

LEONID VASIL'EVICH KIRENSKIĬ (OBITUARY)

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LEONID VASIL'EVICH KIRENSKIĬ, outstanding scientist in the field of physics of magnetic phenomena and biophysics, Hero of Socialist Labor, delegate to the Supreme Council of the USSR, and director of the Institute of Physics of the Siberian Division of the USSR Academy of Sciences, died on 3 November 1969.

Kirenskiĭ was born on 7 April 1909 in the village Amga of the Yakutsk ASSR. He started work as a teacher in a secondary school in 1927. In 1931 he enrolled in the physics department of the Moscow State University; his scientific specialization and further scientific activity were determined during these years.

After successfully finishing his graduate work, he was appointed to the Krasnoyarsk Pedagogical Institute, and since that time all his scientific, pedagogical, and organizational activity was inseparably linked with Krasnoyarsk in Siberia.

During the difficult war years, research on magnetic phenomena was initiated in the physics department of the Krasnoyarsk Pedagogical Institute.

Interesting investigations of both scientific and applied character, the rapid growth of scientific staffs under Kirenskiĭ's leadership, the good showing of the Krasnoyarsk magnetologists at the All-union Conference in Sverdlovsk in 1948 and at the International Congress of Magnetology (Moscow 1956), have rightfully brought Krasnoyarsk in the forefront as one of the major scientific centers devoted to the study of the physics of magnetic phenomena, with their original research trends.

As a scientist with pronounced scientific individuality, Kirenskiĭ and the first generation of his students made in Krasnoyarsk the center of crystallization of many scientific ideas, and played a decisive role in the organization of academic research in Krasnoyarsk. In 1956, Kirenskiĭ proposed to organize in Krasnoyarsk an academic institute devoted to physics. Such an institute was organized in 1957, and Kirenskiĭ was chosen to be its director. The organization of the institute greatly increased the facilities for scientific research both for Kirenskiĭ himself and for the staff headed by him.

Kirenskiĭ obtained fundamental results on the physics of magnetism: the temperature dependence of the magnetic-anisotropy constants for ferromagnetism and ferrimagnetism; the law of approach to saturation with allowance for diffusely-scattered and linearly directed stresses, and also with allowance for higher-order constants; the first methods of investigating of the dynamics of the domain structure in a wide temperature interval; the process of realignment of the domain structure unique apparatus making it possible to establish the regularities of the jumplike reversal of magnetization; methods for obtaining polycrystalline magnetic films of ferromagnetic metals and their



alloys. Exhaustive investigations were made of the physical properties of magnetic films—their domain structure and substructure—as functions of different external influences; new phenomena were observed in the field of high and ultrahigh frequencies, of great importance for microwave technology.

Under the leadership of Kirenskiĭ and his students, original work was performed in Krasnoyarsk on the biophysics of complicated systems and on the control of biosynthesis. From the theoretical point of view, the value of these investigations lies in the realization of the possibilities of quantitative investigations of biosynthesis in populations of micro-organisms, and of controlling this biosynthesis. The practical significance of this accomplishment lies in the creation of biological-technical systems for high-intensity biological synthesis, and in finding optimal ways of their purposeful control, on the basis of which it was demonstrated experimentally that it is possible to create closed matter cycles in which man takes part.

The first prolonged experiment organized by

Kirenskiĭ together with his students on the regeneration of gas, water, and in part also food, is a great accomplishment of Soviet science.

The creation of closed systems of circulation of matter uncovers great possibilities of studying live organisms under controlled conditions, including extremal ones. Such systems yield valuable information on mass exchange and on the reaction of organisms to various types of physiologically active substances, and also make it possible to regulate the most important physiological processes. Experimental closed systems offer science a new method of investigating the most complicated problems of migration of energy in biological objects, and of modeling of evolutionary processes.

It must be specially emphasized that the creations of systems for ensuring human living activity in closed circulation of matter is a task that can be performed only by a staff of harmoniously working physicists, chemists, biologists, physicians, mathematicians, and engineers in various specialties. Such a staff, working creatively in the Institute of Physics of Siberian Division of the USSR Academy of Sciences, was assembled and trained on location, in Siberia, including leading scientists who have obtained, under the Kirenskiĭ's leadership and with his direct collaboration most significant results on the creation of biological-technical systems. A report of these investigations, delivered to the International Astronautical Congress in October 1969, from which Kirenskiĭ returned shortly before his untimely death, met with great international response.

Taking into account the special energy and water resources of Krasnoyarsk, Kirenskiĭ proposed to organize a laboratory for ultrastrong stationary magnetic fields, and carried out many preparations to ensure the development of apparatus for the generation of such fields and prospects of their utilization. The completion of this task will uncover extensive possibilities for the solution of many problems in the fields of physics, chemistry, biology, and engineering.

Kirenskiĭ was a talented organizer of science and a capable educator of scientific staffs. He created the Siberian school of magnetologists, which is widely known both in the USSR and abroad. Among his students are six doctors of sciences and about 50 candidates, many of whom are themselves presently leading large

scientific staffs. The Physics Institute of the Siberian Division of the USSR Academy of Sciences, headed by Kirenskiĭ, has accomplished significant results in the field of solid-state physics, biophysics, optical and radio spectroscopy, and mathematics. Investigations performed in the indicated disciplines are well known both to Soviet and foreign scientists. At Kirenskiĭ's initiative, there was organized in Krasnoyarsk first a branch of the Novosibirsk State University, and later the Krasnoyarsk State University. As the chairman of the scientific council of this university, he exerted many efforts toward the creation of a university of modern standards, combining pedagogical and research work.

Kirenskiĭ represented the Soviet Union in the Commission on Magnetism of the International Union of Pure and Applied Physics, was a member of the International Council on Thin Magnetic Films, a member of the Scientific Council on the Physics of Magnetic Phenomena of the USSR Academy of Sciences, and the chairman of its Section on Thin Magnetic Films. He was an active and untiring social worker. He was elected many times a member of the Krasnoyarsk City Commission and regional commission of the Communist Party of the Soviet Union, a deputy of the Krasnoyarsk Regional Council of the Workers Delegate. Kirenskiĭ was selected a delegate of the superior council of the USSR in the fifth, sixth, and seventh sessions, was a member of the Commission on Foreign Affairs of the Soviet Union, a delegate to the 23rd Congress of the Communist Party of the Soviet Union. For many years Kirenskiĭ was the chairman of the Krasnoyarsk Regional Committee for the Protection of Peace.

A scientist and a communist, entirely devoted to science, a real patriot of his fatherland, Academician L. V. Kirenskiĭ labored incessantly to the last days of his life.

A bright and talented scientist, a sensitive and attentive teacher of youth, a simple and modest person accessible to any one who needed him, this is how Kirenskiĭ will remain in the memory of his numerous students and friends, and all those lucky to experience the joy of communicating with this person.

Translated by J. G. Adashko