

Zemstvo District Surgeons and Their Role in the Development of Russian Medicine

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Abstract. In Russia in the late 19th to early 20th centuries, along with the university (clinical) surgery, zemstvo district (rural) surgery began to play a major role in the development of medical science. State reform of medical higher education in the 1840s–1860s was an important prerequisite for this development – it eliminated an acute shortage of Russian scientific and medical staff, thereby ensuring a significant expansion of medical research and the emergence of a new and original form of national health care in the form of the zemstvo district medicine and the zemstvo district surgery. The basic principles of zemstvo district medicine – that it be preventative, free and available, with an in-patient precinct system – were fully formed at the beginning of the 20th century. After the October Revolution (1917), these principles were embraced and successfully developed by Soviet medicine, but on a centralized state basis. Many zemstvo district surgeons established themselves as outstanding practitioners and talented scientists. A large number of professors and doctors of medicine, who played a big role in the development of domestic surgery, began their careers as zemstvo district doctors. Their success in developing new surgical methods for the treatment of various diseases was highly significant and their presentations at medical congresses and publications in the press were very valuable. This is why a study of the defining attributes of zemstvo district surgery in Russia and the achievements of zemstvo district surgeons is essential for a proper understanding of the development of domestic medicine and surgery in the 20th century.

Keywords: surgery in Russia in the late 19th to early 20th centuries, history of medicine, zemstvo district surgery, contribution to the development of medical science

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An important backdrop for the accelerated development of medicine and surgery in the second half of the 19th century in Russia was the government reform on higher medical education from the 1840s to the 1860s. Its main stages were in accordance with Emperor Nicholas I (1840) decree on developments in the management of institutions of higher learning, the liquidation of the system of medical-surgical academies, the release of “supplementary provisions of the medical faculty of Imperial Moscow University” (F.I. Inozemtsev, A.I. Auver, A.I. Paul, 1845), and finally, the enforcement of the “General Statute of Imperial Russian Universities” (1863). The Temporary Medical Committee at Saint Petersburg Medical Surgical Academy and the Council of Imperial Moscow University (IMU) played leading roles in the development of the ideological and organizational and methodical bases of this reform (M.A. Marcus, K.K. Seydlitz, N.E. Pirogov,

I.E. Rauch, I.T. Spassky). The most important result of the reform was the introduction in all Russian universities of a new unified curriculum for training doctors based on multiple stages of clinical training. Within a short period, the state reform of medical education resulted in the elimination of the acute shortage of domestic scientific and medical staff and thereby provided not only a significant expansion of scientific medical research, but also the birth of a new, original form of national healthcare in the form of rural medicine and zemstvo surgery [1–7]. According to the prominent medical historian J.L. Skorokhodov (1926) in addition to recognizing the significance of anatomy, implementing the use of anesthesia and antisepsis, the establishment of rural surgery was a major step in the development of domestic surgery [8]. One of the main reasons for creating a unique system of rural medicine was the fact that there was no organization that could provide qualified medical assistance, and there was an urgent need for continuous provision of medical assistance to rural residents, who constituted an absolute majority of the Russian population [5,

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7, 9-11]. According to the first general census on January 28, 1897, the population of Russia, excluding Finland, was 125, 680, 682, but only 13.4% of the population lived in cities [9].

District self-governance was not introduced in all provinces at the same time. It appeared in 19 provinces in 1865 and in another 9 in 1866. Altogether, by 1875 rural medicine existed in 34 provinces of European Russia. Siberia and the outskirts of Russia did not have rural self-governance. In 1876 a rural district was organized in the Don Cossacks territory, but six years later it was abolished. After 1911 rural institutions appeared in the Vitebsk, Volhynia, Kiev, Mogilev, Podolsk provinces and in 1913 in the Arkhangelsk, Orenburg, and Stavropol provinces [10-12].

Rural medicine and surgery did not immediately take on its final form; on the contrary, it was a long process of development, marked not only by successes, but also by a considerable number of failures. Thus, in the early stages of development, rural doctors of medicine faced a number of difficulties. The main were: the traveling system of medical care; the excessively large size of the medical sectors; the overload of physicians with various responsibilities paired with their activities being constrained under numerous administrative regulations and a limited financial recourse for rural management; lack of organizational experience; shortages of medical personnel; uncomfortable hospitals; and charging patients for treatment [13-15].

In the late 19th and early 20th centuries, when rural doctors began their work, many professors and doctors of medicine played a significant role in the developments of domestic surgery: A.A. Abrazhanov, N.N. Burdenko, V.F. Voino-Yasenetsky, I.E. Gagen-Torn, Y.A. Galpern, V.F. Dagaev, E.H. Ickowitz, A.A. Kadyan, Y.Y. Kramarenko, V.A. Krasintsev, V.S. Levitt, N.I. Napalkov, V.L. Pokotilo, A.L. Polenov, A.G. Rusanov, P.D. Solovov, S.I. Spasokukotsky, P.I. Tikhov, and B.K. Finkelstein [4, 8, 13-15]. During this period in Russia, aside from the already well-established university (clinical) surgery, at the head of which at this time stood Professor N.A. Velyaminov, rural surgery was formed and began to play an increasingly important role; a recognized leader of rural surgery was Professor P.I. Dyakonov, the head of the hospital surgical clinic at IMU [4, 5, 14-16, 20].

The basic principles of rural medicine and surgery (prevention, free and accessible care, and a fixed division system) were fully developed by the early twentieth century. After the October Revolution (1917) these principles were accepted and successfully advanced in Soviet medicine, but on the basis of a centralized state [21, 22, 24]. Therefore, studying the characteristics of rural surgery and the achievements of rural surgeons is particularly important for the correct understanding of the development of domestic surgery in the 20th century.

It was recognized among rural doctors that by the level of surgical care it was possible to evaluate the work of rural hospitals overall. Surgical patients made up about 50% of all patients in rural hospitals, and yet, at first surgical care was provided in district hospitals by general practitioners, who were compensated by an increase in salary. At first, surgery developed only in provincial rural hospitals, with the Kremenchuk, Smolensk, Yaroslavl, Samara, Penza, and Nizhni Novgorod hospitals at the forefront [25]. Decentralization did not take place until the early 1900s. At small district hospitals, secondary doctors began to appear, a need that had been discussed by surgeons at the tribute of the 14th Congress of Rural Physicians of the Moscow Province (1902). A.G. Arkhangelskaya, with two assistants at the Petrovsky district zemstvo Hospital of the Moscow Province, performed more than 700 operations a year [26-28].

Some rural district hospitals came closer to provincial in the level of surgical care due to the efforts of such distinguished surgeons, such as A.G. Brzhowski (Khvalynsk County Hospital of the Simbirsk Province), V.S. Levitt (Ardatovskiy Hospital of the Simbirsk Province), and M.P. Multanovskiy (Kamyshlov Hospital of the Perm Province). They did not lag behind provincial and local hospitals, which were led by V.F. Voino-Yasenetsky (Romanovskaya Hospital of Saratov Province) and P.V. Kuznetsk (Nizhni Tagil Hospital of Perm Province). Exemplary district hospitals with well-established surgical service appeared in the industrial provinces in the 1900s, such as Saksagansk (P.D. Solovov) and Yuzovsk (V.P. Rodin), district hospitals of the Yekaterinoslav Province. This happened because the source of income to the zemstvo administration mainly came from factories,

and as a result, the industrial districts had more advanced medicine than agriculture [14, 28].

The cost of medicine in the early 20th century steadily increased. Thus, in 1903, 59,800,000, in 1906, 77,000,000, and in 1909, 100,000,000 rubles were spent on health care. Out of these sums, 50% amounted to district fees, 24% – city expenses, 17% – donations from private companies and individuals, and 8% – funds from the government [9]. From 1910 to 1913, the cost of rural medicine in 34 rural districts, in which half the population of Russia lived, rose from 48,000,000 to 64,000,000 rubles [28].

Due to the construction of new medical institutions in the late 19th and early 20th century in Russia, by 1910 there were 7,503 hospitals of the civil department with a total of 193,139 beds, out of which 35% were in hospitals of provincial and district zemstvos, another 13% in rural hospitals of the Department of Land Economy of the Order and Council of Public Charity [9]. In the first 25 years of the establishment of rural districts, more than 700 rural district hospitals were created [27, 28]. The number of medical sites in 34 rural provinces increased from 530 in 1870 to 2,686 by 1910 (an increase of five times) the number of beds in district hospitals increased from 15,000 to 48,000 (an increase of three times); and the number of doctors serving in provincial rural districts rose from 610 to 3,100 (an increase of five times). The number of physicians in the Moscow province increased by five times from 1877 to 1905, and there was no “turnover” of personnel. By 1914, two to three doctors worked in every hospital in the Moscow province, almost all hospitals had a well-equipped operating room, and the number of surgical procedures performed in a number of hospitals attained large numbers [24, 27, 28].

During this period famous rural surgeons became known not only as outstanding practitioners, but also as talented scientists. Their successes in developing new surgical techniques for the treatment of various diseases were highly significant, and their presentations at medical congresses and publication in the press forced leaders of the capital's hospitals to listen to them [5, 25]. For example, in the late 1900s S.I. Spasakukotsky (Smolensk) was the most experienced in the country in stomach surgery. B.K. Finkelstein (Baku) successfully developed surgery of the bile duct and spleen. A.T. Bogaevsky

(Kremenchug), who had vast experience in all areas of surgery, was one of the pioneers of operative urology in Russia and published more than 80 scientific papers. In 1888 T. A. Bogaevsky was the first in zemstvo practice to achieve a gastric resection for cancer, for which he was awarded the Degree of Doctor of Medicine, *honoris causa*, from the University of Kiev. Other rural surgeons enjoyed wide and deserved popularity, such as A.G. Zaloga, B.C. Kozlovsky, M.M. Kryukov, P.V. Kuznetsky, I.I. Orlov, and I.P. Sklyadrov, as well as women surgeons, such as A.G. Arkhangelskaya and V.I. Gedroits [5, 25].

As rural doctors began their activities, many professors and doctors of medicine played a significant role in the development of surgery in the 20th century: A.A. Abrazhanov, N.N. Burdenko, V.F. Voino-Yasenetsky, I.E. Gagen-Torn, Y.O. Galpern, V.F. Dagaev, E.H. Ickowitz, Y.Y. Kramarenko, V.A. Krasintsev, V.S. Levitt, N.I. Napalkov, A.L. Polenov, A.G. Rusanov, S.I. Spasokukotsky, B.K. Finkelstein, P.D. Solovov, and P.I. Tikhov. Some of them became provincial surgeons immediately after graduation and then proceeded on to scientific endeavors, gathering clinical material in their hospitals for future dissertations, such as A.A. Abrazhanov, N.F. Bogoyavlency, V.F. Voino-Yasenetsky, Y.O. Galpern, A.P. Krimov, and V.S. Levitt. Others devoted themselves to rural surgery, having graduated from a university and completed training in the leading Moscow clinics, such as V.A. Krasintsev, S.I. Spasokukotsky, and Y.O. Galpern. Others were set to work in rural districts as certified doctors of medicine, such as V.I. Gedroits, V.F. Dagaev, A.L. Polenov, T.P. Krasnobaev [10, 17-19, 25-29].

In universities of the late 19th and early 20th century, many graduates from medical departments shared the ideas of populism and, in accordance with their beliefs, left distant counties to become rural doctors. But the choice of career largely depended on the personal wealth of the budding doctor. Low-income, government-funded students did not have the opportunities to train after graduation in the leading Moscow clinics for one to two years as unpaid doctor-externs, not to mention the opportunity of visiting foreign universities. At the same time, the provincial and district rural council hired physicians, attracting them by various benefits and higher salary than the urban doctors had.

The average annual pay for a rural doctor in the 1880s was 1,315 rubles [14], which at the time was a considerable amount.

Some doctors in rural service were forced to endure other serious circumstances. For example, P.I. Dyakonov, as a fourth-year student at Saint-Petersburg Medical and Surgical Academy, joined a populist group and was arrested twice: once in the fall of 1874 and again at the end of 1875. In the spring of 1876 he was exiled to Veliky Ustyug. In 1877, at the beginning of the Russo-Turkish War, Dyakonov was drafted into the army as an ordinary soldier. He received an award for bravery in combat and was permitted to perform the duties of a medical assistant. In 1879 Dyakonov was able to graduate from the Medical-surgical Academy, but was forbidden to live in the capitals. After returning to his native Oryol Province, he applied to the position of zemstvo doctor in the Bolkhov district. In June, 1880, Dyakonov moved to the Oryol province district hospital, where he worked until 1883. In an effort to conduct research, he obtained permission to live in Moscow under police supervision, and applied to the post of a sanitary inspector, and began to work at the eye hospital. In 1887 Professor A.A. Bobrov invited him to the post of assistant dissector at the Institute of Operative Surgery and Topographic Anatomy at IMU. It was then when Dyakonov's brilliant academic career started. In 1888 he defended his doctoral dissertation and received the title of associate professor. In 1890 he was appointed dissector in the Department of Operative Surgery and Topographic Anatomy at IMU and elected its head, therefore becoming the first professor of surgery out of rural doctors. In 1901 Dyakonov led the hospital surgical clinic at IMU. The focus of his scientific work was extensive and versatile including issues of asepsis and antisepsis, anesthesia, surgery on the esophagus, bile ducts, hernia, pediatric, plastic, and vascular surgery, urology, neurosurgery, and oncology. Led by Dyakonov, the door at the hospital surgical clinic at IMU was always open to rural doctors who wanted to expand their knowledge [20].

Like Dyakonov, A. A. Abrazhanov, a resident at the Mariinsky Hospital in Saint Petersburg, was exiled in 1893 to the Ural Mountains for revolutionary propaganda. He worked as a district surgeon in Yuryuzan and Zlatoust. In 1901 he defended his dissertation on transplantation and

bone sealing at the Military Medical Academy (MMA). In 1903 he continued to work as a district surgeon in Poltava and in 1913 – in Kharkov [29].

A number of other rural doctors also became doctors of medicine, paraphrasing the experience gained during years of practice in their dissertations. In 1889 V.A. Krasintsev defended his dissertation at IMU, "On the question of radical surgery for an inguinal hernia", which was based on material from the Kaluga Provincial Hospital. In 1910 Y.O. Galpern, under the leadership of S.I. Spasokukotsky, defended his dissertation at MMA on the surgical treatment of stomach ulcers on material collected over years at the Smolensk Provincial Hospital. In 1910 Y.O. Galpern became the head of the surgical department of the Tver District Hospital. In 1906 V.S. Levitt, after graduating from the Königsberg University, was invited to work as a surgeon in the Ardatovsky District Hospital of Simbirsk Province. In 1914, having defended his dissertation, "On the Question of Stomach Cancer and Palliative Surgery", Levitt continued practical work, running the surgical department of the Simbirsk Provincial District Hospital. Starting from 1905, V.F. Voyno-Yasenetsky worked in the district hospital of Simbirsk and Kursk Provinces. In 1908 he passed his external studies at the clinic of Professor P.I. Dyakonov, and in 1909 began to work as a local surgeon, first in Saratov, then in the Province of Vladimir. In 1916 Voyno-Yasenetsky defended his dissertation at IMU, as the chief physician of the hospital in Pereslavl-Zalessky [30].

These and many other rural surgeons, such as N.N. Bolyarsky, I.N. Napalkov, H.A. Gerken, A.A. Kadyan, P.D. Solovov, and Y.Y. Kramarenko, became university professors and deployed their scientific work in the Soviet period.

Progressive figures in domestic medical science always had great respect for rural doctors. Doctors such as N.V. Sklifosovsky, V.A. Ratimov, S.P. Fyodorov, A.A. Bobrov, P.I. Dyakonov, G.I. Turner, and R.R. Breden, played significant roles in publishing specific guidelines on surgery and organizing training courses for rural doctors [5, 25]. The Helen Institute, the Military Academy in Saint-Petersburg, and many university clinics played a significant role in educating rural surgeons. Some provincial hospitals were also engaged in the training of district doctors.

For example, from 1899 to 1909, the surgical department of the Smolensk Provincial Hospital, headed by S.I. Spasakukotsky, trained around 50 surgeons. Among them were V.S. Levitt, Y.A. Galpern, and A.P. Krimov, all of whom subsequently became notable professors [25, 31].

The period between 1860s and 1880s was characterized by the greatest developments in medical society. By the end of the first half of the nineteenth century, the number of professional associations hardly reached ten, by 1896 in Russia there were around 120 of them which united doctors of different specialties. In 1883, the Association of Russian Physicians was founded in memory of N.I. Pirogov, which became the center of the rural medical community [25, 32].

In the 1880s rural doctors began to play a large role in promoting the achievements of Russian medicine through scientific periodicals, especially the magazines *Doctor* (1880-1901), *Russian Doctor* (1902-1917), *Medical Review* (1874-1917), and *Practical Medicine* (1885-1914). A special journal called *District Medicine* was published in 1885 from the first time, and in 1888 the journal *District Doctor* was started. From 1890 to 1899 the journal *District Medical Compendium*, which was published by the Association of Russian Physicians of N.I. Pirogov and edited by D.N. Bankova, released seven volumes [5, 25].

During this period, specialized journals were created to resolve how to further develop domestic surgery. N.A. Velyaminov, N.V. Sklifosovsky, P.I. Dyakonov, I.P. Aleksinsky, and A.V. Martinov founded several journals: *Annals of the Surgical Society in Moscow* (1878-1891), *Surgical Journal, Russian Surgical Archive*, and *The Surgical Archive of Velyaminov* (1885-1917), *The Journal of the Society of Russian Surgeons in Memory of N.I. Pirogov* (1895-1908), *Annals of Surgery* (1891-1895), *Annals of Russian Surgery* (1896-1901), *Surgery* (1897-1914), *Journal of Surgery* (1900-1902), and *Russian Surgical Review* (1903-1906). The journals *Annals of Surgery* and *Surgery*, edited by P.I. Dyakonov, were published by district surgeons, such as P.V. Kuznetsk, A.A. Abrazhanov, A.T. Bogaevsky, B.S. Kozlovsky, and A.G. Brzhozovsky, and many others. In the first ten years of the journal *Surgery* 184 out of 602 works in the section "Independent Articles" were authored by doctors of zemstvo hospitals [17, 25].

Starting in 1871, 383 provincial congresses of rural doctors was convened. Beginning in 1885,

30 national Pirogov congresses, and from 1900, 18 congresses of Russian surgeons followed. By 1900, issues pertaining to surgery were considered in the surgical sections of the Pirogov congresses [32]. At the first congress of Russian surgeons (1900), the chairman of the organizing committee, Professor P.I. Dyakonov, analyzed the characteristics of district surgery, indicating that district surgeons and their experience greatly enriched Russian medicine and had earned its fame. District doctors took active roles in the work of surgical congresses, making up about 25% of delegates. Proof of the great authority of rural surgery was that such prominent members as A.T. Bogaevsky (Kremenchug), B.S. Kozlovsky (Smela), I.I. Orlov (Solnechnogorsk), P.V. Kuznetsky (Nizhni Tagil), O.A. Yutsevich (Yelisavetgrad), I.E. Gagen-Torn (Tambov), S.I. Spasakukotsky (Smolensk), A.G. Zaloga (Serpukhov), A.A. Abrazhanov (Poltava), V.A. Krasintsev (Kaluga), and A.G. Rusanov (Voronezh) were elected fellow (alternate) presidents of congress [33].

In the surgical congresses district doctors gave 56 presentations and spoke in debate 137 times on 76 issues [17]. At the first congress (1900) S.I. Spasokukotsky gave material on 206 hernia repairs, and I.Y. Simanovich (Yelisavetgrad) proposed to apply removable sutures to close wounds on the abdominal wall. At the second congress (1901) B.S. Kozlovsky (Smela, Kiev Province) had a presentation on gastroenterostomy, V.A. Krasintsev (Kaluga) reported a subtotal of gastrectomy for cancer, A.T. Bogaevsky (Kremenchug) gave material on 46 kidney operations, and A.G. Zaloga (Serpukhov) reported on the results of a Talma operation on ascites. At the third congress (1902), B.S. Kozlovsky made a report on incorrectly adjusted hernias. At the fourth congress (1903), V.A. Krasintsev reported on the treatment of intussusception. At the fifth congress (1904), A.G. Zaloga spoke on the benefits of hedonal-chloroform anesthesia based on 46 observations. At the sixth congress (1906), I.E. Gagen-Torn (Tambov) advocated for the resection of the nonviable intestine in a strangulated hernia; O.A. Yootsevich (Yelisavetgrad) raised the question of surgical treatment of bleeding and perforated gastric ulcers. At the seventh congress (1907), S.I. Spasakukotsky reported on the indications for resection of the stomach and gastroenterostomy based on 279 operations

(29 resections of the stomach). At the eighth congress (1908), N.F. Bogoyavlensky (Vladimir) made a report about methods of radical surgery with postoperative and umbilical hernias. At the ninth congress (1909), N.N. Bolyarsky (Vinitsa) presented a report on treating injuries to the liver with a tamponade together with a plastic gasket (in 1910 he defended his dissertation on the subject), and V.A. Krasintsev presented on the transplantation of the ureters into the intestine. At the tenth congress (1910), Y.Y. Kramarenko (Chigirin) spoken on the ligation of the vertebral artery, and A.G. Brzhozovsky (Simbirsk) presented on the crushing of bladder stones. At the eleventh congress (1911), N.F. Bogoyavlensky reported on the new transcranial access to the pituitary gland, A.A. Abrazhanov reported on the results of bone grafting in an experiment, and I.E. Gagen-Torn published his technique of mesosigmoidic plication of a volvulus of the sigmoid colon. At the twelfth congress (1912), Y.A. Galpern (Tver) reported that he had developed a method of plasty

of the esophagus antiperistaltic tube, a cut of the greater curvature of the stomach, V.F. Voino-Yasenetsky (Pereslavl-Zalessky) presented new methods of regional anesthesia of the extremities, and Y.Y. Kramarenko gave a report on cholecystojejunostomy for obstruction of the bile ducts. At the thirteenth congress (1913), B.K. Finkelstein presented a report on 64 cases of splenectomy, performed on different occasions. At the fourteenth congress (1916), I.E. Gagen-Torn gave a presentation on the diagnosis and treatment of traumatic diaphragmatic hernia [17, 33].

Thus, one of the distinguishing features of medicine in Russia in the late 19th and early 20th century was the coexistence and fruitful interaction of two organizational and scientific-practical directions: university and zemstvo surgery. Zemstvo surgeons not only made an enormous contribution to the establishment and development of practical surgical care to the rural population of Russia, but also had a great influence on Russian medical science overall.

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