

Historical paper

Sergei S. Yudin: An untold story

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Les morts vivent tant qu'il y a des vivants pour penser à eux (The dead live on as long as there are people living to think of them)

Emile Henriot (1889-1961)

Le livre de mon père (The Book of My Father), 1938

THE YEAR 2004 marked 50 years since the death of one of the most prominent Russian surgeons, Sergei S. Yudin (1891-1954). "Yudin has been the outstanding Soviet surgeon of the past quarter of a century and to many probably the only name known in Russian surgery," wrote Dr Gordon-Taylor in 1954.¹ Yudin lived a very productive, yet tragic, life. He witnessed great historical events and participated in two world wars. Yudin achieved worldwide recognition during his lifetime. Yet, at the same time he, along with many other compatriots of the Stalin era, was jailed and banished.

Sergei Yudin was born on September 27, 1891, in Moscow into the family of a factory owner. He had three brothers and three sisters. Upon graduation from one of the best high schools in Moscow, Yudin spoke fluent German and French and played several musical instruments. As an adult he also studied English. In 1911, Yudin became a medical student at the University of Moscow. In autumn 1914, after the beginning of the First World War, Yudin was called into the army as a junior doctor (Fig 1). During the war, Yudin acquired vast surgical experience and was wounded three times. The last

injury was severe and caused temporary leg paralysis. He was awarded the St. George Cross for bravery. In 1915 Yudin published his first article; it was on cholera prevention.

In 1919, Yudin passed his doctor's exams and started work as a surgeon in the "Sakharino" sanatorium for patients with tuberculosis near Moscow. In 1922, Yudin was appointed as a surgeon to the factory hospital in the provincial town of Serpukhov. There his talent as a surgeon and organizer was displayed for the first time. In the same year Yudin visited Germany, where he met the leading German surgeons August Bier und Ferdinand Sauerbruch. In 1924 at the 16th Congress of Russian Surgeons, Yudin reported 34 cases of thoracoplasty in patients with chronic pleural empyema with a mortality rate of 6%, which was very low for that time.

In 1927, Yudin performed 530 operations, including complex gastric resections, in his small unit of 30 surgical beds. During his 3 years in Serpukhov, Yudin published 33 articles, which made his name well-known in the Russian surgical community. He also performed successful extirpation of the hip with joint in a female patient with sarcoma. One year later, the patient had a successful pregnancy.²

In 1925, Yudin published the book *Spinal Anesthesia*, which he dedicated to August Bier.³ In 1926 this book was awarded the F.A. Rein prize by the All-Soviet Surgical Society for the best surgical publication in 1924-1925. In the same year, Yudin was awarded a trip to the United States for 6 months. This trip took place at a time when contacts with colleagues from outside the Soviet Union was difficult and receiving medical journals from abroad was almost impossible. Irregularity in the publication of Russian medical journals meant that doctors were often unaware of what was happening in the medical field, even within their own country.⁴

Accepted for publication March 20, 2005.

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Surgery 2006;139:115-22.

0039-6060/\$ - see front matter

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doi:10.1016/j.surg.2005.03.025



Fig 1. Sergei Yudin served as a military doctor during World War I.

TRIP TO THE UNITED STATES

Yudin, at 35 years of age (Fig 2), had the opportunity to meet some of the outstanding American surgeons of that time, including William and Charles Mayo, Harvey Cushing, William Osler, Howard A. Kelly, John M. T. Finney, W. Wayne Babcock, and George W. Crile. These meetings and contacts without doubt influenced his surgical development. Yudin's letters from America were published regularly in 1927-1928 in the leading Soviet surgical journal *New Surgical Archives*⁵ and were received with great interest, not only by surgeons but by the whole medical community. His letters were written in excellent style, which was typical of all his publications, and probably represented the most detailed description of American surgery at that time. In the letters, Yudin described in detail the organization and equipment of the hospitals and outpatient departments he visited, as well as new surgical methods and techniques. In addition to his medical impressions, he also describes details of everyday American life. The United States fascinated him: Almost everything was new to him and so different from what he saw in the Soviet Union. He wrote: "The most remarkable

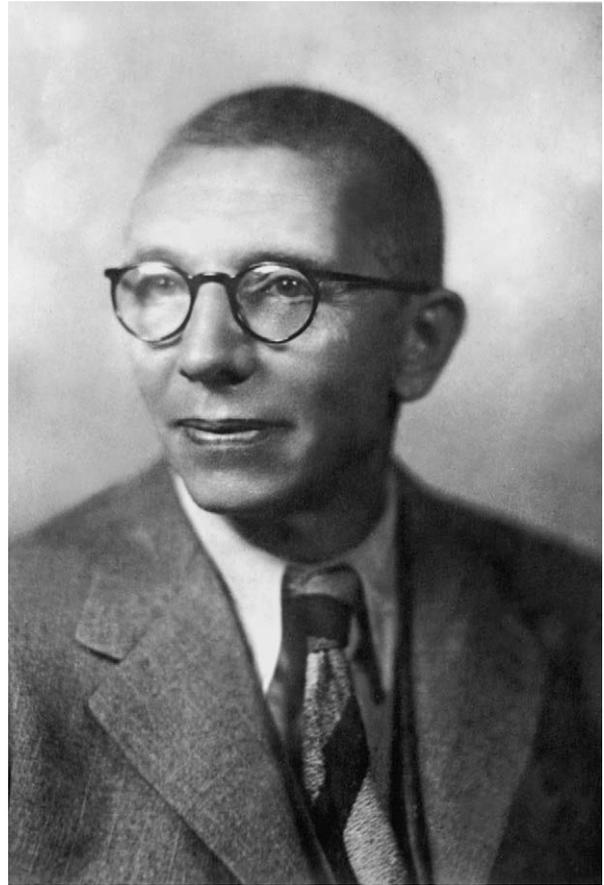


Fig 2. Sergei Yudin in 1930. Courtesy of Professor Elena Potiomkina, Moscow, Russia.

of what I saw in American hospitals was general organisation and the scope and speed of work unheard of in Europe."⁵

His longest visit in the United States (2 months) was to the Mayo Clinic, which impressed him immensely. He was particularly impressed by the effectiveness of blood transfusion during major abdominal surgery and shock. Yudin described in detail the history of the Mayo Clinic, its organization, systemic approach to diagnosis, scientific work, and library.⁵ After returning home, Yudin maintained contact with the Mayo brothers and regularly received publications from their clinic (Fig 3). Later Yudin wrote several articles about the Mayo brothers and dedicated very warm obituaries to them upon their deaths in 1939.⁶

Beside Rochester, Yudin traveled to 15 other American cities and visited many hospitals, among them Cleveland Clinic, Henry Ford Hospital, Johns Hopkins Hospital, University of Ann Arbor Hospital, and Peter Bent Brigham Hospital. Yudin was most impressed by Dr George W. Crile, the leading specialist for surgical treatment of thyroid gland diseases at the Cleveland Clinic, and was fascinated



To Professor Dr. Charles Mayo
with regards and best wishes
from Serge Yudin Moscow U.S.S.R.

Fig 3. Portrait of S. Yudin by M. V. Nesterov (1935) with dedication to Charles Mayo. Courtesy of Mayo Clinic Historical Suite, Mayo Clinic Foundation, Rochester, Minnesota.

by the organization of the surgical process, which permitted Dr Crile to perform up to 30 thyroidec-tomies every day.

Naturally, Yudin dreamed of implementing some of what he saw in America back home. Yudin finished his letters from America as follows: "I did not see many gloomy aspects of life in America and did not pay attention to many of its contradictions, which one can find there in abundance, if one wishes to. I went to America to see and learn good things and it is those good things that I saw more than enough."⁵

In Yudin's letters, we find his doubts about the realization of the American experience in Russia, where it was unrealistic to receive technical and financial support similar to that in the United States. After meeting with Dr Crile, Yudin wrote: "It was difficult for Crile to understand that, due to poverty in Russia, we could not have strong diathermy units in our hospitals and that the opportunity for blood transfusion is very limited. We operate for free, but nobody would give blood for free!"⁵ Yudin bought medical equipment in the United States, but ironically most of it was confiscated when he crossed the Soviet border on his way home.⁵

SKLIFOSOVSKY INSTITUTE

After returning from the United States, Yudin continued to work in Serpukhov. His name became known as that of a brilliant surgeon, and in 1928 Yudin was invited to become chairman of the



Fig 4. Sergei Yudin performing spinal anesthesia. Portrait by M. V. Nesterov (1933). State Russian Museum, St. Petersburg, Russia.

surgical department at the institute of emergency aid named after N.V. Sklifosovsky in Moscow. At the Sklifosovsky Institute, Yudin endeavored to implement what he had seen in America. Yudin was a universal surgeon; his pre-Second World War publications were not only on abdominal surgery but also on various aspects of gynecology, anesthesiology, blood transfusion, cardiac injuries, and pulmonary surgery.⁷⁻¹¹

In the Mayo Clinic, abdominal operations were performed mostly under general anesthesia, which permitted wide revision of the abdominal cavity. In contrast, local anesthesia was used in the Soviet Union. The circumstances for the introduction of general anesthesia in the Soviet Union at that time were very limited: Apparatuses for the inhalation of anesthetics did not exist, and there was no production of ethylene or nitrous oxide.⁵ One solution to this problem was spinal anesthesia, which was used by Yudin with great success (Fig 4). After returning to the Soviet Union, Yudin outlined the necessity of further education of the anesthesiologist and the wide introduction of general anesthesia into surgical practice. Only after 1938 did apparatus for general anesthesia appear in the Sklifosovsky Institute.¹² His monograph *The Images of the Past in the Development of Surgical*

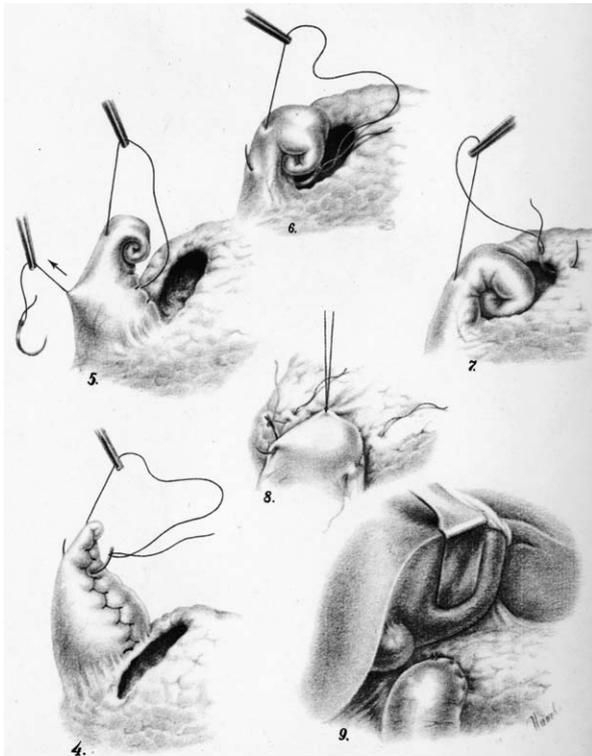


Рис. 29. Операция „улитки“. Последовательные этапы образования „улитки“ из зашитой культи двенадцатиперстной кишки и тампонада ею язвенного кратера.

Fig 5. Yudin's "en escargot" technique for control of acute bleeding and perforation of duodenal ulcer. From S. S. Yudin. *Studies of gastric surgery*. Moscow: State Publishing; 1955. Reproduced with permission of the publisher.

Anesthesia,¹² which was published in 1960, describes the history of narcosis.

Yudin organized new operating rooms with the best equipment of that time, introduced 24-hour surgical coverage, had the institute equipped with a modern telephone network, and developed a system for emergency admission from all over Moscow. The Institute received all emergency cases in Moscow, totaling 60,000 a year.¹³ During Yudin's period, the Sklifosovsky Institute became a major teaching institution for Soviet surgeons and obtained international recognition.¹⁴

Yudin's contribution to surgery cannot be overestimated. He was an enthusiastic advocate of gastric resection in cases of acute perforation, long before this approach was popularized by DeBakey.¹⁵ In 1929, Yudin's presentation at the Société de Chirurgie de Paris on primary gastric resection in patients with perforated ulcers gained great interest among European surgeons. This report was translated shortly afterwards and published in the leading German surgical journal.¹⁶ Yudin's method of surgical treatment of acute gastric hemorrhage "en escargot" (Fig 5)¹⁷ was popularized in Great Britain

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LA TRANSFUSION DU SANG DE CADAVRE A L'HOMME

PRÉFACE DU PROFESSEUR A. GOSSET



MASSON ET C^{ie}, ÉDITEURS
LIBRAIRES DE L'ACADÉMIE DE MÉDECINE
120, BOULEVARD SAINT-GERMAIN, 120, PARIS - VI^e
1933

Fig 6. Title page of Yudin's book "La transfusion du sang de cadavre à l'homme," published in 1933 in Paris by Masson et Cie. From author's collection (V. A-M).

by Dr Gordon-Taylor¹⁸ who wrote: "His technique of pushing the duodenal stump closed en escargot into the ulcer crater in the pancreas is a useful surgical manoeuvre for the control of haemorrhage from the ulcer base."¹⁹

Yudin contributed greatly to reconstructive surgery of the esophagus. He developed the surgical technique and instruments for antethoracic esophagoplasty with preservation of adequate blood supply to the small intestine.¹⁵ In 1944, he reported 80 such operations with only two deaths,²⁰ which represented the world's greatest single experience of the operation.¹⁵ This accomplishment, in the words of Dr Gordon-Taylor, was "a truly remarkable record"²¹ and was received with great interest in the surgical world. In 1947, Yudin's experience with esophageal reconstruction increased to 150 operations.¹

Yudin also pioneered the transfusion of cadaveric blood and performed this successfully for the

first time on March 23, 1930.^{7,22,23} In 1933, he visited Great Britain, Germany, and France. During his visit to France, Yudin's classical book on cadaveric blood transfusion was published in Paris (Fig 6).⁷ The Cadaveric blood transfusion never gained wide popularity, but the method stimulated the development of blood conservation and the organization of blood banks. In 1930, Yudin organized the first blood bank at the Sklifosovsky Institute, which set an example for the establishment of further blood banks in different regions of the Soviet Union and in other countries.²⁴ "He made a cadaveric blood-bank long before anyone else talked of *banks*," wrote Dr Reginald Watson-Jones in 1954.²⁵ According to Henry Swan, "If he made no other notable contribution, this alone should assure him a niche in Medicine's Hall of Fame."¹⁵

During the Second World War, the Sklifosovsky Institute was transformed into a military hospital, and, in June 1942, Yudin was appointed a surgeon-in-chief to the army. He devoted much of his time to military surgery, especially the treatment of gun-shot wounds.¹⁰

Yudin noticed that the closed plaster bandage method of treating gun-shot wounds often was followed by gangrene. In 1942, Yudin published a manual for military surgeons, *Treatment of gun-shot wounds of the femur*, which described a more effective surgical technique.

The main principles of Yudin's technique were using surgical incisions that avoided large nerves and vessels, making a wide opening of the wound with removal of all foreign objects and dead tissue, using antiseptic solution, and leaving the wound open with a plaster bandage and local use of sulfonamides. Henry Swan wrote in 1965: "He added two important principles: (A) the really wide and complete excision of all devitalized tissue, leaving the wound open, and, if need be, holding it open by suturing the skin edges to the underlying fascia (this, even if the wound were 5 to 10 days old when first seen); and (B) the excision rather than drainage or removal of bone fragments in joint wounds (including knee and even hip). His results with these methods were spectacular and made a tremendous impression on the Anglo-American-Canadian Surgical Commission.... The U.S. Medical Corps had adopted the first principle (adequate wound excision); no longer had need of the second (joint excision) because of a growing supply of penicillin; and was just beginning to learn the value of the third (delayed primary or secondary closure)."¹⁵ Watson-Jones wrote in 1954: "He made important contributions on the surgical excision of gun-shot wounds and practised wide excision not

only within the first few hours but also in some cases after many days or weeks."²⁵

In early 1944, Yudin suffered a myocardial infarction. The same year he wrote three books to serve as manuals for military surgeons: *The treatment of complex fractures*, *Military field surgery*, and *The treatment of war wounds with sulphonamides*.¹⁰ Yudin organized "femur surgical teams" to teach military surgeons at the front his methods of gun-shot wound treatment.¹

In 1943, Yudin was 52 years old and his surgical experience was immense.²¹ His experience in gastric surgery amounted to more than 5000 operations performed in the preceding 25 years. His experience of perforated peptic ulcer comprised more than 2000 cases. Yudin performed over 100 total gastrectomies, including one such operation on his mother who survived for more than 5 years after the operation. In 1943, he performed 281 gastroduodenal resections for ulcer hemorrhage. During 14 years, he and his colleagues removed over 5000 foreign bodies from the esophagus and bronchi.²¹

Members of the Anglo-American-Canadian surgical mission, including Drs Elliot Cutler, Reginald Watson-Jones, Gordon Gordon-Taylor, Rock Carl-ling, Wilder G. Penfield, and Loyal Davis, were very impressed when they visited the Sklifosovsky Institute in July 1943. The following comments left by the members of the mission are of interest: "The organisation of the emergency service of Moscow is so remarkable that an ambulance with doctor and sister is dispatched from the main hospital or a sub-station nearer the scene of emergency well within 5 minutes of notification being received at the central (Sklifosovsky) hospital."²¹ "The system of civilian emergency service which he developed with its centre at the Sklifosovsky Hospital was no less efficient than that of most fire-brigade services in other countries; with the simple press of a button, or the ring on a telephone, an ambulance arrived so that within a few minutes the patient was under personal supervision of Yudin himself."²⁵

In recognition of his surgical achievements, Yudin was awarded honorary fellowships of the American College of Surgeons and the Royal College of Surgeons. The diplomas were presented by members of the Anglo-American-Canadian Commission Drs. Elliot Cutler and Gordon Gordon-Taylor in July 1943 in Moscow.^{15,26} It was the first time that the American Fellowship had ever been conferred outside of the confines of the United States. Upon receiving the American Fellowship Yudin addressed the audience with the following words: "You will easily understand my animation when, immediately after one high



Fig 7. Gordon Gordon-Taylor, Sergei Yudin, and Elliot Cutler (from left to right) after award to Yudin of honorary fellowships of American College of Surgeons and Royal College of Surgeons of England, Moscow, July 1943. Courtesy of Professor G. D. Ioseliani, Tbilisi, Georgia.

honor, the surgeons of a second great allied country, USA, bestowed on me another. I know a little of your beautiful country. I am proud of my personal acquaintance—and even friendship—with George Crile, Howard Kelly, the brothers Mayo, and other American surgeons of world fame. By the way, it is an astonishing fact that this day of my decoration by the Allies completely coincides with the day I was severely wounded by a German shell on the eve of July 15, 1915. For the second time in the same quarter of a century our nations are united in their hard efforts to save their countries and the world's civilization. Victory will be ours. Nobody has any doubts about it, even our enemies. Let our scientific relations, which have begun in time of such strained military needs, get stronger and flourish more and more after this victory and the won peace. In the time of struggle, surgery is as necessary for victory as arms, transport, and all kinds of supplies. But when the last gun of the enemy will cease and the released humanity will turn with hope to the restoration of

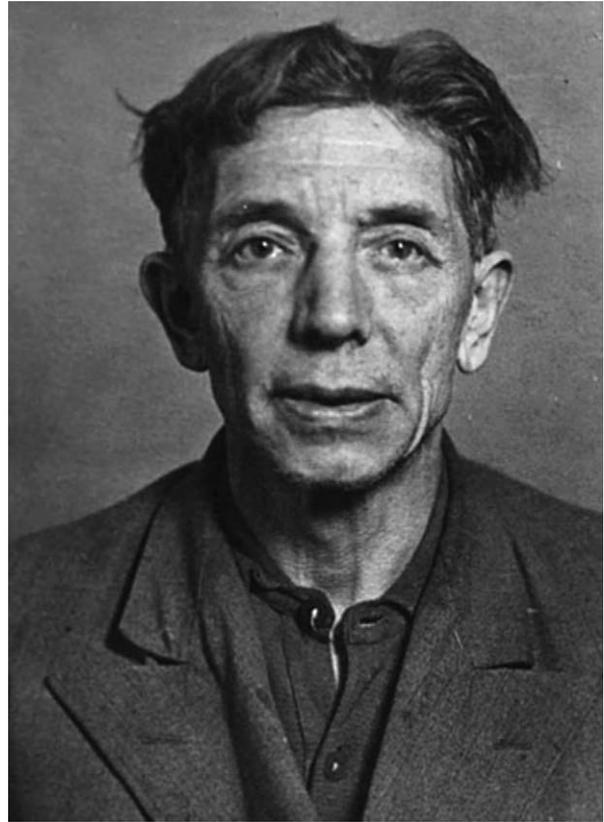


Fig 8. Sergei Yudin in jail (ca 1949-1950).

great destructions caused by the war, we surgeons will have to heal the wounds and injuries of hundreds of thousands of people, who have won for us this victory. Your high election of me as Honorary Fellow of the American College of Surgeons will serve as a new additional stimulus for further development of my scientific work in surgery. Once more, I deeply and sincerely thank you.”¹⁵ According to Swan “Yudin then posed for a photograph—in his academic gown and holding his two hoods—between mufti-clad Elliott Cutler and Gordon-Taylor. But the fate of the picture was prophetic: it was never seen by any member of the Commission or any physician outside the USSR. The promised opening of a path of communication offered by this meeting of distinguished Allied surgeons had, like the unseen photograph, failed to materialize. The follow-up never took place, and Russian surgery disappeared behind the Iron Curtain.”¹⁵ We have recently found this photograph in a private collection of one of Yudin's students and publish it herein for the first time (Fig 7).^{15,26,27} Yudin was also an honorary member of the International College of Surgeons and of the Paris, Prague, and Catalonian surgical societies, as well as an honorary doctor of Sorbonne University.

Dr Watson-Jones wrote: "We found Yudin one of the most inspiring and stimulating of all surgeons we met."²⁵ Impressed by Yudin's surgical results, Dr Gordon-Taylor wrote: "Yudin is undoubtedly the *most courageous gastric surgeon* I have ever seen. The operations for chronic gastric and duodenal ulcer, for which we saw him perform gastric resection, were not the simple exercises that surgeons habitually reserve for demonstration to admiring colleagues."²¹ In June 1943, Yudin gave Loyal Davis two manuscripts representing his extraordinary contribution to esophageal and military surgery.¹⁵ Both articles were published the next year in *Surgery Gynecology and Obstetrics*.^{20,28}

The war ended, but Yudin's hopes were not realized. Other times had come—the period of the "Cold War" and the "Iron Curtain." During and after the war, Yudin continued to communicate with many colleagues abroad.¹ These frequent contacts were viewed with suspicion by the Soviet authorities during the Cold War. Yudin behaved independently, having a friendly relationship with the British ambassador, Sir Archibald Clark-Kerr, and the American ambassador, Averill Harriman. He frequently was seen with them attending church services. Yudin sent a Christmas postcard to Winston Churchill.²⁹ Yudin was not a member of the Communist party, which was exceptional considering his high standing. In 1943, Yudin mentioned to Dr Gordon-Taylor that "his resistance to Communist party officials in matters relating to the administration and surgery of his hospital might even have led, without Stalin's veto, to his liquidation."¹

A STUDY IN FRUSTRATION

Despite his official importance and tremendous professional stature, Yudin held the rank of colonel in the Medical Corps of the Army, that rank never being raised,¹⁵ while many of his less prominent, yet more loyal, colleagues were granted the rank of general after World War II. Despite his achievements and popularity, Yudin was arrested by the KGB on December 22, 1948, and was charged on the grounds that he had supplied British intelligence with classified information. He was held in jail without trial for more than 3 years and was tortured (Fig 8). His name disappeared from medical journals, articles he had submitted were not published, and his publications were removed from the libraries.¹⁴

In jail Yudin wrote two books on toilet paper, which were published only after his death: *Twenty years' experience with conservation, storing and transfusion of cadaveric blood*¹⁰ and the very interesting

Thoughts of a surgeon, in which he discusses the psychology of the surgical profession.³⁰ While still in prison, Yudin suffered a second myocardial infarction. In 1952, he was exiled to Siberia for 10 years to the town of Berdsk, which was 60 km away from Novosibirsk. In Berdsk and later in Novosibirsk, Yudin had an opportunity to operate. Only after Stalin's death in March 1953 was Yudin able to return to Moscow and recommence his work.

One year later on March 12, 1954, Yudin died from myocardial infarction at the age of 62 years. His beautifully illustrated monograph *Studies of gastric surgery* was published after his death in 1955.³¹ Many of Yudin's foreign colleagues and friends were not aware of his destiny and assumed that he was killed by Stalin's secret police. The letters they sent to Yudin were never answered and never returned to the senders.^{1,13,15,19} After Yudin's death, few Western surgeons had the opportunity to learn what was happening in Soviet surgery or to visit Soviet surgical centers.³² Those who had such an opportunity usually visited only for a very short time and were shown the relatively well-equipped hospitals in Moscow, Leningrad, or Kiev.³³ They usually noted the excellent skills of leading Soviet surgeons and their good knowledge of Western medical publications, but at the same time they cited poor organization and lack of the newest equipment and instruments.^{28,33-35}

While reading the *Thoughts of a surgeon*, one cannot help but admire Yudin's knowledge of medicine, history, literature, and poetry, but above all his spirit and ability to stay focused despite the adversity he endured.

We are grateful to Anne M. Gale for editorial assistance and to Annette Gaussmann for processing the illustrations. We also thank Elena Bogatirenko for assistance with obtaining the original photographs.

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