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250th anniversary of the academic department of human anatomy of I.M. Sechenov First Moscow State Medical University (1764–2014)

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The article presents a brief history of one of the oldest academic departments of the I.M. Sechenov First Moscow State Medical University – the department of human anatomy.

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In 1755, due to the efforts of M.V. Lomonosov, the Imperial Moscow University was established. Its faculty of medicine opened in 1758. Six years later, in 1764, one of the oldest departments in the history of Russian medical education was formed – the Department of Human Anatomy.

The Department of Human Anatomy and its staff and managers have made an invaluable contribution to anatomical science – organizing the educational framework of the country's medical schools, creating the Russian anatomical school, and training highly qualified specialists for public health care practice.

The first head of the Department of Anatomy (from 1764 to 1768) was Professor Johann Friedrich Erasmus, who had taught anatomy at the military hospital founded by Peter the Great in 1706.

In 1764, at a Moscow University staff meeting, Erasmus stressed the importance of anatomy studies as part of the education of good doctors. He defined anatomy as a scientific discipline that studies all parts of the human body, including its shape, position and structure.

To study the structure of the human body, Professor Erasmus conducted autopsies in a spe-

cial room designated for this purpose. At his suggestion, the university press published anatomical drawings by Scharschmidt. Erasmus read his anatomy lectures in Latin.

In 1768, due to Erasmus' transition to practical work, Professor Sergei Gerasimov Zybelin became head of the Department of Anatomy. Zybelin gave his anatomy lectures in Russian, and they were accompanied by demonstrations of anatomical specimens. Zybelin introduced many anatomical terms that are still used today. He paid great attention to the "anatomical theater" (museum), which was regularly updated with new specimens, as well as to preventive medicine. In 1774, Zybelin was elected a member of the Russian Academy of Sciences.

After Zybelin's transition to practical work at the university hospital in 1777 Professor Franz Franzevich Keresturi was appointed head of the department. A student of Zybelin, Keresturi devoted particular attention to the practical side of teaching anatomy. In practical classes the students were shown the internal organs of humans and animals and anatomical specimens were added to the department's anatomical museum. Specimens were also shown during lectures.

Moscow University moved to a new, large building on Mokhovaya Street in 1793. The anatomy department was allocated special rooms for

practical classes and a large hall for the anatomical museum. In the museum, wet specimens were stored in glass jars, while bones and models were laid out on tables.

In 1804, Keresturi became an attending physician, and the Department of Anatomy was headed by a graduate of Moscow University, Professor Ivan Fyodorovich Vensovich. Vensovich graduated from three departments at the university: medical, philosophical and legal. He lectured on human anatomy, physiology and forensic medicine. He was also the dean of the medical faculty and secretary of the Moscow Medical and Physical Society, in addition to being editor of Russia's first medical journal, *Proceedings of the Society of the Medical and Physical Sciences at Moscow University*. In 1808, Vensovich published the country's first textbook on forensic medicine. He left the Department of Anatomy in 1811.

From 1811 to 1813, the Department of Anatomy (as well as physiology and forensic medicine) was headed by Professor Ilya Egorovich Gruzinov. He was the first in the department to carry out experiments on internal organs in order to study their structure and he also took care of the preparation of specimens for the anatomical museum.

After the death of Gruzinov in 1813, the department was headed by Professor Efreim Osipovich Mukhin, who believed that human anatomy, as the most important medical discipline, should be taught in Russia only in Russian. Each student must have a textbook and the necessary tools to study anatomy on cadavers and separate specimens.

After the Patriotic War of 1812 and the fire in Moscow, the anatomical museum and the Department of Anatomy classrooms were quickly restored thanks to the efforts of Mukhin. Teachers from the department produced over 500 anatomical specimens. Mukhin was first to propose the method of freezing corpses to study the topography of organs and their configuration, which was later further developed by N.I. Pirogov. In 1815, Mukhin published the textbook *Anatomy Course for Students of Medical and Surgical Science*. In his books and textbooks Mukhin stressed the importance of anatomy in medical practice. He wrote:

"A doctor who is not an anatomist [not knowing anatomy – M. S.] is not only not useful, but also harmful." Mukhin did much to improve anatomical terminology and develop the anatomical and physiological field of medicine and called attention to the critical role of the brain in healthy and sick people. He was one of the founders of the Moscow University library for students. In 1818, Mukhin began teaching physiology and forensic medicine at the university.

After Mukhin, the Department of Human Anatomy was headed in 1818 by Christian Ivanovich (Justus Christian) Loder. On his initiative, in 1820 a special building for the Department of Anatomy ("Loderovsky Theater") was built on Mokhovaya Street, with training rooms, a large hall for the anatomical museum, and utility rooms. On the walls of classrooms was the inscription, "Here the dead teach the living." Loder donated to the department his large collection of anatomical specimens and also organized the production of new ones. He gave his lectures in Latin and gave demonstrations using specimens. In 1832, Loder published the textbook *Elements of Anatomy of the Human Body* and he published more than 20 scientific papers on various issues of practical medicine, mainly surgery.

After Loder's death, in 1832 the Department of Anatomy was headed by his student, Professor Pyotr Petrovich Einbrodt, a member of the Imperial Society of Naturalists and the Physics-Medical Society. He conducted workshops with students including obligatory demonstration of the organs of cadavers. Einbrodt's research was devoted mainly to the study of the organs of the nervous system and vision.

In 1840, after the illness and death of Einbrodt, Professor Ludwig Stepanovich Sevruck became head of the anatomy department at the University of Moscow. He had earlier taught normal and pathological anatomy at the Vilna Medical-Surgical Academy. In his teachings, Sevruck devoted particular attention to the topography of organs as an essential component in the training of practicing doctors.

In 1849, the Department of Pathological Anatomy was created on the foundations of the Department of Human Anatomy. Part of the ana-

tomical museum's collection of specimens was transferred to it. In 1863, the Department of Histology and Topographic Anatomy was founded and it was also given some anatomical specimens. Sevruk's scientific work was largely experimental. He also served as dean of the medical faculty. He was elected a member of the Warsaw and Swedish (Stockholm) medical societies.

After Sevruk's death from cholera in 1853, his student, Professor Ivan Matveyevich Sokolov, was chosen to head the anatomy department. Previously he had headed the department's museum (the "anatomical office") and taught plastic anatomy at the Moscow School of Painting, Sculpture and Architecture. In the Department of Anatomy, Sokolov paid much attention to the demonstration of specimens during sessions with students, adding new specimens to the museum. Together with the department staff, Sokolov published the "Atlas of Anatomical-Topographical Tables" and "Anatomical-Surgical Tables." Scientific studies were devoted to the study of large blood vessels (the aorta and its branches), as well as experimental studies (including surgery on organs and blood transfusions).

Sokolov initiated the founding of the Moscow School of Anatomists and was the first chairman of the Moscow Society of Russian Doctors.

After Sokolov, Dmitry Nikolayevich Zernov, a young 26-year-old professor, was elected head of the anatomy department in 1869. Like his predecessors, he paid great attention to expanding the museum's collection with new anatomical specimens and using them as educational tools. In 1778, a new large two-story building (the Zernovsky Building) was constructed on Mokhovaya Street. The entire second floor was occupied by the anatomical museum. Anatomical specimens were used extensively in practical classes. At lectures a projector was used for the first time, tables were demonstrated and diagrams were drawn on a blackboard. Scientific studies were devoted to the study of the nervous system (the brain) and blood vessels in humans. Zernov published several books: *Individual Types of Gyri in Humans* (1877), *Guide to the Anatomy of the Human Nervous System* (1883), *Teachings on Blood Vessels and Lymphatic Vessels*, (1892), *Anatomy of the Circula-*

tory System (1895) and others, as well as *Guidelines for Descriptive Human Anatomy* (1890) in two volumes, which had 14 editions. In 1898-1899, Zernov was rector of Moscow University. Due to illness, Zernov left this post as well as his position as head of the Department of Anatomy in 1900.

In the same year, he was succeeded as head of the Department of Anatomy by his student, Professor Pyotr Ivanovich Karuzin, who focused on the educational process at the department, the publication of textbooks (models, molds, and tables), and teacher training. In practical classes, students dissected human "training" cadavers. In 1921, Karuzin published *A Guide to Plastic Anatomy*. His research focused on the study of the nervous system and organs of the musculoskeletal system. In lectures, Karuzin gave demonstrations using anatomical specimens and large-scale drawings. Karuzin lectured in other medical and art institutions in Moscow and other cities around the country. He participated in the organization of anatomy departments in medical schools in Astrakhan, Smolensk and Belarus.

Due to the large number of students at the medical faculty of Moscow University, the Zernovsky Building ceased to satisfy the needs of the Department of Anatomy. On the initiative and insistence of Professor Karuzin, in 1928 a new five-story anatomy department building was constructed on Mokhovaya Street, next to the Zernovsky Building. The Department of Anatomy remains located in this building to this day. Two floors are occupied by classrooms, and there is a 250-seat lecture auditorium, as well as two large halls for the anatomical museum, rooms for teachers, utility rooms and a morgue.

Due to illness Karuzin left the Department of Anatomy in 1930, and a student of V.N. Tonkov (of the Leningrad Military Medical Academy) was elected to head the department – Professor Georgy Fyodorovich Ivanov, who later (in 1933) also became head of the Moscow Dental Institute's Department of Anatomy. Ivanov paid a lot of attention not only to the educational process, but also to organizational and economic issues. An x-ray room, microscope laboratory and darkroom were established in the department. The museum was actively updated with new anatomical speci-

mens, prepared by teachers of the department. In 1949, Ivanov produced and published a two-volume textbook for medical schools, *Fundamentals of Normal Anatomy*. Research in the Department of Anatomy was devoted to the study of blood vessels and their innervation, and the outflow tract of cerebrospinal fluid. Ivanov published a number of books, including *Nerves and Organs of the Cardiovascular System* (1945) and *The Anatomy of the Autonomic Nervous System* (1957). He also played an active role in the social life of scientific institutions. He was chairman of the Moscow Scientific Society of Anatomists, Histologists and Embryologists (AHE), deputy chairman of the All-Union (USSR) Scientific Society of AHE, and the chief editor of the AHE Archives journal, among other roles.

After the death of Ivanov in 1955, for a year the Department of Anatomy was headed by Associate Professor Boris Nikolayevich Uskov, an excellent teacher and educational organizer.

In 1956, Dmitry Arkadyevich Zhdanov was chosen to be the new head of the Department of Human Anatomy of the I.M. Sechenov First Moscow Medical Academy. A correspondent member of the Academy of Medical Sciences of the USSR (member of the Russian Academy of Medical Sciences from 1966), Zhdanov had previously been director and head of the anatomy department of the Leningrad Sanitary-Hygienic Medical Institute. Zhdanov intensified research work, paying special attention to the educational process. Employees of the department studied the functional anatomy of the circulatory and lymphatic system. Work was carried out not only in the department, but also at the Human Embryology Scientific Research Institute of the USSR Academy of Medical Sciences, and the Department of Anatomy of the Patrice Lumumba Peoples' Friendship University, the Oncology Institute and others. Zhdanov paid great attention to researching the history of anatomical science. He published the monograph "Leonardo da Vinci, Anatomist," and a series of articles about the work of G.M. Iosifov, A. Vesalius and other scientists. Under the guidance and advice of Zhdanov, more than 60 doctoral and candidate dissertations were completed. On Zhdanov's initiative, new, original

cabinets were made for the department's museum specimens, as well as marble tables in the department's classrooms. Much attention was paid to the anatomical museum, and new specimens were added. Large drawings of individual organs were produced for lecture courses.

Zhdanov was a major organizer of medical science in our country. He was chairman of the All-Union Scientific Society of AHE, chairman of the Academic Medical Council of the Ministry of Health of the USSR, and deputy chief editor of the *AHE Archives Journal*, among other roles. In 1969, Zhdanov was awarded the title of Honored Scientist of the RSFSR. Zhdanov was elected as an honorary member of several international societies and organizations (Anatomische-Gesellschaft, the German Academy of Naturalists "Leopoldina", and Bulgarian, Yugoslavian and other anatomical societies).

After the Zhdanov's in 1971, Professor Mikhail Romanovich Sapin, a student of Zhdanov, became head of the Department of Anatomy of the I.M. Sechenov First Moscow Medical Academy. A number of measures were taken at the department to implement a more successful study of anatomy. To better monitor students' progress and discipline, some of the most experienced teachers were appointed as curators, and cards recording each student's current progress were introduced. The information service for students and teachers was strengthened. Special stands were introduced displaying regularly updated guidelines for practical exercises, questions for the next lecture, as well as information for the next meeting of the student scientific group. The group gathered once a month with oral and poster presentations by students. Methodical recommendations for teachers provided information about the procedure for each practical session, forms of students' work, and the requirements for their knowledge and skills. To produce more successful student work, each year test questions were published, as well as situational problems (with clinical examples), and a list of practical issues. Textbooks and atlases of human anatomy were published and reprinted, including in English and in the languages of some former Soviet republics, for medical schools and secondary schools as well as for students of medi-

cal, pedagogical and other institutes. A number of educational publications were awarded the Prize of the President of the Russian Federation and the Russian Government Prize.

Staff research in the Department of Human Anatomy was devoted to a detailed study of the lymphatic system, especially the lymph nodes, organs formed by lymphoid tissue, which in 1982 were placed in the group of organs which constitute the immune system [1]. Together with the organs of the immune system, studies were carried out on blood vessels and other human organs based on age and gender. Experiments were also undertaken on animals under different environmental influences. On the basis of detailed ana-

tomical and functional studies, the lymphatic system was incorporated into the immune system and came to be considered its most important part, as it was responsible for removing and destroying old and dead cells and other foreign structures that are dangerous for the body, as well as microorganisms that have entered the body. Department staff published a large volume of scientific works in national and international journals and other publications. Twenty-nine monographs were published on various issues of anatomical science. Under the leadership of Sapin, 64 doctoral and more than defended. Their authors head anatomy departments and teach in medical schools in cities around Russia and the former Soviet Union.

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