Report Part Title: Origins and Attributes of the Noosphere Concept

Report Title: Whose Story Wins Report Subtitle: Rise of the Noosphere, Noopolitik, and Information-Age Statecraft Report Author(s): DAVID RONFELDT and JOHN ARQUILLA Published by: RAND Corporation (2020) Stable URL: https://www.jstor.org/stable/resrep26549.9

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The growth of the noosphere explains why we opted for the concept of noopolitik, for the noosphere offers the broadest way to think about information-based realms. This term was coined by French theologian-paleontologist Pierre Teilhard de Chardin, French mathematician Édouard Le Roy, and visiting Russian geochemist Vladimir Vernadsky when they met together in Paris in 1922.

Our earlier writings credited only Teilhard with originating the noosphere concept. For this update, we add new findings about Vernadsky's and Le Roy's contributions.

Teilhard's Thinking About the Noosphere

In Teilhard's view—notably in *The Phenomenon of Man* (1965) and *The Future of Man* (1964)—people were beginning to communicate on global scales; thus, parts of the noosphere were already emerging. He described it variously in those books as a globecircling "realm of the mind," as well as a "thinking circuit," "a new layer, the 'thinking layer," a "stupendous thinking machine," a "thinking envelope," a "planetary mind," and a "consciousness," where Earth "finds its soul." According to a metaphor that Teilhard favored about "grains of thought,"

The idea is that of the earth not only becoming covered by myriads of grains of thought but becoming enclosed in a single thinking envelope so as to form, functionally, no more than a single vast grain of thought on the sidereal scale, the plurality of individual reflections grouping themselves together and reinforcing one another in the act of a single unanimous reflection. (Teilhard, 1965, pp. 251–252)

In the introduction of Teilhard's 1965 book, Julian Huxley further defined Teilhard's concept as a "web of living thought" and a "common pool of thought" (Teilhard, 1965, pp. 18, 20). He also praised Teilhard for coming up with "a threefold synthesis of the material and physical world with the world of mind and spirit; of the past with the future; and of variety with unity" (p. 11). Huxley even urged that "we should consider inter-thinking humanity as a new type of organism, whose destiny it is to realise new possibilities for evolving life on this planet" (p. 20).

According to Teilhard, forces of the mind had been producing "grains of thought" and other pieces of the noosphere for ages. Increases in social complexity were also laying the groundwork for the noosphere's emergence. Thus, the noosphere was on the verge of achieving a global presence—its varied "compartments" and "cultural units" beginning to fuse. As Teilhard put it, equating cultures with species, "cultural units are for the noosphere the mere equivalent and the true successors of zoological species in the biosphere." Once a synthesis occurs, peoples of different nations, races, and cultures will experience "unimaginable degrees of organised complexity and of reflexive consciousness"—a planetary "mono-culturation" will take shape, yet somehow without people losing their personal identity and individuality (Samson and Pitt, 1999, pp. 76–79).

Fully realized, the noosphere will raise mankind to a higher evolutionary plane, even an "Omega point," shaped by a collective coordination of psychosocial and spiritual energies and by a devotion to moral, ethical, religious, juridical, and aesthetic principles. However, Teilhard counseled, "No one would dare to picture to himself what the noösphere will be like in its final guise" (Teilhard, 1965, p. 273). Indeed, the transition might not be smooth—a "paroxysm," a global tremor, or possibly an apocalypse might mark the final fusion of the noosphere (pp. 287–290).

Although Teilhard's noosphere concept is deeply spiritual and far less technological than cyberspace or the infosphere, he identified increased communications as a catalyst. Nothing like the internet existed in his time. Yet he sensed in the 1960s that 1950s-era radio and television systems were already starting to "link us all in a sort of 'etherized' universal consciousness" and that someday "astonishing electronic computers" would provide mankind with new tools for thinking (Teilhard, 1964, p. 162). Today, decades later, he is occasionally credited with anticipating the internet, as well as the recent trendy notion that Earth is transitioning from the Pleistocene to the Anthropocene age because human activity has itself become a kind of geological force.

Vernadsky's Thinking About the Noosphere

Vladimir Vernadsky likewise reasoned that Earth first evolved a geosphere and then a biosphere and that a noosphere would be next. Indeed, he wrote the first book titled *The Biosphere* (in 1926), treating life's planetary spread as a new kind of geological force. But although his views parallel Teilhard's, they also differ—Vernadsky's are much more materialist, in spots more mystical, and always less spiritual (he was an atheist).

According to Vernadsky's landmark paper—*The Transition from the Biosphere* to the Noösphere—a series of inventions (e.g., fire-making, then agriculture, and now modern communications technologies) had been generating "biogeophysical energy" (Vernadsky, 1938). This energy had enabled the development of the mind and its capacity for scientific reasoning and would lead "ultimately to the transformation of the biosphere into the noösphere" (p. 20). In other words,

This new form of biogeochemical energy, which might be called the energy of human culture or cultural biogeochemical energy, is that form of biogeochemical energy, which creates at the present time the noösphere. (p. 18)

In this seminal 1938 write-up, Vernadsky further argued that the noosphere's creation has "proceeded apace, ever increasing in tempo" over the "last five to seven thousand years" despite "interruptions continually diminishing in duration" (p. 29). Eventually, prolonged growth should bring about "the unity of the noösphere," as well as "a just distribution of wealth associated with a consciousness of the unity and equality of all peoples" (p. 31). But although Vernadsky averred that it is "not possible to reverse this process," he expected that "the transitional stage" would involve "ruthless struggle" and "intense struggles" that might span several generations. Nonetheless, it seemed unlikely that "there will be any protracted interruptions in the ongoing process of the transition from the biosphere to the noösphere" (p. 30).

Vernadsky believed that this analysis was thoroughly scientific. Yet he still wondered whether it "transcends the bounds of logic" and whether "we are entering into a realm still not fully grasped by science" (p. 31). He even made positive closing references to Hindu philosophy and to the role of art in man's thinking.

Years later, despite his dismay about World War II's destructiveness, Vernadsky continued to look ahead with visionary optimism, still associating the noosphere's rise with the values of freedom, justice, and democracy. In "The Biosphere and the Noosphere," an article compiled from his earlier writings that appeared in the journal *American Scientist* in 1945, he observed:

The historical process is being radically changed under our very eyes. For the first time in the history of mankind the interests of the masses on the one hand, and the free thought of individuals on the other, determine the course of life of mankind and provide standards for men's ideas of justice. Mankind taken as a whole is becoming a mighty geological force. There arises the problem of the *reconstruction of the biosphere in the interests of freely thinking humanity as a single totality.* This new state of the biosphere, which we approach without our noticing it, is the noösphere. . . .

Now we live in the period of a new geological evolutionary change in the biosphere. We are entering the noösphere. This new elemental geological process is taking place at a stormy time, in the epoch of a destructive world war. But the important fact is that our democratic ideals are in tune with the elemental geological processes, with the laws of nature, and with the noösphere. Therefore we may face the future with confidence. It is in our hands. We will not let it go. (Samson and Pitt, 1999, p. 99)

Throughout his varied writings about the noosphere, Vernadsky extolled the emergence of reason as a powerful, even geological force tied to the development of science and scientific thinking. He mostly viewed the noosphere as the "sphere of reason," the "realm of reason," the "reign of reason," and even "life's domain ruled by reason" (Vernadsky, 1997, passim).

Vernadsky's audience consisted mostly of fellow scientists in Soviet Russia, not policymakers. But he did occasionally argue that government administrators should attend to his findings and that "[s]tatesmen should be aware of the present elemental process of transition of the biosphere into the noosphere" (Samson and Pitt, 1999, p. 38)—a point we would reiterate on behalf of noopolitik.

Teilhard and Vernadsky Compared

Teilhard and Vernadsky shared a deep belief in Earth's evolutionary path: first, a geosphere; then, a biosphere; and next, a noosphere. Yet their views differed regarding both causes and consequences. Teilhard's views were more spiritually grounded than Vernadsky's; the latter argued that geological and technological forces could explain the noosphere's emergence. Yet, like Teilhard, Vernadsky expected the noosphere to have wonderful ethical consequences—"a just distribution of wealth" and "the unity and equality of all peoples" (Vernadsky, 1938, p. 30). And, although both viewed the noosphere as a realm of collective consciousness, neither saw it becoming a realm of uniformity. Both men valued individualism and variety. Both favored a future built on democracy. In ways that seemed contrary to Darwinian theory at the time, both also thought that evolution depended on cooperation as much as competition.

Both were quite unclear regarding what the transition to the noosphere would be like. They both made the transitional phase seem inevitable. Teilhard even made it seem alluringly smooth and peaceful—for the most part. Yet if the men had offered comparisons (which neither did) to the transitions to the geosphere and biosphere, they surely would have noted that evolution of any kind is often far from smooth and peaceful; indeed, it is often chaotic, disjointed, and violent. Fortunately, Teilhard and Vernadsky at least allude to this prospect—Teilhard by noting that a global tremor, even an apocalypse, might befall the final fusion of the noosphere; Vernadsky by noting the likelihood of intense ruthless struggles spanning several generations. Both recognized humanity's capacity for self-destruction.

Teilhard and Vernadsky were also unclear about another matter regarding the transition: Both saw the noosphere as evolving piecemeal around the planet, much as did the geosphere and biosphere, with some parts arising here and then spreading

there, other parts elsewhere, with interconnections and interactions increasing over time, until the entire planet would be caught up in webs of creation and fusion. But neither Teilhard nor Vernadsky specified exactly what parts and pieces might matter along the way. Teilhard at least indicated that "compartments" and "cultural units" bearing "grains of thought" would do the "fusing." That is not much to go on, but it is helpful for thinking strategically, as we argue later.

Le Roy's Depiction of the Transition

Le Roy's few writings offer further insight into how the biosphere-noosphere transition might occur. In his 1928 volume, *The Origins of Humanity and the Evolution of Mind*, Le Roy offered a "hydro-dynamical" metaphor to depict how the noosphere might emerge. It would not be like the growth of a branching tree, but rather would occur in ways resembling watery spurts, jets, and spouts that eventually link together to form a layer that covers all of Earth. According to Le Roy,

This is the noosphere, spurting and emanating from the biosphere, and finishing by having the same amplitude and same importance as its generator. . . . [It is] the spurting points that [will] attach the noosphere to the biosphere. (Samson and Pitt, 1999, pp. 66-67)

Metaphors aside, Le Roy went on to identify real-world factors that would drive creation of the noosphere: "division of work, game of association and habit, culture and training, exercise of all types; from where come social classes, types of mind, forms of activity, new powers" (Samson and Pitt, 1999, p. 67). This would finally result in a spiritualized separation of the noosphere—"a disengagement of consciousness . . . and the constitution of a superior order of existence . . . where the noosphere would strain to detach itself from the biosphere as a butterfly sheds its cocoon." A "mysterious force of thought cohesion between individuals" would provide the impetus for the layer's formation (p. 69).

Thus, much like Teilhard and Vernadsky, Le Roy viewed the expansion of the mind and the creation of the noosphere as a planetary process culminating in the noosphere's separation from the biosphere, though not without risks:

We are, in truth, confronting a phenomenon of planetary, perhaps cosmic, importance. This new force is human intelligence; the reflexive will of humankind. Through human action, the noosphere disengages itself, little by little, from the biosphere and becomes more and more independent, and all this with rapid acceleration and an amplification of effects which continue to grow. Correlatively however, by a sort of return shock, hominisation has introduced, in the course of life, some formidable risks. (Samson and Pitt, 1999, p. 5)

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This depiction of the noosphere's emergence is quite dramatic, even gripping and visionary—and so are the depictions offered by Teilhard and Vernadsky. Their metaphoric power might well help explain why the noosphere concept keeps spreading, not only over time but also across spiritual, intellectual, and other boundaries.