

The contribution of Petr Ivanovich Karuzin to the formation of the national anatomy

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This article presents biographical data and information about the main areas of work of an outstanding Russian anatomist P.I. Karuzin (1864–1939). His pedagogical and organizational activities are examined. A student of D.N. Zernov, Karuzin worked as a professor at the Department of Descriptive Anatomy of the Medical Faculty of Moscow University (1900–1930). In 1897, he founded an educational museum. Under his leadership and with his direct participation, a new Anatomical Institute at the First Moscow State University was built and opened, in which the Department of Anatomy of I.M. Sechenov First Moscow State Medical University is still located. The article pays particular attention to the teaching activities of Karuzin, who is the author of a number of well-known textbooks. Karuzin organized faculties of anatomy in Astrakhan, Smolensk, Tbilisi, and Minsk. His work was aimed at improving the educational process. Thanks to Karuzin's efforts, the departments of anatomy were equipped with specimens for practical study. He introduced into training practices the independent dissection of corpses by students under the guidance of teachers. Karuzin's activities were diverse; as one of the leading domestic anatomists, he took part in the embalming of Lenin's body and was the editor of a number of anatomy textbooks. The authors of the article note that scientific biographies contribute to the preservation of generational continuity and are a source of motivation for young doctors in their practical and scientific activities.

Keywords: *P.I. Karuzin, the history of anatomy, teaching, textbook for plastic anatomy, N.I. Pirogov's legacy*

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Russian anatomy attained new achievements in the beginning of the 20th century. After the October Revolution, in the 1920s, medical institutes, in which anatomy departments were organized, were established on the periphery

of the country. Specialized morphological (anatomical) scientific-research institutions (institutes and laboratories) were founded and anatomical-histological methods for scientific research were successfully developed. The history

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of the anatomy department at I.M. Sechenov First Moscow State Medical University (Sechenov University) is inseparably linked to the name of the outstanding anatomist Professor of Normal Anatomy Petr Ivanovich Karuzin (1864–1939), who played an important role in its foundation and development. Thanks to his efforts, the new Anatomical Institute of the First Moscow State University was established (in 1930 it was renamed as the Anatomy Department of the First Moscow Medical Institute – 1st MMI).

Petr Ivanovich Karuzin (Fig. 1) was born in 1864 in Saint Petersburg to the family of a second-guild merchant. When he was 10 years old, his parents sent him to be educated at the First Moscow Classical Gymnasium. In 1883, Karuzin entered the Medical School of Imperial Moscow University (IMU), where he completed his studies in 1888. One year later, he became prosector at the anatomy department, whose director at the time was Professor Zernov. V.D. Zernov recalls: “In the summer of 1906 my



Fig. 1. P. I. Karuzin (1939).

From the Medical History Museum of Sechenov University.

parents and I moved from the Sheremetev Alley to Devichie Pole, into the dean’s apartment, while father (D.N. Zernov) gave our previous apartment to his deputy, Professor P.I. Karuzin” [1, p. 130].

Professor D.N. Zernov and P.I. Karuzin participated in the embalming of the country’s leaders: Zernov embalmed Alexander III, the Moscow Governor-General Grand Duke Sergei Alexandrovich [2], and Karuzin embalmed V.I. Lenin.

In 1894, Karuzin brilliantly defended his thesis “On the system of spinal cord fibers that are distinguished based on the history of their development”, which helped him obtain the title of privat-docent in practical anatomy, as well as the right to read lectures without being a staff member of the university.

In 1894 Karuzin began reading lectures on anatomy at the Institute of Painting, Sculpture and Architecture. In 1898, while on a professional visit abroad, he spent five months attending lectures at several European anatomical institutes and familiarized himself with anatomical museums (he visited 18 institutes at the leading universities of Austria, Germany and Switzerland). Soviet urologist and one of Karuzin’s former students Y.V. Gudynsky writes in his memoirs: “The auditorium was overcrowded. People were sitting in the corridors, on the stairs, standing by the walls, around the podium. Petr Ivanovich held interesting lectures and they often ended with booming applause. The students loved Karuzin. Petr Ivanovich never refused to work overtime, especially since he and his family were in a very difficult position after the revolution. Professor Karuzin did very complicated work, laboring 10–12 hours a day in the extremely unsanitary conditions of the anatomical theater” [3]. Furthermore, Karuzin had enemies (Y.V. Gudynsky calls them “irresponsible elements”) who provoked a small group of students to tell the university rector that Karuzin was receiving money and food from them. However, the committee formed by the medical department, which included Professors V.S. Gulevich, I.V. Davydensky and I.K. Spizharny as well as two students, studied the case and declined the accusation, thus supporting Karuzin. It was also understood that the money and food that the students had given their teacher

were only assistance, since Karuzin's family at the time was indeed very poor.

Students showed their love and respect for Professor P.I. Karuzin at the general assembly of the first and second course by writing the following letter to the dean of the medical department, to comrade M.N. Pokrovsky at the People's Education Commissariat, to the university rector and to comrade M.I. Neishtat at the Military Commissariat: "We consider it a duty to publically express our sincere gratitude to our respected and beloved Professor Petr Ivanovich Karuzin because he, unlike other teachers, selflessly spends 21 hours a day in the anatomical theater; because with his lectures, which are full of inexhaustible knowledge, and with his clear mind he is capable of making us understand the most difficult topics, for we do not have textbooks; because with his questions and his confidence in us, he aspires to preserve the museum of the anatomical theater, which is an enormous value for the republic" [3]. After the letter was read at the assembly, the students set Petr Ivanovich in an armchair and carried him to his apartment.

After returning from his visit abroad in 1888, Karuzin established the museum of anatomical medicine, thus consolidating his authority among the youth, since the museum was necessary for the students to better understand the teaching material (the construction of separate organs and the body in general).

When teaching anatomy, Karuzin tried to follow the precept of N.I. Pirogov: "Provide as many resources as possible for the students for the practical study of Anatomy and for autonomous education in the various areas of this science (in Physiological, Surgical and Comparative Anatomy)" [4]. Guided by this precept, Karuzin regularly replenished the collection of specimen at the anatomical institutes, which were established on his initiative and under his supervision. For example, Karuzin gifted the Anatomical Institute¹ in Smolensk (at the medical department of the Smolensk State University) several cans with moist specimen, which at the time was a generous gift.

In 1900, Karuzin was made professor at the Department of Normal Anatomy at IMU, where

he worked for 30 years. From 1919–1921, he taught at the School of Physics-Mathematics' zoology, comparative anatomy and physiology department. In the USSR, morphology developed in a "scientific context" with many related disciplines, especially with physiology, topographical anatomy and histology. Soviet anatomists worked in the clinical-anatomical field and used the experimental method in their work.

After the events of October 1917 anatomy departments appeared in many Soviet cities, associated not only with medical institutes (Tbilisi – 1918, Baku – 1919, Irkutsk – 1919, Tashkent – 1920, Minsk – 1921, Yerevan – 1922) but also with higher education institutes in other education fields. Until 1923, Karuzin lectured at the Higher State Art-Technical Workshops, as well as the State Institute of Theatrical Arts and the Institute of Physical Education.

Karuzin initiated the establishment of anatomy departments at medical institutes in Astrakhan, Minsk, Tbilisi and Smolensk, making a significant contribution to the development of Soviet medical science. He not only organized these departments but also played an important role in establishing the educational process, in creating the most efficient inner order and in providing the departments with anatomical specimen. Under his personal supervision a medical faculty was developed at Smolensk State University. He was responsible for creating the anatomical base and for organizing the teaching of the fundamental subject: human anatomy. It was a complex situation: there were there not enough teaching materials nor enough teachers. In 1935, I.O. Mikhailovsky, professor at the histology department, remembered the first years of the department's activity: "There were no textbooks. A list of lectures was given to the students, who were divided into small groups. Each group had someone who could take notes clearly and quickly, the others listened". Professor D.S. Vorontsov from the physiology department remarked: "The most difficult thing was finding professors and teachers. The university's uncertain position and rumors of its closing made things complicated. Once a professor was found, one hurdle was overcome, but he needed to be given a clinic or a laboratory, he needed teaching aids. But where was this to be found? The rector

¹ Anatomical institutes were anatomy departments with storages for corpses.

and the dean and the professor were all looking for resources, haunting all the possible institutions, asking around what people had, telling staff members to go to Moscow and Leningrad to ask for apparatuses, instruments, books. Students came and sincerely offered their help. Willingly and collaboratively they went hunting for frogs and dogs, brought in their furniture, took turns guarding the laboratory, willingly substituted not only as assistants but also as janitors. When you see this passion for learning, all your doubts disappear and you are basically ready to do the impossible. And only this can explain the fact that an insignificant percentage of professors left the medical department” [5]. For this reason, Karuzin, guided by the precepts of N.I. Pirogov, had to organize the training of teachers and prosectors at Smolensk Institute.

In 1921, Karuzin established the Anatomical Institute in Minsk, where he went every month for 8–10 days and read three-hour lectures [6]. He believed that the aim of his activity in Minsk was to provide equipment and materials for the learning process. The institute’s study halls were located in specially equipped premises of the former Victoria factory, which had produced agricultural technology. People were very enthusiastic about the establishment of the institute and in 1921, 400 students enrolled in the first course of the medical department. The studies began on October 31, 1921 and Professor Karuzin read his first lecture on anatomy on November 2. Besides the lectures in Minsk, he also read in Smolensk, Tbilisi and Astrakhan.

Karuzin established the Department of Human Anatomy at the Astrakhan University School of Medicine on September 25, 1918. In a short period of time he read a series of brilliant lectures in Astrakhan and began work to create a teaching base at the department.

Unlike his foreign colleagues, Karuzin dedicated much time to teaching (in Europe anatomists usually devoted all their energies to research activity) and the training of Soviet medical staff [7, 8]. The first director of the Department of Normal Anatomy at Yaroslavl University was I.P. Rozhdestvensky, a former student of Karuzin [9].

On Karuzin’s initiative a new anatomy building was constructed in the courtyard of Moscow University’s Department of Medicine,

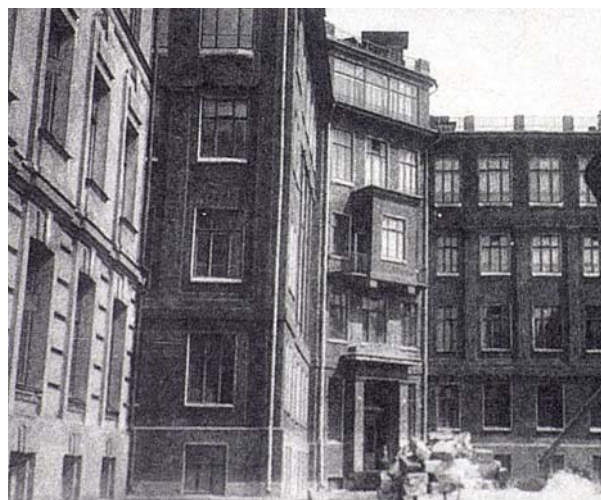


Fig. 2. The Anatomical Institute (1929).

From the Medical History Museum of Sechenov University.

which currently houses the Department of Normal Anatomy of Sechenov University (Fig. 2).

One of Karuzin’s responsibilities was to create aid material for the students. In 1905 he published a series of lectures on anatomy for artists and 16 years later *The Guide to Plastic Anatomy*. In the preface of this book he writes: “I think that most of the guides on plastic anatomy that are accessible to students pay very little attention to the issue of growth and proportionality of the human body, which is a very important and interesting issue for artists, and I want to try to respond to some of their needs, as well as to the needs of my listeners. I want to provide them with the corresponding material that they can use to clarify the law of the construction of the proportionate human figure, the beautiful ideal form that is based not only on the artist’s aesthetic understanding, feeling, imagination, and fantasy, but also on scientific information about the human being (anatomy and somatic anthropology)” [10, p. 3]. In this guide Karuzin introduces an overview of the development of plastic anatomy, carefully analyzing the information. His contributions to the creation of special medical teaching material are invaluable. In 1928, Karuzin wrote the *Dictionary of Anatomical Terminology*. He also wrote a Latin grammar book to assist students. He participated in an important Soviet anatomical publishing project edited by Professor V.P. Vorobiev, *Human Anatomy: Guide and Atlas for Students and Doctors*

(1932). Karuzin provided continuity in anatomy teaching at the First Moscow State University after the October Revolution and the period of the Civil War. Methods for solving problems of blood supply to human and animal organs of internal secretion were successfully developed under his supervision. The institutes studied adrenal arteries and the thyroid, thymus and pituitary glands.

Karuzin's main scientific research was dedicated to the study of blood supply to the endocrine glands, the anatomy of the musculoskeletal system and the nervous system. He was one of the first in Russia to start studying the pathways of the central nervous system. Karuzin divided all the nerve fibers of the spinal chord funiculus' white matter into those that develop early and those that develop relatively late. The first group included the sensory fibers and some of the motor nerve fibers, and the second included fibers of the pyramidal tract and the Lissauer tract [12–14].

In 1939, as a result of a tragic accident, P.I. Karuzin broke his hip and soon died.²

Karuzin's contribution to the formation of Soviet and Russian anatomy is invaluable [18–20]. The guides and aids he created for students

gave new impetus to the development of the science of the construction of the human body in the Soviet Union (earlier the aids published in Russian were insufficiently informative and incomplete). Therefore, the great anatomist and teacher's works were very apropos [21–26].

Karuzin's life journey is an example of real service to science. His diligence, ability to overcome difficulties, determination to perfect himself and desire to spread the knowledge he obtained are just a few qualities that characterized the famous professor. He left an enormous legacy for posterity. Today it is still used in the modern world of nanotechnology and computerization. Today's generation must preserve the memory of the great people who gifted their works to humanity. The achievements of our predecessors inspire the younger generation to self-perfection and active work in various fields. That is why the element of evolution's moving force – the continuity between generations – is fundamental. The study of the life and work of P.I. Karuzin helps us better understand the necessity of the continuity between generations and the necessity of preserving the memory of outstanding people.

² P. I. Karuzin was buried in the Novodevichy Cemetery.

REFERENCES

1. Zernov V.D. *Zapiski russkogo intelligenta* [Notes of the Russian intellectual]. Ed. A.E. Ivanov. Moscow: Indrik, 2005. 125 p. (in Russian)
2. Vorontsova E.L., Kozhina E.A., Pupykin V.S. *Professor D.N. Zernov i ego kolleksiya voskovykh modeley golovnogo mozga cheloveka. Antropologiya* [Professor D.N. Zernov and his collection of wax models of a human brain. Anthropology]. 2015; 1: 76–85. (in Russian)
3. Shapiro Ya.E. *Petr Ivanovich Karuzin (1864–1939)* [Petr Ivanovich Karuzin (1864–1939)]. *Sovetskaya Meditsina* [Soviet Medicine]. 1939; 23: 52. (in Russian)
4. Ostrogorskiy A.N. *Pirogov i ego pedagogicheskie zavety* [Pirogov and his pedagogical precepts]. Saint Petersburg, 1914. 179 p. (in Russian)
5. Ostapenko V.M., Nagornaya S.V. *Slavnye stranitsy istorii: k yubileyu Smolenskoy gosudarstvennoy meditsinskoy akademii* [Glorious pages of history: to the anniversary of the Smolensk state medical academy]. *Vestnik Smolenskoy gosudarstvennoy meditsinskoy akademii*. 2015; 14(1): 14–18. (in Russian)
6. Lobko P.I., Denisov S.D., Pivchenko P.G., Yaroshevich S.P. *Istoriya kafedry normal'noy anatomii Belorusskogo gosudarstvennogo meditsinskogo universiteta* [History of the department of normal anatomy of the Belarusian state medical university]. Minsk, 2008. 18 p. (in Russian)
7. Sapin M.R. *K istorii stareyshey anatomicheskoy kafedry anatomii* [On the history of the oldest anatomic department of anatomy]. *Vrach* [Doctor]. 2007; 3: 119–120. (in Russian)
8. Karuzin P.I. *Zametki o sovremennom polozhenii prepodavaniya anatomii v nemetskikh universitetakh i opisaniye nekotorykh anatomicheskikh institutov Germanii, Shveysarii i Avstrii: otchet o zagran. komandirovke priv.-dots. Imp. Mosk. un-ta P.I. Karuzina* [Notes about the modern state of teaching anatomy in German universities and the description of some anatomic institutes of Germany, Switzerland and Austria: the report about the foreign trip of P.I. Karuzin, a privatdozent at IMU]. Moscow: Universitetsk. tip., 1900. 138 p. (in Russian)

9. Shilkin V.V. *Anatomy vysshey meditsinskoy shkoly. Yaroslavl'. Vek XX [Anatomists of the higher medical education. Yaroslavl. 20th century]*. Yaroslavl': Yaroslavskaya gosudarstvennaya meditsinskaya akademiya, 1999. 77 p. (in Russian)
10. Karuzin P.I. *Rukovodstvo po plasticheskoy anatomii [Guide to plastic anatomy]*. Moscow: Gosizdat, 1921. 98 p. (in Russian)
11. Zabludovskiy P.E., Kryuchok G.R., Kuz'min M.K., Levit M.M. *Istoriya meditsiny [History of Medicine]*. Moscow: Meditsina, 1981. 352 p. (in Russian)
12. Nikulin A.A. *P.I. Karuzin – pervyy organizator kafedry anatomii cheloveka v Smolenskoj Gosudarstvennoj Akademii [P.I. Karuzin, the first organizer of the department of human anatomy in the Smolensk State Academy]*. *Matematicheskaya morfologiya [Mathematical morphology]*. 2001; 3(4): 1–6. (in Russian)
13. Alaev A.N., Speranskiy V.S. *Zarubezhnye i otechestvennye anatomy [Foreign and domestic anatomists]*. Saratov: Izdatelstvo Saratovskogo universiteta, 1977. 214 p. (in Russian)
14. *Smolenskiy gosudarstvennyy meditsinskiy institut (1920–1970). Istoricheskiy ocherk [Smolensk state medical institute (1920–1970). Historical sketch]*. Smolensk, 1970. 387 p. (in Russian)
15. Ternovskiy V. *Polstoletiya na sluzhbe otechestvennoj anatomii. Prof. P.I. Karuzin (1864–1939) [Half-century on service of domestic anatomy. Prof. P.I. Karuzin (1864–1939)]* // *Arkhiv anatomii, gistologii i embriologii [Archive of anatomy, histology, and embryology]*. 1940; 24(1): 115–118. (in Russian)
16. Nikolenko V.N., Speranskiy V.S. *Vekhi istorii kafedry anatomii cheloveka Saratovskogo gosudarstvennogo meditsinskogo universiteta (1908–1990) [Milestones of the history of department of human anatomy of the Saratov state medical university (1908–1990)]*. *Makromikromorfologiya [Macro-micromorphology]*. Saratov: Izdatelstvo SGMU. 1999; 4: 12–33. (in Russian)
17. Sorokina T.S. *Istoriya meditsiny [History of Medicine]*. Moscow: Akademiya, 2008. 560 p. (in Russian)
18. Sapin M.R. *250 let kafedre anatomii cheloveka Pervogo Moskovskogo meditsinskogo universiteta im. I.M. Sechenova (1764–2014) [250th anniversary of the academic department of human anatomy of I.M. Sechenov First Moscow State Medical University (1764–2014)]* // *History of medicine*. 2014; 1(1): 193–198.
19. Volkov V.A., Kulikova M.V. *Moskovskie professora XVIII – nachala XX vekov. Estestvennye i tekhnicheskie nauki [The Moscow professors of 18th – the beginning of 20th century. Natural and engineering sciences]*. Moscow: Yanus-K; Moskovskie uchebniki i kartolitografiya, 2003. 296 p. (in Russian)
20. Glotov V.A. *Petr Ivanovich Karuzin i organizatsiya Anatomicheskogo instituta v Smolenskom gosudarstvennom universitete imeni Oktyabr'skoy Revolyutsii (K 150-letiyu so dnya rozhdeniya) [Petr Ivanovich Karuzin and the organization of Anatomic institute at the October Revolution Smolensk state university (To the 150th anniversary)]*. Nauchno-prakticheskaya konferentsiya «Smolyane na sluzhbe Otechestvu» [Research and practice conference «Natives of Smolensk in the service of homeland»]. Smolensk, 23 Sept. 2014. (in Russian)
21. Karuzin P.I. *O sistemakh volokon spinnogo mozga, vydelyaemykh na osnovanii istorii ikh razvitiya [About the systems of the spinal cord fibers based on the history of their development]*. Dissertation. Moscow, 1894. (in Russian)
22. Karuzin P.I. *Zapiski po plasticheskoy anatomii chelovecheskogo tela. Dlya figurnogo klassa [Notes on plastic anatomy of the human body. For a figure class]*. Moscow, 1901. (in Russian)
23. Karuzin P.I. *Rukovodstvo po plasticheskoy anatomii [Guide to plastic anatomy]*. Moscow, 1921. (in Russian)
24. Karuzin P.I. *Slovar' atomicheskikh terminov [Dictionary of anatomical terms]*. Moscow–Leningrad, 1928. (in Russian)
25. Karuzin P.I. *Anatomiya [Anatomy]*. *Bol'shaya meditsinskaya entsiklopediya*. Moscow: Sovetskaya entsiklopediya, 1928. Vol. 1. P. 611–622. (in Russian)
26. Karuzin P.I. *Stroenie i razvitie chelovecheskogo tela [Structure and development of the human body]*. 1930. (in Russian)

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