

Michael P. Fedorov, Vladimir V. Cheparukhin

**Abstract:** A.S. Popov was invited for a direct participation in drawing up the programmes (1898-1899) of St. Petersburg Polytechnical Institute and its main Regulations (1900) in Electro-machine radio-engineering that was developing at that time. A.S. Popov's nearest co-workers, M.A. Shatelen and V.V. Skobeltsin, who came to work (on political grounds) to the Polytechnical institute, had been formed the kernel of the electromechanical branch. It was established by M.A. Shatelen, being the dean of the branch. The others radio-enthusiasts radio-specialists were professors V.K. Lebedinsky, A.F. Mitkevich A.A. Tchernyshev (the organizer of Radio Engineering department at the electromechanical faculty of the institute in 1919 as lamp radio engineering). The two latest - future academicians of the USSR Academy of Sciences. Thanks to their efforts Petrograd of the XX<sup>th</sup> years started its revival as a center of home radio-technical industry which, before the Revolution, was concentrated mainly in Petersburg-Petrograd. It is to be particularly noted that the contribution into the popularization of fundamentals of radioengineering was made by Professor V.K. Lebedinsky, who was the first to prepare for publishing the collection of Russian translations of classical works in radio communications.

**Index Terms:** Electro-machine radio-engineering, M.A. Shatelen, V.V. Skobeltsin, V.K. Lebedinsky, A.F. Mitkevich, and A.A. Tchernyshev

The Petersburg period of formation and development of radio engineering in Russia received a new impulse and became more active after the international recognition of A.S. Popov's discovery (later professor of the Electro-technical Institute) at the world exhibition in Paris (1900). At that time Electro-technical Institute named after Alexander III, the emperor, was the center of development of radio engineering researches in Russia.

A special committee on participation of Russia in the exhibition was headed by Minister of Finance S.J. Vitte, personally, who was engaged in creation of his favorite work - St. Petersburg Polytechnical Institute at that time. Even during the preparations for the exhibition the contribution of Russian scientists to the highest achievements in science and technology of a world level attracted his attention and he immediately actively used it. Many of the best representatives of a Russian scientific thought, including D.I. Mendeleev, A.S. Popov, D.K. Chernov were invited for a direct participation in drawing up the programmes (1898-1899) of the St. Petersburg Polytechnical Institute and its main Regulations (1900). The St. Petersburg Polytechnical Institute had to define according to Vitte's plan the main trends of the development of the state scientific and technical policy of Russia at the beginning of the XX century and to train the

technical and managerial staff for their insuring.

One of the basic scientific trends, alongside with metallurgy and shipbuilding, (in the unique and absolutely unusual for that time coordination with economy) electrical engineering was recognized, with its newest divisions such as power electrical engineering and electro-machine radio-engineering that was developing at that time. Alongside with economic, metallurgical and shipbuilding departments an Electromechanical branch was established, M.A. Shatelen, being the dean of the branch.

A.S. Popov's co-workers, M.A. Shatelen and V.V. Skobeltsin, completely not casual persons in radio-engineering, who came to work (on political grounds) to the Polytechnical institute formed the kernel of the branch.

Thus, there arose a group of enthusiasts of radio engineering A.A. Tchernyshev, (the organizer of Radio Engineering department at the electromechanical faculty of the institute in 1919) and A.F. Mitkevich (future academicians of the USSR Academy of Sciences), Professor V.K. Lebedinsky and their followers, graduates of the Polytechnical Institute who later on became professors of the institute. It is also necessary to note the names of professors M.V. Shulejkin, L.S. Termen, S.I. Zilitinkevich (the latter two were the secretaries of the Petrograd branch of the Russian Society of Radio Engineering.); I.G. Freiman from P.E.T.I. a representative of the oldest Petrograd center of radioengineering development, A.N. Petrovsky, V.V. Lermantov and N.N. Tsiklinsky, who was then the head of the Central Radio Lab (C.R.L.). All of them were members of the Technical Adviser of the above said Society.

The names of the graduates of the Polytechnical Institute such as A. Vekshinsky, Ryftin and others should also be mentioned.

Thanks to their efforts Petrograd of the XXth years started its revival as a center of home radio-technical industry which before the Revolution was concentrated mainly in Petersburg - Petrograd. Later they were joined (thanks to their famous scientific works in the Leningrad Polytechnical Institute) by D.A. Rozhansky, L.I. Mandelstam (a permanent scientific adviser of the laboratory of radiophysics of the Leningrad Polytechnical Institute (1935-1938)), N.D. Papaleksi, who took up different posts in the period of 1926-1940, then A.N. Schukin (1945-1948), M.I. Kantorovich, Z.O. Model and many others. It is to be particularly noted that the contribution into the development and popularization of fundamentals of radioengineering (important at the beginning of the century) was made by professor of the St. Petersburg

Polytechnical institute (1906-1911) V.K. Lebedinsky, who was the first to prepare for publishing the collection of Russian translations of classical works in radio communications, in addition to his own original books. The collection under the name "Electrical oscillations and waves" was published in St. Petersburg (1910 – 1911) in six issues. Each issue was devoted to a special range of problems, presented with exact strictness and supplied with preface, necessary introductory directives and commentary made by prof. V.K. Lebedinsky. All the six issues of the collection formed, by rights, an original encyclopaedia of Radio Engineering of that period which for the first time acquainted Russian specialists with almost unknown in our country works of the famous radiospecialists and physicists in the world. The Collection became landmark in the foundation of Russian Technical Engineering schools of radiospecialists and made it possible to acquaint its

XXth century has not been yet appreciated in a due way (on historical reasons), it requires a particular detailed discussion and can not be limited by this short article.

**Notes:**

1) In 1900, during the Paris International exhibition, more exactly International School at it, M.A. Shatelen "sounded" the A.S. Popov's report (as A.S. Popov already was absent from the World Exhibition) that attracted general attention. See: "Congress international d'electricites" Annexes Paris, 1903 pp. 236-240, 460-462, in Russian translation: "The Invention of Radio by A.S. Popov. Collection" "Documents and materials" edited by A.I. Berg, published in Moscow. USSR Academy of Sciences. Moscow-Leningrad, 1945 pp. 192-195.

2) Rodionov B.M, Lebedinsky B.K. (1868-1933) Moscow. Nauka. 1970 (in Russian).

3) Central radio laboratory in Leningrad. Edited by I.B. Brenev. Moscow. Soviet Radio. 1973 (in Russian).

4) Personal Mandelstam's Case, archive of the St.-Petersburg State Polytechnical University (in Russian).

5) Personal Papaleksi's Case, the St.-Petersburg State Polytechnical University (in Russian).



Fig.1. M.A.Schatelen 1940



Fig.2 V.V. Skobeltsin 1902

readers with the formulation of the problems typical in the world practice of that time and with generally accepted methods of theoretical studying of problems.

As a whole, the contribution of the scientists of the Polytechnical Institute into the foundation of home and world radiotechnical school during the whole



Fig.3. V.K. Lebedinsky and his book



Fig.4. The first co-graduates of radiothelegraphists in Russia at electromechanical brunch, 1915. *Middle row, left to right:* unidentified, S.I. Zilitinkevich, unidentified, A.A. Tchernyshev, M.A. Shatelen, A.F. Mitkevich, unidentified.