

NOVEMBER 12 CONFERENCE

Vernadsky's Promethean Concept of Scientific Thought as a Geological Force

by William Jones

This is an edited version of the prepared remarks of William Jones delivered to Panel 1, "Vernadsky's Revolution in Science and Thought," of the Schiller Institute's Nov. 12, 2022 conference, "The Physical Economy of the Noösphere: Reviving the Heritage of Vladimir Vernadsky." Mr. Jones is the Washington, D.C. correspondent for EIR News Service. Subheads have been added.

It is of the upmost importance in this particular period that we begin to revive the heritage of the great Russian-Ukrainian scientist, Vladimir Ivanovich Vernadsky, at a time when certain forces here in the West, anxious to maintain control over a bankrupt financial system, are preparing to divide the world into two warring camps, even risking the danger of nuclear war in that endeavor.

It is also important to note the work of this proudly Russian scientist, with deep Ukrainian roots, in order to underline the fact that these two nations, and these two peoples, have a common and rich heritage with all its complexity extending over the course of a thousand years and more. In the present climate of "cancel Russian culture," Ukrainians are in danger of losing an important element in their cultural heritage, including the pioneering work of this Russian scientist in creating the Ukrainian Academy of Sciences at the end of the First World War, often over the objections of those who desired a total Ukrainization of this effort.



Vladimir Ivanovich Vernadsky
(1863–1945)

Falsely Pegged as an 'Early Environmentalist'

The name of Vernadsky is not unknown in the United States, particularly in scientific layers, but little is known about the real nature of his thought. A limited number of writings of Vernadsky were introduced into the U.S. by people who had a diametrically opposed view to his conception of man and man's place in the world. For many in the U.S. who have heard of him, however, Vernadsky is simply viewed as some kind of early environmentalist.

While some of Vernadsky's writings had been published in the U.S. prior to his death in 1945, including an important testament of sorts in the January 1945 issue of *Scientific American*, it was not until 1970, with the publication of an issue of *Scientific American* with the title, "The Biosphere," that Vernadsky's name again appeared prominently in American publications. The publication of this issue of *Scientific American* was the clarion call for the creation of the Malthusian environmentalist movement of the 1970s. In that issue, Vernadsky was introduced to the American public by G. Evelyn Hutchinson, a British ecologist teaching at Yale, who became one of the founders of the 1970s "zero growth movement."

In 1947, Hutchinson had written an article entitled, "On Living in the Biosphere." In it he wrote:

The population of the world is increasing, its available resources are dwindling. Apart from the ordinary biological processes involved in

producing population saturation already known to Malthus, the current disharmony is accentuated by the effect of medical sciences, which has decreased death rates without altering birth rates, and by modern wars, which one may suspect put greater drains on resources than on populations. Terrible as these conclusions must appear, they have to be faced.

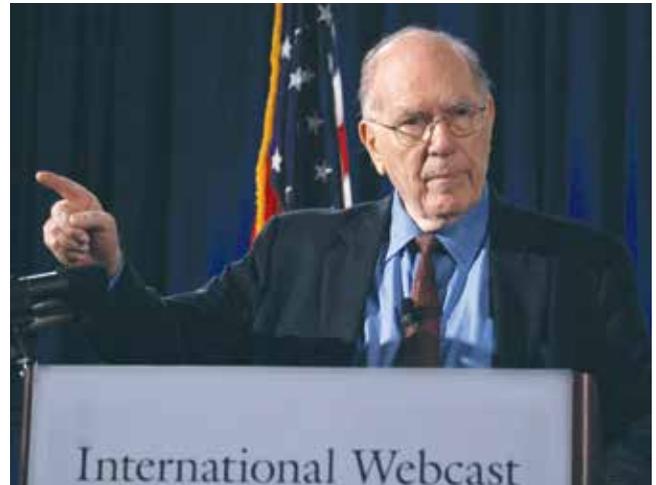
So much for Hutchinson! Now let's hear Vernadsky's views on Malthus' predictions:

Malthus doesn't realize that his fundamental results lead to entirely different conclusions. You might say that they are simply not true, because he did not take into consideration the fact that, estimating accurately the long-term growth of human population geologically as regards food and the necessities of life, the expansion of plants and animals comprising it, must inevitably increase with greater force and speed, expressing a more rapid rate of reproduction, than that of the population itself. It's necessary to always have this correction in mind. Historically, it is only the irrational elements in our social system that make it difficult to clearly observe the effect of this natural phenomenon.

So why was the Malthusian Hutchinson the one to present Vernadsky to the English-speaking world? No doubt it was his friendship with Vernadsky's son, George, who was a professor of history at Yale University. Hutchinson had also helped George have a couple of Vernadsky's works on biogeochemistry, which George had translated, published in U.S. academic journals. Later, when Vernadsky's early study, titled *The Biosphere*, which concentrated on his revolutionary views on the role of living matter in transforming the inert matter of the Earth, it was soon lauded as a bible of the early environmentalists.

LaRouche Reveals the Real Vernadsky to the English-Speaking World

In fact, the real Vernadsky was not revealed to the English-speaking world until his real view of man in the universe was presented in numerous seminars and writings in the '80s and '90s by economist and statesman Lyndon LaRouche. While LaRouche had some knowledge of Vernadsky during a period of intense



EIRNS/Stuart Lewis

Lyndon LaRouche, who began investigating Vernadsky's concept of the noösphere in the 1970s.

studies after he returned from his service in the China-Burma-India theater during World War II, it was only in the 1970s that he began to investigate the work of Vernadsky and Vernadsky's notion of the noösphere, a term Vernadsky used to describe the era in which scientific thought begins to take the dominant role in shaping the biosphere.

In his own unique contributions to physical economy, LaRouche pointed to scientific discovery and its implementation in the form of technological innovations in the economy as the central factor which allowed mankind to reproduce itself at ever higher levels, which is wholly consistent with Vernadsky's views, as indicated in Vernadsky's earlier statements on Malthus.

For LaRouche, continued economic development was wholly contingent on these discoveries, allowing man to "leapfrog," as it were, to higher stages of development. Over the many thousands of years of human development, this was characterized in energy, by ever more dense forms of energy used, from sunlight to wood-fire to coal and oil, and to nuclear power. Increasing "energy-flux density," as LaRouche called it, was a fundamental characteristic of the progress of man and the strongest argument against the modern-day Malthusians and their "limits to growth."

Vernadsky's view dovetailed completely with this concept. Vernadsky received his education at St. Petersburg University with teachers that included the great chemist Dmitrii Mendeleev, who developed the Periodic Table of Elements, and Vasilii Dokuchayev, known as the father of soil science. There the sciences were not only being taught, but were in the actual pro-



CC/Ekaterina Borisova

The Radium Institute in St. Petersburg, Russia, founded by Vernadsky in 1922.



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Vernadsky on an expedition in 1911, in search of radioactive ores.

cess of being developed.

During his career, Vernadsky would make major breakthroughs in such fields as crystallography, mineralogy, hydrology, and geochemistry, and he wrote extensively about the history of science and the history of Russian science. He can well be considered the father of biogeochemistry as his Biogeochemistry Laboratory was the first of its kind in the world. In 1910, Vernadsky was convinced that the world was entering the age of atomic energy, and in 1911 he organized an expedition to search for radioactive ores in the Russian Empire. In 1921 he established the Radium Institute in St. Petersburg.

Living Matter Comes Only from Living Matter

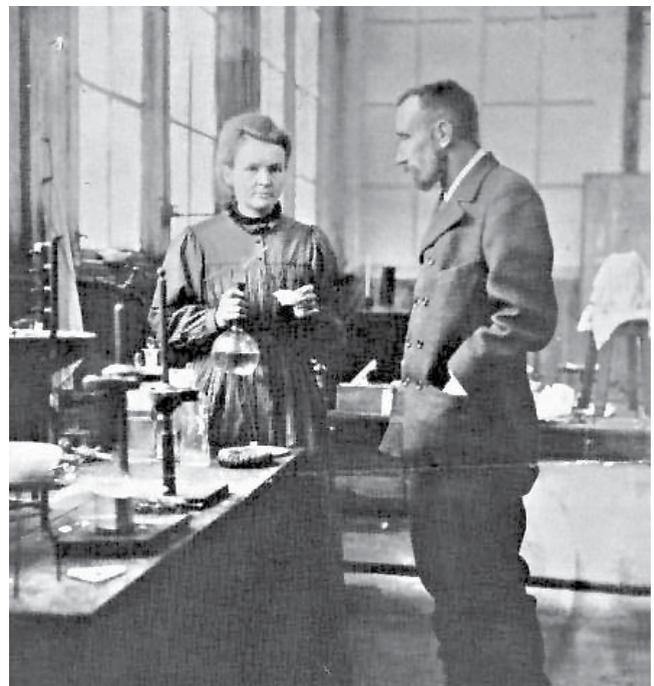
While working in Ukraine in the chaos following the First World War—where the “allies” were working to dismantle both Germany and the toppling Russian Empire—Vernadsky, after a long period of illness with typhoid, made his first major breakthrough. This was the discovery that life, or what he termed more concisely “living matter,” far from being simply a phenomenon distinct from non-living matter, and even less a “by-product” of non-living matter—a thesis he thoroughly rejected—represented an independent and powerful force which in fact, on the atomic level, interacted and transformed chemically the inert matter it came into contact with. And the rapidity with which life reproduced itself, even in areas in which it previously had not existed, indicated to Vernadsky that the

biosphere, the realm of life, was one of the most powerful forces on Earth or indeed in the galaxy.

In addition, Vernadsky believed that living matter only came from living matter, contradicting the then predominant theory of abiogenesis, the idea that life proceeds from non-life. Furthermore, Vernadsky was very much taken by the discovery by Louis Pasteur of chirality, or “left-handedness,” in living matter, whereas inert matter is characterized by complete symmetry.

Working in the 1920s for several years with Marie Curie at the Curie Institute in

Paris, Vernadsky also acquired an interest in the study of then deceased Pierre Curie concerning the nature of the dissymmetry (or chirality) that Pasteur had found in living matter. Pierre Curie began working on this in his last years before his untimely death in an accident, characterizing the phenomenon as a different “state of



AIP/Emilio Segrè Visual Archives

Marie and Pierre Curie in their Paris laboratory, 1896.

space” than that of inert matter. This indicated to Vernadsky that the “geometry” of Euclid was wholly unsuited to explain this type of phenomenon, and he began to confer with Russian mathematicians on the possibility of this being consistent rather with some form of Riemannian geometry.

This was another issue that sparked the interest of LaRouche, who also insisted that economics in his sense with its “leaps,” i.e., discontinuities, also required a Riemannian framework to understand the real nature of economic development. During his visits to Russia in the 1990s, as a type of Track Two discussions on behalf of the Clinton Administration, and later at the invitation of Russian colleagues in the early 2000s, this became one of the topics in the several lectures he gave on Vernadsky and economics. In 2001, he authored a [book](#), *The Economics of the Noösphere*, which elucidated his thinking on these matters.

Vernadsky’s Concept of the Noösphere

But what was Vernadsky’s sense of the noösphere? In contrast to the French Jesuit, Teilhard de Chardin, who used this concept in a theological sense, Vernadsky’s notion was entirely “this worldly.” As Vernadsky saw it, over the last five centuries, from the Age of Exploration in the 15th and 16th centuries, to the 20th century, mankind had, like life, extended its reach over the entire globe. Through technological progress, based on the creative processes of the mind, he had transformed the world around him, increasing the flux of energy in the biosphere, making it more productive.

And as in the Promethean legend, it probably began with the discovery of fire. As Vernadsky expressed it in his lengthy dissertation of 1938, *Scientific Thought as a Planetary Phenomenon*,

It seems that Homo sapiens or his closest predecessors appeared not long before the onset of that glacial period, or in one of its warmer episodes. Man survived the severe cold of that period, possibly due to the great discovery that had been made in the Paleolithic age—the mastery of fire. That discovery was made in one, two, or possibly more places, and slowly spread among the peoples of the Earth.

It seems that we are dealing here with a general process of great discoveries, in which it is not the mass action of mankind, smoothing and

refining the details, but rather the expression of separate human individuals. As we’ll later see, we can track this phenomenon more closely in very many cases nearer to our own era. The discovery of fire presents the first instance in which a living organism takes possession of, and masters, one of the forces of nature. Undoubtedly this discovery lies, as we now see, at the foundation of mankind’s subsequent future increase, and of our present powers.

Later he would add,

The action of that force [scientific thought], exerts a profound and powerful influence on the course of the Earth’s energetic phenomena and consequently must undoubtedly have reverberations, albeit less powerful beyond the Earth’s crust, in the existence of the planet itself. That force is the intellect of Man, directed and organized through the volition of man in his social existence.

Vernadsky saw this development as a new and higher phase in the development of the biosphere, where the mind of man, or scientific thought, itself became a powerful geological force, indeed the predominant geological force in the biosphere. By the time of Vernadsky, that force was reaching the lower limits of the stratosphere in the development of the airplane and aerostatic devices, and had penetrated to the lower granite levels of the Earth. And knowing the works of Konstantin Tsiolkovsky, one of the first early space pioneers, whom Vernadsky characterized as a new Columbus, he foresaw that man would soon be going into cosmic space. If he did not find life elsewhere in the Cosmos, which Vernadsky firmly believed he would, he would bring the biosphere with him, expanding the biosphere by means of the noösphere.

‘Mankind Need No Longer Tolerate Famine, Poverty, or Disease’

The vision of Vernadsky is not an isolated pipe-dream, but represents, as he characterized it, an elemental natural force. But since it takes place in the noösphere and is not merely the blind action of the biosphere, it is dependent on the creative action of man to bring it to realization. The preconditions are already here for man

to begin realizing a world in which those old ailments that have been plaguing us for so long, namely poverty and disease, can be ultimately overcome. As Vernadsky stated it in his last, unfinished and untranslated work, *The Chemical Structure of the Biosphere and Its Surroundings*,

It is becoming clear and is entering increasingly into man's consciousness that we now have before us the real possibility where we need no longer tolerate malnutrition and famine, poverty or weakened physical conditions that make people unable to withstand disease, and can expand to the maximum degree human life. But the battle for realizing this new future for humanity is far from over, and will continue, perhaps, for some generations, but it inevitably is coming to light as an elemental process in the realization of the noosphere.

These words were written in the 1940s with a view

that the war would end with a victory of the allies. One, almost two, generations have since passed since those words were written. Now a new generation is faced with a situation in which mankind stands on the edge of a precipice, facing again, as in the early 1960s, the danger of a conflict between nuclear powers. To avert that danger, the world must turn to the view of Vernadsky and bring our nations together to realize the common aims of mankind. As Lyndon LaRouche urged his Russian colleagues during a visit to Moscow,

The ideas associated with Vernadsky's conception of Biosphere and Noosphere will provide a needed, added guidance for new global forms of cooperation among sovereign commonwealths.

We must move in that direction with all due speed, and it is hoped that making the world more acquainted with the work of this great Russian scientist will help us do that.

Thank you.

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The Great Leap Backward: LaRouche Exposes the Green New Deal

Executive Intelligence Review has released this Special Report to warn of the extreme danger to mankind represented by the Green New Deal, also called "The Great Reset" by the leaders of the Davos World Economic Forum.

Already being implemented, this plan is taking over the direction of national economies from sovereign governments, using the power of central banks and the too-big-to-fail private financial institutions, cutting off credit to fossil fuel power generation and to industrial and agricultural enterprises claimed to emit too much carbon. Meanwhile it is creating a new huge bubble in the "sustainable fuel" sector, hoping to prop up the increasingly bankrupt financial system.

Stopping it by returning to a Hamiltonian American System credit policy, requires an understanding which is the purpose of this report.



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