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## YA. Z. TSYPKIN, SOVIET SPECIALIST ON AUTOMATIC REGULATION

V. Mikhaylov

Many well-known scientists -- engineers, professors, radio specialists and Stalin Prize Laureates -- have come from the ranks of radio amateurs. Among many others, we might mention A. L. Mints, Ye. N. Genishta, Z. M. Model', and S. V. Novakovskiy.

This was the path chosen by Professor Yakov Z. Tsypkin, Doctor of Technical Sciences. He is now only 30 years old; yet, in speaking of Tsypkin's doctor's thesis, Academician Andronov called him one of the greatest Soviet scientists working in the theory of regulation.

Tsypkin was born and educated under Soviet rule. His father was a locksmith. From childhood on, Tsypkin spent every spare moment studying radio techniques and building receivers. He showed his originality in designing a receiver for a wired-radio center.

In 1936, he enrolled at the Moscow Institute of Communications Engineers, where he had many laboratories at his disposal. He also became a member of the students' scientific society. His abilities won him a Stalin scholarship. At the same time, he decided to make a thorough study of mathematics and enrolled in the Mathematics Faculty of Moscow University.

Tsypkin began his first scientific work -- making a graph to calculate microphone circuits -- while attending the third course of the Moscow Institute of Communications Engineers. This work was published in the Students' Scientific and Technical Symposium, of which Tsypkin later became editor.

In 1941 he received his diploma from the institute with honors. He then turned his attention to one of the branches of radio engineering -- the theory of regulation. He completed his work on this problem in the scientific research institute to which he went after finishing college.

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His initial scientific work was interrupted by the war, during which he was hospitalized for 8 months for frozen feet resulting from exposure in 1943 on the northwest front. While recovering, he worked on his thesis for the Candidate's degree.

In 1944, he published other works on radio and electrical engineering, automatics, and telemechanics. Much of his work, as well as his doctor's thesis and a textbook published in 1949, dealt with the theory of intermittent regulation.

Systems of continuous and intermittent regulation are of especial importance in pulse radio techniques and radar. They are used in almost all branches of industry. Perhaps the most striking instance is in the production and distribution of electric power.

Many of our hydroelectric stations, including hydraulic turbines and electric generators, are operated by remote control. The control system of the new Moscow Television Center, completed last year, takes charge of the whole equipment, including thousands of tubes.

Although we have long had methods for computing continuous automatic regulation systems, there were none for intermittent control. Now, however, Professor Tsypkin has developed a new method with simple equations for calculating intermittent regulation systems.

This young scientist was educated in the radio engineering school founded by the great A. S. Popov, whose traditions he is continuing and developing.

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