

PATON EVGENY OSCAROVICH

On March 5, 2000, 150 years have passed since the birthday of Paton Evgeny Oscarovich (1870–1953), the outstanding scientist in the field of metal structures and welding, academician of the Academy of Sciences of UkrSSR (1929), Honoured Scientist of UkrSSR (1940), laureate of Stalin prize of USSR (1941), Hero of Socialist Labour (1943), founder and permanent director of the Institute of Electric Welding (1934–1953), vice-president of Academy of Sciences of UkrSSR (1945–1953). E.O. Paton went down in history of science as the author of classical manuals on bridge construction, the designer of unique projects of bridges, the head of a scientific school on the problems of welding which is recognized all over the world.

Evgeny Oscarovich is well characterized by his own words: «I have never been attracted by the work directed to the solution of subjects abstracted and isolated from practice. I tried to make my works and the works of my staff to the useful for the national economy. The best award for the man is to see the embodiment of ideas and results of works into the life». Different scientists including those involved in engineering estimate their achievement in different ways. Some of them are satisfied with receiving unique formula and consider their mission finalized. But such an achievement for E.O. Paton is only a step on the way to the main aim.

All life he was tireless at his work. He taught students, wrote manuals, improved methods of design of bridges, created unique projects and participated in their realization. He invited students to these works, fascinating them with his ideas, imparting the habits of a creative approach to the solution of technical problems.

In the 20s E.O. Paton realized that the technology of fabrication of metal structures will be based on an electric welding and decided to study this technological process. He founded the Electric Welding Laboratory which in 1934 was transformed to the Institute of Electric Welding. Evgeny Oscarovich considered the development of a high-efficient method of welding suitable for manufacture of critical structures as one of the important aims of the Institute. By the end of the 30s the Institute managed to develop such method as the submerged-arc welding. The Second World War began. By the request of Evgeny Oscarovich the fall 1941 Institute was evacuated to the Urals where the mass production of tanks was organized. In the severest conditions it was necessary in the shortest terms to create the technology of welding of hard-to-weld armoured steels, to set the manufacture of welding automatic machines and flux. At that time Evgeny Oscarovich and his colleagues accomplished a really heroic deed in realizing all this. The famous tanks T-34, welded by the automatic machines, were continuously leaving the plant conveyor. The submerged-arc welding was also mastered at other defense plants owing to the efforts of E.O. Paton and his staff.

In postwar years the Institute was working in collaboration with hundreds of plants. New technologies of manufacture of ship hulls, large-diameter pipes, power, petrochemical and other equipment were created. At the same time Evgeny Oscarovich returned to his main idea, i.e. to the construction of all-welded bridges. The program of research works was scheduled and successfully fulfilled. This program envisaged the specifying of requirements to steel for welded structures, creation of rational welded joints and study of their strength, development of technology of welding both under shop and site conditions. At that time a method of welding vertical welds with a forced weld formation was also developed. The works of that period made a good start for a thorough study of materials science problems of welding, problems of strength of welded joints for different conditions of service, contributed to a wide application of mechanized methods of welding in site conditions. The first long all-welded bridge designed and constructed under the direct supervision of Evgeny Oscarovich and named after him was put into service in Kyiv in 1953.

E.O. Paton paid a great attention to the works made from the orders of the industrial enterprises. He considered an agreement with a customer as a certificate of recognition of usefulness of the research works. At a present transition to the market principles of organizing the economy, the progressiveness of the vital positions of the outstanding scientist becomes more evident.

E.O. Paton left us the property, the Paton traditions, which are followed now at the Electric Welding Institute headed by Paton Boris Evgenievich. In spite of hard times in the country economy, the Institute, which bears the name of its founder, PATON EVGENY OSCAROVICH, is still one of the most authoritative research centres in the field of welding and allied technologies. This is proved by its wide-spread relations both with Ukrainian enterprises, and with R & D centres and companies of many foreign countries.

Given the great contribution of the Electric Welding Institute to the world treasury of knowledge and technology in welding and allied technologies, International Welding Institute in 2000 founded the «Eugenij PATON Prize».



Mukhrani Bridge across the Kura river in Tiflis, built in 1908 by E.O. Paton's design



Grand opening for traffic of Evgenia Bosh Bridge, designed by E.O. Paton. Kyiv. May 10, 1925



Opening ceremony of the E.O. Paton bridge, November 5, 1953



Memorial sign with which the American Welding Society commemorated the E.O. Paton Bridge in 1995 as a prominent welded structure of the twentieth century



E.O. Paton bridge today



Designing the Kyiv pedestrian bridge at the end of Petrivska alley, well-known to all the Kyivites, gave me a lot of creative joy. The remains of a slope on the hilly bank of the Dnipro, which had not yet slid down, were an obstacle to continuation of the Petrivska alley. First, a project was put forward, which consisted in running a tunnel through this land mass. Such a solution seemed uninteresting and dull to me. A wonderful corner of Kyiv could be decorated by a light, beautiful bridge. It would look extremely attractive against the background of endless Dnipro expanses and magnificent Kyiv parks. I suggested making a deep recess in the slope and spanning it by a light pedestrian bridge with crescent lattice trusses. They liked the idea, and it was approved.

E.O. Paton



Arched bridge over Petrovskaya Alley in Kyiv, built in 1912 by E.O. Paton's design