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Vladimir Vernadsky as a Pioneer of Planetary Sustainability Thought

In contemporary debates on sustainable development, the historical and philosophical roots of planetary thinking are often overlooked. One of the early and visionary contributors to this discourse was Vladimir Vernadsky (1863–1945), whose concepts of the biosphere and noosphere offer an approach to the Earth that integrates scientific insight with ethical responsibility. Although Earth system science did not yet exist in his time, Vernadsky's concepts of the biosphere and noosphere anticipated a systemic understanding of the Earth as shaped by both natural processes and human thought. His idea of the noosphere—the realm of reason and scientific activity—presents a model of global transformation grounded in knowledge, responsibility, and the evolving relationship between humanity and the planet.

This paper explores the relevance of Vernadsky's thought to the contemporary sustainability agenda and the broader challenges framed by the UN Sustainable Development Goals. Special attention is given to his late work, *Scientific Thought as a Planetary Phenomenon*, in which Vernadsky articulates a vision of science as an integral part of planetary evolution. The paper reflects on the historical and philosophical dimensions of his work and opens a space for further critical engagement with the intersections between science, ethics, and global futures. Revisiting Vernadsky allows us to question how science is situated in current policy frameworks and to recover alternative visions of sustainability that emphasize long-term planetary responsibility.

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