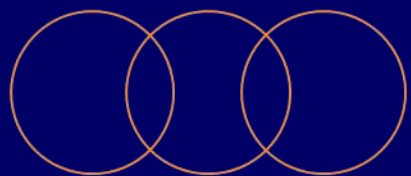



# Outstanding welders in the history of Russia



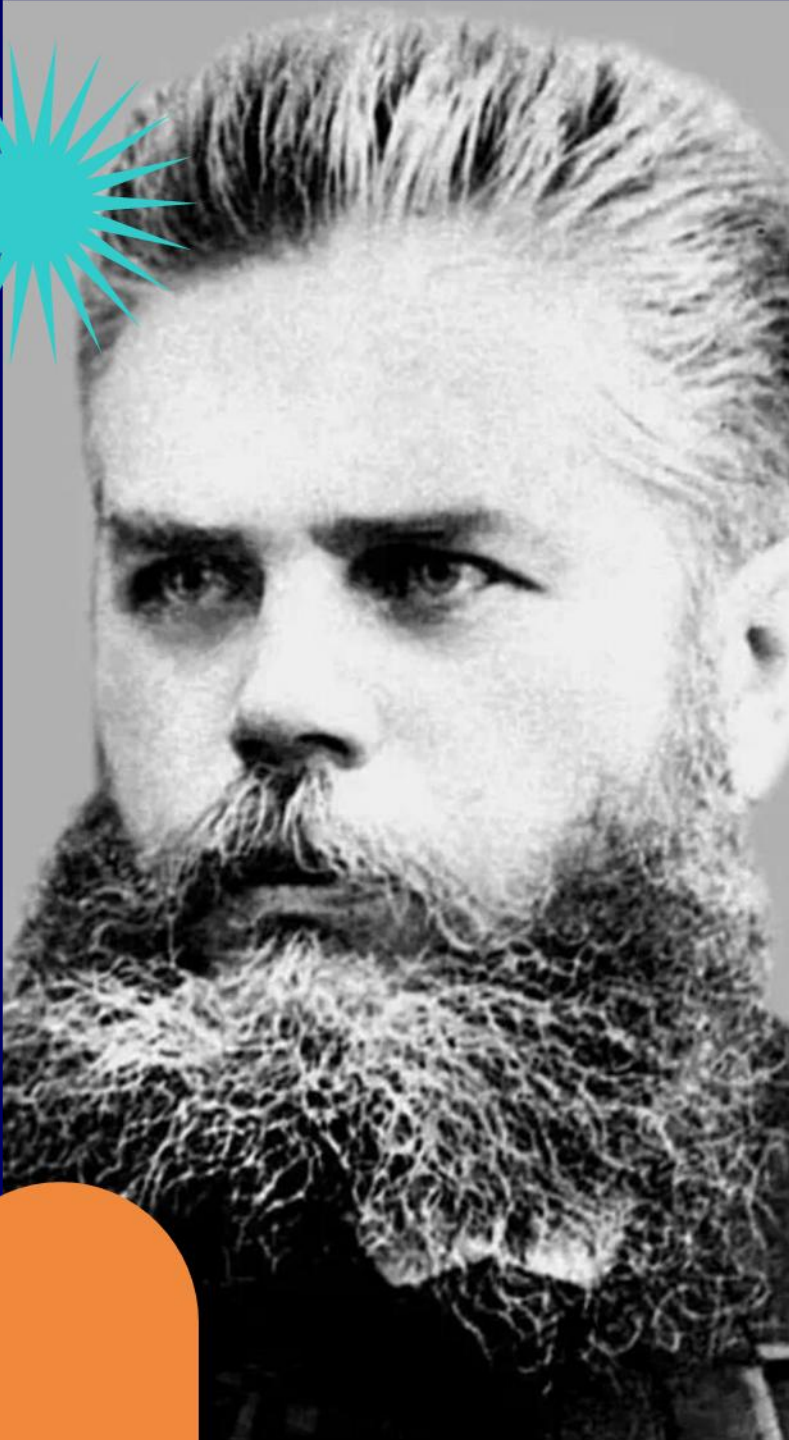


## Annotation



This presentation focuses on the remarkable lives and contributions of outstanding welders from Russia, showcasing their pivotal roles in the development of welding technology and the construction industry. The presentation highlights their significant contributions to various sectors such as aerospace, shipbuilding, and infrastructure, as well as their influence on international standards and practices. By celebrating these trailblazers, we aim to honor their legacy and inspire future welders to continue pushing the boundaries of this essential trade.





# Nikolai Nikolaevich Benardos

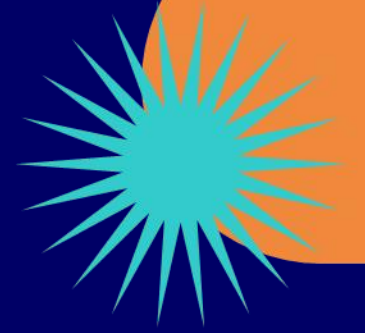
One of the creators of electric arc welding of metals.

There were no large heating furnaces in the workshop. To get out of the situation, the inventor decided to try to heat the sections of the workpieces in the places where they will be forged using electricity — a voltaic arc. The experiment was a success and even "gave" an additional bonus: Nikolai Nikolaevich noticed that under the action of an arc discharge, the metal not only heats up, but even melts in some places and, hardening later, connects both parts together, forming a strong seam.





# Slavyanov Nikolay Gavrilovich



He designed and manufactured two large DC dynamos, which were successfully operated at the factory for a long time. Working on the practical application of electricity in metallurgy and mechanical engineering, Nikolai Gavrilovich in October 1888 invented a method of electric arc welding, in which, instead of the carbon electrode used by the Russian inventor N.N. Benardos, the filler material itself was used — a metal rod similar in chemical composition to the product being welded.

The new electrode provided continuous melting, significantly increased the efficiency of the welding process. A month later, Slavyanov welded the shaft of a steam engine for the first time using a new method. In the same year, he created an electric welding generator, the world's first direct current welding arc power source.



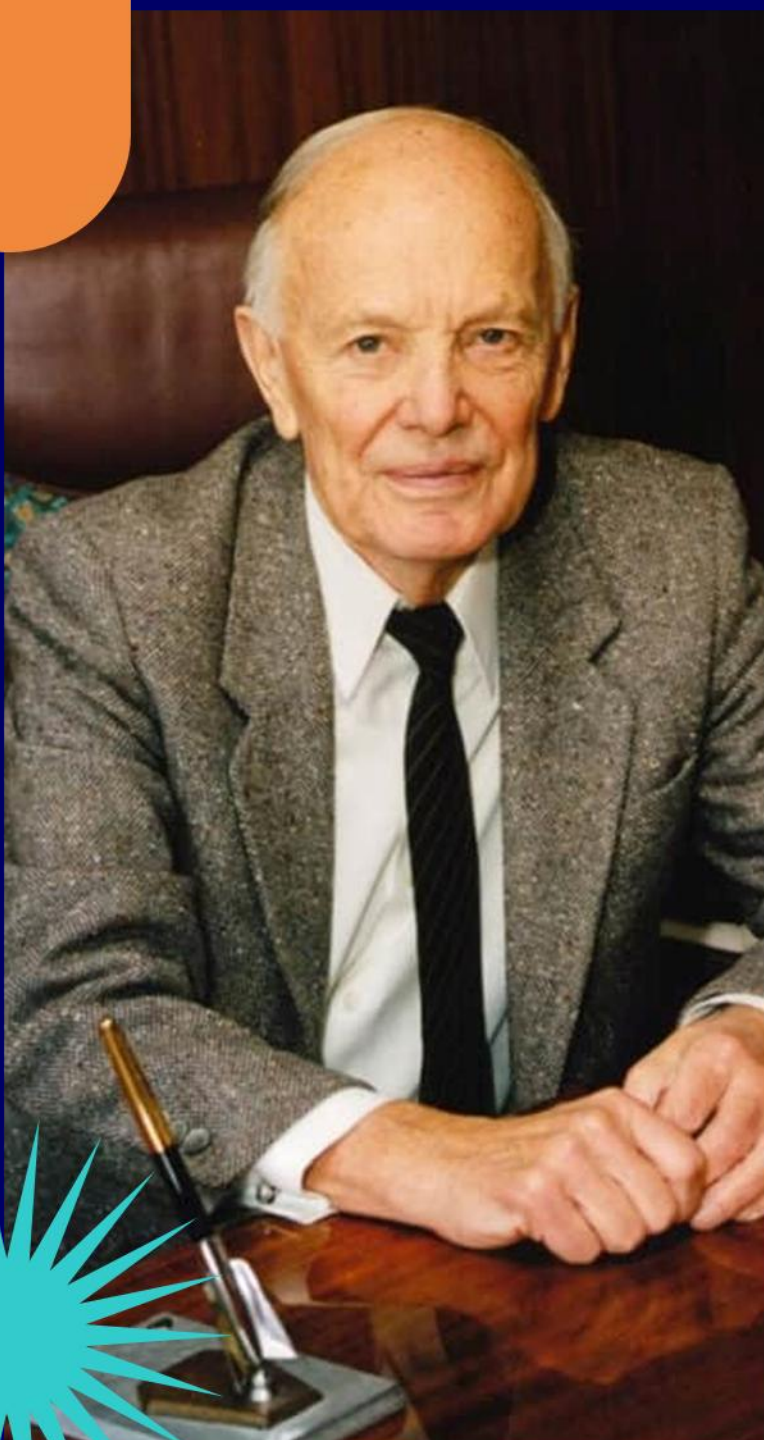


# Borchaninov Luka Ivanovich

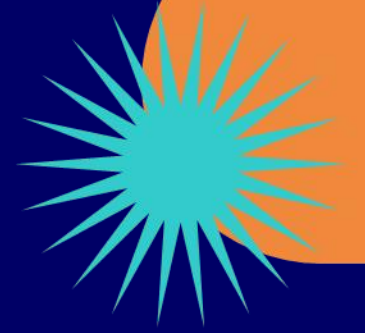
He worked under the guidance of Nikolai Gavrilovich Slavyanov, the inventor of metal arc welding. Together with the worker Peter Aspidov, he accompanied Slavyanov to the Fourth Electrical Exhibition in St. Petersburg, where they equipped a temporary workshop and demonstrated the process of fixing metal parts by electric welding.

Luka Ivanovich participated in the construction of the largest steamship in Russia and Europe, the Rededya Knyaz Kosogsky, where welding was used instead of riveting for the first time in the history of shipbuilding. The steamer was operated until 1955 under the name "Stepan Razin".





# Paton Boris Evgenievich



He has achieved great success in the development and application of the electroslog welding method. This method made it possible to replace the production of large-sized cast parts with more economical welded ones. In 1958, the welding method was presented at an exhibition in Brussels and awarded an international prize. Licenses for the new effective method have been sold to a number of countries.

In 1969, new welding methods were tested in outer space. Experiments on welding seams by electron beam and plasma arc methods were conducted under the direct supervision of the scientist.



# Kubasov Valery Nikolaevich

Kubasov was an astronaut and the first flight took place in October 1966 on the Soyuz-6 spacecraft. Kubasov and the ship's commander, Georgy Shonin, participated in a group flight of three Soyuz ships at once, numbered 6, 7 and 8. Shonin and Kubasov on their ship tested the Vulkan welding installation developed at the Paton Institute. This unique equipment allowed welding operations to be carried out in a vacuum.

The experiment was extremely dangerous: the astronauts went into the lander, depressurizing the household compartment, and controlled the welding machine operating in vacuum using remote control. Any mistake in the experiment could have turned into a disaster, but the crew successfully completed the task.

