

VLADIMIR VERNADSKY AND EARLY ORGANIZATION OF SOVIET SCIENCE

By Maya Bastrakova, Candidate of Historical Sciences, Institute of the History of Natural Sciences and Technology, USSR Academy of Sciences

The name of Vernadsky is associated not only with the emergence of new branches of science but also with the development of fundamental principles for the organization of science and with the establishment of many research institutions.

In 1915, at his proposal, a commission to study the natural productive forces of Russia was set up with the Academy of Sciences—a unique organization that united scientists of different specialties and which started a systematic survey of the country's raw material and energy resources. The first steps made by it in 1915-1917 under Vernadsky's guidance decided the directions and principles of its work for years ahead.

The news of the October Socialist Revolution caught Vernadsky in the Ukraine, and then the civil war and foreign intervention cut him off from Russia for three long years. There he founded the Ukrainian Academy of Sciences and was elected its first president. Despite the absence of funds, the continuing hostilities and the frequent changes of political regimes, he kept organizing its work step by step. The Academy survived through the excruciatingly hard years of 1918 and 1919 due to his energy, tenacity and courage. But, of course, the most fruitful stretch in Vernadsky's organizational work in science came in the Soviet period. At the very start, Vernadsky, like most other Russian intellectuals, failed to recognize the creative character of the socialist revolution. He saw it not in "bright vestments" but in tatters scorched by the civil war. Eventually, though not at once, Vernadsky accepted the revolution because it had been accepted by the people, and devoted all his creative energy to the state of the working people. In February 1921, after a three-year absence, the scholar returned to Petrograd and immediately plunged into the thick of things. This time, he was not just developing programs of research and expedition plans but also translating those plans into action.

The 20s and 30s were the period of the formation of the country's network of research institutions. Vernadsky who had voiced the idea of an integrated national system of institutes and laboratories before the revolution took an active part in that work. More than 20 research agencies of different types and designations were founded under his supervision and at his initiative, including the Radium Institute, the Biochemical Laboratory (which later transformed into the Institute of Geo-chemistry and Analytical Chemistry), the Commission for the History of Knowledge (now the Institute of the History of Natural Sciences and Technology of the USSR Academy of Sciences), the Commission for Perennial Frost (now the Institute of Permafrost Studies of the USSR Academy

of Sciences), the Committee for Meteorites, the Commission for the Quaternary Period, the Commission for Deciding the Absolute Age of Geological Formations and others.

Vernadsky's organizational efforts were surely not confined to the establishment of new research centers no matter how important and numerous they were. He had a unique ability to foresee the course of the development of science, to single out priority problems and bring them to the agenda in time. Like nobody else, he knew how to find the most rational forms of research organization and to bring them into effect.

In the 20s, Vernadsky once again headed the work of the Commission to Study the Natural Productive Forces of Russia (known by its Russian abbreviation as KEPS). In 1921, he undertook a task of tremendous importance and complexity by assuming general management over the exploration of natural resources in the war-ravaged Russia. The country was still in the grip of post-war devastation and famine. There was no fuel and an acute shortage of labs, instruments and reagents. Nevertheless, the Commission started the exploration of soil and water-energy resources, deposits of natural gas, rare-earth ores and mineral fertilizers. It also launched comprehensive studies of the Kola Peninsula, the Kara-Kum desert, the Sevan Lake and other areas. The work of the Commission under Vernadsky's supervision made up an entire epoch in the exploration of the country's natural resources. Every new year was marked by new directions in its work and by the expansion of expeditions, research networks and scientific publications. By 1930 the Commission came to comprise 26 research agencies, including 14 research institutes. That was all largely due to the organizational gift of Vernadsky and to his ability to create an atmosphere that awakened the initiative and stimulated the creative activity of individual researchers. Vernadsky regarded democracy and freedom of initiative as primary conditions for the successful performance of any research staff.

In his memos of the late 20s Vernadsky put forward and substantiated a project for turning the KEPS into a key centre for the organization of applied studies that would operate within the framework of the USSR Academy of Sciences. He suggested reorganizing the Commission into a special Institute to study natural productive forces by uniting in it all the applied research divisions of the Academy. He saw the institute as a "combination of independent research institutions flexibly integrated, in keeping with the life requirements, into a single whole."

However, in promoting applied research the Academy had to set up special centers for that purpose. Otherwise, in Vernadsky's view, its "pure research institutions will end up loaded down with applied tasks." The Institute for the study of natural productive forces was meant to become one such center.

The reorganization of the KEPS, however, was done somewhat differently. It is hard to say now whether the variant suggested by Vernadsky would have been more effective or not. Nevertheless, his project deserves a careful study for it can still harbor great opportunities. The work and theories of Vernadsky the organizer of science were centered on the questions of the operation and development of the USSR Academy of Sciences. He took part in the drafting of the Academy's charters of 1930 and 1935 and of its five-year research plans. He suggested

measures to revamp its structure and to expand its research and publishing activities, he set up new research agencies within its framework and organized their work. His ideas and recommendations had a noticeable effect on the reorganization of the Academy and its conversion into the country's principal research and guidance center.

Vernadsky paid special attention to the advancement of research in the field of geology and mineralogy, which was his principal scientific specialty. He took part in the reorganization of the Geological Committee and worked out measures to coordinate geological research in the Academy and actual geological prospecting. He also conceived and put forward proposals related to geochemistry, crystallography and mineralogy.

Vernadsky was concerned over some negative trends in the organization of geological science. According to his observations, the expansion of geological prospecting prompted by the large-scale industrialization of the USSR was accompanied by a decline in the standard of scientific research, especially in mineralogy and geochemistry. One of the reasons for that was the lack of any progress in the "material experiment and observation situation" as he put it. There was an acute shortage of premises and essential equipment and a lack of specialists versed in modern research methods.

Another reason was a series of ill-considered reorganizations. In 1930, on the instructions of the People's Commissariat (ministry) for Education, all the geological and mineralogical divisions of Moscow University were reassigned to the Central Geological Prospecting Administration under the All-Union National Economic Council. That move had a negative effect not only on the performance of the University but also on the entire state of geological science: the research institute that had existed with the now defunct university chairs folded in and the influx of young researchers petered out.

Deeply concerned over the future of the University and geological science, Vernadsky and several other scholars addressed a number of memos to the Academy of Sciences and to the relevant government organs, in which they pointed to the dangers of that move and to the need of promoting fundamental research in geology, mineralogy and geochemistry, and suggested turning higher schools and especially universities into centers of such research.

The Soviet government heeded the scientists' views and made special appropriations for the expansion of research. Vernadsky's work in the organization of science is relevant to the present day because it provides answers to some of the contemporary questions and problems, mostly because it teaches us to look for them in science itself. "The very course of scientific progress," he said, "decides the forms and means of research." Whatever he wrote about or looked into, he always proceeded from the requirements of scientific knowledge as such and kept emphasizing that satisfaction of the pressing needs of science was a mandatory condition for economic, social and cultural advancement of society. He firmly believed that no moment-serving tasks or considerations could justify disregard for the demands of expanding knowledge. Vernadsky regarded the attitude towards science and its needs as a measure of the country's social and cultural development and as an indicator of the moral and intellectual standing of

executive workers of all ranks. Those views of his still retain their relevance at this crucial moment in the history of national science and of the country at large.

APN