THE 10th INTERNATIONAL SYMPOSIUM ON CLINICAL AND APPLIED ANATOMY (ISCAA)

Moscow, September 13–16, 2018

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DEPARTMENT OF OPERATIVE SURGERY AND TOPOGRAPHIC ANATOMY OF SECHENOV FIRST MOSCOW STATE MEDICAL UNIVERSITY (SECHENOV'S UNIVERSITY) CELEBRATES 150 YEARS OF ITS FOUNDATION

Sechenov First Moscow State Medical University

F. I. Inozemtsev

The first department of operative surgery was founded in St. Petersburg Medical and Surgical Academy in 1865 by N. I. Pirogov F. I. Inozemtsev (1802–1869) who was N. I. Pirogov's contemporary became the first director of the faculty surgical clinic of Moscow University.

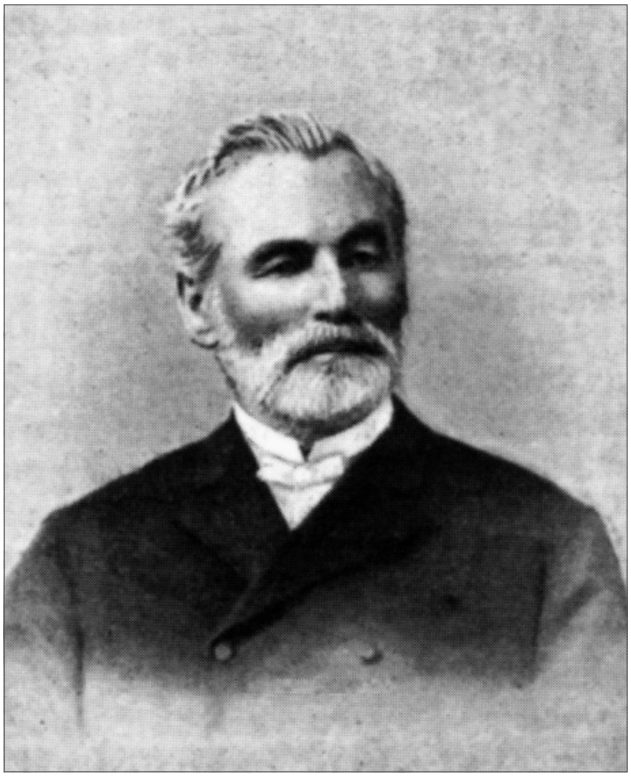
During F. I.Inozemtsev's work at the Department of Practical Surgery, an independent course of the operative surgery with topographical anatomy was singled out. According to the Charter of Russian Universities, adopted in 1863, Moscow University found it necessary to organize a Department of Operative Surgery with (surgical) Topographic Anatomy and Desmurgy. The Department of Operative Surgery and Topographic Anatomy of the Medical Faculty of Moscow University was founded in 1868. Alexander Petrovich Rascvetov (1825–1902) became the first head of this department.

Thanks to his organizational talent, the difficulties of becoming of the new department were overcome. In 1876 he starts the administrative work at the Ministry of Education, but did not lose contact with the university. On the money donated by him, prizes and scholarships were established on his behalf. A. P. Rascvetov took an active part in the opening of the monument to N. I. Pirogov (August, 1897) in front of the faculty clinic of surgery, led at the time by Alexander Alekseevich Bobrov.

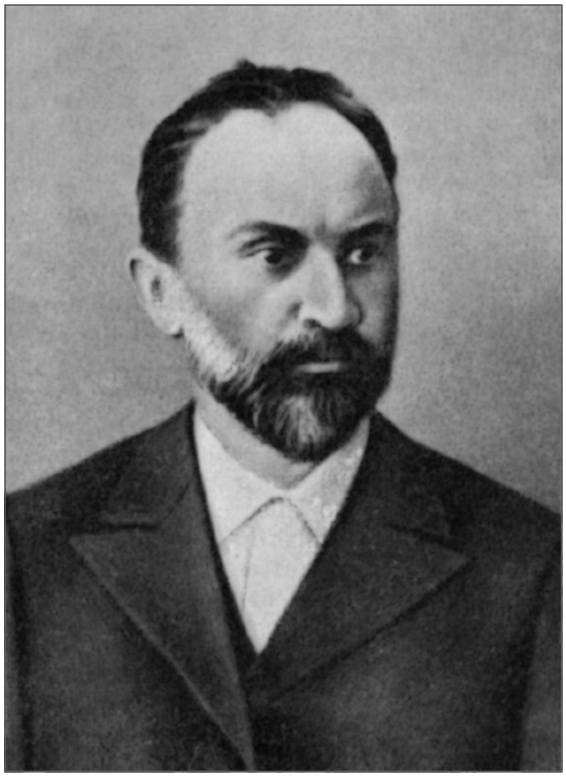
From 1876 the department was headed by a talented surgeon and teacher Nikolai Vladimirovich Vorontsovsky. The «Manual on Operative Surgery», written by him (1876), reflected the level of development of the world and Russian surgery in the 70th years of the XIX century, and contained a description of a number of original operations, in particular, plastic suturing cleavage of the palate.

In 1885 Alexander Alekseevich Bobrov (1850–1904) was elected as the head of the department. He was a topographer and surgeon, an active follower of N. I. Pirogov. A. A. Bobrov made a new program of teaching of operative surgery and topographical anatomy. For the first time, topographical anatomy was presented as a whole educational course. Thanks to his efforts in 1891, the department received rooms in a new building on the Devichi Field together with the departments of pathological anatomy and forensic medicine. At the department was created museum, and equipped training auditoriums.

A. A. Bobrov left a deep mark in national and world surgery as a topographer, an experimenter



A. P. Rascvetov



A. A. Bobrov

and a clinician. He was one of the first who produce bone-plastic trepanation of the skull, experimentally substantiated and introduced into clinical practice a new method of shock's treatment, developed the technique of applying a blind suture in the echinococcectomy of the parenchyma organs, modified and anatomically and physiologically substantiated the method of hernia repair of inguinal hernias.

A. A. Bobrov was author of the Course of Operative Surgery and Topographical Anatomy (1886) and the Manual on Surgical Anatomy (1892). A wonderful surgeon-practitioner, A. A. Bobrov spent much attention to operative surgery and topographical anatomy and persistently propagated the thesis: «The way to the surgical clinic should be through the anatomy theater, and the clinic surgeon who did not pass the anatomical school cannot be at the height of his vocation».

In 1893 A. A. Bobrov became the head of the Faculty clinic of Surgery of the Moscow University, instead of the Yeleninsky Institute of Advanced Training of Physicians, Nikolai Vasilyevich Sklifosovsky, who had moved to St. Petersburg. At the post of the head of the department was his student and follower Peter Ivanovich Dyakonov (1855–1908).

P. I. Dyakonov created a large school of topographical anatomists and surgeons, which included such famous scientists as F. A. Rein, N. K. Lysenkov, N. I. Napalkov, A. P. Gubarev, etc. At this time the museum of the department was replenished with a large number of topographical and anatomical preparations. In many ways this was done thanks to the developed by N. K. Lysenkov's original method of preserving anatomical models in steams of preserving substances, resulting in the preservation of color and consistency of tissues. Various methods of topographic anatomical preparations have been described in the manual «A Brief Guide to Preparing Models for Topographical Anatomy» (1895). These methods still used in the present time. Edited by P. I. Dyakonov, also was written «Course of lectures on topographical anatomy and operative surgery» in 2 volumes. At the same time, an experimental department was created at the department, in which practical classes with students were provided.

A. A. Bobrov and P. I. Dyakonov had a tremendous influence on the development of operative surgery and topographical anatomy, in which they promote clinical direction, associated operative methods with physiological and pathological processes.

P. I. Dyakonov founded the journal «Surgery», in which he had helped by A. P. Chekhov, with whom P. I. Diakonov were friends. Subsequently, to A. P. Chekhov was directed each new issue of the journal.

Since 1902 the department was headed by the student of P. I. Dyakonov — Feodor Alexandrovich Rein, who continued his work on equipping the department. In 1911 he, along with a group of professors,

P. I. Dyakonov

N. N. Burdenko

resigned in protest at the arbitrariness of the tsarist minister of education, L. A. Casso.

From 1911 up to 1915 the department was headed by professor Romual Iosifovich Venglovsky (also a student of P. I. Dyakonov), and from 1915 up to 1917 — by the professor Arseniy Viktorovich Starkov, known for his fundamental works on the topography of the fascia of the pelvis, rectum and other organs and tissues.

After the revolution F. A. Rain returned to the department, which he directed until 1919. He was a great work on the restoration of the department and the organization of the educational process.

After the election of F. A. Rein as a Dean of the II Moscow Medical Institute in 1919, the head of the Department of Operative Surgery and Topographical Anatomy was elected Peter Alexandrovich Herzen (1871–1947), grandson of a democrat and revolutionary, scientist and writer A. I. Herzen. P. A. Herzen revised the program for operative surgery, which was based on the physiological principles of the applied surgical methods of treatment. In 1923 in connection with the election of P. A. Herzen as chief of the Department of General Surgery, topographical department was headed by Professor Nikolai Nilovich Burdenko (1876–1946). At the department, the experimental laboratory was reinstated, in which not only scientific work was carried out, but also studies with students, modern sets of surgical instruments and equipment, X-ray apparatus. In 1927 N. N. Burdenko went to the department of faculty surgery, which he was in charge of until the end of his life.

On the post of head of the department of operative surgery and topographical anatomy, N. N. Burdenko in 1927 was replaced by Pavel Nikolaevich Obrosov (1880–1938), one of the organizers of Soviet public health and the higher medical school, a major surgeon, scientist, teacher and public figure.

Simultaneously, he was the first director of the Research Institute of Ambulance after N. V. Sklifosovsky. In the period of his work at the department, P. N. Obrosov created fundamental works on surgery: «Surgery of the shoulder girdle» (1930), «Surgical diseases of the genitourinary system» (1936). Under his guidance, the textbook «Private Surgery» in 3 volumes was written.

From 1938 up to 1947, the department was headed by one of the apprentice of P. N. Obrosov — Professor Isaak Solomonovich Zhorov (1903–1976), later department was transferred to the chair of faculty surgery of the 2 nd Faculty of Medicine. During these years scientists of the department were engaged in studying of collateral circulation and developing methods of non-inhalational anesthesia.

In 1947 the P. N. Obrosov's and N. N.Burdenko's pupil, professor Vladimir Vasilyevich Kovanov (1909–1994) — participant of the Great Patriotic War, Honored Science Worker of the RSFSR, Academician of the Russian Academy of Medical

Sciences, laureate of the State Prize of the USSR was elected as the head of the department.

With all the diversity of scientific interests, of V. V. Kovanov, there where two main directions of his scientific research were conducted at the department. 1. Surgical anatomy of the arteries and experimental development of cardiovascular surgery; and 2. The study of the «soft skeleton» of the body — fascies and adipose spaces. The experience of military surgery in fighting with hemorrhages during wounds of magistral vessels, accumulated during the Great Patriotic War, formed the basis for anatomical and experimental studies of collateral circulation in arterial ligation (T. I. Anikina, M. P. Vilyansky and others).

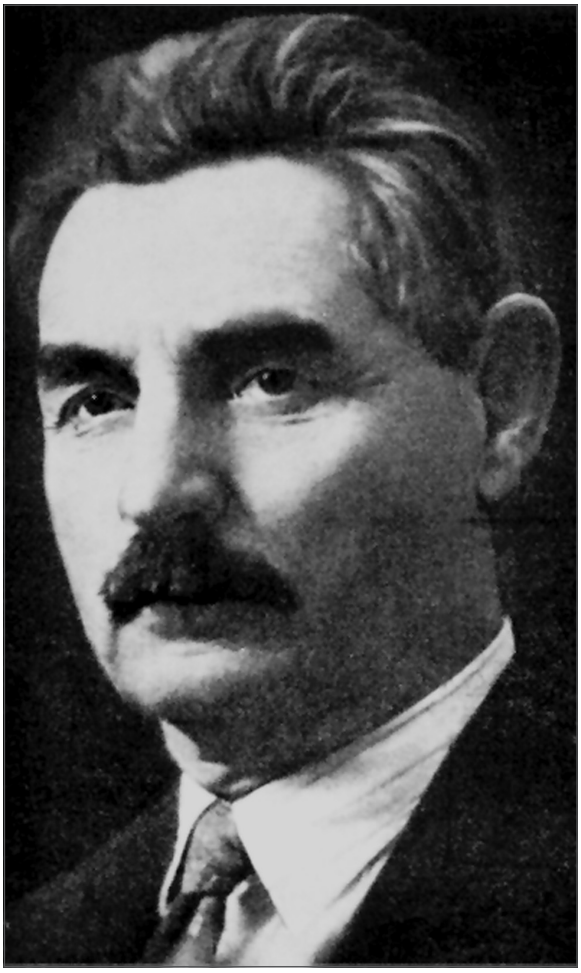
Simultaneously, the surgical anatomy of the arteries is studied in detail (A. A. Travin, T. B. Boguslavskaya, P. A. Romanov, and others). The results of the investigations are summarized in the monograph by V. V. Kovanov and T. I. Anikina «Surgical anatomy of human arteries» (1974).

In parallel with these studies, there was a topographical-anatomical and experimental substantiation of operations on the heart and vessels. M. I. Perelman and N. B. Dobrova described the original access to the arterial duct (1949); by V. P. Demikhov in the experiment was studied various models of heart transplant (1950–1953). G. M. Solov'ev had (1955) developed an original modification of the cuff suture; V. I. Shumakov (1959) in the experiment — the technique of surgical correction of mitral valve insufficiency.

At the department there was an experimental study of the technique of imposing a mechanical suture on vessels (N. P. Petrova). And in the future, for many years under the leadership of V. V. Kovanov was conducted experimental studies on the development of a suture of small-caliber vessels, techniques shunting of arteries, the application of various materials for the plastic of vessels (B. A. Konstantinov, I. A. Sychiyenkov, A. Z. Troshin, A. V. Nikolaev).

Research on the study of autogenous oxygenation in patients with artificial blood circulation and experimental substantiation of operations on the heart were carried out by the scientists of the department — E. G. Falkovsky, L. A. Tushmalova, I. D. Andreev, L. A. Bokeria.

No less important for surgery was the continuation and deepening of the N. I. Pirogov's and I. P. Matyushenkov's teachings of on surgical anatomy of fascia and adipose spaces by V. V. Kovanov and his students and collaborators created an objective idea of the soft skeleton of the human body, and studies of the morphogenesis of its constituent components, and offered practical recommendations for specialists in purulent surgery. The names



P. N. Obrosov

of the fasciologists working under the leadership of V. V. Kovanov are T. I. Anikina, A. P. Sorokin, I. D. Kirpatovsky, N. N. Aryamkina, L. B. Simonova, M. A. Shaferman and others.

In the monograph «Surgical Anatomy of Facies and Adipose Human Spaces» by V. V. Kovanov and T. I. Anikina (1961, 1967), was honored in 1972 with the AMS of the USSR Academy of Sciences prize after V. N. Shevkunenko (numerous drawings and photos of drugs demonstrate the topography of fascia and cell spaces, gaps and cracks, as well as the connection between the fiber of neighboring areas, which is of great importance for clinical practice).

For many years another important direction in applied anatomy was developed at the department: the doctrine of external and internal orientation, projectional anatomy. The result was the creation of a two-volume manual by V. V. Kovanov and A. A. Travin «Surgical anatomy of human extremities» published in 1963–1965, and re-published in 1983. This guide is really unique. Hundreds of beautifully executed color drawings from the original preparations give a complete picture of the topography of all areas of the limbs.

V. V. Kovanov

An excellently published guide marked by many honorable diplomas in our country and abroad is a desk book of anatomists and surgeons, especially those working in the field of traumatology and orthopedics.

Very fruitful was the development of another problem, started under the guidance of V. V. Kovanov — the problems of creating and applying medical materials based on the biopolymer of collagen. Its development was started in 1962 by the staff of the department (A. M. Khilkin, A. F. Dronov, etc.), and later, in 1969, at the department, a laboratory was created for the study and application of collagen in medicine under scientific guidance of V. V.Kovanov's student — professor I. A. Sychenkov.

The result of many years research has become a new direction in plastic surgery — collagenoplasty. Three monographs were written on this problem: «Collagen and its application in medicine» (1971), «Collagenoplasty in medicine» (1976), «Suture and plastic of arteries» (1980). The priority of scientific developments is protected by more than 30 inventors' on inventions and patents. In all this, is the merit of V. V. Kovanov's students — of I. A. Sychenkov, A. V. Nikolaev, R. K. Aboyants, L. P. Istranov, A. B. Shekhter, T. G. Rudenko, L. A. Belov, A. M. Shestakov, B. F. Kantemirov, V. A. Arutyunov, S. V. Pankratov and others.

A noticeable phenomenon in surgery was the work of V. V.Kovanov's students on visceroptosis, developing of new approaches to mediastinal organs and microsurgical techniques, protecting the brain from ischemia (P. A. Romanov, S. S. Dydykin, V. I. Telpukhov, etc.).

At the department, a method of preservation of bone tissue in a weak solution of formaldehyde (V. D. Rozvadovsky) was developed and comprehensively studied. Conserved in this way bone transplants were used in various clinics to perform more than 8 thousand operations.

So the scientific school of V. V. Kovanov developed. Under his leadership, studies were carried out, which ended with the defense of 37 doctoral and 85 candidate dissertations.

To a large extent, this was facilitated by an almost ideal material and technical base: the department was in the same building (Abrikosovsky lane) with a forensic medical morgue, which made it possible to conduct both scientific research and provide anatomical material for the educational process. At the department there was a powerful experimental department with operating rooms, X-ray room and big vivarium. A histotopographic laboratory was created.

School of V. V. Kovanov is not only scientific research, monographs, theses and articles of his students. This is a several «generations» of methodological developments for students and teachers, and written by him together with Yu. M. Bomash «Practical Guide to Topographical Anatomy» (1960, 1966), and «Practical Guide to Operative Surgery for undergraduate students» (1971), and a course of lectures published in 1972. Finally, the result of long-term work of the staff of the department under the leadership of V. V. Kovanov was a textbook on operative surgery and topographical anatomy (1978, 1985, 1995, 2001).

This textbook, which reflects all the achievements of the topographical and anatomical school of V. V. Kovanov, illustrated with beautiful color patterns, has become one of the best textbooks on this subject. It was used by students and pre-presenters not only in Russia, but also in all the former Soviet republics. In 1987 V. V. Kovanov and his co-authors for this textbook were awarded the State Prize.

A huge role in the formation of V. V. Kovanov's scientific school was played by the members of scientific student's circle and postgraduate students.

Through them were the most prominent representatives of modern surgery, who led the largest clinical centers of Russia, Academicians of the Russian Academy of Medical Sciences and the Russian Academy of Sciences — L. A. Bokeria, B. A. Konstantinov, M. I. Perelman, G. M. Soloviev,

V. I. Shumakov, V. S. Teriaev, S. L. Dzemeshkevich. Many of the students of V. V. Kovanov at various times headed or head the corresponding departments in different universities of the country (I. D. Kirpatovsky, A. P. Sorokin, A. G. Konevsky, I. P. Protasevich, T. F. Lavrova, I. A. Sychiikov, P. A. Romanov, E. D. Smirnov, and others).

In general, this period in the life of the department can be called as «golden».

In 1975 due to a sharp increase in the admission of students and a pronounced shortage of study rooms, the department moved to another building on Rossolimo Street, where the study rooms were larger, but there was no direct connection with the forensic morgue, and the experimental department and the vivarium became smaller.

In the coming 90-ies, like all, there were more difficulties. The ban on the use of anatomical material significantly complicated the teaching and reduced the quality of students' preparation. Numerous educational reforms only made it difficult to conduct scientific and pedagogical work.

Nevertheless, the department managed to survive, keep the «skeleton» of a highly qualified team of teachers, cope with an increasing number of students, while doing scientific work at a high level. Thus, a large pioneering study was carried out to develop a method for transplanting a trachea with a vascular pedicle (S. S. Dydykin, 2001), on the basis of which the first transplantation of a trachea with a vascular pedicle was performed (V. D. Parshin, 2006), a patient on the moment of writing of this article is alive and working as a teacher on sports training.

From 1988 up to 2013 Head of the Department of Operative Surgery and Topographical Anatomy of the First Moscow State Medical University after I. M. Sechenov was V. V. Kovanov's student — Professor, Corresponding Member of the Russian Academy of Sciences A. V. Nikolaev. Written in 2007, the textbook «Topographical Anatomy and Operative Surgery» stood three editions (the last — 2015). In 2018 the textbook was translated into English.

From 2013 up to the present time, the Chair of Operative Surgery and Topographical Anatomy of the Sechenov First Moscow State Medical University is headed by Doctor of Medical Sciences, Professor Sergei S. Dydykin. The work on publishing modern educational and methodical literature was intensified; complete sets for medical, pediatric and dental faculties were published. Also in this period, with the assistance of the department, training manuals describing modern surgical technologies were published: «Fundamentals of Microsurgery» in 2009, «Workshop on Endovideosurgery» in 2014, «Operative Surgery» 2015, «Modern Surgical Instruments» 2016, «Topographic Anatomy and Operative Surgery children's age» 2017.

Building at Abrikosovsky lane

The traditions of the scientific student circle have been preserved. The basis of the student team, successfully organizing and performing at the Moscow (All-Russian) Olympiad named after academician M. I. Perelman is made up of student's-circle students of the department. Under leader of Professor S. S. Dydykin student's scientific circle became the leader among the circles of these departments and not only for the generally recognized high level of manual skills training, but also for the modern level of student scientific works. In this period, published with the participation of the department, which is fundamentally important for the community of clinical anatomists, the methodological manual «Organizational bases of the activity of the departments of operative surgery and topographic (clinical) anatomy of medical educational organizations of higher education of the Russian Federation» 2016.

At the department, five candidate dissertations were defended. With the active participation of the department for the first time in 2017, the Journal of the Association of Clinical Anatomy of the Russian Federation «Operative Surgery and Clinical Anatomy (Pirogov Scientific Journal)» was published.

The 150th anniversary of the Department of Operative Surgery and Topographical Anatomy in the Year of the 260th Anniversary Sechenov First Moscow State Medical University (Sechenov's University) meets a full of young creativity and energy.