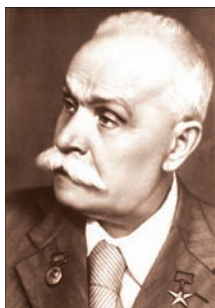


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## Avtomaticheskaya Svarka Journal is 70



March, 1948 is believed to be the time of birth of the Journal, when the first issue of the collection «Transactions on Automatic Submerged-Arc Welding» was published.

Academician Evgeny Oscarovich Paton was the initiator of its publication. The collection publication became systematic and in June, 1950 it was transformed into «Avtomaticheskaya Svarka» (Automatic Welding) Journal — a monthly publication of the E.O. Paton Electric Welding Institute.



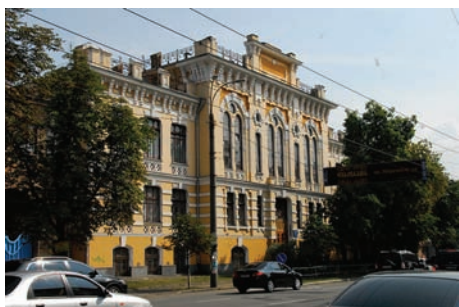
Appearance of collections, and then also of the Journal was preceded by issue of individual brochures on the topics of the work of the Electric Welding Laboratory, and then also the Electric Welding Institute. Academician E.O. Paton always attached great importance to operative scientific and technical information. The new specialized periodical was created with the purpose of regular coverage of research results and experience of practical application of the rapidly developing technologies of welding metallic materials. Compared to regular academic journals it featured broad coverage of the considered problems — from deep scientific research up to practical application of their results in various branches of the national economy.

Appearance of «Avtomaticheskaya Svarka» Journal immediately attracted the attention of all those interested in welding, and specialists of not only PWI, but also many other USSR research institutes, plants and enterprises become its authors.

From 1959 till 1986 the English version of «Avtomaticheskaya Svarka» Journal was published by the British Welding Institute under «Automatic Welding» title. In the period from 1991 till 1999 the Journal was reedited in Great Britain by private publisher Rieckansky under the title «The Paton Welding Journal». Since 2000 its publication at PWI under the same title was organized.

During the first several years the Journal, in keeping with its title, published predominantly the investigation results and experience of application of automatic submerged-arc welding. The fundamentals of the theory of welding and welded structures were established taking this technological process as an example. At the same time, starting from the very first issues, other welding processes, as well as related processes, were given due attention on its pages. However, even later the Journal retained its initial title of «Avtomaticheskaya Svarka», as a tribute to the tradition established by its founder Evgeny Oscarovich Paton.

During these years papers, devoted to study of the causes for brittle fracture, evaluation of weldability of carbon and low-alloyed steels, non-ferrous metals and alloys, were published. These and subsequent studies led to formation of scientific ideas about welding as a metallurgical process, substantiation of the need to develop new structural steels and alloys, allowing for process and metallurgical features of welding.



The Journal covered the work on fundamentals of the theory of automatic regulation, considering the arc power source, consumable electrode, feed mechanism and the arc as one system; on creation of equipment for mechanized welding processes. After the death of E.O. Paton in August,



1953, the Editorial Board was headed by Boris Evgenievich Paton. During the subsequent years the range of publication subjects was widened. In particular, the Journal started publishing information about application of welding heat sources to produce super high quality metallic materials. This second main scientific direction of PWI activity has been covered in another publication of the Institute since 1960s — «Problemy Sovremennoj Elektrometallurgii» Journal (now «Sovremennaya Elektrometallurgiya»).

Starting from 1960s, in connection with the fact that PWI was entrusted with the functions of the head organization on welding and special electrometallurgy in the USSR, the Coordination Council on Welding, Scientific Council of USSR SCST, and Scientific Council of USSR

AS were set up at the Institute. The Journal started publishing materials on organization of welding production, coordination of scientific research, problems of information, training welding specialists, etc.

Journal publications had considerable influence on development of fabrication of welded structures and products for power, heavy and chemical engineering, in industrial construction, rocket-, shipbuilding, railway and pipeline transportation, tank building, radio electronics and many other fields of modern engineering.

Reflecting the results of achievements of PWI and other organizations, the Journal was the first in the world to highlight many outstanding developments and followed-up their progress. The following should be regarded as such developments:



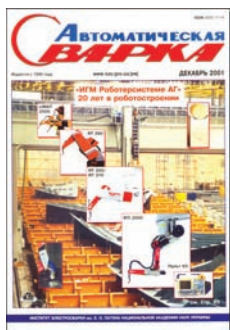
Space Technologies



Electroslag Welding



Plasma Technologies



Laser Technologies



Pressure Welding



Explosion Welding

- arc welding with forced formation of the weld, allowing application of mechanized welding in site;

- electroslag welding, which allows producing single-pass joints of items of practically unlimited wall thickness, and which was the base for one of the new metallurgical processes — electroslag remelting;

- technology of sheet structure fabrication by coiling;

- technology of fabrication of multilayer structures;

- technology of fabrication of forge-welded and cast-welded structures;

- CO<sub>2</sub> welding with small-diameter wire as one of the most widely accepted methods of mechanized welding up to now;

- welding over activating flux and with activated wire;

## Proceedings of the International Conferences



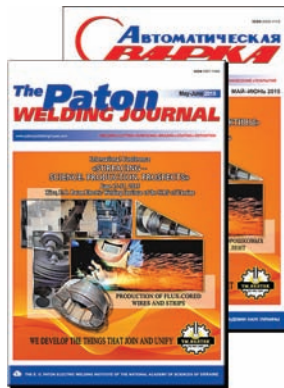
Welded Structures



Current Problems in Welding



Welding Consumables



Surfacing. Science.  
Production. Prospects



Modern Welding  
Technologies



Robotization and  
Automation

- consumable electrode pulsed-arc welding, which is especially effective in manufacturing aluminium alloy products;
- multielectrode arc welding into a common pool which became the main technology in industrial production of large-diameter pipes;
- continuous flash-butt welding of rails, pipes and other items of a large cross-section, which allows solving a number of complex and important engineering problems;
- electron beam welding which turned out to be highly efficient in fabrication of critical thick-walled items;
- vapour-phase technologies with electron beam heating;
- microplasma welding — for items of thickness from hundredth of a millimeter up to 1 mm;
- underwater mechanized welding in «wet» variant;
- plasma cutting;
- explosion welding and cutting;
- technology of manufacturing cryogenic engineering products based on modern high-alloyed steels;
- welding in space;
- electric arc surfacing with alloys improving service properties of items;
- welding of dissimilar composite materials;
- plasma and thermal spraying of protective and other materials on products.

The Journal systematically publishes the results of studying the physical features of diverse phenomena occurring in the molten metal; application of various heat sources; studying the interaction of molten metal with gases and slags, as a base for creation of efficient welding consumables; hygiene and labour safety in welding production.

On the pages of «Avtomaticheskaya Svarka» Journal one can find extensive information about welding processes and properties of welded joints of alloys based on iron, aluminium, copper, nickel, titanium, niobium and other metallic materials, as well as plastics, ceramics, etc. The breadth of factual data and depth of investigation of the structure and properties of various materials allow us to consider the Journal not only a welding, but also a materials science publication.

Many published articles reflect the results of studying the residual stresses and strains, as well as the methods to reduce them. The Journal regularly publishes articles on the subject of strength of welded joints and structures. This work resulted in development of efficient methods of determination and controlling the stress-strain states, methods of flaw detection and diagnostics of welded structures. At present developments related to monitoring and diagnostics of diverse weldments, are published in one more PWI Journal — «Tekhnicheskaya Diagnostika i Nerazrushayushchij Kontrol», issued since 1989.

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*It should be noted that in 1960s and 1970s the number of publications devoted to development of new and improvement of traditional kinds of welding consumables — electrodes, wires, fluxes, and organization of their mass production, has greatly increased in the Journal.*

*During the same period, the Journal systematically published articles on automatic control of welding processes, many of which can be regarded as pioneering, as well as investigation of power systems and peculiarities of design of electric welding machines. Readers are regularly provided with information on development of new samples of welding equipment and consumables.*

*Information about coating processes, coating properties, and development of materials required for this purpose, appears more and more often on the Journal pages.*

*Journal circulation during these years reached 8000 copies. It is received on a subscription basis in many countries of the world.*

*In 1992 «Avtomaticheskaya Svarka» acquired the status of international scientific-technical and production journal. Its editorial board includes leading specialists from Germany, Israel, China, Poland and RF.*

*In the new millennium «Avtomaticheskaya Svarka» Journal, similar to many other scientific journals, is going through difficult times, but it still continues to act as the initiator of qualified informing of welding production specialists about the status and development of individual technologies of welding production. Thematic issues of the Journal in the areas of «Electroslag Welding» (No.9, 1999), «Space Technologies» (No.10, 1999), «Plasma Technologies» (No.12, 2000), «Laser Technologies» (No.12, 2001), «Pressure Welding» (No.7, 2002), «Explosion Welding» (No.11, 2009) are published, as well as Journal issues which are the proceedings of International Conferences on «Welded Structures» (Nos 9–10, 2000), «Current Problems in Welding and Life of Structures» (Nos 10–11, 2003), «Welding Consumables» (Nos 6–7, 2014), «Surfacing. Science. Production. Prospects» (Nos 5–6, 2015), «Modern Welding Technologies» (Nos 5–6, 2016), and «Robotization and Automation of Welding Processes» (Nos 5–6, 2017). Individual issues of the Journal contain selections of articles of scientists and lecturers, devoted to jubilees of welding departments and profile chairs of technical universities of Ukraine. The Journal describes best practices and major developments of leading West European and US companies, many of which founded subsidiary companies in Ukraine in this period.*

*Over the 70 years the Journal has published more than 12 thousand papers, dealing with different problems of welding production and all the aspects of the science of welding, as well as many problems of related technologies. A wide range of publications added up into a kind of chronicle, which allows judging the achievements and dynamics of development of welding science and technology over the 70 years. By the breadth and depth of coverage of the highlighted topics, the Journal issues can be considered a welding encyclopedia. The information contained in this publication has served and continues to serve scientific and technical progress.*

*At present «Avtomaticheskaya Svarka» Journal is presented in INSPEC (Great Britain), EBSCO (USA), Weldasearch Select (France) databases; Google Scholar (USA); Dzhirelo (Ukraine), Svarka (Russia), Welding Abstracts (Great Britain) abstract journals; it is abstracted in Rivista Italiana della Saldatura (Italy); highlighted in reviews in Japanese Journal of Light Metal Welding, Journal of the Japan Welding Society, Quarterly Journal of the Japan Welding Society, Journal of Japan Institute of Metals, and Welding Technology journal. Starting from 2016 Journal articles are included into CrossRef, and are assigned DOI index (Digital Object Identifier). An urgent goal at the modern stage is Journal inclusion into international scientometric bases. The archive of articles from «Avtomaticheskaya Svarka» Journal in Russian and in English has been open access on the Journal web-site [www.patonpublishinghouse.com/rus\(eng\)/journals/as](http://www.patonpublishinghouse.com/rus(eng)/journals/as) since 2000.*

*Welding processes in the third millennium still remain a key technology of joining materials and creating structures. They will be further improved through development of high-efficient automated and robotic energy-saving technologies. And «Avtomaticheskaya Svarka» professional Journal will still have an important role of informational support of welding production professionals.*

*Journal Editorial Board*