

YEVHEN PATON – A LIFE DEVOTED TO SCIENCE

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Yevhen Oskarovich Paton (March 4, 1870 – August 12, 1953) was a prominent Ukrainian scientist, civil engineer, and one of the pioneers of electric welding and bridge construction. He devoted his entire professional life to the advancement of engineering education, scientific research, and industrial technology in Ukraine and the former Soviet Union. Paton's legacy endures through his scientific achievements, engineering structures, and institutions that continue to bear his name.

Paton was born in Nice, France, into a noble family of Scottish origin that had settled in the Russian Empire in the eighteenth century. His father, Oskar Paton, served as a diplomat and was the Russian consul in Nice at the time of Yevhen's birth. His mother, Kateryna Shyshkova, came from a military family. Owing to his family background, Paton received a high-quality European education.

He studied at gymnasiums in Stuttgart and Breslau (now Wrocław, Poland) and later passed his final examinations externally at the Novozibkov Gymnasium in the Chernihiv region. In 1894, Paton graduated from the Royal Saxon Polytechnic Institute in Dresden, and in 1896 from the Imperial Institute of Railway Engineers in Saint Petersburg.

Paton began his academic career as a lecturer at the Moscow Engineering College of Railway Roads, where he worked from 1899 to 1904. In 1904, he moved to Kyiv and joined the newly founded Kyiv Polytechnic Institute as a professor. There, he headed the Bridge Department until 1938 and for a period also served as dean of the civil engineering faculty.

He authored a number of fundamental textbooks, including *Wooden Railway Bridges*, *Iron Bridges* (four volumes), and a five-volume *Course on Bridge*

Engineering, which became essential reading for several generations of engineers. In 1910, a metal pedestrian bridge designed by Paton was constructed in Kyiv; it is now popularly known as the Lovers' Bridge or Devil's Bridge and remains a recognizable landmark in the city's central park area.

In the 1920s, Paton shifted his scientific focus to welding, a rapidly developing and promising field of technology. In 1929, he established a welding laboratory, which in 1934 became the Institute of Electric Welding of the Academy of Sciences of the Ukrainian SSR. Paton served as the Institute's director until his death, transforming it into an internationally recognized research center in welding science and engineering.

Under his leadership, the Institute conducted fundamental research into the physics of the welding arc, metallurgical processes, and the mechanics of welded structures. Paton played a decisive role in the development of automatic submerged arc welding (SAW), a groundbreaking technology that significantly increased the strength, reliability, and efficiency of welded joints and industrial production.

During World War II, Paton and his colleagues were evacuated to Nizhny Tagil in the Ural region. There, they perfected high-speed automated welding technologies under flux for the mass production of tanks, armored vehicles, and other military equipment. These innovations contributed substantially to the efficiency and reliability of wartime industrial output.

On March 1, 1943, in recognition of his exceptional contribution to strengthening the country's defense capacity, Paton was awarded the title Hero of Socialist Labour, one of the highest civilian honors in the Soviet Union.

After returning to Kyiv in 1944, Paton concentrated on further advancing the automation of welding processes. He also founded and edited the scientific journal *Automatic Welding*, which played an important role in disseminating research findings and technological innovations in the field.

His greatest engineering achievement was the design of the world's first fully welded steel bridge – the Paton Bridge across the Dnipro River in Kyiv. Measuring

1,543 meters in length, the bridge was completed shortly after his death in 1953 and was named in his honor.

Over the course of his career, Paton authored more than ninety scientific publications and supervised the design and construction of over one hundred welded bridges. He also led the development of mass-production assembly and welding lines, which had a transformative impact on industrial manufacturing in the Soviet Union.

Yevhen Paton was elected a full member of the Academy of Sciences of the USSR in 1929 and served as Vice-President of the Academy of Sciences of the Ukrainian SSR from 1945 to 1952. In 1940, he was awarded the honorary title of Honored Scientist of the USSR.

Paton's legacy continued through his son, Borys Paton, who became one of the longest-serving presidents of the National Academy of Sciences of Ukraine. Yevhen Paton passed away on August 12, 1953, and was buried at the Baikove Cemetery in Kyiv. In 2002, a monument to him was unveiled at the National Technical University of Ukraine "Kyiv Polytechnic Institute." The Institute of Electric Welding that he founded now bears his name and remains a global leader in welding research and technology.

Yevhen Paton's life represents a remarkable example of scientific dedication, technological innovation, and public service. His pioneering work in electric welding and structural engineering left a lasting mark on industry, military production, and engineering education, demonstrating how individual scientific vision and perseverance can shape the technological future of a nation.

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