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At the Forefront of Transport Education and Industrial Science in Russia: the 125th Anniversary of Russian University of Transport

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ABSTRACT

The article is dedicated to the 125th anniversary of the founding of Russian University of Transport (MIIT), the largest transport university in the country. Over the years of its existence, the University has gone from an engineering school to a national-wide transport university, a leading center for science and education.

The history of the University is examined through the prism of formation and development of schools of sciences. The University established world-known schools of sciences of structural mechanics and bridge construction, hydraulic theory of friction, bridge construction and welding, structural mechanics, design and operation of railways, design and thermal calculations of steam locomotives, etc.

Over the years, the University has trained many tens of thousands of highly qualified specialists for the transport industry of the country. Loyalty to traditions, the ability to respond to demands of the time and work for the future allow Russian University of Transport to remain in the ranks of the leading universities in Russia.

Keywords: Russian University of Transport, transport science, school of science, research and educational centers, traditions and innovations, training of personnel for the transport industry.

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The text of the article originally written in Russian is published in the first part of the issue.
Текст статьи на русском языке публикуется в первой части данного выпуска.

INTRODUCTION

Russian University of Transport is a university with more than a century of history. For 125 years, the university has overcome the distance from an engineering school to a national transport university. The anniversary of the University is another reason to remember its history, evaluate the past, pay tribute to the merits of its Professors, teachers, and students, comprehend the current development, outline plans for the future. Over the past years, a number of world-class schools of science have been created at the University, which determined the directions for development of the transport industry and science in the country.

IMPERIAL MOSCOW ENGINEERING SCHOOL: THE BEGINNING OF THE PATH

At the end of 19th century, railway construction was going on at an active pace in the Russian Empire; the largest railway in the world, the Trans-Siberian Railway, was under construction. There was an acute shortage of engineers and railway transport specialists. The issue arose about the opening of a new large educational institution of the transport industry. Nikolai Pavlovich Petrov (1836–1920), an outstanding scientist, comrade of the Minister of Railways (Deputy Minister), is rightfully considered the ideologist of the establishment of Moscow Engineering School. It was he, being the chairman of the Russian Technical Society, who made a lot of efforts to expand technical education in Russia [1, p. 246].

On May 23 (June 4[1]), 1896, Moscow Engineering School was established with a three-year training program. The next day, May 24, the school received the name of Imperial Moscow Engineering School (IMIU). In 1912, at the suggestion of the educational department of Ministry of Railways, a project started aimed at transforming Imperial Moscow Engineering School into an institute. The law was signed on June 13, 1913, and on September 1, 1913, the school was transformed into Moscow Institute of Railway Engineers (MIIPS). On December 27, 1913 MIIPS was named after Emperor Nicholas II.

The history of the University is inextricably linked with the history of the country and with development of transport science. At all historical stages, the life of the University was multifaceted and eventful. Since its inception, the University has become not only a leading center for higher education in railways, but also a major scientific center. The world known schools of sciences were established here: those of structural mechanics and bridge building (Professor L. D. Proskuryakov), hydraulic theory of friction (Professor N. P. Petrov), bridge building and welding (academicians E. O. Paton and G. K. Evgrafov), structural mechanics (Professor I. P. Prokofiev), design and operation of railways (Academician V. N. Obraztsov, Corresponding Member of the USSR Academy of Sciences B. N. Syromyatnikov), dynamics of locomotives (Corresponding Member of the USSR Academy of Sciences I. I. Nikolaev, Professor V. B. Medel), traction of trains and traction calculations (Professor A. M. Babichkov), etc.

The first schools of science began to appear in the IMIU along with creation of the first departments and laboratories. Already on March 1, 1898, IMIU allocated funds for organisation of the first laboratories (chemical, mechanical, hydraulic, physical laboratories), as well as for creation of a geodesic «cabinet» (office) [2, p. 531].

The school of structural mechanics and bridge building was headed by Professor L. D. Proskuryakov, who stood at the foundations of the national science of bridges. In bridge construction, L. D. Proskuryakov created fundamentally new types of spans, with a through, statically definable lattice. Lavr Proskuryakov designed the longest girder-section railway bridge in Russia across the river Yenisei, which became the only engineering structure of the Transsiberian Railroad that was awarded the Grand Prix and the Great Gold Medal of the World Exhibition in Paris (1900).

L. D. Proskuryakov began working at IMIU from the moment of its opening, from November 1896 he was inspector (vice-rector), head of the department «Building mechanics and bridges». During the 1897–1898 academic year, a mechanical laboratory was opened at the school. Professor L. D. Proskuryakov was its permanent head until 1926. The laboratory had a machine room, a cement hall, a metallographic room, a refrigeration room, a mechanical workshop, a woodworking workshop, etc. From the very foundation, the laboratory was equipped with a number of testing machines and devices: «Mohr and Federgaff machine, for 50 tons, for testing metals, cables, chains, tension belts;

[1] Here and further two dates indicate old style Julian calendar applied in Russia before 1917 and modern calendar.

Amsler press of 150 tons, to study the phenomenon of bending (transverse and longitudinal) and compression; Amsler press for 25 tons and 190 km, to study the phenomena of stretching and torsion of metals», and others [2, p. 67].

In the Mechanical Laboratory, classes were conducted with students on the study of various properties of building materials. Since 1898, L. D. Proskuryakov began to teach the course «Structural Mechanics», thereby laying the foundation for the methodology of teaching this discipline. After 1917, the course began to be taught in all areas of training in engineering universities of the country.

Since the opening of the laboratory, scientific research had been carried out on the problems of building materials and structural mechanics. Already from the beginning of the 1920s the institute's mechanical laboratory has built close ties with the country's transport and manufacturing industries. During this period, its research base also expanded, the laboratory of building materials of the Higher Technical Courses of NKPS [ministry of railways of the time] was attached [2, p. 71]. In the mid-1920s the Scientific Council was established at the laboratory. In 1927, the Mechanical Laboratory presented the results of its work at the International Congress of Materials Testing in the Netherlands.

Since 1901, the department of bridges was headed by Evgeny O. Paton. After having worked at IMIU till 1904, E. Paton, later on an Academician, further received international recognition as an outstanding scientist in the field of bridge construction and electric welding, founded the institute of electric welding bearing his name [3, p. 89]. After 1917, the academic staff of the Bridges department carried out research work within the sections of materials and structures, studying the resistance of wood to chipping (supervisor – Professor E. L. Nikolai), determining weight loss of stone supports in water (supervisor – Professor E. E. Gersevanov).

A significant achievement in the field of engineering sciences was associated with development of a scientifically grounded theory of design of railway stations and junctions [4, p. 92]. The specialised department «Stations and junctions» under the leadership of Professor V. N. Obraztsov was created at MIIPS in 1919. The employees of the department were engaged in studying practical aspects of designing stations and junctions.

TOWARDS NEW UNIVERSITY: MIIT

In 1924, by order of the People's Commissariat for Education of the RSFSR No. 570, the Higher Technical Courses at the People's Commissariat for Railways of the RSFSR were attached to Moscow Institute of Railway Engineers. The united higher educational institution received the name of Moscow Institute of Transport Engineers (MIIT). Since that time, the educational institution has become a multi-faculty and graduated engineers of various specialties for railway, water, and road transport.

In the same year, within the walls of MIIT, the department «Research and design of railways» was created. Professor K. A. Opengeim, the author of the country's first four-volume textbook on the course of railway design, was elected as the head of the department. The creation of the department played an important role not only in training of engineering personnel, but also in development of scientific design of railways. Major scientists worked at the department: Professor A. V. Gorinov developed the theory of mastering transportation, Professor B. N. Bedenisov worked in design of the layout of railways [5, p. 95].

In the 1920s the school of bridge construction continued to actively develop it activity at the University. Academician of the USSR Academy of Sciences G. P. Perederiy made a great contribution to its development. He proposed a new teaching system in which the bridge was studied as a complex structure. The introduction of a new progressive methodology for teaching the course of bridges, contributed to approval of a new design method, which, in turn, was a powerful means of introducing more rational bridge systems [5, p. 95].

Under the leadership of N. S. Streletsky, bridge testing stations were organised, which began a systematic study of the static and dynamic effects of loading on bridges. In the 1930s reinforced concrete began to be used in bridge building. One of the first initiators of the use of this type of material in bridge construction was Academician of the USSR Academy of Sciences G. P. Perederiy.

In November 1925, a research institute was opened at MIIT, one of the country's first research institutes within higher technical educational institutions. Its tasks comprised research in the field of transport and training of scientific personnel for railway universities. The institute was headed by Professor F. E. Maksimenko.

Postgraduate studies were opened at the research institute, which contributed to more intensive scientific work in the field of railway topics. Since 1926, MIIT has resumed publication of scientific works of the institute.

By the end of the 1920s MIIT becomes the leading centre for training engineering personnel for railway transport in the country. For the period 1918–1927 MIIT trained 1553 engineers, 502 specialists more than in two pre-revolutionary decades [4].

In the 1930s the university was a forge of personnel for transport and a major scientific centre. In 1930, the department «Bridges and Tunnels» was headed by the Honoured Employess of Science and Technology of the RSFSR Professor G. K. Evgrafov. With his participation, science schools were created that have received international recognition: in the field of calculations, design and construction of bridges; in the field of research of reinforced concrete and metal bridges [6, p. 75]. In 1931–1934 he supervised the work on identifying new types of bridge structures, studying the work of bridges under load, establishing standards for construction of bridges [6, p. 106].

The school of bridge building also continued to develop. Scientists of the Bridges department conducted theoretical and experimental research in the field of studying bridge structures. In 1930–1932 according to the project of MIIT graduate engineer N. M. Kolokolov, a railway bridge was built across the river Dnieper in Dnepropetrovsk [6, pp. 103–104]. In the same period, the construction of first welded bridges began.

In 1932, the laboratory of soil mechanics was created, due to which theoretical problems were successfully solved along with practical aspects related to construction of powerful hydroelectric stations and metro. The first domestic tunnel shield was designed under the guidance of MIIT Associate Professor V. P. Volkov [7, p. 1]. Contributions to development of the theory of engineering problems in the field of soil mechanics, foundations of structures and foundations were made by Professors E. E. Gersevanov and V. K. Dmokhovsky.

In 1934, at the departments of the institute, the first scientific communities (called «circles») were created, later united into a student scientific society. This was the time of beginning of development of student science at MIIT. The students at the institute were directly involved in construction of Moscow metro. In 1933, the Bridgebuilding faculty and the graduating department of tunnels and metro were created, which two years before the launch of the first metro line in Moscow began to train specialists for the metro [8, p. 35]. Under the leadership of the first MIIT graduates, 29 metro stations were built in Moscow.

Academician V. N. Obraztsov and Professor S. V. Zemblinov continued their scientific research at the department of stations and junctions. Published in 1933, V. N. Obraztsov's major work «Railway stations» became the scientific basis for a whole series of textbooks on the discipline «Stations and junctions»: Part I, 1935 (authors – V. N. Obraztsov, V. D. Nikitin, S. P. Buzanov), part II, 1938 (authors – V. N. Obraztsov, V. D. Nikitin, M. V. Senkovsky, N. R. Yushchenko), and part III, 1949 (authors – V. N. Obraztsov, V. D. Nikitin, F. I. Shaulsky, S. P. Buzanov) [9]. At the department, the main topic of research referred to design, technology of functioning and optimisation of transport systems. In 1938, under the leadership of V. N. Obraztsov, the school «Design, technology of functioning and optimization of operation of transport systems» was founded. In 1939, a Section for Scientific Development of Transport Problems of the Academy of Sciences of the USSR was created at the department under the leadership of Academician V. N. Obraztsov. An important role in development of science about stations was made by the students of Academician V. N. Obraztsov: D.Sc. (Eng), Professors S. P. Buzanov, F. I. Shaulsky, who trained a large number of doctors and candidates of engineering sciences. The ideas of Obraztsov's scientific school were successfully implemented by their students: D.Sc. (Eng) V. A. Sharov, A. T. Osminin, B. B. Zhardemov and others [10].

Scientific research was also actively conducted at the department of track and track economy (from 1920 to 1930 it was called «Rail track», in 1930 it was renamed into «Railway track», in 1950 it received the name «Track and track economy»). Professors N. T. Mityushin, K. N. Mishchenko, B. N. Vedenisov, G. M. Shakhunyants studied the working conditions of track under large weights and at high speeds; the use of a continuous track and long rails; calculations of the roadbed.

With the beginning of the Great Patriotic War, a group was formed from the teachers of the department of railway track, which worked at the

Central Track Administration of NKPS and was responsible for creating projects to restore destroyed bridges. Professor I. N. Polikarpov was sent to the Western Front, where he worked on construction of bridges destroyed by German troops. From 1942 to 1943, he served as Senior Bridge Expert at the General Directorate of Military Reconstruction. He proposed projects of metal multi-lattice trusses with I-beams, which later began to be used in restoration of bridges. From 1941 to 1942, Associate Professor A. M. Pomerantsev was sent to the head restoration detachment No. 8 of the Western Front, then worked in the design group of the track service of the Western Railway, where he was engaged in design of capital restoration of railway bridges.

In 1941, a commission was created to mobilise the resources of the Urals and Western Siberia, which included Academician V. N. Obraztsov. Under the leadership of Vladimir Nikolaevich, a unified technological process for operation of transport on access roads of the defence industry was developed, which made the work of factories of 11 railways stable. Academician Obraztsov also dealt with the problem of increasing the volume of cargo transportation with minimal financial investment. He concluded that the use of double trains, block train traffic, a decrease in time serving as passing sidings or crossing loops, a decrease in idle time of trains at intermediate points by placing baton apparatus to entrance posts together can contribute to an increase in traffic volumes. By the decree of the Presidium of the Supreme Soviet of the USSR of July 30, 1949, Professor of MIIT Academician V. N. Obraztsov and Corresponding Member of the USSR Academy of Sciences B. N. Vedenisov were awarded the Order of Lenin [11, p. 1].

From 1941 to 1943, MIIT Professor A. V. Gorinov was appointed head of the All-Union Scientific Research Institute of Railway Transport, which was entrusted with the task of preparing the most important scientific projects related to the defence complex. Professor G. K. Evgrafov took part in solving the problems of examining bridges not only newly built during the war, but also restored after destruction. He was appointed permanent consultant at the All-Union Scientific Research Institute of Railway Transport on development of bridge restoration projects.

During the Great Patriotic War, the scientific and pedagogical staff of the Locomotives department headed by Academician S. P. Syromyatnikov developed methods of increasing the efficiency of steam locomotives. Academician Syromyatnikov created a new steam locomotive 1–5–0, carried out a comprehensive modernisation of locomotives of E and O series, which made it possible to reduce fuel consumption on the country's railways [12, p. 54].

Under the guidance of Professors N. T. Mityushin and G. M. Shakhunyants the track employees made a significant contribution to increase the capacity, organise maintenance

and repair of the track in difficult wartime conditions. Professor P. S. Durnovo developed and implemented the possibility of repairing turnouts by surfacing the crosspieces.

Since 1945, additional laboratories began to be organised at MIIT; research activity of the institute moved to a new level, not only the number, but also significance of scientific research increased.

In the year of the 50th anniversary of creation of MIIT, on December 26, 1946, the University received the highest state award, the Order of Lenin.

In 1946, the bridge testing station was transferred to MIIT, which was transformed into a bridge testing laboratory. On its basis, Bridges department conducted research. The work was carried out in two directions: in the field of prefabricated reinforced concrete bridges, predominantly prestressed, and in the field of welding in bridge construction [5, p. 110].

In 1947, a student scientific and technical society was organised at the institute. Its scientific advisor was D.Sc. (Eng) V. D. Nikitin [13, p. 12]. During the first post-war decade, 253 research projects were carried out at the departments of the institute. The research results were provided to the departments of the USSR Ministry of Railways.

From 1946 to 1957 MIIT faculty published 61 textbooks, 420 articles, individual books and monographs. Textbooks were used for training in the People's Republic of China and Eastern European countries. Scientific works of D.Sc. (Eng), Professors A. M. Babichkov, V. N. Ivanov, V. G. Kirkin, N. P. Zobnin, A. N. Egorov, G. P. Grinevich, V. D. Nikitin, S. P. Buzanova, S. K. Danilova, E. V. Mikhaltseva, F. P. Kochneva, N. A. Shadrina, A. V. Gorinov, G. M. Shakhunyants, V. G. Albrekht and others received scientific recognition in the USSR [5, pp. 99–100].

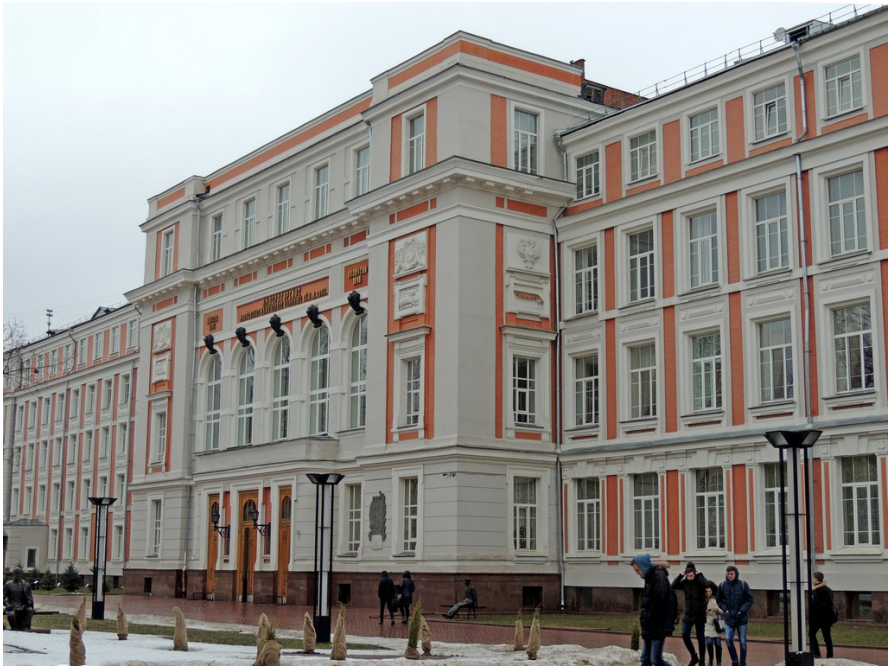
In the post-war period, the institute actively developed research in the field of wagons and wagon facilities. The research team of the Wagon department carried out research on car bogies in order to reduce their weight (Associate Professor L. A. Shadur), the centre beam of the wagon (Associate Professor V. M. Chernyshev), in the field of organisation of wagon facilities (Associate Professor V. D. Bekhterev) [5, p. 97].

Over time, issues related to wide transition of railway transport to electric traction acquired great importance in the research of the institute. With the aim of increasing the economic efficiency of electrification of railways, a laboratory for power supply of railways was created in 1947. In 1948, a mobile research laboratory «Dynamometric wagon» was organised at the department of electric traction, which since 1930 had been preparing electricians for railway transport.

In 1956, the scientific school «Electrical engineering complexes and systems» was founded at the University, which developed in two directions. Under the leadership of D.Sc. (Eng), Professor, Honoured Employee of science and technology industry of the RSFSR I. P. Isaev, the energy processes of interaction between rolling stock and tracks, ensuring reliability, and optimising the system of scheduled preventive maintenance were fundamentally studied. Under the leadership of Professor K. G. Markvardt, systems, technical means, methods of increasing reliability and efficiency of electric traction power supply devices, and introduction of comprehensive automation of power supply and electric power devices were developed and improved. Scientists of the institute made important proposals to increase the economic efficiency of DC electric traction system [14].

In the 1950s the scientific school «Economic theory of transport, optimization of material flow and cost management» was formed. A great contribution to its formation and development was made by MIIT scientists, Professors E. D. Khanukov, A. S. Chudov, A. K. Shubnikov, E. V. Mikhaltsev, and others. The new school of science developed a schematic presentation of normal directions of freight traffic. Scientists provided comprehensive recommendations for improving not only the country's railway transport system, but also other sectors of the economy. The authors' proposals were included in the Concept of Structural Reform in Railway Transport.

In 1955, MIIT was headed by Honoured Employee of Science and Technology Industry of the RSFSR, Professor F. P. Kochnev, who headed the Institute for a quarter of a century. A well-known scientist in the field of organising passenger and freight transportation, F. P. Kochnev founded at MIIT a school of science on organisation of passenger transportation by rail. The scientific school was engaged in development and implementation of new types of traction, heavy trains, development of the throughput and transit capacity of railways. For the first time in the USSR, scientific principles of organising



passenger traffic were developed, concerning the choice of a rational speed of passenger trains and optimisation of their weight [14].

During this period, prominent Soviet scientists, including four academicians and 130 doctors and candidates of sciences, taught and conducted scientific work at the institute [15]. Among them were Honoured Scientists and Technicians of the RSFSR, D.Sc. (Eng), Professors G. M. Shakhunyants, A. E. Sheinin, A. M. Bryleev [16]. In 1966, MIIT team was awarded the first-degree diploma of the USSR Exhibition of Economic Achievements for success in research and design work [17].

In the 1960s new research centres and laboratories were created at the institute. In 1963, the Computing and Controlling Machines laboratory was organised at the department of mathematical and calculating devices (later it was renamed to become the Department of Computers), which was the Computing Centre of MIIT for nine years. In the laboratories of the departments of locomotives and locomotive economy (headed by Professor V. D. Kuzmich), of reliability of construction machines (headed by Professor G. S. Zagorskiy) unique automated measuring and computing and control systems based on control computers «CM-1634» were created. By the mid-1970s computer technology of different levels has firmly entered the research and educational activities of MIIT [2, pp. 180–182].

In the 1960s–1970s, MIIT school in the field of the dynamics of the traction drive of wheel-rail transport was among leading schools of science in the USSR. It was headed by Professor I. V. Biryukov. He founded and headed the scientific laboratory «Modelling the dynamics of electric rolling stock», and later the Scientific and technical centre «High-speed rolling stock» at MIIT.

In the 1970s at the institute, student scientific creativity was widely developed: students conducted a wide range of research in the student scientific society which has been operating since 1934. For success in research and design work of students, the institute was repeatedly awarded with VDNKh diplomas of the first degree, and the students were awarded medals of that exposition [18; 19]. According to the results of the All-Union review-competition in the field of research work of students in 1972–1973 MIIT took first place in the group of technical universities [17]. For the successes achieved in organising the research activity of students, the Council for Scientific Research Work of MIIT and a number of employees were awarded different Honorary Diplomas [20].

By the date of its 80th anniversary, MIIT had trained 70 thousand specialists for transport and other sectors of the national economy. By 1976, 59 departments and 1130 teachers were engaged in training of engineers at the institute. As a result of the «All-Union socialist competition for

improving production efficiency and quality of work», successful implementation of the national economic plan in 1976, 1977 and 1978, the university was awarded the Challenge Red Banner.

In the 1970s MIIT created at the department of Economics and management in transport scientific centres engaged in technical and economic research in transport: the Centre for Information Technologies in Economics and Finance, the industry's laboratory of Automated Logistics Management Systems. By 1976, the research sector of MIIT had grown into a large research institute, which developed up to 500 scientific topics and had a total volume of work reaching 5 million roubles a year [21, p. 4].

During this period, the department of Power supply of electric railways conducted research in the field of a new promising type of railway transport: ground wheelless, high-speed, magnetic suspension (VSNT), which was supposed to develop a speed of 350–500 km/h. Professors K. G. Markvardt and A. V. Chichinadze took an active part in these works [22]. At the department of Automation and telemechanics, the laboratory of Automated control of train traffic carried out scientific work on the topic «Development of a telecontrol system for an electric locomotive of double and heavy trains for BAM» [Baikal-Amur Mainline] [23]. The research team of the department of Electric traction also paid great attention to development of new rolling stock; the results of research were used by designers and manufacturers of rolling stock for the needs of the Baikal-Amur Mainline.

On October 25, 1988, MIIT led the newly established Educational and Methodological Association (UMO), headed by the rector of MIIT, Professor V. G. Inozemtsev. For his great contribution to educational and methodological work in 1992, by order of the Committee for Higher Education MIIT was recognised as the basic university of the Educational and Methodological Association of universities of the Russian Federation responsible for education in the field of railway transport and transport construction.

Considering the importance of training highly qualified personnel for railway transport, by order of the Ministry of Railways of January 26, 1989, the Industry's Centre for training of scientific, pedagogical and scientific personnel was created through restructuring of the centre for doctoral and postgraduate studies at MIIT. D.Sc. (Eng), Professor B. A. Lyovin was appointed first director of the centre. The industry's centre began to coordinate the activities of universities and research institutes of railway transport on training of highly qualified personnel, e. g., a permanent workshop was created for the heads of postgraduate studies at universities and research institutes of the transport industry.

Since 1985, V. G. Inozemtsev, an outstanding scientist in the field of railway transport, corresponding member of the Russian Academy of Sciences, was appointed rector of MIIT. Together with OJSC Transmash and Knorr-Bremse (Germany), he developed the 483KE braking system, which met the standards of Russian and European railways. This system received a certificate from the International Union of Railways and was approved for use on all railways. V. G. Inozemtsev's activities as rector of MIIT allowed the institute to survive the difficult times of perestroika and the collapse of the USSR, he headed the university until 1997 [24].

By the centenary, MIIT has become a forge of qualified personnel for land and water routes of Russia. On the day of the institute's anniversary, the university newspaper «Transport Engineer» wrote: «*... Over its almost century-long history, MIIT has trained more than 100 thousand engineers and engineers-economists for railway transport, transport and transport construction. The university has 60 departments, among which the oldest are:* «*Bridges*», «*Building structures*», «*Building mechanics*», «*Track and track economy*», «*Hydraulics and water supply*» *and others. MIIT is a large research centre…»* [25, p. 1].

In 1997, MIIT was headed by D.Sc. (Eng), Professor B. A. Lyovin. He became the founder of the school of science on «Organisation of production in the transport industry» at MIIT, the main areas of research of which are: patterns and factors of integrated development of the material and technical base of mainline, urban, and suburban transport, etc. [14].

On the eve of its 110th anniversary, MIIT received congratulations from the President of the Russian Federation V. V. Putin. The congratulatory telegram noted: «*Over the past decades, MIIT has come a long and glorious way, has become one of the recognised leaders of domestic higher technical education. The University can rightfully be proud of its faculty*

and many generations of graduates who have made a significant contribution to the development of the domestic transport complex and the Russian economy as a whole. It is gratifying that today loyalty to wonderful traditions, the desire to keep up with the times and work for the future help your university to remain a real forge of highly qualified specialists» [26].

In 2009, the Research Institute of Transport and Transport Construction was established at MIIT. The purpose of the new structure was to promote and support research projects carried out by teachers and students at the institute.

In December 2015, the Federal Agency for Railway Transport issued an order to rename the university to Moscow State University of Railway Engineering by mentioning that it is named after Nicholas II. Its historical name was returned to the university.

In 2016, the university celebrated its 120th anniversary, being the base centre for scientific follow-up of development of the transport complex in Russia. For more than a century of its existence, the university has trained about 650 thousand highly qualified specialists with higher and secondary vocational education, launched development of a dozen large schools of transport science [12, p. 56]. The university also received international recognition, in 2016 for a significant contribution to development of railway transport in Mongolia it was awarded the Order of the Pole Star.

RUSSIAN UNIVERSITY OF TRANSPORT

On June 27, 2017, the Ministry of Transport of the Russian Federation published an order «On approval of the charter of the federal state budgetary educational institution of higher education «Russian University of Transport», in accordance with which Moscow State University of Railway Engineering named after Nicholas II was renamed into Russian University of Transport. The director of the Administrative Department of the Ministry of Transport K. A. Pashkov wrote about creation of a new type of university on the basis of MIIT in the article «What will be Russian University of Transport?»: «*In Russia, the only university – MIIT – has preserved the entire educational chain from school to the academy of postgraduate education ... creation of RUT on the basis of MIIT is a historically conditioned and correct decision: we do not have a university with a stronger scientific base, scientific schools, infrastructure*» [27 p. 9]. Before, in February 2017, the Collegium of the Ministry of Transport of the Russian Federation decided to create a modern scientific and educational centre through transformation of MIIT that would be named Russian University of Transport [28]. Russian University of Transport has become the largest industry university in the country, which provides staffing and scientific follow-up regarding development of the transport industry in Russia.

In 2017, the university became a laureate of the Golden Chariot International Transport Prize for the Achievements in Transport Science and Education nomination. In 2018, the university carried out scientific and technical cooperation with 172 partner universities and organisations from 49 countries and for the first time was indexed in the international ranking: EECA regional ranking by QS World University Rankings. In April 2018, the university became one of the universities that received the right to develop and approve independently prepared educational standards for all levels of higher education. In September 2019, Russian University of Transport was included in the list of 1200 best world universities according to the Moscow International University Ranking «Three University Missions»: it was positioned 1001–1100 in the world rankings, and 48–58 among Russian universities. In 2019, the university received an autonomous status. Currently, the university acts as an advanced comprehensive and inter-modal transport scientific and educational centre. There are now 24 schools of science developing research activity within the walls of the University. The intellectual property of Russian University of Transport is represented by 62 valid patents of the Russian Federation [29].

The Rector of Russian University of Transport Alexander A. Klimov, speaking at a meeting of the Presidium of the Union of Rectors with a report on the prospects for development of transport education, noted the core scientific and educational fields evolving at the university: «*... transport and transport construction, logistics, digital technology, transport economics, intelligent systems, high-speed traffic, transport safety and much more ... We are the only comprehensive transport university in the country, and we are entrusted with the task of coordinating development programs for the entire industry of transport education*» [30].

For 125 years, Russian University of Transport has trained many tens of thousands of highly qualified specialists for the country's transport industry. Loyalty to traditions, the ability to respond to the spirit of the times and work for the future allow Russian University of Transport to remain in the ranks of the leading universities in Russia.

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