

46th IAA HISTORY OF ASTRONAUTICS SYMPOSIUM (E4)  
Memoirs and Organisational Histories (1)

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Executive Intelligence Review News Service, United States

## V.I.VERNADSKY - A PHILOSOPHY FOR THE SPACE AGE

**Abstract**

Vladimir Ivanovich Vernadsky was the single most important scientific figure in Russia during the first half of the 20th century. Renowned for his notion of the "Biosphere," he also founded the fields of biogeochemistry and cosmochemistry. In 1921, as a member of the scientific commission investigating the 1908 Tunguska explosion, Vernadsky hypothesized that the explosion, instead of debris, may have simply dispersed a mass "cosmic dust," leading to his lifelong study of the effects of cosmic radiation on the Biosphere. With the appearance of Man in the Biosphere, the forces of Nature became subject to the direction of Man's Reason. A new era had thus been created which Vernadsky called the "Noosphere" or "Noos" Mind. At its appearance, the Noosphere began to encompass and subsume the Biosphere itself, in the same way that the Biosphere, at its first appearance quickly expanded to encompass the entire surface of the Earth. As Man develops his technology, he also expands his "reach," i.e. the area of the universe under his control, thus expanding the Noosphere, and with it, the Biosphere. This, Vernadsky reasoned, would be paradigmatic for the further development of the Universe. Man, with his unique intellectual capabilities, would begin to create "artificial" environments for life, based on the advance of Man's technology. Terraforming Mars, creating an artificial atmosphere on other planets, and traveling to space, were, therefore of second nature to Vernadsky. In fact, his last unfinished work, "The Chemical Structure of the Biosphere and Its Surroundings," revisited his earlier analysis of the Biosphere from the standpoint of the creation of the Biosphere by forces of the galaxy, with which it remains in continual exchanges. Because of these continual exchanges, Vernadsky thought, we cannot say that Life itself is unique to Earth. Vernadsky's enthusiasm for the space science fiction of Kurt Lasswitz, and his appreciation of space pioneer Konstantin Tsiolkovsky, characterize this aspect of Vernadsky's thought. In his final years, during World War II, aware of the latest advances in aviation and in rocket science, he clearly saw that Man was already preparing to expand the Noosphere/Biosphere well beyond the realm of the ionosphere. A proper understanding of the role of space exploration in the life of Man, and the role of the Earth as an integral part of the galaxy, requires an understanding of Vernadsky's rather unique concept of the Noosphere.