponts et chaussées, today the École nationale des ponts et chaussées in Paris, French: L'École nationale des ponts et chaussées).

The political situation in Europe that changed in the early years of the 19th century — the occupation of Spain by Napoleon and the immediate threat to Augustin Betancourt's life — forced him to leave Spain. He accepted the proposal of Russian Emperor Alexander I and in 1808 Augustin Betancourt arrived in St. Petersburg and was involved in the preparation of' the manifesto[6] "Ordinance on the Management of Water and Land Communications" under the guidance of M.M. Speransky, the closest associate of Emperor Alexander I [1]. Betancourt participated in the creation of the Corps of Railway Engineers in accordance with this document and in the organisation of the Institute of the Corps of Railway Engineers (IKIPS), the first Russian engineering transport university[7]. In his new position of the inspector (rector) of this Institute, Betancourt built a system of training engineers in it based on deep personal knowledge of the best European experience, combining deep theoretical training with specific and diverse practical training, laying the foundations of modern engineering education in Russia.

On July 26 (14), 2024 we marked the 200th death anniversary of Augustin Betancourt. Two centuries! And the memory of him is not erased, does not pass into a brief encyclopaedia article, becoming a tribute of historical courtesy to many figures of the past, forming the background for the true giants — path breakers. For historians of science and technology, Betancourt is an outstanding engineer and scientist, educator and organiser who greatly influenced the formation and development of the technical civilisation of Russia, Spain, and Europe as a whole and... world engineering. But he is hardly properly appreciated in the mass consciousness. And this cannot be explained by the fact that General Betancourt was a foreigner for Russian people, was not a member of social groupings ready to give him his due and thus strengthening their authority (aristocrats, military, academics, bohemians, etc.). And the memoir literature about him is scarce. However, a more convincing approach to solving this paradox is the explanation given by outstanding philologist and cultural critic Yury Mikhailovich Lotman. He noted that culture is most sensitive to the "outbursts" of new ideas and deeds that change the image of the epoch: they are remembered. And engineering is perceived as a calm and slow embodiment of "bursting" discoveries of science in ordered and inconspicuous, almost routine procedures. *"The creativity of even a good engineer seems to melt into the general anonymous progress of engineering. If a bridge collapsed, the engineer's name would probably be remembered because it would be an extraordinary event. The virtues of a good bridge, unless they are extraordinary, are not noticed by anyone. The development of engineering is generally predictable"* [2]. And Betancourt's bridge did not collapse even during the terrible St. Petersburg floods, and the granite columns of St. Isaac's Cathedral and the Alexander Column, installed using his technology, are steadfast.

Articles reflecting some well-known person's contribution to science, culture, and politics are most often published on the anniversary of the birth of the great man: the initial date of his birth seems to open the prospect of growth of the talent, its development to manhood and heavenward flight. And death is a personal matter, tragically intimate and sad. The last breath of a genius brings us back to his past — the human past, compassion plunges us into sadness, but also invites to a warm desire to understand the casual, but so close to everyone side of the experience of the joys and sorrows of ordinary, everyday life, communication with relatives and friends, hopes and worries, ups and bad luck. All the prosaic actions of a genius are certainly imbued with a high idea of fulfilling one's mission. But, paraphrasing an image from Mandelstam's poem, we can say that not only lists of discoveries and works of the remarkable man have come down on us from the past, but *"his breath, his warmth have already laid on the panes of eternity"*. Therefore, we would like to remember the great achievements of Betancourt and everything human, very human, connected with him.

Augustin Betancourt's deeds in the Russian Empire are truly grandiose, their enumeration sometimes causes disbelief. Here are just the main projects implemented by A.A. Betancourt: the design and construction of a giant complex of the Nizhny Novgorod Fair with numerous commercial buildings, warehouses, religious buildings, service and transport infrastructure — actually a new city at the confluence of the Volga and Oka Rivers; reconstruction of the Tula arms factories with steam engines, new machine tools and mechanisms; construction of a cannon foundry in Kazan as per Betancourt's design; surveys and preparation of reconstruction projects for the Vyshnevolotsk, Tikhvin and Mariinsk water systems; survey of communications in the southern regions of Russia, including the Caucasus and the Crimean Peninsula; reconstruction of the Saint Petersburg-Moscow Highway; construction of flood protection structures in Tver; re-

[6] *Manifesto* (Latin *manifesto* — showing, revealing; Late Latin *manifestum* — call) — a type of legislative document (act) issued by the head of state or the highest body of state power and addressed to the population of the country. In the Russian Empire — a state document of the highest legal force, adopted in connection with an important political event (declaration of war, peace, etc.), proclamation of any fundamental ideas, innovation, transformation.
[7] Today it is Emperor Alexander I St. Petersburg State Transport University (PGUPS).

equipment of the Imperial Alexander Manufactory using new technologies; organisation of regular cleaning of the Kronstadt Port by a steam dredger of own design built at the Izhora Plant; construction of new bridges in Tula and across the Izhora River in the suburbs of Saint Petersburg; construction of the first permanent bridge, the Kamenoostrovsky Bridge, over the Malaya Nevka River in Saint Petersburg and construction of permanent approaches with abutment piers to the St. Isaac's pontoon bridge; construction of the Moscow Manege of unprecedented size with a floor 45 m wide and 180 m long without interior supports within less than six months, in which *"a regiment could freely manoeuvre"*; development of the project and construction of the complex of buildings of the State Printing Office (now part of Goznak Federal State Unitary Enterprise (the National Mint)) in Saint Petersburg, with the organisation of technological production, complicated both then and now, of special paper for paper money issue (the technology of paper cooking and the design of most of the machines were developed by Betancourt); preparation of the project and organisation of the construction of the Mint in Warsaw; direct participation in the engineering project for the construction of St. Isaac's Cathedral in St. Petersburg; development of the project for "Girl with a Jug", a world-famous park fountain in Tsarskoye Selo, with a sculpture by Pavel Sokolov. Starting from 1816, A.A. Betancourt headed the Committee of Structures and Hydraulic Works, the town-planning authorities of Saint Petersburg in the 19th century, which created the unique architectural appearance of the centre of Saint Petersburg; from 1819 to 1822, Augustin Betancourt was General Director of Transport Routes, as currently defined — the Minister of Transport of the Russian Empire and much, much more... [3, 4].

But the greatest achievement of Augustin Augustinovich Betancourt was the creation of the Institute of the Corps of Railway Engineers: the first engineering higher transport educational institution of the country, which laid the foundation for modern engineering education in Russia [5].

What was this great man who made such a significant contribution to Russian technological, and not only technological culture, like? The memoirs and accounts of his contemporaries give an "external" approach to his personality. Whereas the recently published correspondence between Betancourt and his relatives is an "internal" source. The most in-depth and concise characteristics by an external observer is probably given by an extract from the memoirs of F.F. Vigel[8] who became a translator and assistant to a Spanish general who came to Russia. F.F. Vigel was an unpleasant person. As writer V.V. Veresaev, a great connoisseur of Pushkin's time, wrote, *"he was a person of the most disagreeable disposition: angry, envious, selfish, and contentious... At the same time, he was educated and very intelligent... Even his relatively soft words were evil"* [6]. Though Vigel's praises in most cases can be considered to be specks of that genuine gold of life which has reached us, having been sifted through a fine sieve of Vigel's ill-will. Pushkin and Betancourt were the two contemporaries Vigel used to speak about almost with delight: *"The old man seemed lively, cheerful, but nevertheless honourable.... The old man's veins blazed with the heat of the glowing sky, under which he was born, and, like all quick-tempered people, he had a good heart and cheerful disposition. He had a profound intellect, and his conversation was interesting"* [7].

At a cursory glance at the life of Betancourt, one might think that he was always lucky and got everything easily, happiness came easy to him almost by itself: a man of birth, natural aptitude, good education, support of relatives, favour with ministers and rulers. But if we take a closer look, things do not look so radiant. At the age of fifty Betancourt left Spain forever because of Napoleon's invasion. Madrid was taken by the French, his engineering school was destroyed by enemy artillery, all projects for the improvement of the country turned to dust, the safety of Augustine's family was in danger, and the fifty years lived were covered with ashes. And yet the Minister-Engineer invited to Russia by Alexander I emitted light and warmth!

Later, Betancourt himself revealed the secret of his "luck". 62-year-old Betancourt expressed his life credo in a letter to his sister Maria, without falling into easy optimism, but defending the "determination" and adherence to his cause: *"St. Petersburg, June 10, 1820. My Dear Maruca... So many things have happened since we parted in 1777! While you, on your part, have suffered so much meanness, I, on my part, have experienced not less, though the Lord has given me excellent health and determination, so that nothing has frightened me on any occasion, and I have immediately resumed my party according to the circumstances I faced, so that as a result I do not regret a single step I have taken in life to find prosperity for my family without deviating from what honour and patriotism prescribe..."* [8].

He followed his way of self-actualisation. At the age of fifty, Betancourt went to Russia. It was a feat. Born at the latitude of Cairo and Delhi, Betancourt was mensch enough to move 30 degrees northward to damp, rainy and cold Saint Petersburg. Betancourt died at the age of

[8] Filipp Filippovich Vigel (1786–1856) — Russian statesman, one of the most famous memoirists of the Pushkin era, author of "Notes", widely known and popular in the XIX century. repeatedly reprinted since 1864.

66. Most of his Western contemporary engineers who avoided changing the climate lived longer.

While in France, in 1790, Betancourt married Anne Jordaan, an Englishwoman of humble birth; it was a civil marriage, based on revolutionary rules — without any wedding. The commoner Englishwoman could not but cause triple alertness among Augustine's compatriots with noble Spanish royal blood in their veins. The marriage was not registered in Spain and thus it was legally null and void. In 1797 only, the Spanish authorities officially confirmed it, when the family had children jumping around and Betancourt held a high position.

Most importantly, Betancourt was happy in his family. *"And I can tell you without any exaggeration that there are few such well-bred children as mine, and that everything, everything they had was due to the excellent principles and constant care with which their mother always watched over all their actions"* (June 10, 1820) [8]. And this is what Vigel, who did not think much of Betancourt's wife, Anna Ivanovna, as she was called in Russia, wrote about his daughters: *"Fortunately, the daughters did not resemble Anna Ivanovna in any way, they were rather like their father Augustin Augustinovich... every word of them was full of grace of mind and heart; one could listen to them with admiration when they played the harp or piano, admire their drawings and their fandango folk dance and bolero... Could we wonder at their father's boundless tenderness to them, and who would not be happy with them?"* [7].

For the Betancourts, their family was a place where the essence of life is formed, which drives a person going out into the vastness of existence, rather than an escape from the imperfect "big" world. There was no good school in Tenerife, but the father taught his children foreign languages, maths, and literature. Augustine succeeded the most; in Madrid, the young man was admitted to the San Isidro Royal School (Institute) to continue his education. The family was intolerant to idleness and irresponsibility, and negligence to complete any work started. That is why Augustine had an aspiring desire to achieve the highest perfection in whatever he did — to surpass the results of others.

It became his life programme. In his correspondence with relatives, Betancourt evaluates his endeavours in this way: *"For the rest of my life I will have the joy of having created the best Cabinet of Machines in Europe"*. (Paris, March 6, 1789) [8]. *"I have created a military institute*[9] *here, that is, a College for engineers, and those who graduated from it, acquitted themselves well and even better than what was expected of them in the last war. (I can boast that no educational institution teaches mathematics better than my institution)"* (September 15, 1814) [8]. And this is not a boast, but a fair assessment of his work.

For Betancourt, the meaning of the family was reduced to an intimate and beautiful model to be expanded into the big world, improving it as much as possible until a clear and worthy result is achieved. Betancourt manifested the oneness of a good family and a good society in paradoxical solutions. For example, finding the situation in Spain dangerous for his family, he started looking for an acceptable refuge, but receiving an invitation from the Russian Emperor, he replied that he needed to discuss it with his family. In a letter to his elder brother from Saint Petersburg dated September 15, 1814, he wrote: *"Not to die together with my family, ask for refuge in a foreign kingdom, where I could arrange it in safety, Russia seemed the most suitable for this... I left my family in Paris... and arrived here... and I was honourably welcomed by the Emperor, who made me such tempting offers through other people, if I enter his service. However, I neither accepted his offer, nor refused, but returned to Paris, saying that I needed to discuss it with my family"*. [8].

And it is no wonder that Betancourt also perceived his service with the Russian Emperor in a family context, continuing his story as follows: "The Emperor and all the members of his family welcomed me with due respect, which I did not expect and which I did not count on... I can assure you that he treats me as a friend, rather than as a monarch treats a subject" [8].

At that time, the Tsar, under the influence of Speransky, was going to educate a new generation of Russian reformers and create two special educational institutions: the Tsarskoye Selo Lyceum and the Institute of the Corps of Railway Engineers. The Lyceum became the family that developed the core of future statesmen. And the engineering institute with its "family atmosphere" (of high education and creative flight) was to cherish responsible Russian engineers.

Betancourt himself chose Prince Yusupov's Palace to house the Institute of Railway Communication. The mansion was purchased with the sovereign's funds, and Betancourt settled in it with relief, although it was state-owned accommodation. Betancourt's choice was not random. The beautiful building, designed by Giacomo Quarenghi, was a manor house. A park spread between the planned streets of the "regular" capital, with a low elegant mansion with a portico and two wings in

[9] This is the Institute of the Corps of Railway Engineers, already mentioned earlier, which was a paramilitary school. Betancourt partly rightly calls it a "Military Institute". The idea of organising a paramilitary institution of higher engineering education, whose graduates received military ranks, expressed by M.M. Speransky and supported by Emperor Alexander, made it possible to attract people from the nobility, where military and diplomatic service was highly valued, to the institute.

the middle of the park. *"Here, after the establishment of the institute really founded by him, we can say, he enjoyed settled lifestyle. He occupied the largest, best part of the building... The building of the institute with all its accessories was like a separate kingdom"* [7].

The cultural attitudes of the House of Betancourt implemented a sentimental model very popular in Europe in the early 19th century. Positive feelings of care, affection, love and friendship unite people into an informal circle. Here the unity of people with nature is restored (a palace with a park, a manor of the nobility or country-house). Reducing such interpersonal dealings to purely family relations only would be oversimplification. Betancourt sought to create the Institute as a large family, including, first of all, teachers, whose high professionalism was combined with tolerance and softness in communication. To describe the close circle of Betancourt's colleagues, we turn to the same acrimonious Vigel: a man not inclined to idealise anyone. He described almost all of them with a tone of sentimentalism. Professor Bazen: *"He did not allow himself to rebuke anyone, but found a way to give praise to everyone and about everyone... He was extremely loved by everyone, starting with me"* [7]. Professor Potier: *"...instead of courtesy, good-naturedness, with certain mischief"* [7].

But one should not think that neither the Institute nor the Imperial Lyceum of Tsarskoye Selo became a refuge for Manilov's dreams. Pushkin called the Lyceum students of the first admission brothers, members of one family, exclaiming: *"Tsarskoye Selo is our Homeland!"*. Betancourt carried out that cultural programme which asserted personal independence of an individual in the House. Betancourt strived to establish the Institute as a large family. Betancourt's Institute became a carrier of that spirit of freedom and creativity, humanism and democracy, which at that time was called liberalism.

Betancourt was surrounded by radicals and freethinkers, and identified with reformer M.M. Speransky. Both of them were guardians and immediate superiors of G.S. Batenkov, a graduate of the Institute of Transport, meant by the Decembrists to become the nominal head of the state. Ivan Matveyevich Muraviev-Apostol, who was an ambassador to Madrid in the early 19th century (until 1805), was one of the most active participants in the conspiracy that ended with the assassination of Paul I on March 11, 1801. They thought of transferring the power to Alexander I through the restriction of his authority by a constitutional document.

Betancourt met Muraviev-Apostol in Madrid. Then they met in Russia, and when in 1809 the first students were admitted to IKIPS, two of Ivan Matveyevich's sons — elder Matvey and middle Sergey — were among them. Their junior brother Ippolit did not study at the Institute. All three brothers became Decembrists. Junior Ippolit shot himself when he realised that the uprising had been crushed, middle Sergey was hanged, and elder Matvey was sentenced to death, replaced by hard labour.

A Decembrist, a famous writer Aleksandr Bestuzhev-Marlinsky, who was exiled to the Caucasus as a soldier in 1826, was Betancourt's adjutant. The Betancourt's Institute was considered unreliable. Its graduate, A.I. Delvig (a cousin of poet A.A. Delvig, a friend of Pushkin) recalled: *"Emperor Nicholas and Grand Duke Mikhail Pavlovich did not like the engineers from the Institute of Transport very much, and thus — the institution that nursed them. This dislike was based on the opinion that scientists, and therefore, freethinkers come out of the institute..."* [9].

The thirteen-year long idyll at the House (the Yusupov Palace) ended in 1822, when Betancourt had to move to a rented private apartment, and part with the Institute's management. By the early 1820s, Alexander I knew that some graduates of the Tsarskoye Selo Lyceum and Institute of Railway Transport had become conspirators. It was not Betancourt's personal fault, but the fruits of Speransky's ideas who became a disgraced liberal at that time. And Betancourt was dismissed from the position of inspector of the Institute to interrupt the process of liberalisation of the minds of his students. It is known that Betancourt took part in the selection of the first students of the Institute of Railway Transport: *"following the course of admission examinations tirelessly, General Betancourt tried to personally familiarise himself with the abilities and degree of knowledge of every applicant, which is proved by the notes he made on the examination lists"* [10]. Therefore, it is no wonder that Betancourt's resignation did not entail a decline in the level of the institute: the traditions of teachers and students were already deeply rooted in the soil prepared by Betancourt. Moreover, Betancourt also chose his direct successor: the leader of engineering in Russia.

In 1822, during the first graduation of warrant officers (technicians) from the Military Construction School[10] to the Railway Construction Unit, they were presented to Inspector of the Institute A.A. Betancourt. According to A.I. Delvig, Betancourt *"noticed a handsome, but not very tall young man, Melnikov, who was among them... And, noticing that he spoke good French, he said that the young man should continue his studies, and according to the degree of knowledge acquired by*

[10] This is about the Military Construction School (Vocational School) organised in 1820 by A. Betancourt at IKIPS — a specialised secondary technical school with a two-year term of study.

Melnikov at the Military Construction School, seconded him to continue his studies at the Institute of Railway Communication" [10]. At the time of Alexander's II Great Reforms, an outstanding engineer Pavel Petrovich Melnikov became the Minister of Railways. He was the first teacher to start lecturing students on mechanics in Russian already in the 1830s, thus setting the standard of teaching at higher technical schools, repeating the experience of Lomonosov in translation of foreign culture into the Russian national version when writing scientific texts and conducting classes at the academic university.

Betancourt's cultural attitudes combined layers of different historical types. He adopted enlightened monarchism from Spanish culture, dating back to the medieval tradition of suzerain worship, and strict rules of morality. In England, Betancourt was imbued with the spirit of freedom of scientific technical enquiry and uninhibited economic activities. In France, Betancourt saw the strengths of the alliance between the state and science.

The formation of any sphere of the national culture is fruitful only when it is open to contact with other cultures, which in turn have the same openness. A close network of intersections of traditions emerges, which is the world culture, where each individual culture acts as a national version of the world culture.

Betancourt ensured the transfer of general European scientific and technical practices to Russian soil. This great Spaniard introduced us not to the Spanish closed tradition, but the Spanish version of the broad European culture, which was further enriched in Russia thanks to the universal education and versatility of Betancourt's cognitive interests. In his youth, he studied engineering at St Isidore's School, and attended the Academy of Fine Arts. Betancourt became an excellent draughtsman and was later elected a full member of this Academy and sat in Madrid as an academician next to Goya. Betancourt always had passion to create beautiful things. All the sides of his rich and versatile talent were manifested in Russia.

From the beginning of Peter the Great's Reforms, Russia began getting out of the Middle Ages. The Renaissance was the nearest civilisational stage of national development. There is every reason to believe that the Renaissance succeeded in Russia and Betancourt was one of the brightest figures of the Russian Renaissance, commensurate with the Renaissance of other European countries [11]. Intercultural ties are fundamental to the fruitful development of every national culture if they are equitable and constructive, rather than a seductive manipulation of one party for the purpose of "soft" but self-serving subjugation of the other. Coming to Russi8a in the early XIX century, Spanish engineer Augustin Betancourt showed an optimal option of noble and non-traumatic interaction between the Western European and Russian cultures for the benefit of the development of the world civilisation. And technical achievements were carried out on the basis of broad cultural transformations.

The main conflict of Betancourt's personality structures revealed itself in the inconsistency of the patriarchal legitimist attitudes to the informal, personal, "warm-hearted" co-operation between the engineer and the absolute monarch and to the technical, originally Renaissance transformation of the world through the construction of a perfect city, opening a way to the free development of the society.

DECLINING YEARS

The alliance between the Tsar and the engineer was temporary. Starting from 1814, the Emperor abandoned his policy of reforms and gradually turned to protective actions, transferring executive power to Arakcheev. The management of the Institute was handed over to the Emperor's gruff, poorly endowed uncle, Duke Alexander of Württemberg. Betancourt accepted this honourable dismissal with usual dignity, especially as his health was failing. But for thirteen years the students of the Institute received the most important proof of the high, honourable professional existence: they had the image of a brilliant engineer, thinker and teacher before them.

The strength of his warm-hearted affection is eloquently evidenced by the fact that the death (in childbirth) of his eldest daughter Caroline — his favourite — hastened the death of Betancourt. He was buried next to her at the Smolensk cemetery. The father lived only six months longer than his daughter.

The universality of Betancourt's personality manifested itself precisely in the fact that he did not evaluate intellectual activity as abstract theorising. It was the beginning of creativity only. Therefore, in Russia, he was able to implement almost all his plans, which he failed to do in Spain. Colonel I.S. Rezimon (later Major-General, in 1835 — acting director of the Institute), who worked under Betancourt, recalled his late boss in the obituary article "On the Service and Labours of Lieutenant-General de Betancourt": *"He cared not only about the science; he was more or less familiar with all mechanical arts. Improving in practice and theory, he had certain skilfulness in the production of crafts, with which he often excelled the most skilful workers. He could equally practise with the most skilful turner and the commonest carpenter. Working with implements equally handily, he invented those he lacked, and every day he expanded the field of technology. To show how quick his hands were, it is enough to mention that he separated a hair lengthwise with a simple razor, without the slightest difficulty"* [12].

Maligned, belied, dismissed from offices, disfavoured by the sovereign who forgot, like his attendants, the achievements of the great engineer for the good of Russia, Augustin Betancourt died on July 26 (14), 1824 in a rented private apartment[11].

Augustin Betancourt was buried at the Smolensk Lutheran Cemetery. In the hour of grief for the family, they were supported by true Russian patriots and connoisseurs of his talent — merchants from Nizhny Novgorod. For many years, being eternally grateful to him, they admired and, with great effect for their trade, used the miracle he created: the Nizhny Novgorod Fair, or as defined currently, the largest trade and transport-logistic complex in the world at that time. The Fair became the embodiment of architectural, construction, technological, commercial, transport, cultural and social perfection of its time. The complex also had a spiritual and cultural component: the Orthodox Spassky Cathedral, the Armenian-Gregorian Church and a Muslim Mosque.

The merchants from Nizhny Novgorod took on the task of the funeral, at the cast-iron foundry in Nizhny Novgorod, a majestic monument in the form of a cast-iron column, about 7 metres high, was made to the designs of Auguste Montferrand. Cast-iron boards are on the edges of the pedestal, with an inscription in Latin on one of them: *"Noble scientist Mr. Augustin de Betancourt lies here. Born in the Canary Islands in 1758. He died in Saint Petersburg in 1824. Passer-by, pray for his salvation"*. The other edge of the pedestal holds a cast-iron plaque with an inscription in French: *"A Fair gift from Nizhny Novgorod"* [4].

In the tsarist era, Augustin Betancourt was not frequently referred to in the literature, seldom in the historical works devoted to the Railway Department and the Institute of the Corps of Railway Engineers. In the Soviet era, this trend maintained. The sixth volume of the Big Soviet Encyclopaedia (BSE), published in 1927, contains a small article about the French (?) Engineer A. Betancourt. In the second edition of the BSE (published in 50 volumes in 1949–1958) there is no reference to A. Betancourt[12].

The veil of silence about the activities of Augustin Betancourt started opening in the USSR in the mid-1960s in the atmosphere of the "Khrushchev's thaw". The first Soviet biographer of A. Betancourt, A.N. Bogolyubov (1911–2004), was a scientist-mathematician, mechanic by education and historian by vocation. His monograph "The History of Mechanics of Machines", which presented the multifaceted degree of detail of Augustin Betancourt, was published in 1964.

The Leningrad Institute of Railway Transport Engineers (LIIZhT)[13] is becoming the centre for studying the work of the great engineer and scientist. Under the guidance of Rector of the University E.Y. Kraskovsky, the University scientists professors V.E. Pavlov, V.I. Voronin, A.P. Ledyaev and others for many years conducted research work, studying the biography and works of Augustin Betancourt, bringing his name back from the oblivion.

In 1979, LIIZhT initiated a campaign to perpetuate Betancourt's memory, having obtained permission from the city authorities to transfer Betancourt's ashes from the Smolensk Cemetery, where he was buried in 1824, to the 18th century necropolis — to the Lazarevskoye Cemetery of the Alexander Nevsky Lavra. Here are the graves of many worthy people who left a significant mark in the history of the country and great city. The tombstone of Betancourt's grave was also moved here.

In recent decades, by the efforts of scientists, researchers, publicists of Russia, Spain, France and other countries, much work has been done to highlight the outstanding contribution of Augustin Betancourt to the development of engineering in the world, especially in Spain, Russia and France, to popularise his scientific and engineering creativity, the results of his organisational activities in the implementation of numerous industrial, transport and construction projects.

Since 2015, upon the initiative of PGUPS, the International Scientific and Educational Project "Betancourt's Legacy", which involves representatives of many engineering educational institutions and organisations from Russia, Spain, France and other countries, has been successfully developed. Since 2015, on the day of PGUPS's foundation on December 2, the Betancourt International Engineering Forum has been held in Saint Petersburg bring together a large audience of scientists and organisers of higher engineering education, [4].

Scientists from LIIZhT – PGUPS certainly play a special role in making the name of Augustin Betancourt more and more known to the broad public. This was especially noted by Juan Cullen Salazar — a famous Spanish chronologist, the keeper of the Betancourt family archive in La Orotava (the Tenerife Island, Spain), the author of the unique work "Augustin de Betancourt and Molina. Personal Letters". He placed the following words on the title page of this edition: *"Dedicated to the St. Petersburg Transport State University which did not allow the name of Augustin de Betancourt stay in oblivion"* [13].

[11] For the last two years of his life, A. Betancourt lived at 19, Bolshaya Morskaya St., Saint Petersburg.
[12] It should be recalled that there was an ideological and political campaign to combat cosmopolitanism in 1948–1953 in the USSR, which emphasised the unconditional priority of Russian figures in all areas of scientific and engineering developments.
[13] Today — the Emperor Alexander I St. Petersburg State Transport University (PGUPS).

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Bionotes

Mikhail V. Ivanov — Dr. Sci. (Philol.), Professor, Professor of the Department of "Applied Psychology"; **Emperor Alexander I St. Petersburg State Transport University (PGUPS)**; 9 Moskovsky pr., St. Petersburg, 190031, Russian Federation; SPIN-code: 6760-5142, ID RSCI: 732770; mvifp@mail.ru;

Igor P. Kiselev — Cand. Sci. (Philos.), Dr. Sci. (His.), Associate Professor, Professor of the Department of "History, philosophy, political science and sociology", transport engineer; **Emperor Alexander I St. Petersburg State Transport University (PGUPS)**; 9 Moskovsky pr., St. Petersburg, 190031, Russian Federation; Chief Scientific Editor of the journal; **"BRICS Transport"**; SPIN-code: 4347-9926, ID RSCI: 541415, Scopus: 57220864567; kis1347@mail.ru.

Об авторах

Михаил Васильевич Иванов — доктор филологических наук, профессор, профессор кафедры «Прикладная психология»; **Петербургский государственный университет путей сообщения Императора Александра I (ПГУПС)**; 190031, г. Санкт-Петербург, Московский пр., д. 9; SPIN-код: 6760-5142, РИНЦ ID: 732770; mvifp@mail.ru;

Игорь Павлович Киселёв — кандидат философских наук, доктор исторических наук, доцент, профессор кафедры «История, философия, политология и социология», инженер путей сообщения; **Петербургский государственный университет путей сообщения Императора Александра I (ПГУПС)**; 190031, г. Санкт-Петербург, Московский пр., д. 9; главный научный редактор журнала; **«Транспорт БРИКС»**; SPIN-код: 4347-9926, РИНЦ ID: 541415, Scopus: 57220864567; kis1347@mail.ru.

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Corresponding author: Igor P. Kiselev, kis1347@mail.ru.
Автор, ответственный за переписку: Игорь Павлович Киселёв, kis1347@mail.ru.

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