A Life Scientist

Science and Russian Culture in an Age of Revolution. V. I. Vernadsky and His Scientific School, 1863–1945. KENDALL E. BAILES. Indiana University Press, Bloomington, 1990. xiv, 238 pp., illus. $29.50. Indiana-Michigan Series in Russian and East European Studies.

Coined 75 years ago in Tsarist Russia, the word "biosphere" has a quite modern ring. Its author, Vladimir Ivanovich Vernadsky (1863–1945), is increasingly regarded as a prophet for our time. For many alarmed by today's ecological crisis, this theorist of biogeochemistry is the founder of a new, holistic science of life. For many Soviet scientists, this champion of scientific autonomy and opponent of philosophical dogmatism represents a path closed during the Stalin years—one perhaps open again in a period of *glasnost* and *perestroika*.

In this insightful exploration of Vernadsky's legacy, Kendall Bailes unveils a creative scholar-activist whose life and work speak more clearly about his time than our own. Bailes grounds Vernadsky's thought in the values of the liberal intelligentsia that flowered in the last decades of Tsarist rule. The result is the best available biography of any modern Russian scientist and many valuable insights into the history of Russian science.

Bailes's Vernadsky emerges as an archetypical figure of an important and largely neglected generation of Russian scholars. Born in 1863 to a noble family, Vernadsky, like many Russian youth, was exposed to the materialist, politically radical scientism popularized by the "men of the sixties." Yet Bailes demonstrates that Vernadsky and his fellow "men of the eighties" embraced the much different scientism of a professionalizing scientific community. Philosophically and politically eclectic, this close-knit group was united by their noble birth and their belief in gradual social change, the transforming power of rational knowledge, and the autonomy of academic institutions. They reached the height of their influence in the waning years of Tsarist rule, by which time Vernadsky had become a professor at Moscow University, a member of the Academy of Sciences, and a leader of Russia's most powerful liberal political party, the Constitutional Democrats.

Bailes also finds the imprint of Vernadsky's time and circumstances in his scientific ideas. Vernadsky's "broad, synthetic approach" to knowledge was typical of his "transitional generation" of professionalizing Russian scientists committed to broad unifying conceptions yet disdainful of dilettantism. He read widely in metaphysics and a variety of scientific disciplines, incorporating elements of each into his work on mineralogy. For example, his interest in evolutionary theory encouraged him to pose questions not simply about the location of mineral deposits but also about the genesis, development, and interaction of the chemical processes that produced minerals. His readings in the new physics of the early 20th century "prepared Vernadsky to look at life in a new way, from the standpoint of the migration of actions and their particles within living matter and between living and inert matter" (p. 184).

These interests blossomed into his best-known scientific conceptions in the years 1914 to 1922. Bailes suggests that the tumultuous events of these years—World War I, the two revolutions of 1917, and Russia's civil war—encouraged Vernadsky's radical reconceptualization of the relationship between life and non-life: "The collapse of the old regime and the reshaping of social relations, accompanied by a crisis in Russian society's relationship with nature—shortages, famine and disease—focused Vernadsky's attention on the connections between living matter—including humans—and the non-living matter of Earth" (p. 184).

Bailes finds in Vernadsky's scientism a key to his contradictory relations with the Soviet state. As in the Tsarist years, he and many in his circle were confident that "they could pour the new wine of science, secular culture, and economic development into the old wineskin" of a doomed, illiberal regime (p. 161). (Vernadsky fully shared the industrial triumphalism common to his day, Bailes observes, and so leaves an ambiguous legacy to environmentalists who today invoke his name.) Vernadsky polemicized against official dialectical materialist philosophy and resisted Communist Party domination of the scientific community, protected by his international stature and the Party's high regard for scientific expertise. He justified this tolerance by performing important practical tasks, including work on the militarily critical Uranium Commission during World War II.

Kendall Bailes raced to complete this book as he was dying of AIDS. Those familiar with his splendid *Technology and Society Under Lenin and Stalin* (Princeton University Press, 1978) will notice with sadness the marks of haste. Compared to the excellent account of Vernadsky's life and work under Tsarism, the treatment of his Soviet years is sketchy. Vernadsky's mature scientific conceptions are capably characterized but do not receive the close reading necessary to sustain fully the author's insights into their distinctive origin and character. The account of scientists' reactions to Vernadsky's work is similarly suggestive but incomplete. Finally, one does not expect to find in a work of this quality such a stark factual error as the claim that Sechenov won the Nobel Prize (p. 54).

Vernadsky's legacy is certainly relevant to us today. As Bailes observes in an eloquent conclusion, however, that legacy resides less in specific formulations than in his ability to draw creatively upon a variety of scientific and cultural resources to pose profound questions about life on our planet.

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Sovietological Postmortems

The Legacy of Chernobyl. ZHORES A. MEDVEDEV. Norton, New York, 1990. xiv, 352 pp., illus. $22.95.

The Social Impact of the Chernobyl Disaster. DAVID R. MARPLES. St. Martin's, New York, 1988. xviii, 313 pp. + plates. Paper, $16.95.

As the worst nuclear (and industrial) accident in history, the Chernobyl disaster of 26 April 1986 certainly marks a watershed whose full consequences for the Soviet Union and for the rest of the world are still uncertain.

Both these contributions to what Medvedev refers to as "Chernobylogy" focus upon the broader ramifications of the accident, such as the impact upon the environment, agriculture, health, and the media and arts, drawing their information from a careful sifting of the voluminous amount of Soviet materials now available. In both cases, the essential message is that the true impact of the accident is far greater than the Soviet government has been willing to admit. The authors also argue that much still remains hidden about the factors contributing to the explosion of the reactor and the sequence of events following it. According to Marples, "Chernobyl was the first test of *glasnost* and also the first victim." Medvedev says that he "remains skeptical of the official version" and that "true *glasnost* is only beginning to emerge." Marples is even blunter—in his words, "The Soviet Government has