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Editorial— Russian Cosmism

Some time around 1882, God was pronounced dead. For certain Russian thinkers of the era, this loss provided a building opportunity: where the place of one god closes, space for another one opens. Unlike most established schools of thought, Russian cosmism does not present a singular vision, a consistent epistemology, or a unified theory. On the contrary: the ideas of its nineteenth- to early-twentieth-century protagonists are often so divergent and contradictory that they appear incoherent, paradoxical, or delirious.

Russian cosmism's known scientists, philosophers, and writers have been understood to include figures ranging from Nikolai Fedorov, the nineteenth-century librarian who aimed to resurrect all living and dead ancestors into an eternal church-museum focused on the revolutionary tenet of brotherhood; Konstantin Tsiolkovsky, Fedorov's library pupil who went on to formulate mathematical equations used for spaceflight; Alexander Bogdanov, who cofounded the Bolshevik party with Lenin and experimented with blood transfusions to rejuvenate one and all; and Alexander Chizhevsky, the "heliobiologist" who discovered and mapped connections between sunspots and human political behavior, and then created lamps to harness solar energy to restore fellow prisoners in labor camps.

Because the cosmists themselves were abruptly terminated or exiled by Stalin's regime, cosmism was unable to address its internal contradictions or develop in the way of other fields of thought, such as psychoanalysis, structuralism, and post-structuralism. But it is precisely the incompleteness and a certain lack of coherence that keeps cosmism so open and full of potential for contemporary development. As a true descendant of the radical humanism of the Western Enlightenment, but one that grew and advanced at a distance from Enlightenment centers of power, it may also stand as one movement among many that was artificially put on pause, never having been allowed to run its course. Now is the moment to pick the strands back up and see how they can inform and guide contemporary thought. After all, one central tenet of cosmism is a single sentence: Immortality and resurrection for all.

The name "Russian cosmism" itself is a contested label that was coined during the twilight years of the USSR, when religious and nationalistic tendencies reemerged amidst the decaying Soviet experiment. And while it is clearly indebted to the Christian notions of resurrection and apotheosis, its religious sentiments are largely heretical. Cosmism replaces God and divine providence with human labor and reason as the primary means for realizing eternal life, deification, and universal paradise. Similarly to Marxism, which sees labor as the engine of the emancipation of the proletariat, cosmism sees laboring towards resurrection by means of science, art, technology, and social organization as a way of collaborating with God, a collaboration that will result in the active evolution of

Harvard College Observatory members perform their opera Observatory Pinafore (a rewrite of Gilbert & Sullivan) on December 31, 1929. Photo: Charles Reynes.

humanity and the universe towards becoming a single interconnected, sapient organism, immortal and infinite like God.

Cosmism may have been inspired by the discovery of the Biela Comet, first recorded in 1772 and then, mistakenly, charted on a collision course with earth. In 1826, Wilhelm von Biela confirmed the comet as periodical; it was predicted to collide with the planet within the 1830s. The impending end of the world produced a worldwide panic (and several more thereafter throughout the nineteenth century), similar to the Y2K computer scare at the turn of the twenty-first century.

Awareness of Biela's Comet and the planet's impending collapse inspired several literary works written around 1830. One of these was an unfinished sci-fi novel by the Russian writer, philosopher, and music critic Prince Vladimir Odoevsky (1803–69). Originally published in fragments between 1835 and 1840, *The Year 4338* describes a futuristic society in the year before a comet emerges from the depths of cosmic space to destroy earth. The protagonist of the novel, a young man from Beijing, travels to St. Petersburg to meet with scientists who he thinks can prevent this impending cataclysm before doomsday in 4339. He travels on a high-speed electrical train under the Caspian Sea, through a futuristic Russia where all households are connected by telegraphs, and where people read newspapers made of liquid-crystal screens, have personal flying devices in the form of hot air balloons, eat synthetic foods, inhale special gas for recreation, and wear electric clothes that change colors and patterns. A moneyless economy has also been achieved. The few published fragments as well as the ideas behind this unfinished novel were almost certainly familiar to Nikolai Fedorov, who most experts credit with being the founder of cosmism. Fedorov worked at the very same library in Moscow as Prince Odoevsky.

Nikolai Fedorov developed his unusual set of ideas around the 1860s, while working as a teacher at various elementary schools throughout the Russian Empire. While a prolific writer, Fedorov did not publish during his lifetime, partly due to his modest character but also possibly because he suspected his radical ideas could lead to excommunication from the Orthodox Church, of which he was a devout follower. After his death, a volume of Fedorov's writings was published in Almaty, Kazakhstan,

under the title *The Philosophy of the Common Task*. This first publication of less than five hundred copies included the inscription "Not For Sale," and did not circulate commercially. In brief, the common task is no less than a project of human immortality achieved by technological means. It involves materially resurrecting all human ancestors (starting with Adam and Eve), controlling all the destructive forces of nature (including death), and exploring and colonizing all the stars and planets in the cosmos. Fedorov's eschatology is a human-led spiritualization of all the inanimate matter of the universe: an intergalactic educational project whose aim is to turn the universe into a unified feeling and thinking organism, immortal, infinite, and selfsame with God, its creator. In other words, the horizon of the common task is the construction of God by scientific, technological, and artistic means.

Despite rarely seeing publication, these revolutionary ideas influenced numerous key figures in the Russian intelligentsia, including such writers as Dostoyevsky and Tolstoy, religious philosophers such as Solovyev and Florensky, as well as numerous members of the artistic, scientific, and political avant-garde such as Tsiolkovsky, Bogdanov, and the novelist Andrei Platonov, among many others. These ideas also influenced many in the Russian visual arts, and are partially responsible for the fascination with zero gravity, flight, and the cosmos that we can clearly observe in numerous artworks, from Malevich's *Black Square* to Tatlin's *Letatlin*. In a more subtle way, the influence of cosmism can be felt in the sensibility behind constructivism and productivism, which treat a work of art not as a mere fetish of sublimated sexuality in a consumer economy, but as a microcosm of world-building and God-building.

While the cosmist's techno-futurism might remind us today of similarly—even absurdly—large-scale visions emerging from Silicon Valley and the likes of Elon Musk, Ray Kurzweil, and Peter Thiel, the crucial differences between cosmism and these ideas are far more revealing than their similarities. Precisely because of cosmism's ecclesiastical or religious roots, its ecstatic scale was driven by a spiritual reverie that transcends mere political and economic command and control. The encompassing scale of cosmist visions seems to ask us to admire their sheer ambition in straightforwardly posing questions of human equality in relation to divinity, causality, and mortality—questions that have since become more successfully suppressed than addressed in all their complexity. Faced today with ambivalent liberal platitudes of resistance or the disposable instrumentality of "disruptive tech," we might wonder more generally how artistic and creative thought could have been so heretical to Marxist-materialist and religious orthodoxies alike, while simultaneously believing so completely in their unified capacity for advancing human civilization.

Following the October Revolution, the materialist nature of Fedorov's theories appealed to many in the new Soviet state, and his universe-scale ambition did not seem out of place in a radicalized society that had abruptly overcome such seemingly intractable obstacles as private property. While it never became a part of official Soviet doctrine, much of cosmism dovetails with the ethos of early postrevolutionary utopian socialism in its drive towards a classless, egalitarian society completely dedicated to the emancipation and self-transformation of humanity, and to the construction of a man-made paradise on earth. The first postrevolutionary decade saw an explosion of cosmist ideas and their application in very diverse areas of life, from art and science to the practical organization of labor, time management, and the health system. This period also sees the emergence of biocosmism—an atheist, anarchist-infused variant of cosmism strongly influenced by futurism in poetry and art. At a certain moment in the mid-1920s, it is in fact difficult to find a creative thinker in the USSR who is not influenced by this set of ideas. However, by the early 1930s, much like most other intellectual movements that differed from the "scientific Marxism" embraced by Stalin's government, cosmism becomes a subject to be purged, along with its protagonists and practitioners—most of whom end up in jail, in labor camps, or in front of firing squads.

e-flux journal no. 88 is based on an international conference on cosmism that took place at Haus der Kulturen der Welt (HKW) in Berlin in September 2017. The issue is not only dedicated to resurrecting the cosmic and practical visions that the movement's fallen initiators began to develop last century. It also aims to provide a launchpad for contemporary reflections on the continued, vast, and tangled influence of Russian cosmism on historical revolution (within and beyond the Russian Revolution one century ago), historical and contemporary artistic and political discourse, technology, and scientific innovation.

We begin by providing an illustrated timeline of Russian cosmism, starting with Biela's Comet and extending into the movement's continuation into our time. The timeline was researched and compiled by Anastasia Gacheva, Arseny Zhilyaev, and Anton Vidokle. From this starting point, essays by some of the contemporary philosophers, writers, and artists who are giving shape to and reactivating the fibers and contours of this still little-known movement trace its past and its present through the means of art, cinema, geography, history, positivism, revolution, and beyond.

To be continued ...

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Anastasia Gacheva, Arseny Zhilyaev, and Anton Vidokle

Timeline of Russian Cosmism

1772
Biela's Comet (official designation: 3D/Biela) is first recorded by Jacques Leibax Montaigne and Charles Messier. Much later, in 1826, Wilhelm von Biela will identify the comet as a member of the periodic Jupiter-family. Predictions at the time place the comet on a collision course with Earth, bound to destroy the planet sometime in the 1830s (when this doesn't come to pass, Earth's annihilation by Comet Biela is anticipated for several subsequent decades). **1792**
While exiled in Siberia (by Catherine the Great), Russian philosopher and writer Alexander Nikolaevich Radishchev begins composing his treatise *On Man, His Mortality and Immortality*.

> O man, whether you be a creature complex or uniform, it is not ordained that your intellect disintegrate with your body. Your goal is your felicity and your perfection. Walk the path traced out by nature and believe that when you have outlived your days, the disintegration of your intellect shall not be your lot. You determine your future with the present; and believe, I say yet again, believe that eternity is not a dream.
> —A. N. Radishchev

1835
The Russian author and journalist Vladimir Fedorovich Odoevsky (1803–1869) writes a science fiction novel, *The Year 4338*, premised on Earth's imminent destruction by a comet.

> A means has been discovered for travelling to and from the Moon; it is uninhabited and serves only as a source for supplying Earth with various necessities of life, thereby averting the fatal catastrophe with which Earth was threatened by virtue of its immense human population ...
> Through the use of diverse chemical compounds found in the ground, a means has been discovered for heating and cooling the atmosphere: ventilators have been devised to avoid high winds ...
> The feeling of love for mankind has increased to such a degree that people cannot bear to see tragedies and are amazed at how we could have ever delighted in the sight of moral afflictions, just as we cannot comprehend the pleasure the ancients derived from watching gladiators.
> —V. F. Odoevsky, *The Year 4338*

Nikolai Fedorovich Fedorov (1829–1903) articulates his philosophy of the Common Task.

> The idea that through us, through rational creatures, nature will attain the fullness of self-awareness and self-governance and will recreate that which has been destroyed and is being destroyed through its blindness hitherto and will thereby fulfil the will of God, becoming the likeness of Him, Who is its Creator.
>
> —N. F. Fedorov

1851
The American paleontologist James Dana discovers the phenomenon of cephalization, demonstrating that the evolutionary process leading to the creation of man has a directed, ascending character: development occurs along the line of perfecting the nervous systems of living creatures and an increase in brain mass.

1874
Fedorov begins his twenty-five-year post at the Rumyantsev Museum Library.

> If we compare an archive to a grave, then reading, or more precisely research, will be the path toward exhumation, and an exhibition, as it were, the resurrection.
> —N. F. Fedorov

While working at the library, Fedorov makes the acquaintance of sixteen-year-old K. E. Tsiolkovsky.

> I regard Fedorov as an exceptional individual, and my meeting him as my good fortune. For me he took the place of university professors, with whom I did not associate.
> —K. E. Tsiolkovsky

1878
F. M. Dostoyevsky becomes acquainted with Fedorov's ideas.

> Who is this thinker, whose thoughts you have conveyed? If you can do so, tell me his real name. He has intrigued me too greatly … And then I shall say that essentially I am in entire agreement with these ideas. I read them as if they were my own.
> —Letter from F. M. Dostoyevsky to Fedorov's pupil P. P. Peterson, March 24, 1878

In replying to Dostoyevsky, Fedorov begins constructing a comprehensive exposition of his Philosophy of the Common Task.

> The question of the fate of the Earth leads us to the conviction that human activity must not be bound by the limits of the Earthly planet. We must ask ourselves: Does our knowledge of the fate awaiting the Earth, of its inevitable end, obligate us to do something, or not? … God educates man through his own experience: He is the King who does everything not only for man, but also through man; because there is no purposiveness in nature, it must be introduced by man himself, and in this consists the higher purposiveness. The Creator re-creates the world through us; he resurrects all that has perished … And therefore mankind must not be an idle passenger, but the servant, the crew of our Earthly ship, set in motion by a force as yet unknown.
> —N. F. Fedorov, *The Question of Brotherhood, or Kinship* …

Dostoyevsky begins work on his novel, *The Brothers Karamazov*.

> The transposition of love. I have not forgotten those either. The belief that we shall come back to life and find each other, all in universal harmony … The resurrection of our forebears depends on us.
> —F. M. Dostoyevsky, preparatory notes for *The Brothers Karamazov*

In Ryazan, Russia, K. E. Tsiolkovsky makes his first notes on the conquest of space and interplanetary travel, sketches a map of the Solar System, draws an asteroid with a human being under conditions of weightlessness, and ponders how to achieve weightlessness under terrestrial conditions.

1880
The economist, essayist, and thinker Sergei Andreevich Podolinsky (1850–1891) publishes his work *The Labor of Man and its Relationship to the Distribution of Energy*, in which he propounds the concept of labor as a factor of negative entropy, pointing out that all living creatures—beginning from plants and ending with man—possess the ability to accumulate energy from the Sun and transform it into new, higher forms of energy.

Autumn 1881-1882
N. F. Fedorov meets L. N. Tolstoy and V. S. Soloviev. An intellectual and philosophical dialogue develops between the three thinkers.

> There are men here too. And God has allowed me to get to know two of them. Orlov is one, the other, and the main one, is Nikolai Fedorovich Fedorov. He is the librarian at the Rumyantsev Library. Remember, I told you about him. He has put together a plan of the common task of all mankind, having as its goal the resurrection of all people in the flesh. Firstly, this is not as insane as it seems. (Don't be afraid, I do not share and have never shared his views, but I have understood them so well that I feel capable of defending those views against any other credo that has an external goal.)
> —L. N. Tolstoy, from a letter to V. I. Alexeev (November 15-30, 1881)

1884
L. N. Tolstoy presents an exposition of Fedorov's ideas on resurrection to members of the Moscow Psychological Society. To the question: "How will all the resurrected generations fit onto the Earth?" the writer replies: "The kingdom of knowledge and governance is not limited to the Earth."

1889–1890
L. N. Tolstoy and N. F. Fedorov hold dialogues on art. Fedorov is developing the concept of a theoanthropourgical art that serves the causes of resurrection of the dead and regulation of nature. He opposes art as the creation of "likenesses" of the past and the living ("Ptolemaic art") to the art of reality that transforms the world ("Copernican art"). Leo Tolstoy works on two articles, "Science and Art" and "On Science and Art."

> Aesthetics is the science of recreating all the rational beings that have ever been on this tiny Earth (this little drop that has reflected itself in the entire universe and reflected the entire universe in itself), for the animation (and governance) by them of all the immense celestial worlds that have no rational creatures.
> —N. F. Fedorov

The *Exposition Universelle*, or World's Fair, opens in Paris during the 100th anniversary of the storming of the Bastille. For Fedorov, the image of the World's Fair becomes a manifestation of the false paths of civilization, and also of the decadence of art that serves the factory and trade. The philosopher contrasts the Fair with the Museum, which he makes the focus of history, as "a work of salvation," as a work of art that sets before itself the resurrectionary ideal.

> The Museum does not permit either knowledge or truth or art, i.e. beauty, to be diverted from the common good, but only memory makes the good common.
> —N. F. Fedorov

In his articles "Beauty in Nature" and "The General Meaning of Art," Vladimir Sergeevich Soloviev presents the development of the world as "the gradual and persistent process" of the animation of matter, which has attained its crown in man.

> We must define beauty as the transformation of matter through the incarnation in it of another, supermaterial principle.
> —V. S. Soloviev

1891
Famine in Russia

In the U.S., the first experiments are carried out on inducing artificial rainfall by means of artillery projectiles.

N. F. Fedorov seeks to draw attention to the American experiment, seeing it as one of the first steps towards the governance of nature. Through I. M. Ivakin he approaches Tolstoy with a request to support the idea of the artificial induction of rain.

> It is the regulation, the governance of the forces of blind nature that constitute that great task which can and must become the common one.
> —N. F. Fedorov
>
> Concerning influencing the movement of the clouds in order that rain will not fall into the sea, but where it is needed, I know and have read nothing, but I think that it is not impossible, and that everything that can be done in this line will be good. It is one of the applications of the worldview of Nikolai Fedorovich, with whom I have always sympathized and still do, regarding a task that is worth the effort and the common task of all mankind.
> —From a letter from L .N. Tolstoy to I. M. Ivakin

1893
Fedorov completes his major work, *The Question of Brotherhood, or Kinship*, which developed out of his correspondence with Dostoyevsky.

Fedorov announces his idea to cover the walls of the

Kremlin with murals, part of his larger ambition to transform the Kremlin into a "universal museum of all sciences and arts." He wants these murals to depict key events in Russian history: the unification and pacification of nations, as well as "future deeds of the world"; the regulation of nature and resurrection. The paintings are to be done collectively by all artists in Russia.

1894
Soloviev completes his treatise *The Meaning of Love*.

> The meaning of gender differentiation (and sexual love) is to be found not in the reproduction of ancestral life, but in the idea of a higher organism. Our rebirth is inextricably bound up with the rebirth of the Universe, with the transformation of its forms of space and time.
> —V. S. Soloviev

Tsiolkovsky's science-fiction work *Dreams of the Earth and the Sky and the Effects of Universal Gravitation* is published in Moscow. It contains the first mention of the possibility of launching an artificial satellite into orbit round the Earth.

> A notional satellite, like the Moon, but at an optionally close distance from our planet, only outside the bounds of the atmosphere-that is, about 300 versts (320 kilometers) from the Earth's surface-provided it has very low mass, would be an example of an environment free of gravity.
> —K. E. Tsiolkovsky

1898
The dramatist Alexander Vasilievich Sukhovo-Kobylin (1817–1903) completes his translation of the works of Hegel and attempts to publish sections of his work *A Philosophy of Spirit or Sociology (A Doctrine of the Universe)*.

> Three moments in the history of mankind and its advance toward Absolute Spirit:
> The first moment is telluric or earthly mankind, confined within the narrow limits of the terrestrial globe that we inhabit.
> The second moment is solar mankind, i.e. that which is manifested as the central hub of the inhabitants of our Solar System.
> The third moment is sidereal, or universal mankind, i.e. the entire totality of worlds inhabited by mankind throughout the infinity of the Universe.
> —A. V. Sukhovo-Kobylin

On the basis of his mathematical calculations, K. E. Tsiolkovsky finally comes to the conclusion that a rocket constructed on the principle of reactive motion will be able to overcome the force of the Earth's gravitation.

After Russia makes an appeal for disarmament, preparations begin for the first peace conference.

N. F. Fedorov's article "Disarmament" appears in the newspaper *The New Times*: in it he proposes "converting instruments of destruction" into "instruments of salvation" and converting the army into a force for the study of nature.

> The conversion of the art of war into research, into the study of nature, and the employment of the army in this study will be an expression of its new assignment; this will lay the foundation for the transition from strife with our own kind to acting on the blind, irrational forces of nature, which afflict us with floods, earthquakes, and other catastrophes of all kinds, to acting on the blind forces that hold us rational creatures in a state of unnatural dependence on them.
>
> —N. F. Fedorov

1902
The physicist and philosopher Nikolai Alexeevich Umov (1846–1916) proposes the hypothesis of the anti-entropic nature of life, and suggests the introduction of a third law of thermodynamics to account for the phenomena of life and consciousness.

> Orderliness is an essential characteristic of living matter. In its general features the evolution of living matter increases the amount of orderliness in nature. Man conscripts the vegetable and animal kingdoms into the circle of his own elements of orderliness; in his implements and machines he extends these elements of orderliness to unorganized matter, and in the name of these elements of orderliness he wages battle against the adventitious ordering of events in nature.
> —N. A. Umov

N. F. Fedorov writes a new exposition of his doctrine: Supra-Moralism, or Universal Synthesis, i.e. Universal Integration.

> The synthesis of two modes of reason (theoretical and practical) and three objects of knowing and doing

> (God, man and nature, of which man is the instrument of divine reason and himself becomes the reason of the universe) and in addition, together with this, the synthesis of science and art in the religion that is identified with Easter as a great feast and great deed.
> —N. F. Fedorov, Supra-Moralism

1903
The journal *Scientific Review* (*Nauchnoe obozrenie*) publishes K. E. Tsiolkovsky's article "The Exploration of Outer Space by Means of Reactive Motion Devices," in which the formula of reactive motion is derived and the possibility of flight into cosmic space is validated.

> I have elaborated certain aspects of raising objects into space by means of a reactive motion device, similar to a rocket. The mathematical conclusions, founded on scientific data and verified numerous times, indicate that it is possible to ascend into celestial space using such devices and perhaps establish colonies beyond the bounds of the Earth's atmosphere. Hundreds of years will probably pass before the ideas I have expressed find any application, and people will use them to settle not only across the face of the Earth, but across the face of the entire Universe.
> —From a letter written by K .E. Tsiolkovsky to the editor of the journal *Scientific Review*, M. M. Filippov

N.F. Fedorov dies.

> We felt that those were his final words of advice, his final injunctions. Not a word about himself personally, neither about his illness, nor about the imminent end of his life. He thought and spoke only about the 'task.' He was never separated from it until his final moment of conscious awareness.
> —V. A. Kozhevnikov

1905
The first Russian revolution.

1906
In a poem entitled "In Praise of Humanity," Valery Bryusov becomes the first writer to use Fedorov's image of Earth as a spaceship.

1907
In the city of Verny (Alma-Ata), the first volume of N. F. Fedorov's *Philosophy of the Common Task*, prepared for publication by his disciples V. A. Kozhevnikov and N. P. Peterson, appears in an edition of 480 copies with the label "Not for sale."

1905–1909
Parallel to the Russian tradition of God-seeking, a new tendency is developing: God-building. Alexander Bogdanov, Anatoly Lunacharsky, and Maxim Gorky propose a new ideal, based on the idea of a collective organization of experience. The goal is for humanity to become godlike, while understanding the struggle for socialism not merely as a struggle against capital, but as positive creativity. The development of new forms of human relations, the construction of a new culture, and the transformation of nature are all part of the plan.

1908
Alexander Aleksandrovich Bogdanov, a philosopher, scientist, and revolutionary (1873–1928) publishes his science-fiction novel *Red Star*, which depicts an ideal social order achieved on Mars. Leonid, the socialist protagonist of the novel, travels to Mars on a spaceship powered by a nuclear engine.

The poet Velimir Khlebnikov (1885–1922) writes "The Crane," in which he articulates an artistic and philosophical critique of a technologically-driven civilization, with its cult of commodities and submission to death.

1911–1912
The journal *Bulletin of Aeronautics* publishes the second part of a study by Konstantin Tsiolkovsky entitled "The Exploration of Cosmic Space by Means of Rocket Devices," in which he discusses rocket flight and the future development of flying cars, as well as the use of atomic energy for interplanetary travel.

1912
In his article "The Canon and the Law," the Russian avant-garde artist Pavel Nikolaevich Filonov (1883-1941) expounds the basis of the method of analytical art, which, in distinction from Cubism, takes its cue from an organic principle—a growing reality that is in a constant process of change and becoming.

1913
The second volume of Fedorov's *Philosophy of the Common Task* is published in Moscow.

The first part of Bogdanov's *Tektology, a Universal Organizational Science* is published. Tektology will later be recognized as a precursor to Cybernetics and Systems Theory.

The futurist opera *Victory over the Sun* premieres in St. Petersburg. The libretto is written by Aleksei Kruchonykh in Zaum (the language of Russian futurist poets); the music was composed by Mikhail Matyushin, with a

prologue by Velimir Khlebnikov; Kasimir Malevich created the set design.

> Evolution can be creative, i.e. man or any living creature will take note of it in himself and start directing its movement towards the form he requires.
> —P. N. Filonov

1914
The beginning of World War I.

In Kaluga, a teenage student named Alexander Chizhevsky meets Konstantin Tsiolkovsky.

1915
In an essay entitled "War and the Progress of Science," the scientist Vladimir Vernadsky (1863–1945) warns against further use of scientific experiments for military goals.

A new artistic movement called Suprematism is founded by Kazimir Malevich. Malevich paints his *Black Square* as well as a series of Suprematist compositions that are exhibited at the *Last Futurist Exhibition of Paintings 0.10* in St. Petersburg. Other particilants include: Vladimir Tatlin, Ivan Puni, Liubov Popova, Ivan Kliun, Ksenia Boguslavskaya, Olga Rozanova, Nadezhda Udaltsova, Nathan Altman, Vasily Kamensky, Vera Pestel, Maria Vasilieva, Anna Kirillova, and Mikhail Menkov.

1916
The poet Vladimir Mayakovsky writes "The War and the World." The finale of the poem depicts the resurrection of the victims of all wars, and universal brotherhood.

> Perplexing: is it air, flower, or a bird? Singing, sweet-smelling,
>
> and kaleidoscopic— yet it sets all faces on fire and makes the mind spin like the sweetest wine. And not only people do joy's colors unfurl, their faces beaming; animals stylishly curl their fur. Yesterday's stormy seas begin to purr and lie down at your feet.
> —V. Mayakovsky, "The War and the World"

A manifesto by Velimir Khlebnikov entitled "The Trumpet of the Martians" is published in Kharkov. The text is a proclamation of a future humanity comprised of inventors who are constructing their state in time, as opposed to consumers who exist as parasites on existence.

1917
The Russian Revolution.

Konstantin Tsiolkovsky writes an article titled "The Ideal Order of Life."

> The true path toward perfection means to not deprive anyone of anything, to not commit any violence, to not violate the freedoms and desires of our neighbors, unless they threaten us with the same. ... There is no need to rob or steal, because nature is abandunt in all treasure.
> —K. E. Tsiolkovsky

Velimir Khlebnikov writes a poetic manifesto titled "A Call to the Chairmen of the Globe"—a call to end all wars.

1918–1922
The cosmic achievements of a liberated humanity become a recurrent theme in the poetry and journalism of the first years after the Revolution. Cosmist themes appear in the work of Khlebnikov, Mayakovsky, Esenin, Kluev, Gerasimov, Kirillova, and Filipchenko, which leads literary critics to speak of a spontaneous "cosmism" in poetry.

1918
The ideology of the Proletkult is actively articulated (the notions of culture or labor, the protetariat as the messiah, the spirit of labor, universal revolution, a global spring, etc.) The main theorist of the Proletkult, Alexander Bogdanov, outlines the central task of the working class: "a graceful and holistic organization of the life of all humanity," and defines the goal of art as work directed toward "the realization of an ideal organization of the world."

Kasimir Malevich paints *White on White: A Cosmos within a Cosmos*.

> The white square carries within itself a white world (world-building), assigning the symbol of purity to the creative life of humanity.
> —Kasimir Malevich

1919
Velimir Khlebnikov pens a platform statement, "The Artists of the World."

> Our goal is a common written language, common for all the nations of the third satellite of the Sun, to construct written signs, comprehensible and acceptable for the whole star that is settled by humanity, lost in the world.
> —Velimir Khlebnikov, The Artists of the World, 1919

A Union of Artist-Inventors is formed. Members include Kasimir Malevich, Valdimir Tatlin, and others.

1920
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1921
A famine in the USSR kills nearly five million people.

The biocosmist movement starts in Moscow, led by the anarchist poet A. Agienko (Svyatogor) and the publicist P. I. Ivanitsky. The slogan of the biocosmists is "Immortalism and Interplanitarism." They publish numerous manifestos, participate in public debates, and publish a journal, *Biocosmism*.

> The most important thing for us is the immortality of the individual and his life in the cosmos. We have elevated this value to a goal in itself, thus formulating our teleological point of view. Our philosophy is first and foremost a great teleology and all philosophical problems are shaped by our glorious objectives.
>
> We looked to our undying, instinctive urge towards immortality and our unquenchable thirst for glorious creativity, trusting in our biocosmic consciousness of the objective world's reality. Objective reality is an infinite arena for the great struggle in which everything that possesses individuality and integrity asserts its supreme existence.
> —"Our Affirmations," *Biocosmist* no. 1

An artistic-philosophical association, "Art-Life," is formed in Moscow. It is based on the idea of the synthesis of the arts. Participants include the artists V. Chekrigyn, S. Romanovich, and S. Gerasimov, the philosopher P. Florensky, and the poets P. Antokolsky and V. Khlebnikov.

The artist V. Chekrygin encounters the ideas of N. Fedorov. Inspired by Fedorov's idea of the art of the future, Chekrygin develops a project for a Resurrecting Cathedral-Museum, as a collective task for contemporary artists. He creates a series of drawings entitled *The Resurrection of the Dead* as studies for frescos in this cathedral.

> Resurrection of the dead fathers is the task of art. The full synthesis of art is the Transformation of the Cosmos (the Universe), the mastery of the cosmic process, transformation of the inert law of attraction and gravitation of the masses (and bodies in the dying universe, waiting for support), towards a higher law-the true support-love.
> —V. Chekrygin

A. Platonov writes an essay on the cosmic goals of art entitled "Proletarian Poetry." It is published in the journal *Forge*.

> Proletarian poetry is a transformation of matter, it is a struggle with reality, a battle with the cosmos in order to change it in accordance with the inner needs of humans.
> —A. Platonov

1922
A club called the "Creatorium of Biocosmists" is founded. The newspaper *Izvestia* publishes the biocosmist manifesto. A. Yaroslavsky joins the movement and organizes a biocosmist group in St. Petersburg called the "Northern Biocosmists." This group starts publishing a journal entitled *Immortality*. Yaroslavsky publishes several books of poetry, including *The Assault on the Universe* and *Anabiosis Poem*.

1923
British scientist and Marxist J. B. S. Haldane publishes the book *Daedalus*; or, *Science and the Future*, which offers an early vision of transhumanist thought. The book is particularly concerned with the ethical implications of the advancement of science.

The Marxist historian N. Rozhkov publishes a book entitled *The Meaning and Beauty of Life*, which advocates immortality and the exploration of the cosmos.

> In the distant future humanity will have the opportunity to achieve omnipotence in the literal sense of this word, including communication with other worlds, immortality, resurrection of bodies of those who lived earlier, and even the creation of new planets and planetary systems.
> —N. Rozhkov

V. Mayakovsky depicts the studio of resurrection at the end of his poem “About This.”

> I see clearly, to the tiniest detail I see, Air into air, as if brick on brick appears, inaccessible to decay and putrefaction, gleaming, rearing through the eras the workshop of human resurrection. There he is that great-browed quiet scientist, before the experiment, furrowing his brow. Name-searching — a book — The Whole Earth its title-list. The Twentieth Century. Whom to resurrect now?
> “There's Mayakovsky here ... Let's find someone brighter - This poet's not handsome enough. Reject.” Then I cry out from these very pages of writing: Don't turn over the page! Resurrect !
> Put a heart in me — Transfuse blood to the uttermost vein. Inject thought into my skull with your skill! My earthly life I never lived out to the end. On earth, my love I could never fulfill.
> —V. Mayakovsky, “About This”

A. Tolstoy publishes his novel *Aelita, or The Decline of Mars*.

1924

Lenin dies. His body is embalmed and placed in a mausoleum in Red Square.

The proletarian poet G. Sannikov composes the poem “Leniniada,” in which he depicts the resurrection of all the casualties of the revolution.

The scientist, poet, painter, and philosopher A. Chizhevsky (1897–1964) self-publishes a treatise entitled *Physiological Factors of the Historical Process* in which, using the statistical analysis of historical data, he explains the relationship between the activity of solar cycles and human history.

> In light of the contemporary scientific worldview, the fate of humanity is directly connected with the fate of the universe ... To understand the life of the Earth-the planet taken as a whole: with its atmosphere and lithosphere, as well as all the plant and animal life, and all its human population-we must look at life as one common organism ... Historical events develop in response to triggers caused by changes in the process of the formation of Sun spots.
> —A. Chizhevsky

To emphasize the importance of Tsiolkovsky to the field of space exploration, Chizhevsky publishes Tsiolkovsky’s 1903 treatise *A Rocket in Outer Space* and distributes it to numerous international libraries and universities, as well as directly to a number of notable scientists.

In Moscow, a society for research into interplanetary communications is formed. Members include K. Tsiolkovsky, F. Zander, V. Vetchinkin, and others.

Y. Protazanov directs a silent film, *Aelita, Queen of Mars,* based on the novel by A. Tolstoy.

The cosmist philosopher V. Muraviev (1885–1930) publishes a book entitled *The Control of Time as the Main Task of Labor Organization*.

> Creative labor, in our understanding, is a cosmic category, and the goal of all labor is to overcome time. We need to stop hoping for a ready-made eternity and start producing time. Blind, irrational time is already in its death throes. Beyond it lies the new, more perfect and rational time-a creation of the future global culture.
> —V. Muraviev

The cosmist philosopher A. Gorsky (1886–1943) completes a treatise entitled An Enormous Sketch in which, transforming Freud's psychoanalytic theory and complementing it with ideas from *The Meaning of Love* by V. Soloviev, he proposes the concept of a transformative, resurrecting eros and the overcoming of genders.

E. Roerich writes and starts to publish anonymously a fourteen-volume work called *Living Ethics (Agni-Yoga)*, based on the idea of an ascending cosmic evolution and the harmonization of individual energy with the energy of the universe.

1925

In France an essay by V. Vernadsky entitled “Human Autotrophy” is published. The essay addresses the notion of the infinity of life, the role of reason in the biosphere, and the prospects for a transition to synthetic food production.

> What would synthetic food mean for the life of humans and the life of the biosphere? This would liberate humanity from its dependence on the consumption of other living matter, transforming the human from a heterotrophic being into an autotrophic being. The consequences of this transformation for the mechanism of the biosphere would be enormous.
> —V. Vernadsky

Biocosmist P. Ivanitsky publishes a brochure entitled "Artificial Rain and Weather Controlled by Means of Regulating Atmospheric and Ground Electricity."

The *Global Pathfinder* journal publishes a science fiction story by A. Belyaev (1884–1942) entitled "Professor Dowell's Head," about experiments to keep a head alive without the rest of the body. This story is later developed into a novel.

K. Malevich develops Suprematist architectural models (architectons and planids), some of which the author says are intended to represent models for structures in the cosmos-the foundation for space stations.

1926

V. Vernadsky publishes his book *The Biosphere.*

> The substance of the biosphere is permeated by energy, thanks to cosmic rays; it becomes active, it collects and distributes this radiant energy in the biosphere. The face of the Earth is not only a reflection of our planet and its substance and energy—at the same time it is a creation of the external forces of the cosmos.
> —V. Vernadsky

The Moscow Institute of Hemotology is opened. A. Bogdanov is appointed director and focuses on experimental blood transfusions, with the goal of reversing the aging process.

Professor S. Briukhonenko (1890–1960) invents the world's first device for artificial blood circulation, called the "Ventricular Assistance Device." He conducts experiments in which he is able to reanimate dogs and keep them alive for two hours or more.

A cosmist artistic group called "Amaravella" (Sanskrit for "Saplings of Immortality") is formed.

1927

In April the first World Exhibition of Interplanetary Spacecraft and Mechanisms opens in Moscow and is visited by more than ten thousand people in two months.

The scientist and popularizer of aviation and cosmonautics N. A. Rynin starts publishing a series of issues of *Interplanetary Travel in the Fantasies of Novelists and the Projects of Scientists* (in all there were nine issues, and the final one, which appeared in 1932, included a chronicle and an extensive bibliography on the subject).

In Paris, the French philosopher Edouard Le Roy gives a cycle of lectures that are later compiled in his book *The Origins of Man and the Evolution of Intelligence*, in which the term "noosphere" first appears. The originator of the term was the philosopher and paleontologist P. Teilhard de Chardin, who made the case for it in 1925 in his essay "Hominization."

P. Teilhard de Chardin completes his book *The Divine Milieu*, in which he emphasizes the idea of ascending creation and the movement of the universe towards the Pleroma, which includes, together with man, all the creatures of creation.

1928

M. Gorky mentions Fedorov in his article "Once Again on Mechanical Citizens," published on November 27 in the newspaper *Izvestiya*, adducing Fedorov's aphorism: "Freedom without power over nature and without controlling it is the same as liberating the peasants without land." M. I. Kalinin cites this quotation in his report to the fourth session of the Central Executive Committee of the USSR on December 11.

On December 28 *Izvestiya* publishes an article about N. F. Fedorov by A. K. Gorsky, in which he expounds Fedorov's ideas in such a way as to show their affinity with the scientific, technical, and social transformations of Soviet Russia.

The young architect G. T. Krutikov, a student at the Higher Art and Technical Studios, presents as his graduation project the work *The City of the Future: The Evolution of Architectural Principles in City Planning and the Organization of Housing*. As part of the project he creates a design for a "flying city."

A volume of the preparatory materials for F. M. Dostoevsky's novel *The Brothers Karamazov* is published in Germany by R. Piper's publishing house, with V. L. Komarovich's extensive research work *Patricide and N. F. Fedorov's Doctrine of Physical Resurrection*.

1929
A. K. Gorsky and V. N. Muraviev are arrested.

The philosopher, priest, and theologian P. A. Florensky (1882-1937) propounds the idea of the pneumatosphere in a letter to V. I. Vernadsky.

> From my side I wish to express an idea which requires concrete substantiation and is more of a heuristic principle. It is precisely the idea of the existence in the biosphere, or perhaps on the biosphere, of that which might be called a pneumatosphere, i.e., of the existence of a special part of matter involved in the circulation of culture, or rather, of the spirit.

—P. A. Florensky. From a letter to V. I. Vernadsky

A. Platonov completes his novel *Chevengur*, in which he puts the ideal of communism to the test. The novel remains unpublished in Platonov's lifetime.

Socialism is not a far-distant country where, through the combined efforts of humanity, Rosa Luxemburg will return to life as a living citizen.
—A. Platonov, Chevengur

1930
A. Chizhevsky publishes his book *Epidemiological Catastrophes and the Periodic Activity of the Sun*, summing up his research into the relationship between the origin and spread of epidemics and the cycles of solar activity. In Kaluga, Tsiolkovsky publishes his *Scientific Ethics*.

The ethics of the cosmos, i.e., of its conscious creatures, requires that there should not be any suffering anywhere.
—K .E. Tsiolkovsky, *Scientific Ethics*

The science fiction writer A. Belyaev publishes an essay on K. E. Tsiolkovsky entitled "Citizen of the Ethereal Island." He also publishes a story entitled "Imperishable World," which shows in artistic form the dangers of ill-considered and voluntaristic intrusions by man into nature that have not been preceded, as N. F. Fedorov insisted they should be, by a thorough study of natural processes.

A. Platonov writes his novel *The Foundation Pit*, which symbolically embodies a number of Fedorovian motifs (such as eternal memory and the impossibility of universal happiness as long as death exists).

1931

The Group for the Study of Reactive Motion (GSRM) is founded, affiliated with the Society for the Promotion of Defense and Aviation and Chemical Construction. The members of the group are the scientists and design engineers S. P. Korolev, Yu. A. Pobedonostsev, M. K. Tikhonravov, and F. A. Zander, among others. A Leningrad chapter of GSRM is set up, including as members Ya. I. Perelman, N. A. Rynin, and V. V. Razumov, among others.

A Central Scientific Research Laboratory for studying ionification is set up, headed by A. L. Chizhevsky.

Amazing Stories publishes "The Jameson Satellite," a short story by Neil R. Jones, about a man whose corpse is sent into orbit, where it remains near absolute zero temperature for millions of years until a race of cyborgs discovers it, defrosts its brain, and installs it in a robot's body.

1932

The Institute of Artificial Rain is founded, affiliated with the USSR Hydrometeorological Committee.

On the initiative of A. M. Gorky, the All-Union Institute of Experimental Medicine, is founded in Moscow to deal, among other things, with the question of longevity.

1933

The first launch of a rocket developed by the GSRM takes place at the Nakhabino testing ground in the Moscow region. The group works on problems associated with the conquest of space.

The science fiction writer A. Belyaev publishes his novel *Leap Into Nothing*. The engineer F. A. Zander serves as the prototype for the main character, the German scientist and pacifist Leo Zandler, who builds a spaceship and explores the expanses of the universe.

The Eurasian writer K. A. Chkheidze (1897-1974) creates the archive collection "Fedoroviana Pragensia" at the National Museum in Prague. The collection is dedicated to promoting the understanding of Fedorov's ideas among Russian émigrés.

1934

In Harbin, China, N. A. Setnitsky publishes a second edition of an anthology entitled *The Universal Task*, dedicated to the memory of Fedorov. The book includes essays addressing polemics addressing the topics "science and religion" and "science and labor," and discusses spiritual yearning among the Russian émigré community in Harbin from the viewpoint of the philosophy of the Common Task.

The Mosfilm film studio starts work on the movie *Cosmic Voyage*. K. E. Tsiolkovsky is a consultant and is involved in writing the script. He creates thirty drawings especially for the film, which are later collected in *An Album of Space Travel*.

1935

K. E. Tsiolkovsky dies.

1936

The journal Zvezda (Star) prints A. Belyaev's science fiction novel The Star KETs (the letters K, E, and Ts are the initials of Konstantin Eduardovich Tsiolkovsky).

N. A. Setnitsky attempts unsuccessfully to meet with A. M. Gorky. Eventually, Setnitsky writes Gorky a letter about his unsuccessful efforts to incorporate Fedorov's ideas into Gorky's vision of the construction of Soviet society. Before Setnitsky can send the letter, he discovers that Gorky has died.

> The tragic thing is that not one of the builders of socialism dares to say that it is impossible even to think about socialism without a struggle against death, and that communism cannot be built without victory over death.
> —N. A. Setnitsky. From a letter to A. M. Gorky

1937

In collaboration with A. K. Gorsky, who is released from a prison camp in the spring of 1937, N. A. Setnitsky writes the article "Creative Marxism and the Liquidation of Opportunistic Time-Serving in Biology" (unpublished).

N. A. Setnitsky is arrested and executed in the fall.

1939

A. L. Chizhevsky is elected honorary president of the International Congress for Biological Physics and Cosmic Biology.

World War II begins.

1940

P. Teilhard de Chardin completes his most important book, *The Phenomenon of Man*, formulating the concept of Christian evolutionism and the idea of the noosphere.

> Life, once having achieved its thinking stage, can only continue by rising structurally higher and higher.—P. Teilhard de Chardin

The movie director G. V. Alexandrov (1903-1983), one of the creators of sound cinema, publishes an article entitled "The Cinema of the Future" in the newspaper Izvestiya. In his opinion, the movie theater of the future will have no screen. Rather, it will be like a planetarium, and cinematic works will be projected onto the walls and the ceiling. Alexandrov forecasts a wide variety of applications for stereo imaging (at that time research into the creation of this technology was being actively pursued in the USSR), and he asserts that in the future, new technologies will make it possible to record on film not only images and sounds, but also smells: "The music of aromas is a new power for the artist of the cinema."

A. K. Gorsky proposes the idea of an experimental studio of the new screen (ESNES), which would link the art of the cinema to the image of the art of the future, destined to realize "the organization of world-action" and resurrectionary practice.

1941

The science fiction writer A. Belyaev's novel *Ariel*, about a flying man, is published.

The USSR enters World War II.

1942

A. L. Chizhevsky is arrested.

The first successful test of the V-2 rocket, designed by Wernher von Braun for the German Wehrmacht and Luftwaffe. The rocket reaches an altitude of 84.5 km, and subsequently 174.6 km, crossing the Karman Line and entering the edge of space. Used as a missile rather than a spaceship, the V-2 kills many thousand of civilians in Great Britain, Belgium, France, and the Netherlands during the war. After the defeat of the Nazis, German engineers are moved to the United States and the USSR, where they further develop the V-2 rocket for military and civilian purposes. The V-2 rocket lays the foundation for the liquid-fuel missiles and space launchers used later.

1943

A. K. Gorsky is arrested and dies in the Tula prison hospital.

The first translation of Fedorov into Japanese is published in Tokyo, based on the Harbin publication of 1928-1930. It includes the first, second, and third parts of Fedorov's most important work, *The Question of Brotherhood, or Kinship*.

1944

V. I. Vernadsky's essay "Some Words About the Noosphere" is published in the journal *Uspekhi Biologii* (Successes of Biology). It is the first significant work to draw public attention to the idea of a transition from the biosphere to the noosphere.

> The noosphere is a new geological phenomenon on our planet. In it, man for the first time becomes a major

> geological force. He can and must transform his life domain by his labor and his thought, transform it radically as compared with what existed previously.
> —V. I. Vernadsky

The botanist and microbiologist N. G. Kholodny (1882-1953), one of Vernadsky's pupils, introduces the concept of anthropocosmism.

> The most characteristic feature of the anthropocosmic attitude to nature is man's constant awareness of his own organic, indissoluble, and efficacious connection with it, and with the entire cosmos.
> —N. G. Kholodny

1950
In the Vladimir prison, the poet, philosopher, and mystic D. Andreev (1906-1959) starts work on his poem "The Iron Mystery" and his book *The Rose of the World*, embodying in it the idea of "joint creation with God," which is close to the ethos of Russian cosmism.

1951

The noted eugenicist and evolutionary biologist Julian Huxley coins the term "transhumanism" in a lecture entitled "Knowledge, Morality and Destiny," delivered in Washington, DC. Huxley describes his philosophy as "the idea of humanity attempting to overcome its limitations and to arrive at fuller fruition."

1950–1958

A. L. Chizhevsky lives and works in Karaganda. He continues his research into aero-ionization.

1955

On Easter Day, P. Teilhard de Chardin dies in New York. Immediately after his death, a commission to publish his work is established, consisting of friends and admirers of the scientist and thinker. The publication of his collected works begins. The first volume to appear is *The Phenomenon of Man*.

1957

Earth's first artificial satellite is launched.

On November 3, 1957, the dog Laika becomes the first animal to be launched into orbit, paving the way for human spaceflight.

The newspaper *Pionerskaya Pravda* publishes excerpts from I. Efremov's novel *The Andromeda Nebula*, about mankind's future in space. This marks the beginning of the golden age of Soviet science fiction, which develops rapidly in the novels of Efremov, in Arkady and Boris Strugatsky's novels *Land of Scarlet Clouds* (1959) and *Far Rainbow* (1963), and in their short novels *The Way to Almathea*(1960), *Apprentices* (1962), and *The Kid*(1971). Also significant are G. Altov's collection of stories *Legends of the Star Captains* (1961), V. Zhuravleva's short novel *Galactic Journey* (1963), Georgy Gurevich's short novels (later combined into the utopian novel *We Are From the Solar System* [1965]), Sergei Snegov's trilogy *People Like Gods*(1966-1977), and Sergei Pavlov's novel *Lunar Rainbow* (1978-1983).

B. Klushantsev's documentary film *The Road to the Stars* is released, in which the story of K. E. Tsiolkovsky plays a central role. Subsequently, following a ban on his feature films, Klushantsev develops a special popular-scientific movie genre, which combines the approaches of documentary film and artistic narrative. The director makes the movies *Moon* (1965), *Mars* (1968), *I See Earth* (1970), *Dictate of Time* (1972), and others.

1958

A. L. Chizhevsky is rehabilitated and is allowed to return to Moscow.

1959

The American National Exhibition opens in Moscow and is visited by almost three million people in six weeks. One of the most-discussed pieces is Buckminster Fuller's geodesic dome made out of gold-hued aluminum sheets. Independently of Fedorov, the architect arrives at the idea of Earth as a spaceship, and this idea finds expression in his experiments with geodesic constructions.

1960s

In the 1960s, in the midst of Khrushchev's thaw, the triumphal exploration of outer space, and widespread interest in cybernetics, there emerges a geometric and kinetic art that harks back to constructivism, the figurative experiments of the avant-garde, and the dynamic art of Naum Gabo. The group "Dvizhenie" ("Movement")-consisting of the artists L. Nussberg, F. Infante-Arana, V. Koleichuk, and others-aims to link together technology, an interest in outer space, and art.

1961

The newspaper *Moskovsky Komsomolets* publishes an article by the biologist V. F. Kuprevich (1897-1969), the president of the Belorussian Academy of Sciences, in which the prospects of human immortality are discussed.

Soviet cosmonaut Yuri Gagarin became the first person in

space, when he orbited the Earth in a Vostok spacecraft.

1962

P. Klushantsev's popular science fiction movie *Planet of Storms*, based on the eponymous novel by A. Kazantsev, is released. Distribution rights to the film are acquired by twenty-eight countries around the world. The new visual effects and techniques for combination shots that Klushantsev invents for the movie are subsequently borrowed by a number of American directors, including Stanley Kubrick, George Lucas, and Ridley Scott, as well as by special effects experts.

The first edition of R. Ettinger's book *The Prospect of Immortality* is published, laying the foundations of modern cryonics.

Following the publication of Ettinger's book, a small number of cryonics societies are established.

1963

V. Tereshkova becames the first woman in space when she pilots Vostok 6.

1964

A. L. Chizhevsky dies.

1965

The cosmonaut A. Leonov makes the first spacewalk.

Cryonics is mentioned for the first time in the Soviet press.

1967

The first corpse to be cryopreserved is that of Dr. James Bedford. As of 2014, about 250 bodies have been cryopreserved in the United States and 1,500 people have made arrangements for cryopreservation after their legal deaths.

1969

On July 20, the United States's Apollo 11 is the first manned mission to land on the moon.

1970

In R. A. Galtseva's article "V. I. Vernadsky," published in the five-volume *Philosophical Encyclopedia*, the term "Russian cosmism" is used for the first time to signify an entire constellation of thinkers: V. I. Vernadsky, A. L. Chizhevsky, and "in part N. F. Fedorov." The same volume includes articles on Fedorov (by D. Lyalikov), Chizhevsky (by L. Golovanov), and Tsiolkovsky (by I. Rodnyanskaya).

I. M. Zabelin's book *Physical Geography: The Science of the Future* is published. The ideas of cephalization, the noosphere, and the prospect of immortality are discussed in the book, and mention is made of Fedorov and Setnitsky.

1972

The philologist S. G. Semenova (1941-2014) becomes acquainted with the ideas of Fedorov. The rest of her life will be devoted to researching, developing, and disseminating the ideas of Fedorov and the philosophy of cosmism, which she divides into two main branches (active-evolutionary and active-Christian), studying the influence of Fedorov's ideas on Russian literature and researching the work of P. Teilhard de Chardin.

Solaris, a Russian film adaptation of Polish author Stanislaw Lem's novel of the same name (1961), is released. The film is cowritten and directed by Andrei Tarkovsky. It is a meditative psychological drama, with the action occurring mostly aboard a space station orbiting the fictional planet Solaris.

1973

A. L. Chizhevsky's book *The Earthly Echo of Solar Storms* is published.

1974

F. Sobolev's popular science movie *Biosphere! Time to Apprehend* is released. The documentary filmmaker from Kiev begins his experimental visual poem about life in space with discussions about Vladimir Vernadsky.

1976

The Cryonics Institute is established and freezes its first clients in liquid nitrogen.

1977

Stephen Lukashevich's monograph about Fedorov is published in London: *N. F. Fedorov (1828-1903): A Study in Russian Eupsychian and Utopian Thought*.

The *Prometheus* journal publishes an article by S. Semenova entitled *Nikolai Fedorov. His life and teachings* —the first article on Fedorov in the USSR following a fifty year gap.

1978

The biologist Yu. I. Pichugin, who is studying the problems of cryobiology and is an enthusiastic proponent of cryonics, meets S. G. Semenova and O. N. Setnitskaya.

The art exhibition *Time-Space-Man* is held at the

Molodaya Gvardiya (Young Guard) publishing house, bringing together works devoted to "cosmic fantasy." The exhibition is organized by the historian, journalist, and art historian V. V. Baidin.

V. V. Baidin meets A. L. Chizhevsky's widow, N. V. Chizhevskaya, and becomes acquainted with Chizhevsky's artistic heritage.

J. Posadas pens an essay titled "Childbearing in Space, the Confidence of Humanity, and Socialism."

1979

Andrei Tarkovsky's film *Stalker* is released, based on a script by the cult Soviet science fiction writers Arkady and Boris Strugatsky.

Publication of George M. Young's *Nikolai F. Fedorov: An Introduction, Nordland* (MA, USA: Publishing Co., Belmont, 1979)

1981

In Kiev, V. V. Baidin organizes the exhibition "Scientists Draw," the core of which consists of drawings by A. L. Chizhevsky.

The German academic M. Hagemeister visits Moscow in connection with his research into the heritage of N. F. Fedorov and V. N. Muraviev. While gathering material for a book, he meets and consults with O. N. Setnitskaya, S. G. Semenova, and V. V. Baidin, among others.

1982

The Mysl (Thought) publishing house releases N. F. Fedorov's work in its series *Philosophical Heritage*. In the foreword, Fedorov is presented as the founding father of active-evolutionary, noospheric, and cosmic thought.

1983
Turritopsis dohrnii, the immortal jellyfish, is discovered. It is a species of small, biologically immortal jellyfish found in the Mediterranean Sea and the waters of Japan. It is one of the few known cases of animals capable of reverting completely to a sexually immature, colonial stage, after having reached sexual maturity as an individual.

In Munich, M. Hagemeister republishes V. N. Muraviev's work *The Conquest of Time as the Basic Task in the Organization of Labor* in a series of publications devoted to Slavic philology. He accompanies the work with an explanatory essay.

1985
Perestroika is announced in the USSR.

A seminar for the study of N. F. Fedorov's heritage starts work under the direction of S. G. Semenova.

According to the testimony of some filmmakers, during his first visit to Moscow, in the perestroika period, George Lucas asks Soviet officials to arrange a meeting between him and P. Klushantsev. However, it turns out that the officials do not even know who Klushantsev is. Lucas supposedly replied: "Klushantsev is the godfather of *Star Wars*." The meeting between the two directors never took place.

1986
The Mir space station orbits Earth from 1986 to 2001. In Russian, the word "Mir" ("Мир") means "peace" or "world."

Ilya Kabakov creates his installation *The Man Who Flew Into Space from His Apartment*.

1988
A. P. Platonov's novel *Chevengur* is finally published. The journals *Novy Mir* and *Moskva* print articles by S. G. Semenova, devoted to the influence of Fedorov's ideas on the novel and on Platonov's work as a whole.

1989
The fall of the Berlin Wall

To mark the 160th anniversary of N. F. Fedorov's birth, Galina Shergova makes the documentary film *A Parable of Resurrection*, which is shown on Soviet Central Television.

1990
A volume of selected works by N. F. Fedorov, entitled *What Was Man Created For? The Philosophy of the Common Task*, is published in English, translation by L'Age d'Homme.

1991
The dissolution of the USSR.

1993
The N. F. Fedorov Museum and Reading Room is opened in Moscow. In 1998 it is transformed into the N. F. Fedorov Museum-Library, which is an educational and research center that works on developing the ideas of cosmism.

1990s-2000s
The phenomenon of cosmism is actively researched in Russia and abroad. Primary texts are published, as are numerous monographs and scholarly articles.

There is rapid development in the areas of information technology, biology, medicine, and nano- and biotechnologies. The philosophy of transhumanism emerges. The prospects for artificial intelligence and robotization provoke a new surge of interest in cosmism and the futurological ideas generated within its matrix.

X

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Maria Chehonadskih

The Stofflichkeit of the Universe: Alexander Bogdanov and the Soviet Avant-Garde

Prelude: Towards an Alternative Philosophical Genealogy of the Soviet Avant-Garde

One of the most discussed concepts of the Soviet avant-garde—variously characterized as "construction," "tectonics," "production," or "life-building"—may seem to refer simultaneously to the formalist method in art and to a theory of social constructivism that departs from the idea of the "new Soviet man" and ends up with Stalin's "engineers of the human soul." The simultaneity of formalism and social constructivism normally explains the coexistence of the constructivist aesthetic program and the utilitarian politics of productivist art. As Benjamin Buchloh writes, constructivism passes from the expanded modernist aesthetics that "did not depart much further from the modernist framework of bourgeois aesthetics than the point of establishing models of epistemological and semiotic critique," to the new industrialized forms of art.[1] Optimism about technology and media leads constructivists to totalitarian Stalinism.[2] Yve-Alain Bois goes so far as to argue that the total instrumentalization of art is inevitable when the critical modernist tradition is abandoned.[3] In other words, the great achievements of the Soviet avant-garde conform to the standards of European modernist epistemologies, while utilitarian aesthetics and its function in the context of Stalinism signifies a break or a black hole, which the narrative of art history can only explain by turning to ethical and moral arguments against propaganda and instrumentalization. An alternative proposition would be to examine the philosophical core of the constructivist and productivist programs and rethink their epistemological foundation.

The confusion regarding the constructivists' *construction* and the productivists' *production* comes from a false genealogical attribution of these concepts to formalism and social constructivism. What has to be accounted for, and what is normally ignored, is the background of what I term "Empirio-Marxism." The interest in empiricism among the pre- and postrevolutionary Marxists of the Russian Empire and the Soviet state is mainly known though Lenin's famous *Materialism and Empirio-Criticism*, the book in which he accuses Bolshevik activist and philosopher Alexander Bogdanov of deviating from Marxism and of providing reactionary support for idealist philosophy.[4] Indeed, Bogdanov brings together the notorious e *mpiriokritizismus* and the early Bolsheviks' understanding of Marx to first propose the philosophy of "empiriomonism" (1900s)[5] and then the universal science of organization, or "tektology" (1910s).[6] Both doctrines correspond to the political idea of proletarian culture, implemented in the Proletkult (Proletarian Cultural-Enlightenment Organizations) movement after the October Revolution in 1917. Bogdanov, a principal theoretician of the movement, develops a conception of experience as a homogeneous field of collective praxis.

This is not an obvious reference point in relation to Russian avant-garde artists, since in their work there is no consistent presence of the problem of experience. There are no overt references to empiricism, Mach, or Bogdanov in the published archive of the Soviet avant-garde. It was more common to praise Lenin, and one can easily recall Dziga Vertov's "Three Songs About Lenin" or Alexander Rodchenko's "Worker's Club," with a portrait of the leader of the proletariat on a wall. Nonetheless, Empirio-Marxism was a very popular local tradition and Bogdanov had a greater intellectual authority in the art community due to his establishment of Proletkult. There are no official portraits of Bogdanov, but his philosophy in fact populates every single art-related book. This has been acknowledged only in Soviet publications, where avant-gardism is associated exclusively with Bogdanov's ideas and political views.[7] Nevertheless, it is also a very well-known fact that writer and engineer Andrei Platonov was a member of the Proletkult,[8] and that the main theorist of productivist art, Boris Arvatov, worked as secretary of the Moscow Proletkult, while Rodchenko, Tretyakov, and Eisenstein, among others, collaborated with Proletkult studios.[9] This fact has never led English-speaking theorists to examine closely Bogdanov's philosophy or at least to consider Proletkult as an important intellectual and political reference. What I aim to discuss here is to what extent Bogdanov's philosophy mediates methodologies of constructivism and productivism, and how these movements in turn radicalize and shift the philosophical and political claims of Bogdanov and the Proletkult.

Bogdanov's Ontology of Organization and the Art of World-Building

Bogdanov's conception of organization rests on a basic empiricist assumption that experience of the outside world is given to us in the conjunctions of an object's attributes. The decomposition of these attributes gives elementary sensations of space, time, color, form, and size. However, the elements of experience are sensations only in psychical reality, whereas the same elements may belong to physical bodies as attributes—the squareness and redness of a brick are the sensual, perceptible, physical properties of this object.[10] The connection between the psychical and physical realms should be understood as a complex unity that unfolds as an exchange of sensations and properties within an environment that is itself neutral to this subject-object distinction. In other words, there is no sovereignty of a knowing subject who reflects on objects outside it, because there is no outside. This subject is already an object, a complex product of exchanges between physical and psychical elements. Ontologically, this exchange produces a series of "life-complexes" (forms of life, including social forms); and epistemologically, it constitutes a monist point of view on the otherwise heterogeneous self-organizing flow of psychical and physical concatenations: "The universe presents itself to us as an endless flow of organising activity. The ether of electrical and light waves was probably that primeval universal environment from which matter with its forces—and later on also life—crystallised."[11]

Bogdanov's empiriomonism tends to reformulate the biological and the social in terms of the organizational logic of psychophysical complexes. Taken as isolated entities, psychic and physical complexes exist in a pure state of spontaneity, or the lowest level of organization. This spontaneity preserves higher organizational forms only in analysis and in the practical composition of the elements into new series. A rock is a spontaneously formed physical combination of minerals, and fear is a spontaneously formed psychical combination of stimuli and reaction. But the fear of wild animals that leads to the construction of a house made out of rock is a product of a higher psychophysical organization.

As we can see, the psychophysical complexes are constructed first in labor activity. In the wake of the rise of labor technics, the sum of the elements grows, but their usage depends on "technical and cognitive goals."[12] The laboring subject appeals either to actions or to the attributes of objects out of necessity. Splitting and crushing, for example, led to the invention of the concept of the atom.[13] Labor's use of the elements of experience—be it a rock in construction, or ore in industry, or oil in painting, or the concept of the atom in philosophy—corresponds to *use value*, on the grounds that it emerges from a social need to distinguish and differentiate experience in order to develop production—domestic, industrial, scientific, or artistic. In Bogdanov, use value appears as an ontological principle of usefulness, and value as an essentially vitalist quality.[14] This process of extracting, shaping, and composing the elements of experience into life-complexes, Bogdanov identifies with Marxian *Verdinglichung* (reification).[15]

This means that the object, or rather the organization of objects, is a historically produced system of relations. The ready-made object is the work in progress of laboring humanity:

> The practice of this great social organism is nothing other than *world-building* ... This world, which has been constructed and continues to be under construction ... is the most grandiose and perfected that we know ... Such is our picture of the world: an unbroken series of forms of organization of elements—of forms that develop in struggle and interaction without any beginning in the past, without any end in the future.[16]

Any kind of social practice is the labor of organization, or

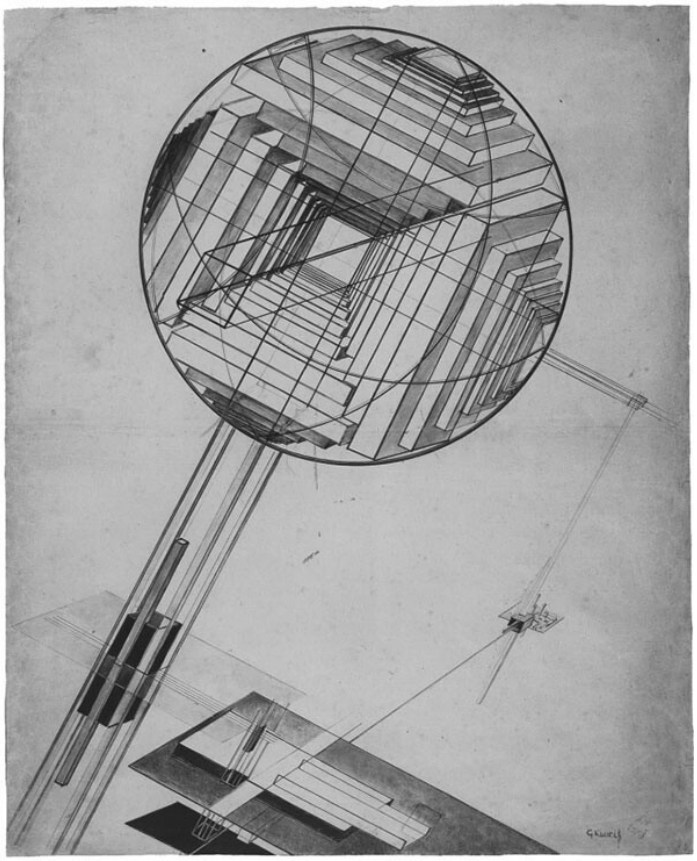
the labor of *world-building*. That is why Bogdanov's theory of art corresponds to the same organizational ontology:

> Artistic creativity, combined and often alloyed with cognition, as may be seen in many pieces of belles-lettres, poetry and painting, organizes understanding, feelings and emotions by its own methods. In art the organization of ideas and the organization of things are inseparable. For instance, an architectural construction, a statue, or a painting as they are, might be regarded as systems of "dead" elements—of stone, metal, canvases and paint; but the lively meanings of pieces of art belong to the complexes of images and emotions to which they give life in a human psyche.[17]

Art is one of the many forces within the logic of organization. However, only collectivized proletarian labor produces the art of total organization. The proletariat brings elements of the "lowest" life in nature and "unconscious" life in society to the noncontradictory and rational form of psychophysical unity. Bourgeois culture is based on competition and exploitation, and as a result, on the production of conflicting partial systems. To make an exit from partial irrational systems, such as capitalism, would mean to construct a new totality; some names for this new totality are "universal organization," "classless society," and "proletarian culture." The highest degree of organization is a homogeneous wholeness based on unified industrial labor, solidarity, comradeship, and collectivization.[18]

World-Building Abolishes Art: Construction, Production, and Organization in the Avant-Garde

It is not hard to see how Bogdanov's world-building is close to the productivist figures of the "life-builder" and "engineer-constructor." Art is a labor of shaping and composing an object according to the usefulness of a color and a form, writes Osip Brik.[19] In the manifesto "Constructivism," Alexei Gan provides a three-page-long quotation from Bogdanov to support an argument about the importance of organization and production. Gan claims that material production replaces representational art. This new mode of production saves the "solid material and formal foundations of art, such as line, flatness, volume, and action," along with the purposeful activity of "materialistically grounded" artistic labor. Constructivism is Bogdanov's organizational science, which seeks a form of "organization and cementation for the mass labor processes, mass actions in the whole of social production."[20] This may lead to the conclusion that the three famous disciplines of constructivism—construction, facture (*faktura*), and tectonics—fully correspond to the



Gustav Klutsis, Construction, 1921.

principles of organization. It has even been argued that tectonics is a cipher for tektology.[21] Bogdanov's philosophy seems to be foundational, and one can read the theory of constructivism back into empiriomonism and tektology: *faktura* is the process of extracting and manufacturing the elements of nature, while construction is the aggregation of the complexes of elements into a purposeful organizational plan—tectonics. The organizational point of view appeals to Nikolai Chuzhak as a grandiose cosmogony of all-embracing life-building:

> People who look at art from the point of view of communist monism inevitably come to the conclusion that art is only a quantitatively individual, temporary, and predominantly emotional method of life-building, and, as such, cannot remain isolated, or what is more, self-sustaining compared with other approaches to life-building.[22]

A similar Bogdanovian detour into the various currents of art practice, albeit more grandiose still, was that of the Proletkultist Boris Arvatov. In *Art and Production*, at once a presentation of research and an energetic manifesto, the history of art is shown to unfold within the terms of

Bogdanov's history of labor. According to this narrative, art has always been a part of production: for instance, crafts, frescos, and architecture served the everyday needs of premodern societies. However, under the rule of capitalism, art becomes instead an individualistic, self-organizing activity. Easel painting is one significant example of the contemplative representational function of art in bourgeois society. Arvatov seeks the new forms of a "proletarian monism" in which the productive capacity of art to shape the environment can be restored.[23] The figure of the engineer-constructor expresses the unity of invention and construction in creating a new "form of being," or communism.[24] The construction of the new elements of experience—a.k.a., the labor of organization—gives art a place in production. In other words, it makes art productive.

If constructivism and productivism are oriented towards the production of new forms of being and communist world-building, the task of art, according to Bogdanov, is less radical and much more modest. Art is the education of the senses. It organizes feelings and emotions into images and forms. The "unity of form and content," "harmony," and "creativity" are epithets that Bogdanov uses to discuss proletarian art.[25] Despite the contradiction between the enormous ambitions of the artistic avant-garde and the modest role of art in Bogdanov's system, the theorists of constructivism and productivism tried to reinterpret Bogdanov's organization of the senses for their own benefit. Nikolai Tarabukin understands the organization of emotions in empiricist terms, as the orientation of a subject in its natural and social environment. An artist does not copy but organizes nature on the canvas, building a landscape according to compositional laws. Painting establishes a particular "point of view" for the perceiving viewer. "The artist is the organizer of our visual orientation," concludes Tarabukin.[26] Chuzhak also accepts the emotional concept of art: "Art is an original, mainly emotional (only mainly and it only differs from science in this advantage) dialectical approach to life-building."[27] The content of the constructivist "dialectical modelling" consists of "the tangible thing" and "the idea, the thing in its model."[28]

In an early Proletkultist article entitled "Proletarian Poetry" (1922), Andrei Platonov states that proletarian art has to begin with the organization of "immaterial things"—images and symbols of things; or simply put, words. He distinguishes three elements of a word: idea, image, and sound. The organization of poetry according to the triangular properties of a word is the process of gathering all wandering feelings and senses into one thought. The word-becoming of thought penetrates reality better than empty abstractions, because it makes conscious both sensibility and proletarian experience. From the organization of triangular words into thoughts, humankind will proceed to the organization of matter and world-building.[29]

The triangular words of Platonov recognize only proletarian experience; they materialize in words the "troubled" sound of the "gurgling of acid and alkaline grasses being digested in [the] stomachs" of the proletariat.[30] Triangular words may also prove that a thought is the process of material production through "a certain pressure in the dark warmth."[31] This is the point of view of labor experience, the articulation of what is seen and what happens from the perspective of a laboring body: it speaks as it labors. Triangular words are material as much as immaterial, since they are embodied in the experience of the laboring proletariat. Platonov writes "not with words, imagining and copying real living languages, but rather with pieces of living language."[32] Similarly, Dziga Vertov writes "kino-thing[s] via filmed frames" and creates "visual thinking."[33] This art of seeing organizes the chaos of impressions into a new "class vision."[34] This does not mean that Vertov and Platonov prefer a naturalistic photographic copy of reality. Instead, they *produce* reality, or better yet, the universal point of view of the laboring population of the earth.

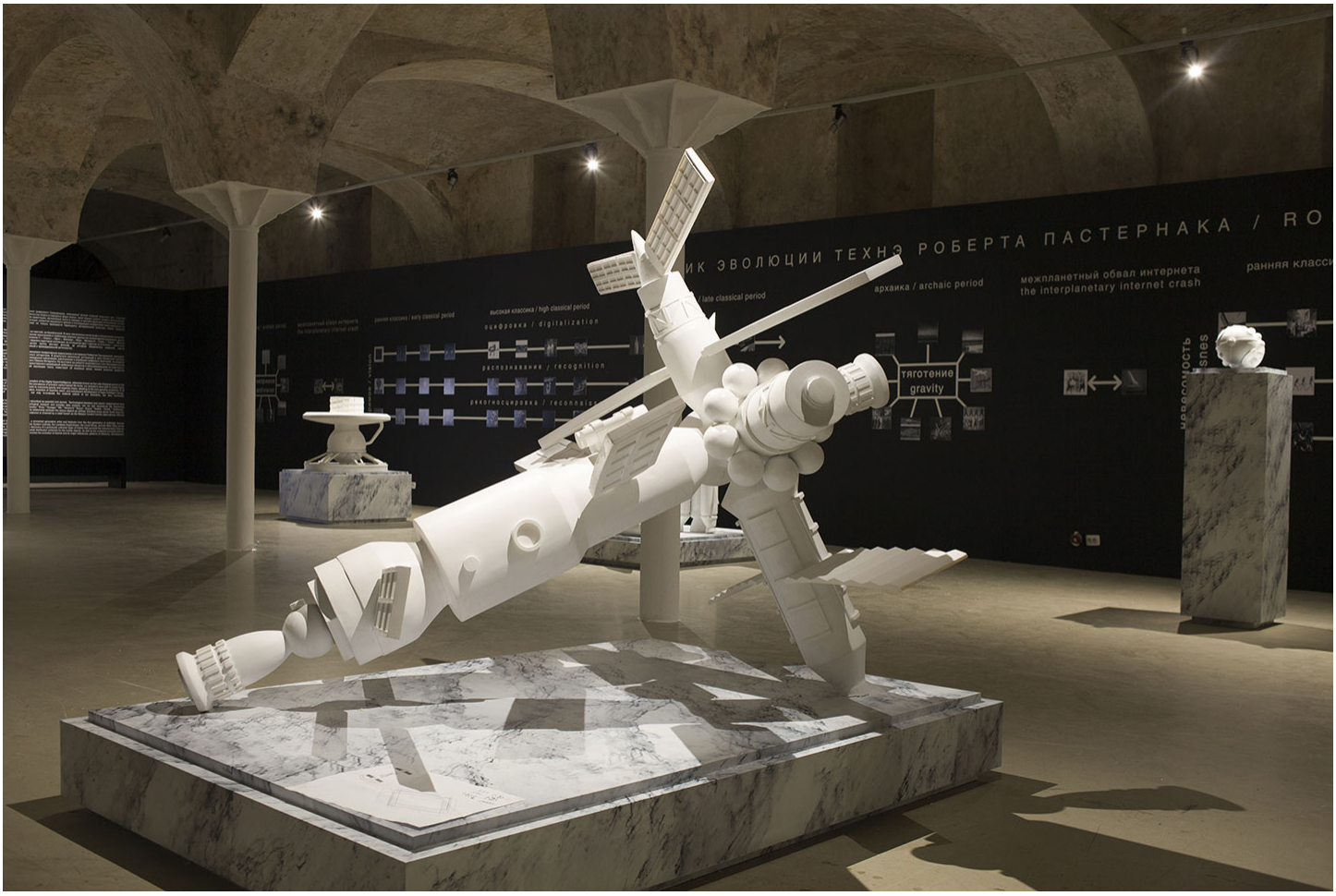
The Stofflichkeit of the Universe: Platonov and the Thinghood of a Thing

The organization of the sensible is already the organization of matter, since the sensible is embodied proletarian experience. That is why the nature of psychophysical elements—those unities of experience—occupies Platonov as much as the materiality of words and sounds. In his science fiction story *The Impossible* (1921), he writes:

> The Swedish physicist Arrhenius has a beautiful, amazing hypothesis concerning the origin of life on the earth. It is his guess that life is neither a local nor a terrestrial phenomenon. It has been transported to us from other planets through enormous ethereal spaces in the form of the smallest and most elementary colonies of organisms … Perhaps atoms, and atoms of atoms—electrons—are the same microorganism, but only in its limited, initial form.[35]

Similar reflections about atoms and electrons are repeated by the scientist Popov in Platonov's science fiction story "Ethereal Tract." Popov's theory includes an understanding of living and dead matter: the center of atoms is filled with both living and dead electrons, and the dead electrons serve as food for the living ones.[36] This living entity—this elemental unit of self-organizing matter—is, according to Platonov's vocabulary, a "substance [*veshchestvo*] of existence."

Cover of the journal Veshch/Gegenstand/Objet (1922), edited by El Lissitzky and Ilya Ehreburg.



Arseny Zhilyaev, Return, 2017. Installation view.

The Russian word *veshchestvo* can mean "matter," "substance," "thing," "materiality," or "stuff." Robert Chandler, who has translated a number of Platonov's works into English, often renders *veshchestvo* as "substance," but also sometimes as "essence," "thing," or "object." The root of the noun *veshchestvo* is *veshch'*, which means "thing." Remember that Lissitzky titled his journal *Veshch/Gegenstand/Objet*. Maria Dmitrovskaia, a Russian researcher of Platonov, notes that the parallel usage of *veshchestvo*, *veshch'*, "matter," and "body" corresponds to the archaic meaning in Old Medieval Russian, where *veshch'* and *veshchestvo* sometimes were synonymous and where the understanding of a human body as *veshchestvo* was common. In archaic Russian, *veshchestvo* meant to be a material substratum of the world. It indicated things in existence and was a synonym of the word "material." Such Platonov expressions as "metallic *veshchestvo*" and "fluid *veshchestvo*" were very common in eighteenth-century Russia.[37]

Veshchestvo is a reminder of *veshch'*; it is an elemental unit or an element of a decomposed psychophysical complex. In this sense *veshchestvo* is close to the English colloquial word "stuff," or the German *Stoff* and *Stofflichkeit*. There is a scene in Platonov's novel *The Foundation Pit* where the main character Voshchev collects "the objects [*veshchi*] of unhappiness and obscurity."[38] Thus, *veshchestvo* here appears as a memory of *veshch'*, as the remainder of its exhaustion in the past. It seems that this strange praxis of collecting the leaves, garbage, and destroyed objects of material culture exemplifies the act of recomposing and recollecting matter. In Bogdanov's terminology, Voshchev is organizing life—the " *veshchestvo* of existence"—into complexes—*veshchi*. In Nikolai Fedorov's terminology, he is collecting dead molecular pieces to resurrect the thinghood of a thing, the *veshchnost' veshchi*, in the future. In 1931 Platonov writes:

> The vulgar worldview [of materialism] anticipates that life is a combination of biological processes: "a human" properly is some sort of result of the relations and interactions of these forces—a human is relation. This is only half true. The other half is that the human is by itself *veshchestvo*, "materialism" included in bio-combinations. From here, and only from

> here—the human as by itself *veshchestvo*, and not only as relation—can one draw the great general conclusion that the door to the secret of nature is still open for humans. If, by contrast, a human is only "relation," "combination," etc., those doors are closed forever.[39]

For constructivism and productivism, forms of being emerge in the process of building and constructing the new. But for Platonov, the new already exists in the old, in the crumpled and poor form of *veshchestvo*. World-building is the resurrection of existing particles and elements, the restoration of a thing, the assembling of wandering senses, thoughts, and relations. The lowest entity— *veshchestvo*—corresponds to the molecular biology of self-organizing matter, but it produces the highest degree of organization: socially organized experience. Communism emerges out of the poverty of the elemental, out of the poor bodies of the proletariat. The laboring proletariat consists of those "who silently made useful *veshchestvo*" and those who signify not just a sociology of class relations, but also a restoration of the world in the process of communist world-building.[40]

Veshchestvo is a building material for the object and subject, the physical and the psychical composition of bodies, relations, and serial complexes of activities. It expresses degrees and logics of organization and structuring on the molecular, biological, and social levels. The constitutive unit of life is an element of experience in Bogdanov's philosophy, and a *veshchestvo* of negative organizational spontaneity in Platonov. Taken together, the element of experience and *veshchestvo* introduce the principal role of the organizing force of being that shapes life-building. The Empirio-Marxist ontology of organization assumes the constructive and constitutive means of an art that not only changes, but also shapes forms of social being. Material culture as the organization of things, relations, and people replaces the concept of art.

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Benjamin H. D. Buchloh, "From Faktura to Factography," *October* 30 (Autumn 1984): 94.

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Ibid., 109–10.

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Yve-Alain Bois, "El Lissitzky: Radical Reversibility," *Art in America* 76, no. 4 (April 1988): 161–81.

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Vladimir Lenin, *Materialism and Empirio-Criticism: Critical Comments on a Reactionary Philosophy* (1908), in *Collected Works* , trans. J. Fineberg and G. Hanna, vol. 31, *April–December 1920* (Moscow: Foreign Languages Publishing House, 1966), 17–388.

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Alexander Bogdanov, *Tektologiia: Vseobshchaia organizatsionnaia nauka* (Tektology: The universal organizational science) (1913–21) (Moscow: Ekonomika, 1989). Only the first part of *Tektologiia* has been translated into English: Alexander Bogdanov, *Tektology, Book 1,* trans. A. Kartashov, V. Kelle, and P. Bystrov (Hull: Centre for Systems Studies Press, 1996).

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See the biography of Platonov by Oleg Lasunskii, *Zhitel' rodnogo goroda* (The citizen of a hometown)(Voronezh: Tsentr dukhovnogo vozrozhdeniia Chernozhemnogo kraia, 2007).

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Alexander Bogdanov, *The Philosophy of Living Experience: Popular Outlines* (1912), trans. D. G. Rowley (Boston: Brill, 2016), 232.

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Alexander Bogdanov, "Empiriomonizm" (1913), in *Russkii pozitivizm: Lesevich, Iushkevich, Bogdanov* , eds. S. S. Gysev, A. F. Zamaleeva, and A. I. Novikova (Saint Petersburg: Nauka, 1995), 213.

13
Bogdanov, *Philosophy of Living Experience* , 209.

14
Together with economist Skvortsov-Stepanov, Bogdanov wrote two volumes presenting an introduction to political economy. My interpretation of Bogdanov's understanding of use value derives from this work: Alexander Bogdanov and Ivan Stepanov, *Kurs Politicheskoi Economii (* A co urse on political economy), 2 vols. (Sankt-Peterburg: Znanie, 1920).

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Osip Brik, "V poriadke dnia" (The order of priority), in *Iskusstvo v proizvodstve* (Moscow: Khudozh estvenno-Proizvodstvennyi Sovet Otdela IZO Narkomprossa, 1921), 8.

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I quote from the Russian publication of the work: Alexei Gan, "Konstruktivizm" (Constructivism) (1922), in *Formal'nyi metod: Antologiia russkogo modernizma,* ed. S. Ous hakine, vol. 1, *Systems* (Moscow: Kabinetnyi uchenyi, 2016), 894. See also the English translation: Alexei Gan, *Constructivism*, trans. C. Lodder (Chicago: Tenov Books, 2014).

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Kristin Romberg, "Alexei Gan: vvedenie v tektoniky" (Alexei Gan: Introduction to tectonics), in *Formal'nyi metod* , ed. S. Oushakine, vol. 1, 851–52.

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Nikolai Chuzhak, "Under the Banner of Life-Building (An Attempt to Understand the Art of Today)" (1923), trans. C. Lodder, *Art in Translation* 1, no. 1 (2009): 121.

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I refer to the Russian publication of *Art and Production*: Boris Arvatov, *Iskusstvo i Proizvodstvo* (*Art and Production)* (Moscow: Proletkult, 1926), 97. An English version of the book has been recently edited by Alexei Penzin and John Roberts and translated by Shushan Avagyan (Pluto Press, 2017).

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Alexander Bogdanov, *Nauka i rabochii class: Doklad, chitannyi na konferentsii Proletarskikh Kul'turno-Prosvetitel'nykh Obshchestv goroda Moskvy 23 fevralia 1918 g.* (Science and the working class: Theses presented at the Conference of the Proletarian Cultural-Enlightenment Societies of Moscow, February 1918), 72–73.

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Nikolai Tarabukin, *Khudozhnik v klube* (The artist in a club) (Moscow: VZSPS, 1926), 5–6.

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Chuzhak, "Under the Banner of Life-Building," 142. Translation modified. See the Russian original: "Pod znakom zhiznestroeniia (Opyt osoznaniia iskusstva dnia)," *LEF* 1 (1923): 38.

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Chuzhak, "Under the Banner of Life-Building," 145.

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Andrei Platonov, "Proletarskaia poeziia" (Proletarian poetry) (1922), in *Works*, vol. 1 (Moscow, IMLI RAN, 2004), 164–65.

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Andrei Platonov, "Soul" (1936), in *Soul and Other Stories* , trans. R. Chandler et al. (London: Vintage, 2013), 50.

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Andrei Platonov, *Chevengur (* 1926–28), trans. A. Olcott (Michigan: Ann Arbor, 1978), 236.

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Andrei Platonov, "Fabrika literatury" (Factory of literature) (1926), in *Works*, vol. 8 (Moscow: Vremia, 2011), 51. There is also an English translation, but it was based on the heavily corrected Soviet edition, and some terms are translated incorrectly: Andrei Platonov, "Factory of Literature" (1926), trans. A. Kalashyan, in *Molecular Red Reader* , ed. McKenzie Wark (London: Verso, 2015), 37–45.

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Andrei Platonov, "Efirnyi trakt" (Ethereal Tract) (1927), in *Works*, vol. 2 (Moscow: Vremia, 2011), 11.

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Maria Dmitrovskaia, "Iazyk i sozertsanie A. Platonova" (Language and intuition in Andrei Platonov) (habilitation thesis, Peoples' Friendship University of Russia, 1999), 157–59.

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Andrei Platonov, *The Foundation Pit (* 1930), trans. R. Chandler, E. Chandler, and O. Meerson (New York: New York Review Books, 2009), 5.

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Andrei Platonov, *Zapisnye Knizhki* (The notebooks), ed. Kornienko, 2nd ed. (Moscow: Nasledie, 2006), 79.

40
Platonov, *The Foundation Pit*, 122. Translation modified.

> Death to Utopia! Death to faith! Death to love! Death to hope! thunders the twentieth century in salvos of fire and in the rumbling of guns.
> Surrender, you pathetic dreamer. Here I am, your long-awaited twentieth century, your "future."
> No, replies the unhumbled optimist: You, you are only the present.
> — Leon Trotsky , "On Optimism and Pessimism, On the 20th Century and on Many Other Issues"

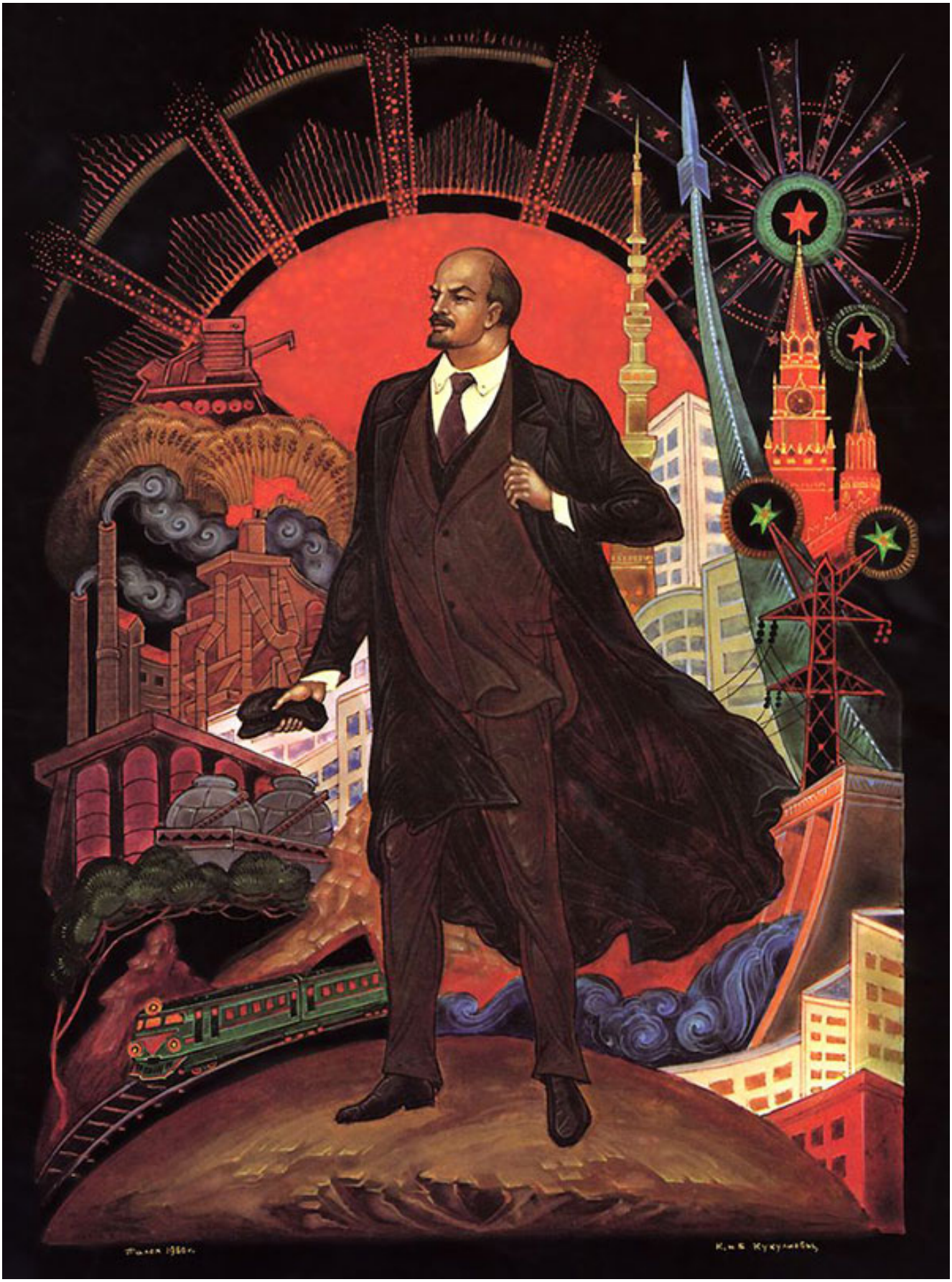
Arseny Zhilyaev

Optimists of the Future Past Perfect

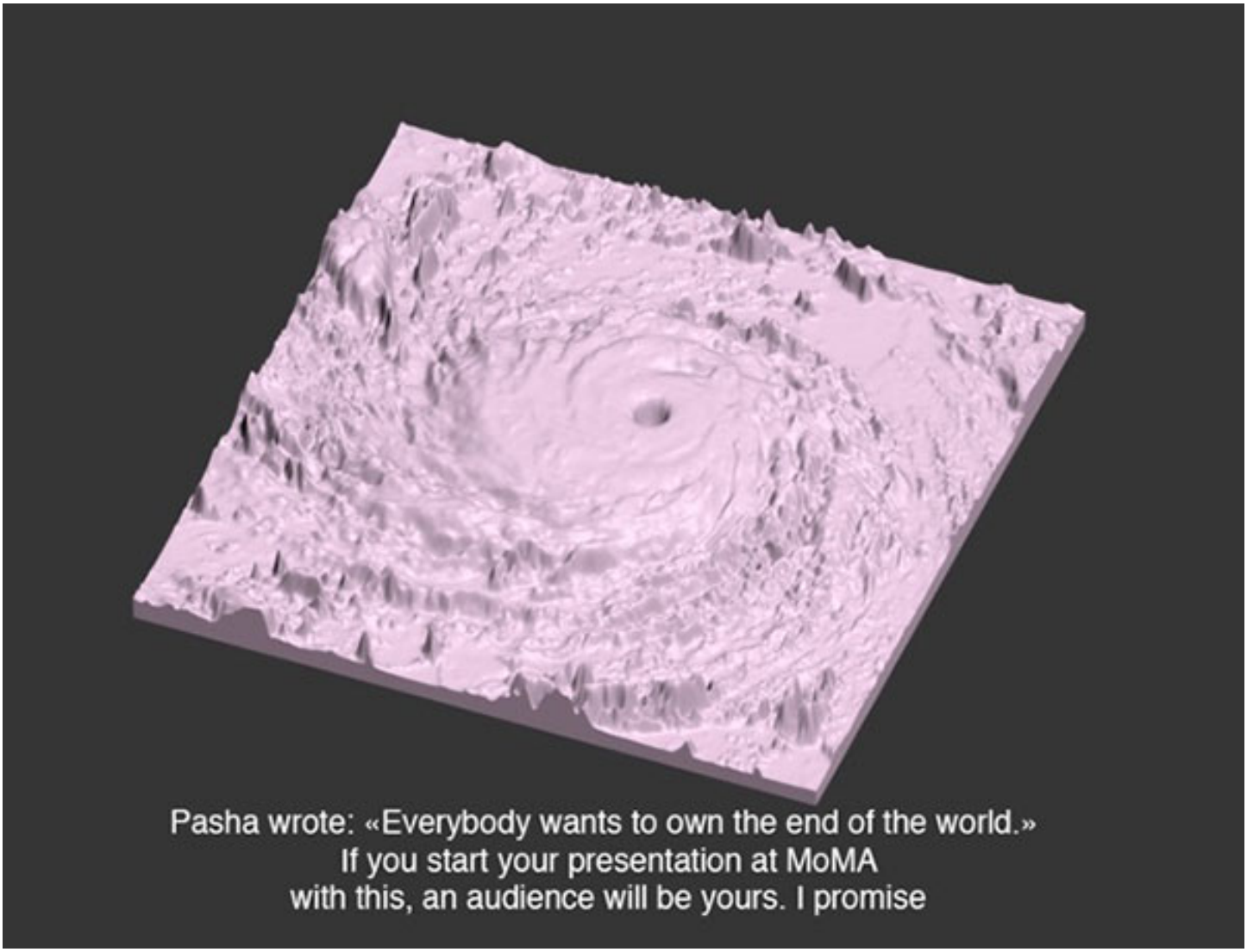
In his short essay "On Optimism and Pessimism, On the 20th Century and on Many Other Issues," Leon Trotsky gives a brief, "unscientific," as he puts it, classification of optimists and pessimists in relation to the past, the present, and the future.[1] The revolutionary castigates the optimists of the past as helpless nostalgic grumblers and the optimists of the present as self-righteous philistines. According to Trotsky, only a pessimist of the present, who is at the same time optimistic about the future, is worth talking about. The past is interesting to him only insofar as it relates to the unsatisfactory state of affairs in the present. In Trotsky's description of the optimist of the future, we are dealing with a revolutionary and, in general, Marxist view of the world in relation to the time vector. The world is historical, and so is its assessment, which largely depends on how successful the practice of its optimization is.

Interestingly, despite the fact that Trotsky describes certain catastrophes in his 1901 text, he does not concede to the idea of pessimism about the future. At the time, the possibility of a catastrophe or collapse on a global scale was not regarded as something relevant or desirable for a revolutionary. But more than a hundred years later, it is the pessimist of the future who is becoming one of the main vehicles of hope for changing the world. An eloquent testimony to this is the popularity of the aphorism usually attributed to Jameson and then Zižek: "It is easier for us today to imagine the end of the world than to imagine the end of capitalism."

This popularity reveals not only the weakness of liberation movements today and the lack of optimistic visions of the future. The idea of apocalypse as deliverance, as a paradoxically optimistic solution to our current problems, also speaks volumes about the ontologization of the injustices inherent to capitalist relations. It is nearly impossible to imagine that capitalism has both a starting point and an end point—a moment when it will morph into a different system of relations. In other words, it appears to be a totally natural state of things, deeply rooted in the nature of the world. And if humans are incapable of carrying out social revolution, can we really expect them to carry out a revolution in the very essence of the world? A pessimistic outlook on the possibility of such radical transformation has become commonplace. The daredevils



An illustration by Boris and Karelia Kukulieva from the book Son of Russia (1982).



Robert Pasternak, History After Art, 2037 or 2047. Video still.

who challenge this pessimism and argue that social injustices can and should remedied number only a few.

Even more surprisingly, just when Marxism put forward its own solution to the question of optimism, yet another kind of optimism took root: the optimism of the Russian cosmists, which focused on the future past perfect—aiming to bring back, revive, and transform the past.

The question of optimism has to do with more than a psychological assessment of the world. It also has to do with the possibility of congruence, and with the best possible state of being for things in the world. Capitalism replaces the optimal state of things with infinity—above all, with the infinity of growth and accumulation. At the same time, under capitalism it is precisely the nonoptimal state of the here and now, the bad infinity of the present, that is declared to be the optimal state. Hand in hand with the Christian Reformation, capitalism destabilized the familiar finiteness, circularity, and rigidity of feudal hierarchies. Along with a process of economic coercion that wrenched people away from a familiar pace of life in a familiar setting, capitalism also initiated the immanentization of eternity.

Thanks to the Reformation, God gradually migrated to earth, a relocation that made him more accessible, comprehensible, and logical. The process of divine transaction was intensified accordingly. In place of the delayed gratification that righteousness used to earn believers in the afterlife, one could now be rewarded for one's virtuous deeds in the here and now—or, alternatively, penalized for failing to conform to the entrepreneurial spirit of the day. Previously, the Christian absolute was understood as endless; infinite being was located in the afterlife, in the world to come. With the advent of capitalism, people began to think of God as a state of affairs existing in the present and incorporating the future, thus engendering a sense of unending

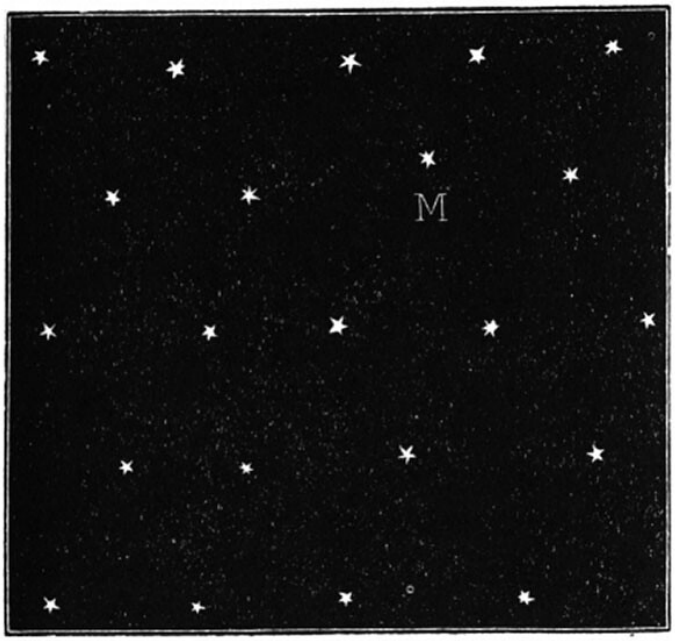
presentness. The laws governing God's judgment slowly transformed, taking the form of the justness and naturalness of economic coercion. Injustice and evil were in turn ascribed to human weakness, which is not always capable of acting in accordance with the logic of the optimal organization of the world. This is when absolute optimism was born. It is also when the idea of the best possible world emerged, the one described philosophically by Leibniz and mocked mercilessly by Voltaire in *Candide, or Optimism*.

In the Age of Exploration, circumnavigation of the globe spatially duplicated the eternity of present time. From that moment onward, the surface of the earth had no boundaries—yet at the same time, it turned out to be a closed-loop infinity. The universe, however, still seemed boundless. But the subsequent scientific revolution would limit the infinitude of the universe, framing it as a matter of knowledge and measurement rather than divinity.

Ilya Repin, Barge Haulers on the Volga, 1870–73. State Russian Museum, St. Petersburg.

The transition from a geocentric worldview focused on internal resources to a heliocentric, outwardly directed system implied the emergence of infinity in the here and now. However, this infinity was relocated from earth to a set of galactic clusters. Our planet became one of innumerable dependent planets revolving eternally around the energy hubs of their solar systems, forever drawing closer or pulling away from them. And if these planets could speak, they might utter a saying popular in 1990s Russia (the era of so-called "wild capitalism") among former Soviet citizens forced into ceaseless business activity, much like peasants who had to alternate agricultural labor with periodic migration to the city for work: "You gotta move"— *go round and round* in the original Russian —"if you want to survive." This saying was perhaps a subconscious echo of Galileo's famous dictum " *Eppur si muove*" ("And yet it moves").

As is well known, God's return to earth and his eventual replacement by the invisible hand of the marketplace ultimately led to his death. Any link with the infinity of the afterlife promised by Christianity, whose very existence used to determine the present, was now broken. This



Kepler's Figure "M" from Epitome, showing the world as belonging to just one of any number of similar stars.

rupture also undermined the inner links connecting things to themselves. The arrival of the endless here and now liberated humanity from the closed nature of being, but it did so by expanding the space of coercion. Capitalism requires the quantification and abstraction of the world, which becomes meaningful only within a rigid framework of formal congruencies. Any one thing becomes in principle exchangeable for any other thing.

From a psychological point of view, the quantification of life was perceived as its alienation, which complemented the destruction inflicted by infinity as it swept into the static state of the old world. What was once living, breathing matter now turned into an assemblage of numbers, not only deprived of authenticity and its own substance, but also renouncing any illusion of submission to heavenly authority. Both the divine law promoted by the Church and secular power alike always displayed a certain degree of personification and discreetness regarding their motives. They were open to dialogue, even if this dialogue was not carried out on an equal footing. Their actions were open to interpretation, and were thus graspable, enabling one to find a proper place in this mutual relationship. Numbers, however, are intrinsically cynical. They do not equivocate in a relationship built on submission; they leave no room for ambiguity, and they defy any attempt at psychologizing their motives. Quantification clearly tells us that the misery of wage labor has nothing to do with either personal greed or your boss's sadistic streak. It is not a matter of God's wrath as embodied by the Inquisition, but a simple and trivial matter of math, a relationship built on calculation: "Nothing personal, just business," as accountants say. Some try to

escape this banalization of the world by turning to fascism, which personifies numerical coercion by projecting it onto racial differences, and which seeks to overcome the trauma of infiniteness through a return to a prior state of finiteness, to a primordial authenticity. Today's fundamentalist religious organizations function according to a variation of this logic, but in place of personification they sacralize numerical reality, returning responsibility for this reality to God.

The Marxist project seeks neither to humanize nor to deify numbers. It advocates real infinity, in contrast to the false conception of infinity understood as a limit to development embodied by capitalism itself. It is well known that sooner or later the development of the forces of production under capitalism is bound to clash with the system of labor relations. So in order to develop any further, these forces of production would have to be transformed through revolution. The abolition of this limit to development must establish a dictatorship of the proletariat, which in turn rationalizes and optimizes the production process, reactivating infinite growth. Thus, communist rationalization and optimization, with the help of planning, regulation, and the distribution of justice, must complete the process of quantifying the world that was unleashed by capitalism, transforming it from a process-in-itself to a process- *for*-itself. In Marxism, this total quantification of the world will overcome alienation and return things to themselves.

Nikolai Chernyshevsky, one of the key figures in the formation of the Russian liberation movement, described the transition from capitalism to socialism by referring to the theory of rational egoism. According to Chernyshevsky, both capitalism and socialism are based on the primacy of egoism, which is an innate human quality. However, at some point the development of any individual ego seeking to obtain greater satisfaction of its needs is bound to come face to face with the needs and desires of others. In other words, sooner or later human egoism is bound to find itself in the situation known in game theory as "the prisoner's dilemma." This model suggests that ignoring the needs of others leads to a paradoxical unselfishness, and cooperation yields better results (and better serves selfish ends) than the stubborn desire to pursue one's selfish goals alone, which leads to failure.

According to Marx, capitalism does not actually hold infinity as a limit; the promise on which it never delivers turns out to be a self-deception. In order to achieve unlimited growth, capitalism needs to go beyond its confines and morph into communism. Ignoring this fact leads to the absolute optimism ridiculed by Voltaire and Trotsky. The death of God, instead of making everything possible (as shown in Dostoevsky's novels), makes everything impossible (as illustrated by Lacanian theory). Whereas previously it seemed that God was necessary to keep order, to keep things as they were (thus implying that after God's death things would be liberated from their limits), now it is obvious that things are held back due to the logic of capitalist relations. A thing is a thing only because its meaning is assigned to it within the logic of commodity-money relations. The ultimate infinity is an abstract possibility that is never realized because of capitalism's limits. And in this sense, the false infinity of "endlessly building capitalism" that governs the life of many post-Soviet countries is a very characteristic phenomenon.

If we go back to Trotsky's classification, we can say that the Marxist approach calls for a critical pessimism with regard to the optimism of the eternal present. It also calls for critical pessimism vis-à-vis optimism about the future, which is supposed to supplant false transitory hopes for a true and lasting presence. Intuitively, we can guess that by extending the present into the future and by transforming capitalist selfishness—or capitalism-in-itself—into its dialectical opposite—communism, or egoism-for-itself—we do not gain access to absolute growth and complete congruence. Rather, this transformation subordinates these to the dictates of the present on some higher level.

Examples drawn from history seem to confirm this assumption. Was the Bolshevik party not an optimistic party here and now? It was a party of brilliant tacticians, not strategists—chess players, but not lovers of the game Go. In other words, members of the party were people who, just like most other progressive forces in their own time, could only rarely afford to appeal to something beyond the already given state of affairs. But because of this, the Bolsheviks were lucky enough to organize a revolution. Unfortunately, the post-1917 history of the Russian Social Democratic Labor Party is a history of a race in the present, a record of endless attempts to catch up with the ever-elusive capitalist limit. It is not a record of the first ever successful attempt to venture into the open space of the infinite.

Another solution to the problem of capitalism's unfulfilled promise of infinity can be found in the philosophy of Russian cosmism. It was born around the same time as the Marxist project. Both doctrines have a lot in common in their intentions towards humanity and in relation to objects. But it is also possible to compare Marxism and cosmism as two examples of anti-philosophy, which seeks above all not to build an integrated intellectual system, but rather to organize the practical aspects of life by engaging in the intellectual clarification of the current state of affairs. However, the two doctrines differ in the kinds of solutions they suggest. One proposes a communist return of the infinity of growth through the rationalization and intensification of production, that is, the acceleration of progress. The other also offers the rationalization of production, but not with the goal of achieving even greater growth than possible under capitalism, but rather for the sake of stopping this development once and for all at the

Giacomo Balla, Numbers in Love, 1920.

moment when humans succeed in mastering time. Cosmists regard progress not as a goal or an end in itself, but rather as a necessary sacrifice that is an integral part of humanity's struggle to survive and evolve. Real development, they believe, can only begin after humanity triumphs over death and learns how to resurrect the dead. This vision suggests that the future becomes the reconstruction or restoration of the past, and the arrow of time bites its own tail.

Cosmism offers an escape—a means to break free from the capitalistic race—that undermines from within the eternal present, the optimization of the here and now. In a sense, the possibility of mastering time insists on rationalizing communist rationalization, since the latter limits its intentions to adjusting the success of the development process. But the process itself is accepted as a given, as an axiom that is not subject to rationalization. In other words, under communism, the things of the world, despite being restored to an accordance with themselves and with the infinity of growth, do not become fully realized, do not become optimized *for themselves*.

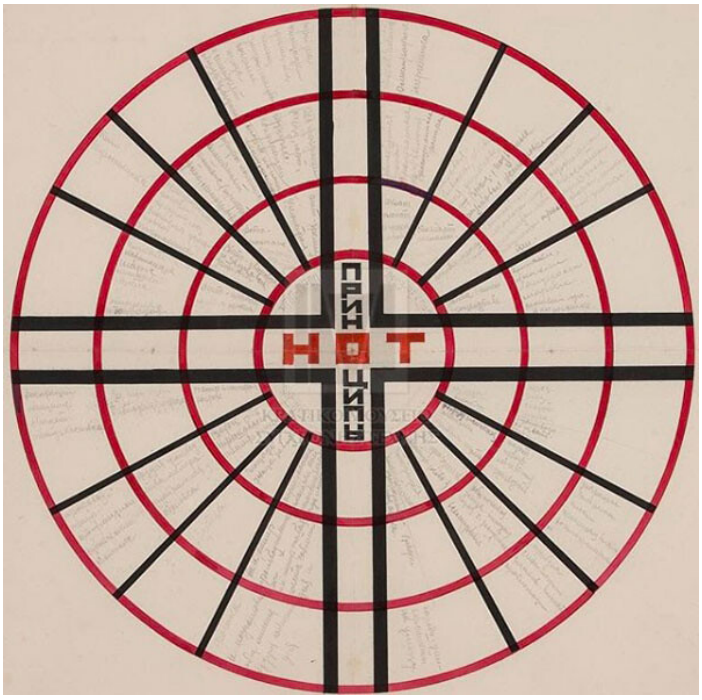
Few thinkers have attempted to analyze the similarity between these two projects for the liberation of humankind. However, by the early 1900s, a range of "heretical" undercurrents could be discerned among the Russian Marxists, especially in the faction of Bolshevik "God-builders" headed by Bogdanov, Anatoly Lunacharsky, and Maxim Gorky, who together organized a worker's school on the island of Capri, Italy. The school was fiercely criticized by Lenin, and finally closed because of him. The faction was dissolved and its main theorist, Bogdanov, was expelled from political activity. But traces of the God-builders could be found in the Proletkult, a movement of cultural producer-workers (poets, writers, actors, etc.) initiated by Bogdanov. Bogdanov was also director of the Institute of Blood Transfusion, which put forward its own ideas for achieving the unity of the people in a classless society, a society without racial, sexual, or age limitations, and with the possibility of the radical extension of life expectancy.

When Paul Kammerer, a well-known biologist associated with neo-Lamarckism, was invited by Lunacharsky to visit the USSR in the 1920s, his agenda was similar to that of the God-builders. Kammerer studied the possibility of inheriting acquired features of organisms known to be excluded from Darwin's evolutionary theory. He also experimented with the prolongation of life. Kammerer believed that there was no such thing as "natural death," because death is always violent—it's just that sometimes our nature itself acts as a killer. Both aspects of Kammerer's scientific research could be extremely useful for the young proletarian state keen on engineering a new human being, immortal and imbued with the high culture necessary for living in a communist society. These were the necessary cosmist additions to Bolshevik Marxism.

Among the followers of Nikolai Fedorov's philosophy, there were other conscious attempts to interact with Bolshevism. They included the postrevolutionary activities of the Russian religious philosopher Valerian Muravyov. He is mainly known for his only lifetime publication, *The Mastering of Time*, written during his short stint at the Central Institute of Labor, which was created by the Proletkult poet Gastev for the purpose of bringing about the scientific organization of labor, or SOL (in Russian: Nauchnaya Organizaciya Truda, or NOT) and its subsequent rational optimization.

In his book, Muravyov developed his colleagues' intuitions, but gave them a universal scale. Combining the theory of Cantor sets, Bergson's philosophy of duration, and some conclusions from Einstein's theory of relativity, Muravyov proposed a project of ultimate time optimization, which can be understood as the increasing compression or condensation of the organization of life.

According to Muravyov, under capitalism there is planned development (the first derivative of time). Communism involves the acceleration of planned development (the second derivative of time). Muravyov's cosmist project depicted the prospect of further acceleration, potentially up to the limit of our universe (the third and further derivatives of time). To achieve this goal, Muravyov insisted on the final quantification of the world and the development of a "universal productive mathematics" that would be used to manage it.



Gustav Klutsis, Principles for the Scientific Organization of Labor, 1925.

If one attempted to describe the process of the mastery of

time, one might say that it is like extending the principles of SOL not only to human activity, but to all being as a whole. One could call this process the ontologization of time management—or even the management of life, because for Muravyov time is an expression of life changing. As examples of this kind of management, Muravyov pointed to the reversibility of chemical reactions, which allow us to destroy or recreate the same substance, as well as to the incredible skill of the proletariat, which accelerates work faster than might seem possible. That is, the mastery of time is understood as conscious management aimed at increasing the complexity and organization of life, as opposed to degrading it or throwing it into chaos.

Without the communist rationalization of the production process, which takes the first step towards the management of life, the realization of Muravyov's vision would not be possible. It is not surprising, then, that Muravyov, who was in fact sharply critical of the Bolsheviks, obtained his position at the Central Institute of Labor thanks in part to Leon Trotsky. The cosmist and the revolutionary first came into contact in 1921, when Muravyov, realizing the significance of the transformation initiated by the Communist Party, wrote a letter to Trotsky. This text, preserved in the archives of the FSB, enables us to better understand the logic of combining Marxism and cosmism from the point of view of the latter:

> Yes, the political victory of the Soviet government is complete. But this is not sufficient if we are to talk about building on a grand scale. To do this, it is necessary that the whole subsoil of life should change, so that in fact there is a profound revolution in all relationships, all perceptions, all modes of life … I see a sort of army around me, ready for battle, but standing still … While I see a skillfully created mechanism, it must create its own life, turn itself into an organism. Only then will we be able to say whether it was born for real or not, whether it is real or an illusion.[2]

According to Trotsky's classification, then, the optimist of the future is merely an improved version of the self-satisfied inhabitant of the eternal present. Only an optimist of the future past perfect can complete the mission of the human species to transform the capitalist universe and enter the space of infinite cosmic life. The infinity of development, promised by capitalism and embodied in its Marxist rationalization, needs to take the next step. That's why Muravyov says of cosmists: "We are more Bolshevik than the Bolsheviks themselves … The revolution is not revolutionary enough for us. It is too narrowly focused on political tasks, whereas we want a cosmic revolution of the world."[3]

X

Arseny Zhilyaev is an artist based in Moscow and Venice. His projects examine the legacy of Soviet museology and the museum within the philosophy of Russian Cosmism.

1
Available at marxists.org https://www.marxists.org/archive/trotsky/1901/xx/20thcent.htm .

2
Valerian Muravyov, *Questions of Philosophy* , 1992, #1, 100–01 (in Russian).

3
G. P. Aksenov, "The Searcher of The Last Truth," foreword to *The Mastering of Time* by Valerian Muravyov, 1998, 8 (in Russian). In the original Russian, the first sentence of this quotation appears in French: "Nous sommes plus bolchevistes que les bolcheviques memes!"

Trevor Paglen

Fedorov's Geographies of Time

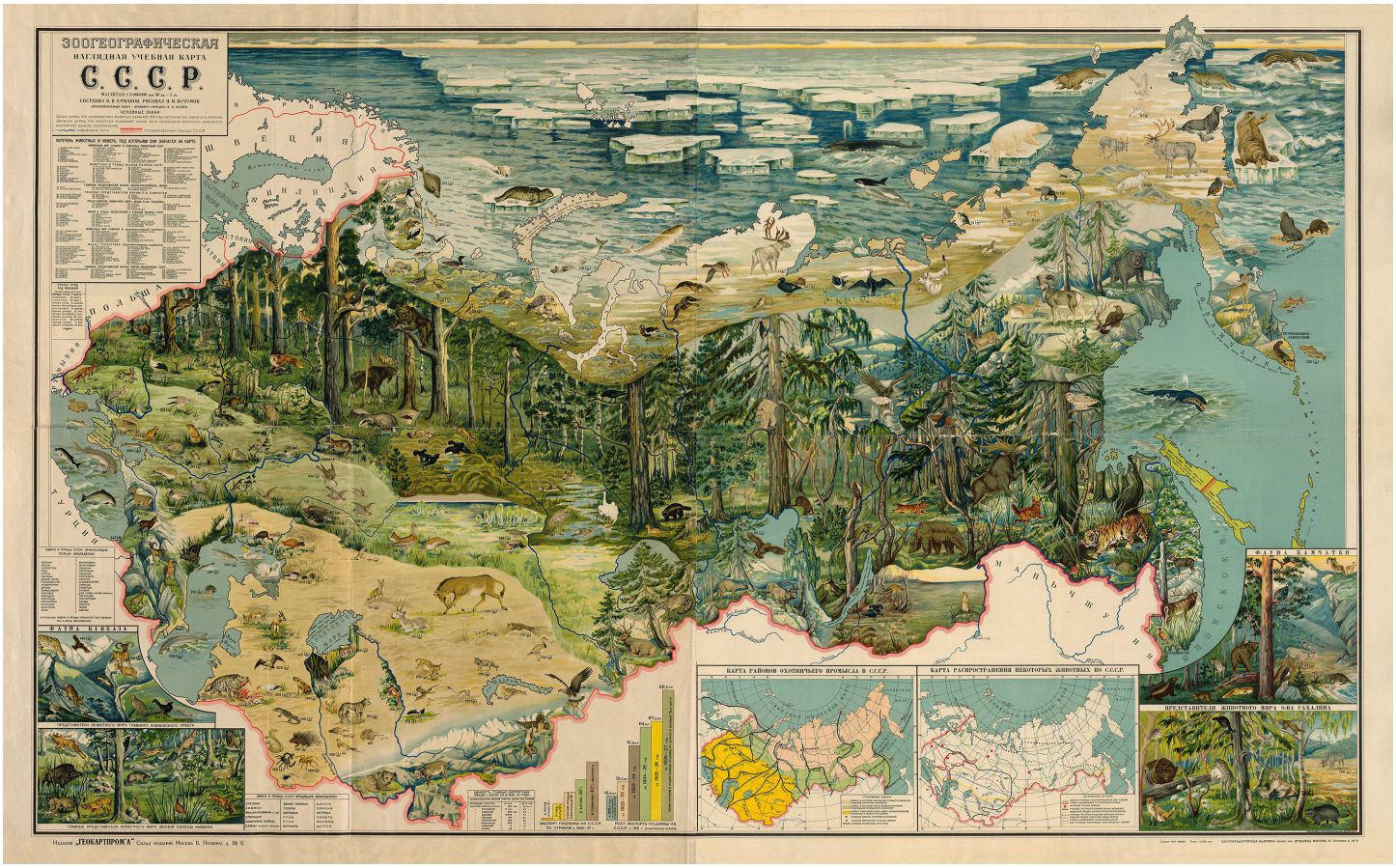
The two great Fedorovian projects—the geo-engineering of the earth and the resurrection of the dead—are linked together by a third project that underlies the other two. The most important part of Fedorov's "common task" is the overcoming of human alienation. For Fedorov, the most pressing thing that humans need to do is restore a sense of "kinship." The biggest problem isn't that nature is against us and needs to be geo-engineered into conformity, or that we need to raise the dead in order to repay our debts to our ancestors. The biggest problem is that we live in a state of alienation. Alienation from each other, from nature, and from time itself.

The project of "kinship" is subtle—it involves overcoming dualisms, mediations, and representations. Fedorov imagines a world of kinship existing beyond subject and object relations, mind and body dualities, oppositions between nature and culture, divisions of labor in human societies, and even the distinction between life and death. For Fedorov, these dualisms are produced through—and are productive of—a state of "alienation" characterizing the human condition.

According to Fedorov, our underlying cosmology presupposes that we are not a part of the universe, so much as beings that stand outside of it. We study the cosmos from a point of detachment; we do things to it from afar. A scientist studies the dynamics of famine but is insulated from its effects. The physicist's research enables the development of better weapons, but she or he is insulated from the effects of those weapons. But even more fundamentally, there's a division between inquiry and responsibility; we live in a society where we can study things without being responsible for changing them. For Fedorov, this isn't just an ethical problem—it's a metaphysical problem.

It seems to me that, for Fedorov, the geo-engineering of the earth and the resurrection of the dead are meant to abolish alienation on both a spatial axis and a temporal one. By geo-engineering the earth and the universe, we resolve the problem of alienation from the cosmos. By resurrecting the dead we solve the problem of alienation from time. Together, they facilitate a grand unification of space-time in a metaphysics of kinship.

This reunification of space, time, and consciousness is to be overcome through practice, not theory. On the spatial axis, this means doing away with the idea of nature-as-distinct from humans. If there's no "nature," then there's only nature-as-produced-by-humans. That being the case, humans should not feel nostalgic or sentimental towards nature. Nature should be guided and controlled by humans in the service of kinship. What's more, only by actively sculpting nature in unsentimental ways can we overcome alienation, because the practice of sculpting the world around us is both the theoretical and practical solution to alienation. Indeed, for Fedorov, such an undertaking would collapse the distinction between



Zoogeographical map of the Soviet Union, c. 1928.

theoretical and practical knowledge/action. The solution to the nature-culture divide is the total geo-engineering of the earth.

Now, we see echoes of this attitude in some of the more stupid versions of "Anthropocene" theory—i.e., the idea that nature doesn't exist and so we should just get on with it. But the much more radical proposal in Fedorov is that we can apply that same idea not only to the planet, but to time. Not only does Fedorov want to collapse the distinction between humans and nature, he wants to collapse the distinctions between the past, the present, and the future in a great project of temporal engineering. This temporal engineering is related to the second of the great Fedorovian projects, which is of course the resurrection of the dead.

The following quote is at the crux of it: "Death can be called real only when all means of restoring life, at least all those that exist in nature and have been discovered by the human race, have been tried and have failed."[1]

Fedorov is making a remarkable claim here: that the dead aren't really dead. Because we don't know whether we can resurrect the dead, we don't know if the dead still have the possibility of life. If we can raise the dead at some point in the future, then that means that death might not be final after all. And if death isn't necessarily final, then the dead aren't actually dead.

This idea of the dead-not-really-being-dead is central to Fedorov's conception of history and time itself. And it has huge implications for those of us who think about time as an arrow sailing in one direction from the past into the future. For Fedorov, it is part of our duty to appropriate that arrow of time, and set it in both directions, or stop it all together.

The resurrection of the dead, for Fedorov, is part of the common task whose goal is to overcome alienation, or "unbrotherliness." If Fedorov's geo-engineering proposals constitute a kind of spatial axis of the common task, the resurrection of the dead constitutes a temporal axis. In other words, just as the planet and universe should be reengineered for humans to develop full consciousness, so must time itself be engineered as a part of that project.

Fedorov is harshly critical of the nineteenth-century notion of progress. "Progress," he claims "is a sense of superiority, (1) of an entire generation of the living over

their ancestors, and (2) of the younger over the old … it is the replacement of love by presumptuousness, contempt and the moral, or rather immoral, displacement of fathers by sons."[2]

Moreover,

> progress involves superiority not only over the fathers (still alive) and ancestors (already dead) but also over animals … Progress makes fathers and ancestors into the accused and the sons and descendants into judges; historians are judges over the deceased, that is, those to have already endured capital punishment (the death penalty), while the sons sit in judgment over those who have not yet died. [3]

And finally, "although stagnation is death and regression is no paradise, progress is truly hell, and the truly divine, truly human task is to save the victims of progress, to lead them out of hell."[4]

So, for Fedorov, the problem with the notion of progress, and history more generally, is that it produces alienation—alienation from one generation to the next, and from the present to the past.

And just as Fedorov's geo-engineering seeks to collapse the philosophical and the practical, and the subject-object binary through praxis, so does his theory of history and time try to collapse distinctions between the past and the present, and the historical and contemporary that he feels reproduce a world of alienation. For Fedorov, we're not only alienated from nature, we're alienated from time.

Part of the problem is philosophical. The commonsense notion that history is a series of accumulated facts that are written down and that we learn about is a huge problem for Fedorov, because it recapitulates the subject/object contradiction, the nature/culture contradiction, and the representational/real contradiction.

As Fedorov puts it: "For scholars, history is judgment, judicial sentences passed by them on the deceased."[5]

Just as these distinctions have to be collapsed through geo-engineering on the spatial axis, on the temporal axis the distinction between the past, present, and future also has to be collapsed. And again, that collapse for Fedorov comes through practice. The practice of raising the dead is the solution to the alienation that's caused by the present/past, history/contemporary contradictions.

If we adopt Fedorov's worldview—where humans have to take responsibility for engineering the spatial axis of the climate, the planet, the solar system, and even the universe, and also have to take responsibility for the temporal axis of the past, present, and future—then we have to think about how to develop an ethical relationship to the engineering of time. For Fedorov, as I said before, the most important part of the project to take responsibility for time is to resurrect everyone who has ever lived. If we're responsible for time, and the dead are not truly dead, then allowing our ancestors to remain dead and in their graves (or with their particles scattered around the universe) would be the same thing as seeing our families and friends wounded and not calling an ambulance.

In sum, Fedorov's notion of time is very different from a Newtonian conception of time as an arrow or of a great clock counting off the seconds. It's also different from the eschatological notions of time we find in the Abrahamic religions and Jewish, Christian, and Islamic theology. For Fedorov, time isn't an arrow so much as it is a landscape. And just as Fedorov's ideal of kinship connects us to distant galaxies, it connects us across time to generations of people who have died in the past and who will be resurrected in the future. Time for Fedorov is not linear but a topology whereby the past can be the future, the future can be the past, and where humans are central to the ethical stewardship of temporality.

In the end it seems that in Fedorov's philosophy, the full realization of kinship would spell the end of time and space. Space would be fully connected and managed through kinship, and the universe would have no "outside"—there would be no frontiers. Similarly, full kinship seems to indicate an end to time, where the past, present, and future exist simultaneously and everyone who had ever lived is present and immortal.

Indeed, this is what Fedorov seems to mean when he concludes his *Philosophy of the Common Task* with the following passage:

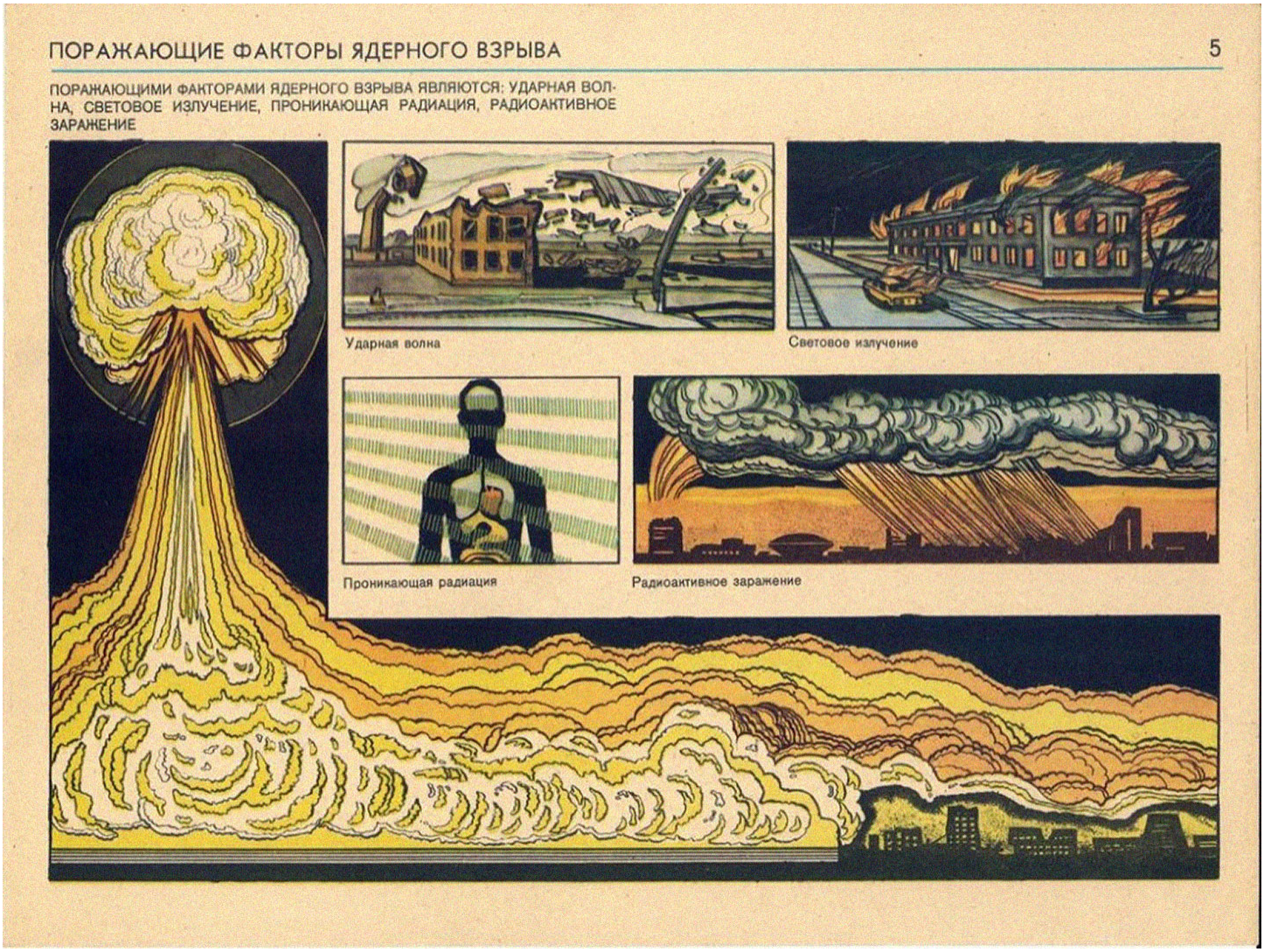
> For the vast intellect able to encompass in one formula the motions both of the largest celestial bodies in the Universe and of the tiniest atoms, nothing would remain unknown; the future as well as the past would be accessible to him. The collective mind of all humans working for many generations together would of course be vast enough—all that is needed is concord, multi-unity.[6]

So … what do we have to learn from all this?

Mostly nothing.

To be sure, there is a lot of fun stuff to think about in Fedorov; there are all sorts of ideas that definitely do not

Cosmonauts Aleksei Gubarev and Vladimir Remek train for the Soyuz 28 mission, circa 1978.



An illustrated Soviet nuclear prevention pamphlet, date unknown.

feel like they're a part of the continental philosophy tradition that so many of us were trained in. So that's fun.

But, Fedorov's philosophy is all premised on a particular reading of the Bible, and assumes a lot of Christian premises.

Fedorov assumes that the cosmos was created by God for men. He assumes that the Bible is infallible and that the Bible is actually a blueprint that humans should follow—that our task is to create the Kingdom of Heaven on earth. That's where all this business about resurrection and immortality comes from. What's more, in Fedorov's philosophy, the righteousness of geo-engineering the earth and resurrecting the dead is guaranteed by God himself. As long as we carry out the instructions provided to us by the divine, there's not much that can go wrong.

But if we take that transcendental guarantee away—i.e., if we remove God as an underlying benevolent force guiding human actions—things can go very wrong very quickly. Resurrecting the dead goes from a project of creating heaven on earth to creating a zombie apocalypse. Geo-engineering the earth turns into a project to shroud the earth in permanent darkness rather than cut fossil-fuel emissions. If there is no God out there who created the earth for us and is guaranteeing that we don't mess it up, then we better be very humble about what we imagine our place in it is.

Nonetheless, Fedorov is right that we need to stop thinking of nature as something outside ourselves. I just think we should be far less cavalier about the alterations we make to the environment than Fedorov suggests.

On a much smaller scale, however, I think that Fedorov gives us an opportunity to think about temporal engineering and the ethics of time-bending technologies. Over the last hundred years or so, humans have developed some incredibly powerful tools of warping time, and we

don't have a very sophisticated set of theoretical tools for thinking about them.

On one hand, humans are making ever-greater interventions into the geologic time scales of the earth—whether it's the spread of Styrofoam and other nonbiodegradable materials that last for millions of years, or whether it's the alteration of the atmosphere's chemical composition and weather patterns, processes that will play themselves out for tens of thousands of years into the future. Humans have been geo-engineering the planet for a few thousand years, but have not been able to imagine ourselves doing that until quite recently.

On a smaller scale though, we are also developing a new mastery over time. In the nineteenth and twentieth centuries, this was largely accomplished through transportation and communications technologies. In the twenty-first century, this is being done through data storage, analytics, machine learning and predictive technologies.

An anecdote: a few years ago, I was at a party with Dan Bernstein, one of the world's best-known cryptographers. I asked him what he was working on and he told me that the main thing he was worried about was developing post-quantum cryptography. The idea is that there's a kind of theoretical computer in the future called a quantum computer that will easily be able to break present-day encryption technologies. Dan was trying to figure out how to develop encryption technologies that would protect against these theoretical computers in the future. I asked him why we should bother building tools to resist computers that don't even exist and that no one knows for certain will ever actually exist, much less getting these tools deployed in the immediate future. Dan said that because the likes of Amazon, Google, Facebook, and the NSA are able to indefinitely store every email, every search term, every "like," every tweet, and every direct message, we need tools that can protect the present from the future.

I don't think that we should resurrect the dead, but I do think that we need to start developing a very different relationship to time. We need to develop an ethical relationship to time that can account for things like nuclear waste, which has already created spaces of death that will remain so for hundreds of thousands of years. This should be an ethics of time that can help us develop an ethical relationship to the climate and the chemical composition of the atmosphere, to the evolution of other animals, plants, and chthonic life-forms, and to the oceans and the islands and the wetlands. But we also need to begin to think about an ethical relationship to the particles of ourselves that exist on cloud-computing platforms, on social media, in credit reports and demographic profiles. We need to think about time differently, so that the future does not become the enemy of the present.

Perhaps this involves a different kind of resurrection: by developing a more ethical relationship to the environment and to technology, can we resurrect ourselves from the accumulated data about us that the future will weaponize against us? Should we, perhaps paradoxically, demand the right to digital death at the touch of a button, to wipe our metadata signatures clean? On the other hand, can we resurrect the people who have not been born yet, but who nevertheless died prematurely due to environmental devastation, hunger, racism, and inequality? Perhaps by learning from Fedorov to think about time as a landscape—one that we shape in the same way that we shape the earth's surface—we can develop a framework for thinking some of our most urgent crises.

X

Trevor Paglen is an artist whose work spans image-making, sculpture, investigative journalism, writing, engineering, and numerous other disciplines.

1
Nikolai Fedorovich Fedorov, *What Was Man Created For? The Philosophy of the Common Task: Selected Works* , trans. Elisabeth Koutaissof and Marilyn Minto (London: Honeyglen, 1990), 98.

2
Ibid, 53.

3
Ibid, 54.

4
Ibid.

5
Ibid, 80.

6
Ibid, 102.

Keti Chukhrov

Anagogia in Cosmism and Communism

1. Whence Anagogia

There are three main reasons for revisiting cosmism. Under conditions of harsh localization, when even decolonization and emancipation are pursued through the lexicon of identity politics, and planetary theories turn out to be quasi-indigenous mythologies, cosmism provides a universalist and cosmopolitan dimension. After the failed imaginaries of alter-globalization, cosmism allows us to acquire a perspective that exceeds "the globe." This is the first reason. The second reason is that despite a commitment to radical technical and biophysical experimentation, cosmism never discards the role of the human, but rather preserves its subjectivity, even when such a humanity is imagined to undergo drastic evolutionary or biogenetic transformations. Third reason: cosmism develops an edifice of the commons, which, along with strong ties to Christianity and ecclesiastical eschatology, has many affinities with the communist project. Reconsidering cosmism thus allows us to clarify the relations between all three projects: not only between cosmism and communism, and between cosmism and Christianity, but also between communism and Christianity.

Having evolved from confessional religion, cosmism subsequently detached from it considerably; however, it never developed into a fully functioning political organ of social emancipation or philosophical thought the way communism or Christianity did. Cosmism remained a mixture of theological edification and scientific and technological research, anticipating, at times, a kind of positivist biopolitics. The divergences of cosmism from communist premises and Christian dogmas are very important, but I will start with an affinity they all share.

Nietzsche solved the problem of petty bourgeois, philistine life by promoting the extreme nihilism of the Ubermensch, who lives detached from society at the heights of sovereign, lonely power. The Ubermensch, like Faust, ascends away from humankind, to contemptuously decry the shallowness of life. Marxism can be seen as the antipode of such a program. In contrast to the ascent of a single individual Ubermensch, in Marxism, political ascent and cognitive breakthrough are collective events, programmed socially by and for a collective subject. In this case, "the ascent"—cognitive, social, and existential—becomes possible for the most dispossessed. The Christian premise is similar to the Marxist in that Christ, despite being "God," consented to be like the most belittled, humiliated, and diminished humans. It is in this sense that Nietzsche's Ubermensch is an Antichrist. The cognitive excellence and the nihilist elevation of Nietzsche's Ubermensch, and of Faustian Prometheanism, are different from the anagogical ascent of the saints, of Christ, or of communism, which are accomplished by means of the diminution and dissolution of the self among everymen. (Thus, cosmism is important

in its standing between two extreme projects of universalization, Christianity and communism, which compel their adherents to rise above "mere" life, to quote Benjamin.[1])

The idea of ascent—the anagogical direction—is teleological, expedient, purposeful. Yet teleology has long been under suspicion in postwar Western philosophy as a form of idealism and as complicit with discourses of power. We see this in Althusser's treatment of Marx and Hegel; in psychoanalysis, with its critique of the superego and the idea of redemption; and in the post-structuralist assertion that teleology speaks on behalf of coercion and despotism. From Sartre to Lacan, Deleuze to Foucault, the idea of virtue can only be a false pretense—camouflage for just another will to power. Hence, resistance to putative virtue has to be demonic and vicious in order to be effective. Exceeding the viciousness of power by turning to an alternative vice becomes the path of modern emancipation; freedom is realized through estranging the estranged, through alienating the already alienated. This strategy has different names: "suspendedness" and "groundlessness" in Sartre and Nancy; "decomposition" and "dissociation" in Guattari; returning to Plato's cave in Deleuze;[2] welcoming chaos, aleatorics, and the throw of the dice instead of prescribed order in the work of composer Pierre Boulez. All these epistemes were constructed from the critical theory of resistance and liberation that emerged after 1968.

The condition of fallenness is hugely important in these epistemologies. Rather than celebrating the immortal soul's inevitable transcendence of the body, an insistence on fallenness becomes a protest against the phallogocentrism of the Father, Man, Logos, Language, and Discipline. Fallenness becomes associated with the most oppressed and exploited. The fallen, deviant man and his subversive body become the most creative body; its dissensus evolves as the malevolent aestheticization of the fall. The commons becomes the defense by the fallen of their right to fall, to fall apart, to dissociate and claim various modes of falling as resistant solipsism in an otherwise totally controlled and optimized social infrastructure.[3] A metaphor for the resistance of the fallen could be the lumpen proletariat as described by Marx in his "The Eighteenth Brumaire of Louis Bonaparte."[4] Only let's imagine that Marx, instead of critiquing this social group as miserable bohemian outcasts—who, according to Marx, can be emancipated only if they consciously merge with the proletariat—declared that the lumpen proletariat's social degradation and predilection for indulgence are in fact a manifestation of its capacity for resistance, as long as their voluntary ethical fall is what they take for emancipation.

Promethean theories of acceleration exemplify a tendency that runs counter to the bohemian ethico-aesthetics of the fall. However, alongside affinities with cosmism, theories of acceleration differ in that they proclaim progress and the augmentation and advancement of posthuman intelligence by means of further alienation and dehumanization. Cosmology, in the case of accelerationism, implies the totalization of the outside—hence the parallels between accelerationism and the nihilism of Nietzsche and Faustianism. For Russian cosmism, by contrast, the exemplary figures are Christ and Cordelia, who work for devotion and against alienation. For cosmism, the social ideal is a de-alienated universe that can be a "home"—a form of common inhabitance (вселять/вселенная)—rather than an infinitely expanding void conquered by advanced intelligence. The cosmos of Russian cosmism is finite, not infinite. For postwar Western thought, redemption is unimaginable under conditions of alienated labor. For cosmism, kinship as a radical form of de-alienation is essential for universalism; it evolves as the purposefulness of common labor in achieving the commons globally and transglobally. In communism, de-alienation is realized through the eradication of the division of labor and private property. In both cases—cosmism and communism—the goal is not merely the expansion of intellect or of universal technological excellence. Rather, the goal is overall communization with as much de-alienation as possible; technology is merely the means for this.

2. Cosmism between Communism and Christianity

Thus, for cosmism and communism, emancipation is a practice of ascent, or anagogia—a project of virtue. Instead of *resistance to evil*, there is a fervent *assertion of virtue*. This does not mean that such assertions always go smoothly. It just means that a project in which virtue and de-alienation might be accomplished is logically and pragmatically possible. According to this logic, the distribution of evil and virtue does not take place primarily as a struggle between two forces, one good and the other evil. Instead, evil simply does not exist. Within such logic (which is part and parcel of the Gospel and of classical patristics), evil can be viable only if one sees and acknowledges it as existent. Evil has no ontology. It is no counterpart of virtue. Adam's fall exists only within his own sin, as the consequence of a free choice to fall, after freedom was given to him in order to be similar to God. So, there is only one force, virtue, and what is not virtue is simply its lack or absence. Resisting evil as evil, then, balances or confirms it rather than eradicating it.

As we have remarked, cosmism's main alignments are Christian theology and communism. While cosmism's overlappings with the latter are regarded as progressive, its overlappings with the former are usually omitted when integrating the cosmist legacy into critical thought. It's parallels with Christianity, however, are essential, not only in mapping cosmism's genealogy, but also in tracing the important ways that it deviates from Christianity. Conceptually and onto-ethically, cosmism's deviations

An image from the exhibition "Fantasies of Labas" at the Moscow Museum of Modern Art, which displayed a number of works by the Soviet painter Alexander Labas (1900–83).

from Christianity correlate with its deviations from communism. Let's see how.

The cosmist obsession with resurrection is animated by cosmism's goal of achieving a supreme level of consciousness. This is attained when even sinners are reborn into a new life, *nuova vita*—the heavenly kingdom, the universe as virtue. By the time of Christ's Second Coming, liberation from sin enables even sinners to enter a paradisial universe. However, the concern is not merely the resurrection of one's life, but *the quality of virtue* of the resurrected commons. The necessary preparations for cosmological eternity are not merely biotechnical and social, but also ethical and theurgical, in terms of facilitating Christ's labor of resurrection, and readying humankind and the universe for His coming. The goal of cosmism, as Fedorov puts it, is for all humans to commitment to Christ's task of reclaiming paradise for a fallen humankind, i.e., to achieve the common overall anagogia—the uplifting of all to the condition of Adam and Eve's reclaimed virtuousness. The afterlife, which previously was something that could only be reached by means of death, becomes a mundane, organized co-production with God. Immortality is not merely a biotechnical achievement, but the acquisition of sinlessness in the reunion of body and mind, as predicted by the Second Coming.[5]

However, there is something problematic here from the point of view of Christian theology.

Cosmism preserves the authority of God, but it attempts to effectuate God's own tasks. It thus neglects the sermons regarding the *expectation* of God's grace. Fedorov upholds the role of God, but announces that the entirety of humanity is capable of divinity in advance, *in situ* —capable of launching a project of global engineering and universal liturgy on behalf of God's will.

In the Christian sermons, however, this is impossible, since grace (благодать/ *blagodat'*) is acquired not via Promethean boldness, but via humble resignation. No matter how righteous and hardworking the immortality-worker has been, when she stands before God, the remission of her sins depends not on how much or how well she has built, but on the extent to which her heart is contrite (сокрушенное сердце/ *sokrushennoe serdze*). That is, the atonement of sins doesn't depend on human will, labor, or the accumulation of virtuous deeds, but only on God's judgment and mercy, which require from humans a constant awareness of our sinfulness and the need to repent. This work of repenting and humbleness before God is not discreet and consistent; it is rather a constant struggle against our inborn fallenness. Redemption requires incessant confession, the perpetual work of self-transformation (or "metanoia"), and communion. In this regime, humanity cannot make a pact with God to co-produce or co-organize paradise as a shared project. Fedorov mostly avoids these subtle existential components of the traditional liturgy, appealing instead to a universal liturgy understood as a kind of total constructivist work of moral edification and biotechnological regulation. Failure has no place in his cosmism.

For Christians, by contrast, anagogia is in the awareness of failures—in the determination to take another step despite the utmost failure that is human fallenness. The uplift of anagogia is impossible without an awareness of failures made during the labor of ascending. This constant self-resignation, indispensable for anagogia, is embodied by a statement from the Gospel of Matthew (5:3): "Blessed are the poor in spirit, for theirs is the kingdom of Heaven." Anthony of Sourozh, a writer and Metropolitan bishop of the Russian Orthodox Church in Great Britain, interprets this statement as indicating a desperate inability to do anything without God's blessing and mercy, since whatever is done can be ascribed only to God's generosity. One is blessed for being poor in spirit, because one always admits that one can only lack the Holy Spirit, can only be poor in it. From this point of view, Fedorov's resurrection and total liturgy are problematic because, until Christ's Second Coming, there will always be a lack of spirit and a lack of divine love. How, then, could Christians, who cannot but lack spirit and love, be capable of accomplishing Fedorov's Christological resurrection?

In the writing of Andrei Platonov (such as his novels *Chevengur* and *The Foundation Pit*, or his novella *Soul*), the real communists are precisely those who are poor in communism—those who feel themselves not entirely and sufficiently communist. Communist humbleness before history and Christian humbleness before God both stand in contrast to cosmism's non-dialectical confidence, which is devoid of ruptures and paradoxes. While cosmism initially posits a theurgical goal—i.e., the conquest of sin and the synergetic assimilation of humans with Christ—it subsequently concentrates mainly on biophysical and biotechnical optimization, demonstrating overt hostility to philosophy. Philosophy is nothing but pagan sophistry for Fedorov, while for Bogdanov it is merely a symptom of an insufficient understanding of scientific organization. Cosmism also rejects those aspects of theological thinking tainted by doubt, the unknown, or the eventual, even as its scientific projections cannot fully rid themselves of religious poetics. The theological horizon of Christianity is neglected, while philosophy is discarded in favor of total planning. Cosmism thus attempts to pursue the same goals as Christianity, communism, and philosophy—insofar as they aspire to the truthfulness of being and the realization of a virtuous commons—but ignores the inevitable conceptual and practical contradictions encountered on the path to achieving virtue.

What Christianity, communism, and philosophy have in common, and what cosmism lacks, is an eschatology conditioned by the event. In Christianity, communism, and philosophy, *nuova vita* is not programmed, planned, or organized; it *erupts* through an irreversible event. While philosophy and theology may subsequently confirm "the truthful" of the event, they do not prescribe or design it in advance. For Christianity, examples of such radical eschatological events are the Crucifixion, the Resurrection, and the Second Coming. For communism, the central event is social revolution.

Eventality is constructed dialectically, revealing constant doubts, paradoxes, and contradictions. But it can also turn into a positivist speculative design, as happens often in contemporary techno-futurisms. While cosmism is more than just mechanistic technological planning, it does not admit of any rupture between being and consciousness—the very thing that organizes and constructs philosophical dialectics.

Lenin and many other Soviet Marxists rejected Bogdanov's positivism; while they agreed with Bogdanov that natural science has a hugely important function, it could not, they insisted, supersede philosophy. The Marxist notion that being is independent from and precedes consciousness presupposed a certain philosophical gnoseology, or metaphysics of knowledge. Things and acts are not objective; they are biased by Hegel's *Andersein* (other-determined, non-self being). As the Soviet Marxist philosopher Evald Ilyenkov asserted, referencing Lenin's critique of Bogdanov and empiricism: "Hydrogen and electrons are not identical to the gnoseological issues of conceptualizing hydrogen and electrons."[6]

Mere data cannot be cognized without gnoseological means of generalization—and generalization always entails contradiction. Not confined to dealing with data provided by the natural sciences, philosophical generalization involves the dialectical study of the objective material world from various, often contradictory,

angles.[7] From this point of view, contradictions between the abstract and the concrete cannot be resolved via techno-naturalist isomorphisms that are derived from biological or physical laws and then applied to social life (as in Bogdanov's "tektology," a universal science of organization).[8] As Ilyenkov writes: "Without the dialectical coalescing of the relative and the absolute, one cannot develop generalized knowledge, and hence objectiveness. Objective truth cannot, then, be distinguished from a subjective picture."[9]

This argument is about the inability of scientific data to stand for objective truth. Ilyenkov's argument is that pure experience is not objective, but rather subjective. As he insists, the empiricist gnoseology of Bogdanov's tektology is founded on subjective psychic experience; the data from this subjective experience is merely extrapolated to other realms, such as the economic and the social. Thus consciousness for Bogdanov remains a psychic, sensory phenomenon. Philosophy, on the other hand, deals with things that are not confined to perceived facts. What Bogdanov takes for granted, Ilyenkov and Lenin vigorously doubt: namely, that social being and social consciousness are identical and simultaneous. Meanwhile, independence of being from consciousness becomes the kernel not only of philosophical ontognoseology, but of social and political practice as well. This gives rise to the illusory hope of solving ideological ruptures by means of physical laws, that is, by means of applying the principle of an equilibrium of energies to societal contexts.[10]

In other words, communist, Christian, and philosophical approaches to life and its organization cannot follow a straightforward, coherently organized, transparently planned path. Anagogia cannot be guaranteed. Technology cannot and will not ever emulate consciousness, neither algorithmically nor biophysically.

When it comes to discussions of resurrection or eternal life through artificial intelligence, a common argument is that, while a person's body can be resurrected, or their intelligence and mental capacities reconstituted, it is impossible to algorithmically reconstruct the complexity and intentionality of consciousness. This is because, goes the argument, consciousness is not mere intelligence; it is the body acting with the awareness of a huge complexity of phenomena surrounding it, making choices that are mostly nonrandom. As Fedorov would say, consciousness is the "organ of acting supra-morally."[11]

In cosmism, however, the problem of resurrecting the unique immateriality of consciousness was not considered a problem at all. Corporeal resurrection, it was assumed, would automatically entail the return of consciousness to the body. In his theory of resurrection, the Russian theologian and philosopher Pavel Florensky relied on the notion of "sphragistics" developed by the fourth-century saint Gregory Nyssen.[12] According to sphragistics, all the atoms in one's body bear the seal of one's soul and consciousness. Thus, at the time of resurrection, the elements of our bodies—even when dispersed—can be recognized and collected by means of this unique seal. The mental and spiritual imprint of a person remains inherent in the material atoms and particles of their body. Similarly, Fedorov claimed that when a body is resurrected, consciousness automatically joins it.

Ilyenkov's Marxist response to this idea would be to insist that consciousness is not a psychic or sensory category. While consciousness is certainly embodied, its construction is chiefly formed by the objective, external sociality of a world, which is independent of consciousness. The idea of objective reality forming consciousness is the kernel of materialist dialectics. This means that it would be impossible to resurrect a given individual consciousness, since this individual consciousness is not merely the psychic life of a person, but the whole complexity of its "other-determined, non-self being" (*Andersein*), engaged and realized in concrete historical conditions. How can one resurrect a consciousness when the external "everything" that constructed it is forever lost? From this perspective, resurrection can only ever be biophysical. Without consciousness, which is social and historical by definition, any resurrected being would be a mere zombie or bio-robot. Ilyenkov's argument is that mind and consciousness do not reside in the brain; rather, they derive from social relations, activity, and labor.

3. Immortality Despite Mortality

What if we already have access to immortality? What if we are already immortal?

To a considerable extent, cosmism projects immortality as the physical maintenance of longevity. The struggle against death, and for physical longevity, is necessary and important. However, it would be a logical mistake to deny that immortality can exist despite mortality. The reason is simple. As long as immortality—both as physical eternity and divine grace—has not yet been achieved, it would be cruel to deprive humankind of the ethical persistence it attains by claiming immortality within and despite mortality.

It is precisely this condition that gives birth to philosophy. To philosophize is to learn how to die, as Socrates defines it for his disciples in Plato's *Phaedo*. But it is just such a philosophical readiness for mortality that, paradoxically, maintains the existence of a conceptual, logical, ideational immortality. For a philosopher, learning to die means loving life; it means having the capacity to assert life without and beyond life. It is the philosophical ethics of the acceptance of death that establishes such ideational immortality.

Alexander Labas, Cosmos, date unknown.

In a reversal of this model, a number of sci-fi films and novels portray immortal beings who voluntarily opt for mortality. In Steven Spielberg's *Artificial Intelligence* (2001), a boy, who is an immortal cyborg, sacrifices his immortality in order to once again meet his deceased foster mother. Immortal cyborgs often choose to become mortal for the sake of their love for humans. This becoming-mortal of the immortal establishes a new kind of ideational supra-immortality.

In fact, Christ played the role of such an immortal cyborg: he chose to die as a mortal for the sake of his love for each and every mortal human being—thus immortalizing those mortals through his sacrificial act. In other words, Christ's act becomes immortal within and despite its transitoriness and its acquiescence to death.

(Interestingly, saints, who are seldom mentioned in cosmist texts, are in fact those exceptional humans who can enter the heavenly kingdom—who can attain immortality—despite being mortal; that is, they can be granted sainthood while they are alive and still very much residing on earth.)

The idea of infinity despite and within finitude was developed by Evald Ilyenkov in his fascinating essay "Cosmology of the Mind" (1950s). His point of departure is the assumption that despite all our advanced technology, the solar system (and humankind along with it) will sooner or later perish. And the thinking mind, as the principle attribute of matter in that system, will perish as well. According to Ilyenkov, in the first stage of its decline, the solar system will cool; this will be followed by a thermal explosion that will turn everything into hot steam and gas. But when the solar system begins to fade away, it is the thinking human mind that will foster this process of decline, voluntarily striving towards an explosive thermal death. The destruction of matter implies a thinking mind that is aware of inevitable collapse. By striving for this explosion and thereby accelerating the end of life, the thinking mind facilitates the return of matter to its "primary juvenile" state, so that new life can emerge again. The emergence of this new life in turn entails the reappearance of the thinking mind, since matter cannot but grow into mind. And since mind can only be human, humankind will be reborn—over and over again. In this "phantasmagorical" text, Ilyenkov wants to prove that even the collapse of the universe is not merely a natural contingency of matter, but happens only through the participation and initiation of human consciousness.[13]

For Ilyenkov, the complete destruction of matter is impossible in this scenario because the explosion releases even more energy than is consumed in the destruction of the existing universe. While the thinking mind is destroyed, it carries out this voluntary self-sacrifice so that matter can develop again in some other part of the universe. Here, the logic of eternity goes as follows: if mind is the principle attribute of matter, and matter cannot exist without mind, then any matter will inevitably develop into mind. And since mind is necessarily *human* mind, humankind will always be reborn in other galaxies.[14]

By this logic, death is inevitable, but so is the impossibility of death. Such an anti-egoist awareness of one's eventual eclipse by new life is, for Ilyenkov, confirmation of the materialist-dialectical premise that objective matter and reality prevail over consciousness, be it individual or collective. But this does not imply any critique or dismissal of a correlation between mind and matter, as is the case with speculative realism. On the contrary: a humble and generous awareness of the perishability of human life and thought—an acceptance of the objective and supreme role of universal matter—only confirms the maturity of mind and its necessity for matter.

Thus, the dialectical tragedy of Being is that the human mind is aware of two seemingly contradictory conditions: 1) the human mind—and therefore humanity—is an extension of infinite matter; and 2) mind and humankind are matter's main necessity.

To achieve the merging of mind and matter, mind (consciousness) has to be aware that it is never an isolated self, that it is always an *other-determined non-self*, destined to generalize itself in the direction of objective reality. This aspiration towards *non-self being* allows one to humbly accept one's non-being—an act that paradoxically asserts one's logical immortality. As Socrates teaches in *Phaedo*, it is indifference to death that allows a philosopher to grasp what eternity is.

In fact, those who would be resurrected in the Second Coming would not be our earthly "we" or "me." They would be those universal selves who, by means of anagogia, had reached their metanoic non-selves in *nuova vita*.

X

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1
Walter Benjamin, "Critique of Violence," in W. Benjamin, *Reflections: Essays, Aphorisms, Autobiographical Writings* , ed. Peter Demetz, trans. Edmund Jephcott (New York: Schocken, 1986), 277–300.)

2
In his *Difference and Repetition*, Deleuze famously imagines philosophy not as an exit from the cave, but as eternal nomadic rumination within its labyrinths.

3
André Lepecki dedicates a book to such a solipsistic derangement: *Exhausting Dance: Performance and the Politics of Movement* (London: Routledge, 2006).

4
Available at marxists.org https://www.marxists.org/archive/marx/works/download/pdf/18th-Brumaire.pdf .

5
Nikolai Fedorov, "From the First Volume of *The Philosophy of Common Task* ," in N. Fedorov, *Works* (in Russian) (Moscow: Misl, 1982), 53–442.

6
Evald Ilyenkov, *Leninskaya Dialektica i metaphizika pozitivizma* (Lenin's dialectics and the metaphysics of positivism) (Moscow: Mir Philosophii, 2015), 102. Lenin's critique can be found in chapter 6 ("Empirio-Criticism and Historical Materialism") of his book *Materialism and Empirio-Criticism: Critical Comments on a Reactionary Philosophy* , available at marxists.org https://www.marxists.org/archive/lenin/works/1908/mec/ .

7
Ilyenkov, *Leninskaya Dialektica*, 109.

8
Alexander Bogdanov, *Tektology, Book 1,* trans. A. Kartashov, V. Kelle, and P. Bystrov (Hull: Centre for Systems Studies Press, 1996).

9
Ilyenkov, *Leninskaya Dialektica,* 118.

10
Ibid., 118–19. According to Ilyenkov, social relations, which are rife with complexities and contradictions, cannot be managed or balanced this way.

11
Fedorov, "Supramoralism ili Vseobshi Sintez" (Supramoralism, or the overall synthesis), in *Works*, 473–507.

12
Pavel Florensky, "Organoproekzia" (The projection of organs), in *Russkiy Kosmizm*, eds. S. Semenova and A. Gacheva (Moscow: Pedagogika Press), 149–62.

13
For an English translation of this essay—one that uses the term "spirit" instead of "mind"—see Evald Ilyenkov, "Cosmology of the Spirit," trans. Giuliano Vivaldi, *Stasis* 5, no. 2 (2017).

14
As Ilyenkov writes in the essay: "In this hypothesis of perishability, death appears not as a senseless and fruitless end, but as an act that in its essence is a creative end—a prelude to a new cycle of life for the Universe."

Boris Groys

Genealogy of Humanity

Notions of humanity and humanism are put into question today for having disregarded differences between races, genders, ethnicities, and sexual orientations, and as ideological constructions legitimizing the domination of a certain part of the world population over others. This critique is not new. After Edmund Burke read the *Declaration of the Rights of Man and of the Citizen*, issued by the French revolutionaries in 1789, he famously stated that the only conclusion that he drew was that it is better to be an Englishman than a man. The terror of the French Revolution and the Napoleonic Wars only confirmed his skepticism. Indeed, many post-Revolutionary thinkers such as Joseph de Maistre or Alphonse de Lamartine saw the return of religion as the only means of reuniting humankind and reconnecting with nature: they believed that humanity needed a mediator who could unite people in spite of their differences, and that only God was capable of transcending the world and its divisions to act as such a mediator.

This religious turn was not only characteristic of reactionary thinking seeking to restore prerevolutionary conditions, but also of much progressive thinking that took the French Revolution as its point of departure. German idealism, which posited different versions of spirit as a unifying force, is the classical example. A different project for unifying postrevolutionary mankind can be found in the positivist religious program proposed by Auguste Comte in 1852 in his book titled *System of Positive Polity, or Treatise on Sociology, Instituting the Religion of Humanity*. Through Comte's work we can trace the genealogy of the notion of humanity more generally, but also identify his influence on Russian thought in the late-nineteenth and early twentieth century, when, before and after the October Revolution, influential Russian writers crucial to the emergence of Russian cosmism revisited his religion of humanity.

Comte's treatise has an interesting history. Before writting his *Positive Polity*, Comte was already working on a system of positive knowledge. His positivist attitude was extremely consequential—he rejected all transcendent and spiritual tendencies in favor of empirical experience. However, in the years 1844–46, when he was in his late forties, something happened to him: he fell in love with Clotilde de Vaux. She was around thirty years old, and though both of them were divorced, their relationship remained platonic. Clotilde de Vaux had fragile health, however, and died in the year 1846. After her death, Comte embarked upon a process of deifying his beloved. From the very beginning, the religion of humankind was the religion of Clotilde de Vaux in particular, and of femininity more generally. In his preface to *Positive Polity*, Comte writes that he had begun to work on its main ideas in the 1820s, already then thinking about a form of religious teaching that could replace monotheism after its decline. But only after meeting Clotilde de Vaux did Comte arrive at the concept of positivist religion. Accordingly, Comte dedicates the book to her memory. At the

The facade of the positivist church in Rio de Janeiro, Brazil.

beginning of the book, he establishes the main principle of the new religion: reason must be subjected to sentiment, to feeling. Here Comte redefines the main principle of his philosophy rejecting all spirituality inaccessible to feeling, including reason. Here Comte understands feeling not only as empirical experience, but also as a unifying social principle. Comte, of course, did not forget that Robespierre wanted to install reason as a religion. Thus, for Comte, reason became associated with terror. To prevent such a development, and in accordance with his own experience of platonic love, Comte envisions a society with women as its spiritual leaders. The main, and actually only, day of celebration in this new religion would be the day of Holy Clotilde de Vaux.

Comte writes that only the religion of humanity can be considered a true religion because it implies the veneration of something that undeniably exists: humanity itself. For Comte, it is only humanity that truly exists:

> Man indeed, as an individual, cannot properly be said to exist, except in the too abstract brain of modern metaphysicians. Existence in the true sense can only be predicated of Humanity; although the complexity of her nature prevented men from forming a systematic conception of it, until the necessary stages of scientific initiation had been passed.[1]

Thus, humanity is the Supreme Being. Of course, the existence of humanity can be endangered, but for Comte, this would only intensify the religion of humanity. Here the extent to which the religion of humanity can be perceived as a religion of love becomes clear.

However, the tone of Comte's *Positive Polity* changes over the course of the book, especially where he discusses communism. Indeed, Comte believes that in communism social sentiment goes too far and begins to

Detail of a painting of Holy Clotilde de Vaux, one of the saints of the Positivist Church founded by Auguste Comte, Chapel of Humanity, Paris.

undermine the social order based, as we now see, not in love but in astronomy—the cosmic order. Comte reminds us how Newton showed that we live under the same laws of gravity as the celestial bodies. So, according to Comte, the first science on which social order should be based is astronomy. He writes:

> It is well to remember sometimes, and to regret, the grave imperfections of an Order which we cannot modify. And yet no wise man would wish to be set free from it; and to see human life not merely loosened from all restraint, but devoid of any fixed object. The craving for this desultory independence is but one of the extravagances of metaphysical self-conceit. The defects which abound in every department of human life should result in prompting us to modify the External Order under its secondary aspects, although its fundamental laws are beyond the reach of our intervention. Even where our power is greatest, the initiative is not ours.[2]

Here the opposition is formulated between communism and astronomy. Communism can be only initiated as a metaphysical self-delusion that ignores the fact that humanity is inscribed into the cosmic order. The only way that remains open is that of moral self-perfection. Comte describes socialism and communism as attempts to replace moral reform with political reform: an impossible project from an astronomical, cosmic point of view.

Comte became very popular in Russia before 1917. The opposition between astronomy and communism was the actual starting point for Russian cosmism. One can clearly see this in the 1909 book *Religion and Socialism* by Anatoly Lunacharsky, who later became the first Soviet minister of culture. In this two-volume work, Lunacharsky tells the history of the world religions culminating in Comte's religion of humanity. Like his friend and collaborator Alexander Bogdanov, Lunacharsky was a positivist, inspired by the work of Mach and Avenarius.

However, Lunacharsky saw "cosmism" as the main deficit in Comte's positivist religion. Here Lunacharsky manifests himself as a Nietzschean, writing that the universe is not cosmic order but chaos—a place of struggle for domination by different material forces. The world is cruel, he writes, and in a state of anarchy in which each should fight for oneself—and can either win or lose. This celebration of Nietzschean Dionysian chaos is, of course, characteristic not only of Lunacharsky but also of the Russian avant-garde, especially the futurists. Thus, the so-called mystery-opera *Victory Over the Sun*, written and staged by the Russian futurists in 1913 (Alexei Kruchenych, Velemir Khlebnikov, Matyshin, Malevich), celebrates the imprisonment of the sun, the collapse of the cosmic order, and a kind of cosmic night in which all becomes possible. Here, indeed, chaos reigns. The usual chains of cause and effect are torn apart and life becomes unpredictable. In this chaos, only strongmen (*silachi*) can survive—actually, the futurists themselves. And the opera ends with the promise that the strongmen will live forever: their reign of chaos will never end.

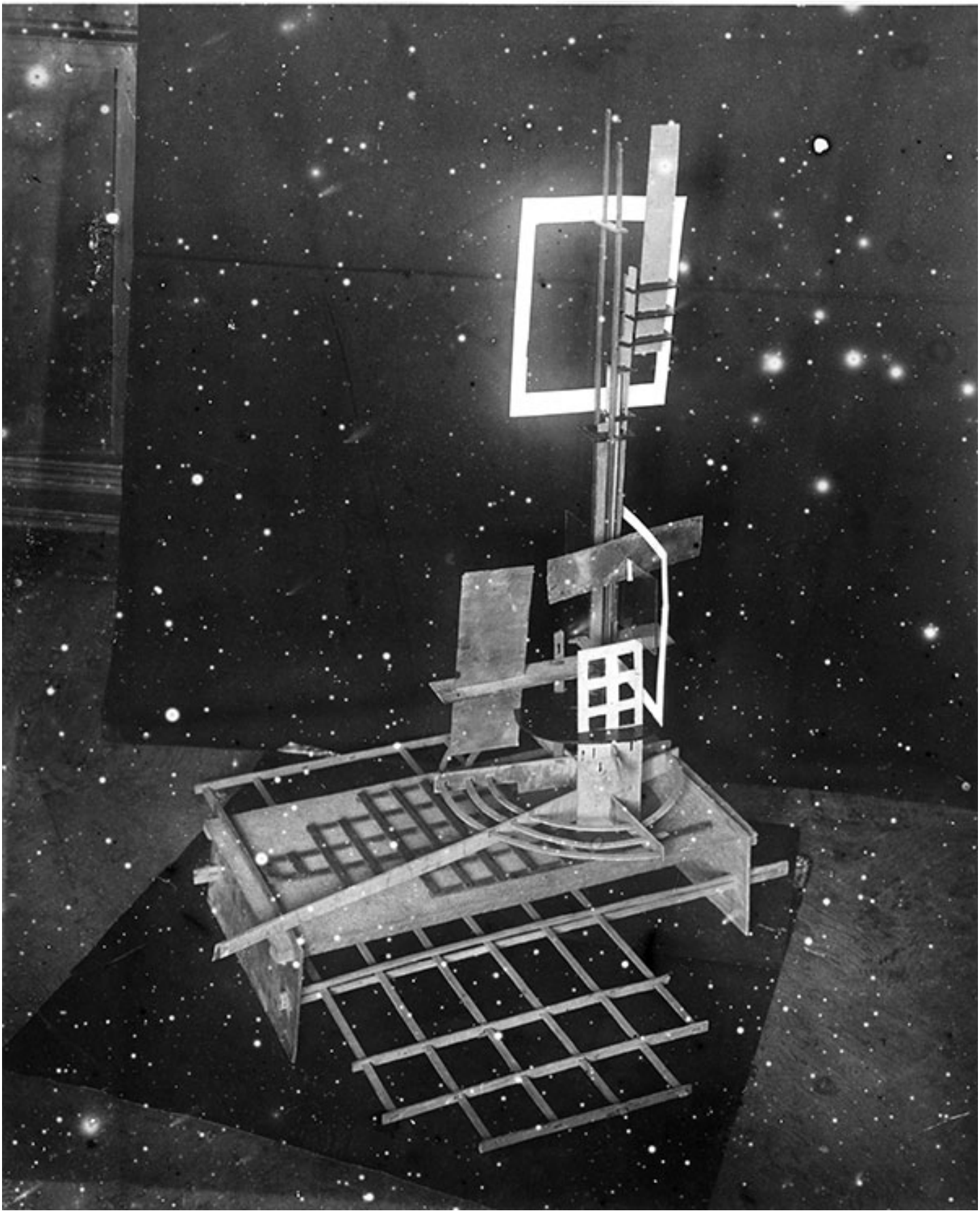
What guarantees the fulfillment of this promise? Nothing, actually. In his comments on the Hegelian notion of history, Nietzsche criticized Hegel precisely for his attempts to find an ontological guarantee for historical progress. Instead, Nietzsche said, one should concentrate on one's own hopes and expectations, not on possible disappointments and failures. One can find the same figure in the writings of Georges Sorel, who, in a 1907 letter to Daniel Halévy, wrote:

> Men who are participating in a great social movement always picture their coming action as a battle in which their cause is certain to triumph. These constructions, knowledge of which is so important for historians, I propose to call myths; the syndicalist "general strike" and Marx's catastrophic revolution are such myths.[3]

Lunacharsky uses the same figure as he tries to synthesize Comte's religion of humanity, Georges Sorel's notion of "social myth," and the Nietzschean Ubermensch. Common to them is the conviction that the decision to act does not—and should not—be based on any external investigation or reason. We speak here about inner convictions—about myth, religion, and faith in one's own victory.

But what is victory for humanity? The answer is clear: its existence. As humanity has no goal beyond itself (no God), the goal of humanity is to secure its own existence. If the actual existence of humanity here and now is a fact, its existence in the future becomes a matter of faith, of social mythmaking, of the sociocratic project. But this social myth is necessary for our actions, because if we did not believe that humanity would continue to exist, all our own plans and projects would become unrealizable. Thus, human history becomes monumental history in the Nietzschean sense—moving from one project to another, from one hope to another (and not from one disappointment to another, as in the Hegelian narrative—in the hope that historical reason triumphs in the end, beyond all our human projects). One project of such a monumental history is that of the "common task" developed by Nikolai Fedorov in the late nineteenth century.

The project of the common task, in summary, consists of the creation of the technological, social, and political conditions under which it would become possible to resurrect, by technological means, all people who have ever lived in the past. Here Fedorov was reacting to an



Gustav Klucis, Photograph of a Construction, circa 1920. Collection of the State Museum of Contemporary Art in Thessaloniki, Greece.

Solomon Nikritin, Black Square with a White Form, circa 1920s. Collection of the State Museum of Contemporary Art in Thessaloniki, Greece.

internal contradiction in the theories of progress that dominated the nineteenth century: that future generations would enjoy a happy utopian future at the expense of cynically accepting to exclude all previous generations from the realm of this future utopia. Progress thus functioned as an outrageous historical injustice: an exploitation of the dead in favor of the living, and of those alive today in favor of those who will live in the future. Yet, is it possible to think technology in terms different from those of historical progress, with its orientation towards the future?

Fedorov believed that a technology directed towards the past is possible, and actually already exists. It is artistic technology—especially technology used by art museums. The museum does not punish obsolete individual items with removal and destruction. Thus, the museum is fundamentally at odds with progress: the museum loves its items and promises to keep them for a potentially infinite time. Progress consists in replacing old things with new things. However, for Fedorov progress is not dictated by the inner dynamic of technological development itself. According to Fedorov, technology produces new tools either for war or for fashion. Both are connected to the reproduction of mankind by organic means (fashion is used by women to attract men, and war is used by men to conquer women). In other words, technology takes the form of progress only because it remains subjected to organic, animal life and its needs. Technological production serves the biological reproduction of humankind. Thus, when technology is turned around and used not to serve the production of new generations, but instead the resurrection of previous generations, progress will stop. Already Vladimir Solovyov in his *Meaning of Love* states that true love excludes the desire to have children: rather, true human love is the desire for the immortality of the beloved body.[4] Progress is dictated by the animality in humanity. Here a human still sees oneself not as an emancipated, autonomous individual, but merely as a representative of the human genre, and is thus ready to accept death as a precondition for the reproduction of this genre.

The truly emancipated individual experiences oneself, rather, as an artwork that should be protected from decay and annihilation. Accordingly, true technology is the technology of sustainability. Thus, museum technology cares for individual things, makes them last, makes them immortal. The Christian immortality of the soul is replaced by the immortality of things or bodies in the museum. And divine grace is replaced by curatorial decisions and the technology of museum preservation. All of the people living and all the people who have ever lived must rise from the dead as artworks and be preserved in museums. Technology as a whole must become the technology of art. And the state must become the museum of its population. Just as the museum's administration is responsible not only for the general holdings of the museum's collection but also for the intact state of every given work of art, making certain that the individual artworks are subjected to conservation and restoration when they threaten to decay, the state should bear responsibility for the continued life of every individual person. The state can no longer permit itself to allow individuals to die privately, or to allow the dead to rest peacefully in their graves. Death's limits must be overcome by the state. Modern biopower must become total.

This totality is achieved by equating art and politics, life and technology, state and museum. Overcoming the boundaries between life and art is not a matter of merely introducing art into life but is, rather, a radical museification of life. By unifying living space and museum space, biopower extends itself into infinity to become the organized technology of eternal life. Such a total biopower is, of course, no longer democratic: no one expects artworks preserved in a museum collection to democratically elect the curator who will care for them. As soon as human beings become radically modern—understood as bodies among other bodies, things among other things—they accept that state-organized technology will treat them accordingly. This acceptance has a crucial precondition, however: the explicit goal for any new power must be eternal life here on earth for everyone. Only then can the state cease to be

a partial, limited biopower of the sort described by Foucault's biopolitics, and become a total biopower.

This can be seen as the last step in the secularization of Christianity, for secularization remains only partial if it merely negates, censors, or prohibits the hopes, desires, and demands for life that religion articulates. It is not enough to say that there is no such thing as immortality, and prohibit people from seeking it out. Rather, one should show how immortality could be reached by secular means. Russian cosmists inherited and radicalized the Marxist shift from divine grace to secular technology. However, there is one essential difference between the traditional Marxist project and that of the cosmists. Marxism does not raise the problem of immortality: the communist paradise on earth achieved through revolutionary struggle and creative work is understood as a realization of harmony between man and nature—a harmony that secures human happiness, but within the framework of "human nature"—which includes the inevitability of natural death. On the contrary, cosmism denies death the status of natural death—for cosmists, death is always artificial because it can be technologically prevented.

Gustav Klucis, Lithograph for the cover of Alexei Kruchenykh's Four Phonetic Novels, circa 1920s. Collection of the State Museum of Contemporary Art in Thessaloniki, Greece.

However, artificial immortality is a fragile immortality. It is not ontologically given but merely technologically secured (as is God or gods). But how can it be secured? The answer is obvious: only when the whole of cosmic space is placed under technological control. Here the cosmos is not understood as given, as the cosmos of Greek antiquity that resists the powers of chaos. Rather, cosmic space is interpreted as a huge factory—a field of operations whose goal is to secure living space for resurrected generations. Here the Fedorovian project of the common task calls us to think and act beyond the traditional opposition between order and chaos that dominated the cosmic imagination of the nineteenth century from Comte to Nietzsche. The domain of natural forces and natural laws is to be replaced by technology and social organization. This technology allows the possibility of superseding the old cosmic order not by chaos, but by imposing a new order on the totality of the cosmos. Here again, the question of astronomy becomes central.

In his text "Architecture and Astronomy," we see how Fedorov deals with the opposition between astronomy and communism established by Comte:

> Imagine now that the energy sent to the Earth by the Sun, which presently scatters off into space, could instead be conducted onto the Earth, thanks to a massive configuration of lightning rod–aerostats, implements that will drive solar light to our planet. Imagine that this solar energy, once directed earthward, might alter the density of its new home, weaken the bonds of its gravity, giving rise in turn to the possibility of manipulating its celestial course through the heavens, rendering the planet Earth, in effect, a great electric boat. No sooner will this creation have gazed up to the heavens than it will begin sailing the celestial seas, with the sum total of the human race rendered as captain, crew, and maintenance staff of this Earth Ship.[5]

Not only society, but the whole cosmos should become the field for realizing the common task. The forces of gravitation weaken to produce not chaos, but a chance for humankind to freely move the earth through the cosmic ocean. Sociocracy expands into the universe in its entirety.

The Fedorovian project influenced many Russian intellectuals and artists who became active after the October Revolution. Among them were the representatives of the biocosmist-immortalists—a small political party that had its roots in Russian anarchism. In their first manifesto from 1922 they wrote, "We take the essential and real right of man to be the right to exist (immortality, resurrection, rejuvenation) and the freedom to move in cosmic space (and not the supposed rights announced when the bourgeois revolution was declared

in 1789)."[6] Alexander Svyatogor, one of the leading biocosmist theoreticians, took immortality to be at once the goal and the prerequisite for a future communist society, since true social solidarity could only reign among immortals: death separates people; private property cannot truly be eliminated if every human being owns a private piece of time.

However, the artists of the Russian avant-garde were less impressed by the perspective of immortality than by the promise of free navigation in cosmic space. Especially Malevich understood true liberation as liberation from gravity—as free movement in all directions on earth and through the cosmos. In Malevich's suprematism the communist project anticipates its final victory over astronomy.

X

Boris Groys is a philosopher, essayist, art critic, media theorist, and an internationally renowned expert on Soviet-era art and literature, especially the Russian avant-garde.

1
Auguste Comte, *System of Positive Polity: General View of Positivism and Introductory Principles* , trans. John Henry Bridges (London: Longmans, Green and Company, 1875), 268.

2
Ibid., 408.

3
Georges Sorel, *Reflections on Violence* , trans. T. E. Hulme (New York: Peter Smith, 1941), 22.

4
Vladimir Solovyov, *The Meaning of Love* (Hudson: Lindisfarne Books, 1985).

5
Nikolai Fedorov, "Astronomy and Architecture," trans. Ian Dreiblatt, in *Russian Cosmism*, ed. Boris Groys (Cambridge, MA: e-flux and MIT Press, forthcoming Spring 2018), 56.

6
Kreatorii Rossiiskikh i Moskovskikh Anarchistov-Biokosmistov, "Deklarativnaia rezolyutsiia," *Biokosmist* 1 (1922): 1–3.

> The universe is at once life and death, destruction and creation, change and stability, tumult and repose. It is endlessly made and unmade, forever the same, with beings that are forever renewed. In spite of its perpetual development or becoming [*devenir*], its engravings are cast in bronze and incessantly print out the same page. Both as a whole and in detail, it is eternally transformation and immanence.
> —Louis-Auguste Blanqui, *Eternity by the Stars*, 1872[1]

Marina Simakova

Russian Cosmism: A Foretaste of Revolution

Louis-Auguste Blanqui, president-elect of the communards, ironically spent the entire period of the Paris Commune in a prison at sea. On his brief release in May 1871, the uncompromisingly militant French revolutionary and true man of action began turning his prison notes into a book called *Eternity by the Stars*. This peculiar and largely underappreciated exercise in cosmology also represents a creative attempt to seek the universal premises of political optimism—a purely secular "principle of hope" (to borrow from Bloch), which is inextricable from any emancipatory project. "At the castle of the Bull, reduced to his potential," writes Blanqui's twenty-first-century translator Frank Chouraqui, "a man of action could only be left to his own musings on the falsity of the difference between potential and action."[2] Blanqui's text was published on February 20, 1872, "three days after Blanqui was sentenced to life in prison by a Versailles Tribunal."[3] At the same time, the philosophy of Russian cosmism had just begun to emerge by way of its founding father, Nikolai Fedorov.

Fedorov and his ideas had a tremendous and well-established effect on the intellectual life and culture of prerevolutionary Russia. Although the nineteenth-century philosopher and librarian's political beliefs may appear contradictory, unsatisfactory, and at odds with the revolutionary movement that emerged in his country at the beginning of the twentieth, his meditations on social order betray a strong inclination for radical change and arguably foster a demand for universal freedom. In this case, Fedorov's arguments for immortality and space exploration could be treated not as a set of prescriptions for "ethical life," but rather as a symptomatic critical response to the social and political circumstances of late modernity.

Russian cosmism was conceived in the seething atmosphere of fin de siècle Russia, an era possessed by the dual Dostoevsky-esque demons of political radicalism and insoluble moral dilemmas. The religious philosophy of brotherhood and resurrection came into gradual being as a corpus of works written by Fedorov, none of which were published in his lifetime, but all of which triggered further written and published probings in cosmist territory. This article will focus upon critical aspects of Fedorov's

Pattern design on the endleaf of Louis-Auguste Blanqui's Eternity by the Stars (1872).

thought, his views on justice and equality, and his concept of history. This formation of a world of thought was synchronized with a period of ultimate social unrest and political turbulence, culminating in the fall of czarism and the October Revolution of 1917. Revisiting Fedorov's cosmist legacy today through the theoretical lens of revolutionary politics implies a hermeneutic exercise in interrogating the different meanings of the idea of a "resurrection for all," the cornerstone idea of Fedorov's project of the "common task." Moreover, reading Fedorov in a revolutionary light suggests situating his thought within a conceptual matrix of questions that may even seem irrelevant to the religious strand of the Russian cosmism that the philosopher spent his life developing. Well after Fedorov's death in 1903, theorists of revolutionary practice, activists, and members of the First and Second Internationals wrestled with certain fundamental questions: theory versus practice, spontaneity versus organization, the power of collectivity, and how to act in accordance with history. While the October Revolution itself seemed to be an answer and a drastic solution to such problems, many of them of course remain with us today. So, following the centenary of the Revolution, it makes sense to rethink these questions, addressing them to each and every person with a stake in "radical thought" and action—Fedorov included.

The Relationship between Theory and Practice

Marx famously diagnosed the problem of the relationship between philosophy and action in his eleventh thesis on Feuerbach. The dichotomy later reappeared in vastly different philosophical enterprises—ranging from Bakhtin's phenomenological "philosophy of the act" to the "philosophy of praxis" coined by Antonio Labriola and developed by Antonio Gramsci. The rupture or imbalance between speculation and social reality, thinking and doing, philosophy and action, preoccupied them all. In the present world of creative economies, cognitive labor, and popular science, it is tempting to believe that we are finally witnessing hybrid forms of theory and practice, produced and shared by everyone living today in the information-driven world. And yet, the ideas subtending both the principles and the purposes of technological development and contemporary politics are singled out as confidential assets, remaining a subject of state secrecy or intellectual property—that is, of the "arcane knowledge" of

a few.

Surprisingly (or unsurprisingly), the praxis/theory divide was one of Fedorov's key concerns. In Fedorov's thought, the preeminence accorded to brotherhood is manifest in his view of the division between men of theory and men of practice, scholars and non-scholars,[4] as a primary inequality that precedes all other forms of discrimination.[5] For Fedorov, the gap between philosophy and action is the negative abyss from which any social struggle originates. Existence of such an irreducible gap is the key reason for what he calls "non-kinship," or a "non-fraternal state" [*nerodstvennost'*] which promotes the rupture between mind and will, and leads to an inability to direct one's thinking according to the principle of the good. In other words, the gulf that separates thinking from doing, which was created throughout modernity, underlies moral blindness, social indifference, and tunnel vision. This is why Fedorov treats the primal ontological question of the foundation of our being—the philosophical question par excellence—as tautological. His inversion of the question "what is being?," which grounds death as nonbeing, makes exigent the overcoming of death, or at least a grappling with its meaning. As Fedorov puts it, "Philosophers, for whom the world is just a concept, treat it as their own creation, their property, and are proud of this, proud of the unconditional knowledge of themselves, a knowledge that recognizes neither an equal, nor a comrade."[6] Detached from practice, Fedorov warns, theory is dangerous—by definition ignorant of its future implications outside of the ivory tower of science. Awareness of the potential danger in detached theory compels Fedorov to develop an argument that has normative as well as political significance: any knowledge of truth that enables us to distinguish between right and wrong, good and evil, makes little sense if it does not become an intention to do good and eliminate that which is evil or ill. Therefore, knowledge must convert into will, and vice versa. On the other hand, Fedorov warns, action estranged from contemplation engenders three forms of pure destruction: military conscription as a part of the army system; mass production with its hard, backbreaking labor; and the market system, in which everything can be sold. The dangerous divide between thought and action determined the working regime and popular lifestyles of the industrial era: hard, monotonous, assembly-line labor is followed by scant hours of leisure filled with idle and senseless pursuits.

Education is perhaps the "official" starting point on the road to knowledge. But traditional education always implies the existence of masters, whose authority is rigid and demands loyalty. As an advocate of intellectual emancipation and active study, Fedorov railed against the idea of a mastery that implies obedience and a noncritical acquisition of knowledge. The concept of the "organic intellectual," developed two decades after Fedorov's death, seems very close to his perspective on the ideal educational process. A university, in Fedorov's words, is a "slave of industrialism" that turns any idea of a living world into a lifeless concept. Academic training is also, of course, a privileged form of education, with the academy a sanctuary for what Fedorov calls "class science." Beyond the university, the two alternative institutional forms of education Fedorov finds compelling are the library and the museum, in which "everything must be an object of knowledge, and everybody—a subject."[7]

Whether in the university, the library, the museum, or outside of these institutions, a radical divide between theory and practice is palpable in our communication and in the simple rituals of daily life. In wishing for others to be well (for example, while greeting each other: the Russian equivalent for "hello" [*zdravstvujte*] is literally a wish of good health), one rarely does anything to support this wish, believing that a verbal and "automatic" expression is enough to somehow positively affect the situation. Such a performative utterance (in J. L. Austin's terminology, this refers to a statement that is neither descriptive nor evaluative but serves as, or is a part of, an action, such as "I promise not to lie, cheat, or steal") is a surrogate of a real act, an excuse to remain passive. At the same time, wishing health as a mundane ritual greeting, along with many similar greetings, contains a grain of universal concern for the overall well-being of the other, even if this concern is culturally suppressed or underdeveloped. The repetitive expression of implicit care for the good of others reveals the superstitious core of our speech acts, and probably even the superstitious element within what in our secular age is called "the performative." At the same time, this grain of universal concern indicates the compassionate content of words as "reservoirs of life experience," and proves that everyday language itself is full of long-established empathies (in other words, philosophical language is not alone in holding empathy—nor, as will be argued by Bloch, is poetic language).[8] Fedorov's maxim for conquering death, formulated as "resurrection for all," turns out to be a practical embodiment of the common concern and collective desire for the common good, both of which seem to reside in the core of our habitual, and often formal, wishes of health to others.

The idea of resurrection also contains the struggle against an intellectual, cultural (and in the current era, possibly even digital) divide. The production of an artifact, a text, or a work of art has always been a means of conquering one's existential fear of death. On the other hand, those who remain on the periphery of cultural production have always been bound to overcome mortality through their children. "Resurrection for all" means that individual processes of creative production are of little existential consequence: all will be saved, and all will be equally recognized and remembered.

The first gesture of resurrection, for Fedorov, was when our human ancestors stood upright, "a sentry and laborious stance"—a perpendicular position that humans

developed in relation to the earth, which distinguished us from other species.[9] Standing upright is what once enabled human beings to observe the world from a different angle, for the first time seeing it as a whole—a planet placed between heaven and earth, between high and low. In Fedorov's logic, an understanding of human interrelations made our species conscious of natural laws and the possibility of ameliorating life on earth (e.g., the sun shines and the rain pours from the sky, and this is what affects the soil and actualizes its fertility). It was a gesture that signified the unity of theory and practice—a symbolic beginning of what Fedorov calls "Heaven-knowledge," or "World-knowledge."[10] More importantly, standing was an act of uprising in its literal and political sense—an *insurrection* against the forces of nature.

Spontaneity and Organization

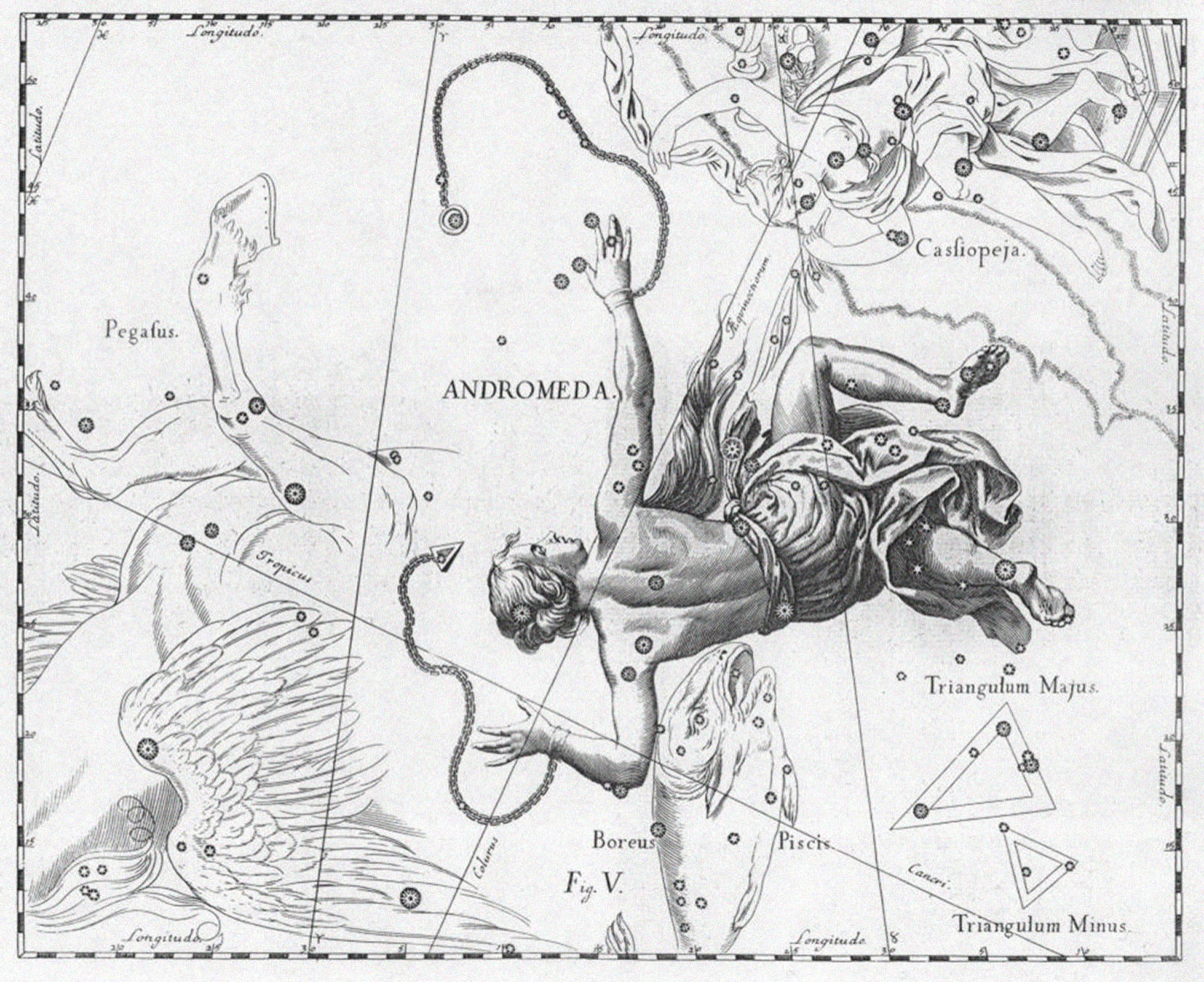
One of the most burning issues debated in revolutionary circles—such as among socialist and labor parties—in the late nineteenth and early twentieth century was the balance between spontaneity and organization. Once the impetus to form and galvanize mass movement was established, the question of *how* to organize became vital for understanding political action and the creation of a relevant revolutionary strategy and tactics. In a broader sense, the debate on organization and spontaneity—that is, on the proper balance of regulated and extemporaneous resistance—can be seen as a problem of channeling solidarity, of coordinating demands according to the difficulties of the present and the varying views of a better future. Fedorov obviously stood before and apart from this discussion, and his skeptical interest in "spontaneity" [*stihijnost'*] has no relation to fostering political engagement.[11] At the same time, his critique, strongly determined by the etymological peculiarity of the Russian word, is suggestive for understanding the term as part of an international political vocabulary. Spontaneity, for Fedorov, is nothing but a blind force of nature that knows nothing of itself; it is a natural potentiality that is actualized incidentally and operates until it has fully actualized itself, or when an external counterforce interferes in the process—just as a fire in a forest may be stopped either by rain or by firefighters. This is why Fedorov insists that there is no place for spontaneity in social life; it has to be placed under permanent regulation. But what does this regulation imply? What kind of subject does it presuppose? Could it not lead to the establishment of an eternal modernist dictatorship of reason?

For Fedorov, regulation begins with attention and a rational approach to the natural environment, which involve neither the exploitation of natural resources nor their preservation, but rather their control. Such a view is equally hostile to three major approaches to conceiving of our relation with nature: its ultimate subordination to the satisfaction of human needs, its ecologically responsible protection, and the neovitalist attempt to enjoy natural spontaneous forces as a part of a project of solidarity with nonhuman objects.[12] For Fedorov, nature is our temporary enemy that has to be made our eternal friend.[13]

So, regulation starts with reason, but it is, of course, different from, if not opposite to, the mythological triumph of human rationality that shaped the edifice of the Enlightenment, which has yet to been fully destroyed. Regulation means responsible creativity and active care. As we know from the patristic period and St. Augustine, flesh is originally sinful because *it is able* to sin, and sinful flesh is the main obstacle to the realization of human freedom, of positive freedom—that is, freedom *for*. This is the perspective from which Fedorov looks at nature: it is chaotic, it knows no piety, no fraternity, and is therefore far from securing freedom for humanity. In a natural environment, animals are doomed to kill and eat each other in order to survive; they do not save the weak, and they live in conditions of so-called natural selection. Fedorov's argument can be seen as an inversion of the social-Darwinist argument: the fact that there is lethal competition between different species in natural life is the key reason *why* social life has to be organized differently; it has to be regulated precisely because social life is not nature. Interestingly, with his call for resurrection for all, Fedorov was among those who pointed out the existence of a selective logic within the Christian canon, one stipulating that only the righteous will be saved. According to this logic, the Last Judgment is the moment of unprecedented and ultimate selection. But Fedorov's refusal to accept this apocalyptic pessimism motivates his project of resurrection: *resurrection as the transfiguration of all* is counterposed to *death as salvation for the few*. Regulation is an act of support for the weak, and every human being is vulnerable and weak by definition. The most prominent examples of regulation already present in Fedorov's era included food supplies independent of immediate need, regular hygiene, and health care. Human weakness is also a source of creativity and care: if there had not been people with poor eyesight, humanity would never have invented glasses.

The state of nonregulation means that the organization, or rather disorganization, of our environment is automatically delegated—to gods and heroes, to those in power, to nature, to machinery, and to the invisible hand of the market. In order to overcome this dependency and to break its unseen chains, humanity has to establish *regulation as such* as the regulative ideal. So, any resistance based on spontaneity is illogical because it is grounded in the natural, or naturalized, order it intends to smash.

The process of regulation, in fact, is the realization of Fedorov's project of resurrection for all, and the idea of regulation can elucidate what, at least partially, this project means. When people die, their flesh, or ashes, dissolve



Constellations from Johannes Hevelius's celestial catalogue Uranographia (1690). Photo: Wikimedia Commons.

into the matter of nature—this is the basic concept of entropy (and the reason why our bodies are just "huge hotels for atoms," as Konstantin Tsiolkovsky, a young visitor to Fedorov's library and a future rocket scientist, would later explain[14]). So, our physical environment is literally made up of particles of the dead. In this regard, it is easy to see that the regulation of nature is a project of care, which starts with the recognition of the material metamorphosis that our world is built upon. Suggesting that we enhance our faculty of knowledge by means of perception, Fedorov finds it necessary to accept that history *qua* substance composed of the scattered dust of former generations can be experienced collectively; it can be lived through, or even grasped with the five senses. Yet, such an experience, which is supposed to serve as a bonding mechanism in the future, is problematic while society is torn by power struggles. These struggles impede the very project of regulation based on a universally recognized necessity to put under control the hostile impulses of nature, which represent the chaotic disintegration of matter and therefore the dissolution of history. While there is social discord, people will just imitate natural chaos instead of harmonizing the world and turning it into a human cosmos. Modern culture only fans the flames of "the war of all against all," whether driven by the human desire for recognition, as identified by Hobbes, or our economic egoism, as famously stressed by Marx. So, before nature and history can be made into a subject of careful regulation, *the regulators themselves have to be regulated.*

Despite his insistence on regulation, there is room for spontaneity in Fedorov's thought. Though rarely noticed, the space Fedorov leaves for spontaneity can be found in

his fascination with collective gatherings and popular celebrations: choirs of singers, circle dancers, or even the liturgy that has to be performed outside of the church, embracing the whole of humanity.[15] Apart from the liturgy, these are all collective, carnivalesque, pantheistic rituals that have a positive effect on the life of the whole community. Regardless of Fedorov's criticism of the unreflective and archaic nature of these happenings, overall he found them much closer to the project of the common task than any expressions of industrial progress.

which does not merely involve blood relations.[16] It follows that Fedorov finds it important to understand the grounds of collectivity, as well as its power and expression. Despite his piety and loyalty to many Eastern Orthodox dogmas, he—quite heretically—finds that the individual act of praying is of little worth since it is unable to save a person from "inner disturbance." For Fedorov, inner turmoil is always caused by the chaotic state of the social and physical environment. Moreover, an individual feeling of harmony and peace with oneself is determined by the experience of peace with others. Praying should be

Natalia Goncharova, Khorovod, 1910. Photo: Wikimedia Commons.

On the Power of Collectivity

Of the three elements of the famous triad of revolutionary struggle—theory versus practice, spontaneity versus organization, and the power of collectivity—Fedorov explicitly discusses only the third. The only form of affiliation meaningful to his thinking is "brotherhood," collective; otherwise it has no significance and no effect, whether performative or reflective.[17] "The Orthodox Trinity immanently points out that we are to be kept in our generic universe," argues Fedorov; he continues by pointing to the struggle against death as the force that can unite people into a collective body of generic beings.[18]

This is why Fedorov suggests that we start the fight for a better world from the point of an axiomatic equality in the face of our finite being, instead of from our social differences.

Although Fedorov is often portrayed as a pacifist, he accepts the significance of power. Yet for Fedorov, power is better comprehended through the notion of *potentia*, or potentiality. The concept of the kind or the good has to be matched with knowledge and power (the way they are blended in the figure of God), since the good is not just the absence of vice, but a real force that is able to eliminate suffering and anger.[19] In this sense Fedorov is a quintessential modernist, in opposition to the tendencies of "weak thought"—whether understood as "weak messianism," "weak communism," or the like.[20] Fedorov's project, if not entirely convincing, is strong, determined, and uncompromising. His understanding of power, paradoxically, is based on a materialist ontology and a pantheistic worldview; he writes that even if everyone on earth follows the Christian commandments, fire will still burn and water will still flow.[21] Yet, this naturally given, ontological order has to be subverted, and blind power somehow extracted, understood, and transformed into a constructive force for the sake of the whole universe. Only if humanity follows the path of the most radical change and carries out the common task of resurrection for all will "life on earth extend to the limits of nature, since nature itself, recognizing the lack of its own freedom, will pass through us, turning into a world of free, infinite personalities."[22]

History: Fidelity or Eradication?

The concept of revolution has a very peculiar relationship to the concept of history. On one hand, revolution is the ultimate example of a formative historical event; on the other, it signifies a rupture with history. On one hand, it insists on fidelity to history—both in the sense of the active creation of it, and in the sense of returning to the moment of the constitution of order. On the other, it can also be seen as the eradication of history. However contradictory, both visions of history are present in Fedorov's thought. Fedorov is very explicit on the point that fidelity to history, as well as fidelity in general, has little to do with religious faith. He distinguishes between the words "faithful" [*vernyj*] and "religious" [*veruyushii*], which have the same root in Russian.[23] "The faithful one cannot help being a believer" because the faithful one acts according to that which he or she believes, which is not necessarily the case with a religious person. A faithful action is penetrated by love for the object of faith; it is more than a subject of action; and such faithfulness can probably be better grasped as a relation with the concept of truth.

But how can one be faithful to history? For Fedorov, this necessarily presupposes a truth procedure, and starts with the correct comprehension of what history is. Thus, national history, for example, is nothing but a symptom of division and a manifestation of national vanity; history is and can be conceived only as universal, and cannot become real so long as there are wars and power struggles. According to Fedorov, history is often seen as a reservoir of cases and proofs to be used in a manipulative manner in pamphlets. Another way to present history is as a "novel about the past," or as a combination of narratives.[24] This is a recreation of the past in words, not in deeds. Historical thinking, as we know, is a product of understanding history as a teleological process, a timeline that constantly demarcates our past from our future. Fedorov objects to this approach, as it is based on an idea of progress that eliminates or overcomes the past for the sake of the future. On one hand, he offers quite a conservative vision, one that implies an ultimate turn to the past instead of a view towards the future. On the other, he seems to show that the past and future are always already blended in the present, and our desire to isolate history in moments that are left behind is simply anti-historical. In addition, Fedorov emphasizes the division between scientific and "commonsense" attitudes to history. The former, which is "the history of historians," is an image, a concept, a scholarly thought that has been used in the development of the theoretical apparatus of historical science. The latter consists of a number of emotional outbursts and sentimental (or even sacramental) attitudes towards the past, expressed in regular memories and habitual rituals of commemoration. Whereas one is the rationalized cult of heroes and events, "a fact," "a judgment, a verdict" (or "a slaughter-bench," to put it in Hegel's words), the other is a "cult of the dead," exercised intuitively and without prompting reflection upon its objective meaning.[25] This gap between two modes of operation of the past—the theoretical and the practical—has to be narrowed, and these modes have to be integrated into one another in order to see and make a different, *active*, and *perceivable* history as an expression of collective will. What is particularly interesting in today's context is that Fedorov contrasted "history as science," which he despised, to "history as art," since the "transfigurative, regulative capability of art" renders it a mode of action, a creative element of our *vita activa*.

For Fedorov, everyone participates in making history, but this participation is rendered as a struggle for self-reproduction, devastation, and war. Fidelity to history implies a different idea of participation, and this is where Fedorov's argument becomes really confusing. Although he condemns any progressivist fascination with the future, he—paradoxically—calls for universal projective thinking, since, in his view, "a project is a bridge from subject to object."[26] What does this mean, and how is it possible to think of a *project* without a future *projection*? This enigma can be unraveled by comprehending the synthetic nature of any moment in history. Even though historical thinking, a vestige of modernity, is bound to its negation of the past, this negation is unable to eliminate the presence

of the past—both physically and symbolically. The past is already always integrated into the project of the future, as well as into the actual future itself. Being aware of this, Fedorov offers to set the clock backwards and suggests making the past the one and only project that is to be carried out in any period that is to come. It is impossible to be faithful to history, if this history runs off like water, or decomposes like ashes in the soil. But if humans fully turn back from the forthcoming towards the past, if we make an attempt to discover our future in the past, we can perhaps reverse the modernist logic of "deadly" history. So it is not the past that has to be sacrificed for the future, but rather the idea of progress that has to be abandoned, and the image of the future dissolved in the creative work of memory. This does not mean that technological development has to stop; rather, it means that there will be no accelerated production—only distribution, control, and care. History, then, is neither a collection of facts, nor a narrative, but a project, and an ongoing action. To use a metaphor from Fedorov's era, we could describe this project as the building of a world library (and of course, Fedorov himself was a librarian)—yet nowadays it is difficult to think of libraries outside of the global system of production and digital capitalism. While Fedorov would probably have liked to turn factories into libraries and museums, we have witnessed an opposite transformation: libraries and museums are turning into factories of objects, statements, and affects. At the same time, Fedorov was not satisfied with a "superstructural" view of history. History is to be found in successive scientific inventions expressing a cumulative trans-generational experience. Furthermore, history has to be physically co-opted as a substance via the material transfiguration of the human, where bodily organs become the tools needed to change external conditions—that is, the conditions of the universe.[27]

Ending this exploratory journey into Fedorov's ideas, it is worth coming back to our point of departure, that is, to revolution and its subjects. The whole thrust of Fedorov's revolutionary project was to shift our perspective from creation to *re* creation, which was justified both ontologically (everything comes from one and the same matter) and ethically (we must be responsible for the deceased who gave life to us and enable us to sustain our being). Like *re* creation, *re* volution itself contains a repetitive moment: it implies a movement of returning to something—at least to the moment of an ultimate reconfiguration of all relations before a new sociopolitical order is established, a moment of both *re* scission and *re* constitution, a burst of *destituent* and *constituent* powers with which any radical project is imbued. Any call for change inherits this ambiguity, inviting to us *re* create the collective assumption that, inasmuch as the universe is able to materially *re* configure itself, an alternative life is possible. One of Fedorov's theses was that the power of the social exceeds the forces of nature, which is why the latter can be revolutionized for the sake of the former. Today, his social critique prompts a different, if not inverse, conclusion: that our social life, no less than the human itself, awaits its material transfiguration. As Blanqui would probably add, precisely since "the future of our Earth, like its past, will change course millions of times," new choices can be made and radical actions taken: "Fatality has no place in the infinite, which knows nothing of alternatives and has room for everything."[28] After all, the universe is full of open potentialities and can neither be separated from, nor reduced to, the immanence of the global world.

X

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1
Louis-Auguste Blanqui, "VII. Analysis and Synthesis of the Universe," in *Eternity by the Stars* (1872), trans. Philippe Le Goff, Peter Hallward, and Mitchell Abidor, Blanqui Archive.

2
Frank Chouraqui, "At the Crossroads of History: Blanqui at the Castle of the Bull," introduction to Louis-Auguste Blanqui, *Eternity by the Stars*, trans. Frank Chouraqui (New York: Contramedium Press, 2013), 7.

3
Ibid.

4
In Russian, the word "scientist" or "scholar" (*uchyonii*) has an antonym that literally means "uneducated" (*neuchenii*). Fedorov deploys this opposition when he distinguishes between "men of science" and "the rest." https://pdf.e-flux-systems.com/#_ftn4

5
Nikolai Fedorov, *N. F. Fedorov: Sobranie sochinenij v chetyreh tomah, tom 1* (Collected works in four volumes, vol. 1) (Moscow: Progress, 1995), 42.

6
Fedorov, *Sobranie sochinenij*, vol. 1, 107.

7
Fedorov, *Sobranie sochinenij*, vol. 3, 229.

8
Bloch mainly refers to the emotional meaning of metaphoric adjectives used in habitual descriptions of the human environment, such as "the wind *moans* ." Ernst Bloch, *A Philosophy of The Future* (New York: Herder & Herder, 1970), 24.

9
Fedorov, *Sobranie sochinenij*, vol. 1, 114.

10
Constructed similarly to self-knowledge, "Heaven-knowledge" (or "Sky-knowledge," (*Nebo-poznanie*)) means getting to know "things above" (i.e., the Absolute, the cosmos, or simply what is yet beyond reason), while "World-knowledge" (*Miro-poznanie*) means getting to know physical and social reality. It is quite striking that, given Fedorov's religious views, his usage of these words indicates that, for him, these two kinds of knowledge—knowing the transcendent and knowing the immanent—signify one and the same process.

11
The Russian term *stihijnost'* originates from the word that signifies an elemental force of nature (*stihija*)—an outer force which is wild, violent, and almost impossible to control.

12
See, for example, Timothy Morton, *Humankind: Solidarity with Non-Human People* (London: Verso, 2017).

13
Fedorov, *Sobranie sochinenij*, vol. 1, 393.

14
Konstantin Tsiolkovsky, *Prikluchenia atoma* (Adventures of the atom) (Moscow: Luch, 2009), 18.

15
Fedorov, *Sobranie sochinenij*, vol. 3, 297.

16
Fedorov, *Sobranie sochinenij,* vol. 1, 249.

17
For instance, Fedorov finds the pagan rural custom of circle dancing (*khorovod*) to be an example of "live, active religion," in contrast to "dead" rituals such as individual praying or church services. It is worth noting that the origin of the peasants' circle dance—the ritual worship of the sun—is what makes Fedorov see the element of collective hope for a collective impact on the forces of nature.

18
Fedorov, *Sobranie sochinenij*, vol. 1, 102.

19
Ibid., 110.

20
The most developed theory of "weak thought" can be found in the work of Gianni Vattimo, based on his version of the hermeneutic method. See, for example, Gianni Vattimo and Santiago Zabala, *Hermeneutic Communism: From Heidegger to Marx* (New York: Columbia University Press, 2014).

21
Fedorov, *Sobranie sochinenij*, vol. 1, 110.

22
Ibid, 111.

23
Ibid, 132.

24
Ibid, 136.

25
Ibid., 146.

26
Fedorov, *Sobranie sochinenij*, vol. 3, 285.

27
Nikolai Fedorov, *Sochinenia* (Works) (Moscow: Mysl', 1982), 405.

28
Blanqui, "VII. Analysis and Synthesis of the Universe."

Alexei Penzin

Contingency and Necessity in Evald Ilyenkov's Communist Cosmology

1. From Aristotle to Ilyenkov

As Aristotle famously noted in *Metaphysics*, philosophy begins from the feeling of astonishment: "For through astonishment men have begun to philosophize both in our times and in the beginning" (*Metaphysics*, A, 2, 982 b 13–16). Everyone seems to know this famous sentence, although without much detail. In the Greek original, Aristotle uses the word *thaumazein,* which can be translated as "astonishment" or "amazement," meaning a kind of intellectual shock that forces us to think. In this sense, Aristotle notes, those who create myths are also on their way to philosophy, as myths are also created on the basis of wonders, in response to something astonishing.[1]

In his famous sentence, Aristotle uses the word *arche*, "origin," so he means a fundamental dimension that works throughout the entire history of philosophy.[2] Still, it is not clear what the source of the *continuity* of this *arche* is. Indeed, Aristotle does not specify the object, phenomenon, or substratum that is able to provoke intellectual astonishment.[3] The only suitable hypothesis I can offer here in this brief digression is that philosophical texts, which are often inspired by intellectual astonishment, can themselves be judged by the effect of astonishment they produce in their readers. The materiality of the philosophical text is itself nothing other than the durability of the astonishment it produces across generations. The persistence of an astonishment-effect is what makes a text classic.

Here is the first claim of this essay: if classic texts are those that overwhelm the reader with a feeling of genuine astonishment, then the short treatise "Cosmology of the Spirit" by the Soviet philosopher Evald Ilyenkov (1924–79) is truly a philosophical classic.[4] Written in the early 1950s and less internationally known than Ilyenkov's other works, this text has an unfortunate history. After some of these other works had been translated into German, English, and Italian between the 1960s and the '80s, Ilyenkov fell out of theoretical fashion, and only recently have intellectual historians and philosophers begun to rediscover his work.[5] As a result, the text of "Cosmology" was not translated into other languages until quite recently.[6]

It what follows, I would like to indicate the intellectual and historical background of "Cosmology," as well as its relation to Russian cosmism, that extravagant movement of the first half of the twentieth century. Then I will present the speculative and communist argument of "Cosmology" and its philosophical implications. Finally, I will provide several interpretations of this text, and compare Ilyenkov's cosmology with contemporary currents of speculative philosophy. Although this comparison will show some striking similarities and differences that make Ilyenkov's text entirely relevant to current debates, today's speculative thought lacks the "communist drive" displayed

A film still from Richard and Nikolai Viktorov's 1981 Soviet movie To the Stars by Hard Ways, in which a female creature created in space tries to live on earth and has special (and sometimes dangerous) powers.

by the late-Soviet thinker.

2. Cosmism and Cosmology

Evald Ilyenkov was an exemplary representative of Soviet Marxist philosophy in its nondogmatic and, as they used to say, "creative" aspect. In an intellectual context not known for indulging individual theoretical "peculiarities," Ilyenkov was an outstanding exception. For the most part, his work was a bright, shining expression or reinterpretation of inherited Soviet discourse on dialectics, historical materialism, and so-called "activity theory" (i.e., the theory that subordinates all social, political, and cultural phenomena to elaborated schemata derived from the analysis of labor and praxis). But "Cosmology of the Spirit" is something more than this. Revealing a number of theoretical "anomalies," this posthumously published early text puts Ilyenkov's thought in an absolutely fascinating and astonishing perspective.[7]

As mentioned above, a considerable international scholarship around Ilyenkov's legacy has emerged in recent decades. This research covers various later aspects of his thought—his reading of *Das Kapital*, his elaborations on dialectical logic and the concept of the "ideal," as well as his contributions to activity theory, which became a broad international methodological platform. However, there are only a few works and commentaries about this particular early essay—or, as Ilyenkov himself defined its genre, this "phantasmagoria."[8]

Regarding the immediate circumstances surrounding the writing of "Cosmology," intellectual historians and biographers emphasize the influence of one of Ilyenkov's most important friends in the 1950s, the scientist and self-taught speculative thinker Pobisk Kuznetsov (1924–2000).[9] Everything about Kuznetsov was peculiar, starting with his first name: "Pobisk" is not a typical Russian name, but an acronym of the sentence "*[P]okolenie [O]ktyabrskikh [B]ortsov [I] [S]troitelei [K]ommunizma*," i.e., "A Generation of the October Revolution Fighters and Builders of Communism." Kuznetsov was an interdisciplinary scholar with a wide range of interests—from biology, chemistry, and physics to engineering, economics, and systems theory. He also spent time in a labor camp late in Stalin's regime for organizing an unsanctioned discussion group where students addressed an ambitious question at the intersection of evolutionary biology and philosophy: What is the function or goal of life at the scale of the universe? In the course of his talks with Kuznetsov, Ilyenkov convinced him to write the entry on "Life" for the *Encyclopedia of Philosophy* that Ilyenkov coedited in the 1950s and '60s.

Soviet astronauts at a TV studio in 1963 (from left to right): Pavel Popovich, Yuri Gagarin, Valentina Tereshkova, Valery Bykovsky, Andrian Nikolayev, and Gherman Titov. Photo: Wikimedia Commons.

Kuznetsov considered the function of life to be "anti-entropic." Life brings higher forms of organization, creating an order from "chaos." Entropy is a measure of the dispersal of energy; the Second Law of Thermodynamics states that in closed systems, entropy can only increase, which eventually leads to a final dispersal of energy and ultimately the "death" of the system. Accordingly, "anti-entropic" refers to the capacity of some forms of matter (such as life) to counterbalance the increase of entropy. In the 1950s, Kuznetsov also wrote about the problem of the "thermal death of the universe"—its entropic collapse—with reference to Engels's discussion of this question in his *Dialectics of Nature*. He also linked the "thermal death" problem to the anti-entropic function of life, hinting at a possible way out of this predicament.[10]

Kuznetsov was not alone in generating ideas about the anti-entropic function of life. His work was part of a broader Soviet debate in the 1950s and '60s about the meaning and final goal of both humanity and communism in the universe. Participants in this debate were aware that similar questions had been discussed in texts by earlier cosmists, albeit without much reference to the communist horizon. For example, another friend of Ilyenkov, the sci-fi writer and scientist Igor Zabelin, expressed similar views about the anti-entropic function of life in his book *Chelovek i chelovechestvo: Etjudy Optimisma* (The Human and humanity: Optimistic essays), published in 1970. Zabelin critically notes a striking detail in the work of the pioneering cosmist Nikolai Fedorov. Fedorov's famous idea of the "resurrection" of humanity, Zabelin claims, seems to concern only men, whom the founder of cosmism calls "fathers" and "sons." It seems that women—at least according to the verbal formula of Fedorov, who speaks only of the "resurrection of the fathers" by "sons"—are excluded from this process.[11] For Fedorov, sociobiological reproduction involving both sexes should be replaced by a technologically enabled literal "resurrection" that is opposed to the "lust of childbearing." Zabelin, quite reasonably, condemns Fedorov as a "misogynist" (today we would see this attitude as a sexist expression of patriarchy). At the same time, Zabelin approvingly quotes a later cosmist, Konstantin Tsiolkovsky, who had also discussed the "anti-entropic process" in the universe. This example gives

a clear idea of how advanced, critical, and differentiated was the reception of Russian cosmism in the semi-official Soviet culture of the post-WWII period. Ilyenkov definitely shared this attitude.[12]

However, as we will see, although Ilyenkov uses the scientific themes of thermal death and entropy in his text, he does so in combination with elaborate arguments based on his interpretation of classic philosophy texts by Spinoza and Hegel, as well as on inspiration he draws from Engels's work, and on important implicit assumptions about the crucial role of communism in the anti-entropic process.

3. Dialectical Materialism as Phantasmagoria

Let's begin by summarizing the argument of "Cosmology of the Spirit." The main question the text addresses is the role of "thinking life" or "thought" in the universe—no more, no less.

The long explanatory subtitle of the text reads as follows: "An Attempt to Give a Basic Outline of the Objective Role of Thinking Matter in the System of Universal Interaction (A Philosophical-Poetic Phantasmagoria Based on the Principles of Dialectical Materialism)." Throughout the text, Ilyenkov stresses his adherence to dialectical materialism, in an attempt to neutralize its unusual and risky contents as a "philosophical-poetic phantasmagoria." He also uses, reservedly, another word borrowed from the scientific lexicon: he calls his entire proposition a "hypothesis."

The themes and questions of the text are the core questions of materialist ontology: the relations between matter and thought. The text suggests a cosmological hypothesis that links together the emergence of life and human intelligence on earth with the entropic nature of the material universe, and, no less important, with the historical achievement of communism.

"Matter constantly possesses thought, constantly thinks itself," begins Ilyenkov.[13] Of course, he doesn't mean this literally; he's not trying to suggest, as an idealist or animist might, that matter "thinks." But since matter had already emerged in human form, and since the universe is infinite, the law of probability dictates that there will always be another complex form of matter that achieves the faculty of thinking, in some space and time. The "thinking brain" always emerges and reproduces itself somewhere in the universe: in this specific sense, "matter constantly thinks itself."

It is important to comment further on several points here. In the orthodox Soviet "diamat" (the official, dogmatic version of dialectical materialism), matter was understood as an ensemble of its "forms of movement," i.e., as an ascending hierarchy of development, from the lowest forms, which are covered by the realms of physics, chemistry, and biology, to its highest forms, which are the human brain and intelligence, which in turn shape matter's "social" form. Each lower form supports the emergence of the higher ones. *But then what is the function of the highest form of matter if it does not have anything above it?*—this question shapes the field of Ilyenkov's hypothesis.

These views on the movement of various forms of matter were derived from Engels's *Dialectics of Nature*, to which Ilyenkov refers in his text many times.[14] Actually, though, *Dialectics of Nature* has a bad reputation in the history of Marxist philosophy; it is regarded as the source of the brutal "dialectical laws" that constituted Soviet diamat. However, the text is in fact very insightful and at times ascends to heights of speculative thought that Marx himself would probably have never dared.

The second point in Ilyenkov's argument evolves from the first: since the universe is infinite in space, its development, paradoxically, is already finished, and everything already exists, including the highest forms of intelligent life. Of course, the dialectics of development nonetheless continues to unfold, in specific parts and zones of the universe that have not yet achieved higher forms of matter's organization. But if we take matter as a whole, as infinite substance, thinking life is always there. Thus, suggests Ilyenkov, when considered in its totality, matter can be grasped as Spinoza's substance, eternal and unchangeable. One of the rare commentators on "Cosmology" notes on this point that Spinoza had exactly the same "famous picture of the Universe as a homeostasis, which as a totality remains unchanged although all its constituent parts incessantly move like pieces in a kaleidoscope."[15] But it seems to be even more complicated than this, as the homeostasis, for Ilyenkov, is restored through its opposite: a catastrophe of a specific kind that excludes, perhaps, contemplative and untroubled Spinozan views about substance.

In Spinoza, substance, interpreted as matter, possesses at least two attributes: thought and extension. In contrast to this, "vulgar" materialism says that intellect and thought emerge from a dialectical movement of matter, i.e., matter is necessary for the emergence of thought, but never vice versa. In this picture, the existence of thought is *contingent*, not necessary; it is thus "the product of a fortuitous combination of circumstances," as Ilyenkov sums up this view.[16] But a subtler materialism would, in a dialectical movement, also claim the converse—that thought is necessary for matter. " *Matter cannot exist without thought*," writes Ilyenkov.[17]

At this point in his argument, Ilyenkov lingers over the question of how these assumptions can change our philosophical understanding of thinking itself. According to the general understanding of this question in Soviet diamat, thought is the supreme form of matter's

development. But Ilyenkov is more specific, emphasizing that thought is the final stage of this development. There are no higher forms of matter than thought. Indeed, if higher forms of matter could exist, this would mean that they are inaccessible to thinking, being a kind of Kantian inconceivable "noumenon"; a kind of fideism could be built on these higher forms, pointing to the existence of an unknowable God. For Hegel, notes Ilyenkov, suprahuman Reason is still comprehensible, as it is based on the same logic as the human mind and so is still a form of thought.

Ilyenkov argues that there is only one way of understanding this cosmic "situation": as a cyclical movement from the lowest forms of matter to the highest ("the thinking brain") *and back*, to their decomposition into the lowest forms of matter (biological, chemical, and physical). If we admit the limit of the highest development of matter, writes Ilyenkov, we should also admit its lowest, most primitive level, where matter contains only the simplest qualities. Borrowing ideas from the discipline of physics as it existed at the time (in the 1950s), Ilyenkov associates this lowest form of matter not with particles—atoms, electrons, etc.—but rather with a "field" as the minimal form of the existence of matter.[18]

The idea of the limits of the development of matter (the highest limit and the lowest limit), as well as the assumption that thought is necessarily an attribute of matter (and let the record show that a truly decisive argument for this necessity remains to be discovered), constitute the two main speculative frameworks on which Ilyenkov builds his cosmology, which he reservedly calls a "hypothesis." The third premise connects the previous two: it is the assumption that this cyclical development of the universe passes through a phase involving the complete destruction of matter—through a galaxy-scale "fire." This premise reflects both the "spirit" of dialectical negation, known since Heraclitus, as well as theories of the "big bang" and the so-called "thermal death of the universe," which presumably precedes the final explosion.

This universal destruction will inevitably involve the destruction of humanity, endowed with the faculty of thought. At this point, Ilyenkov's speculative drive accelerates even more. As we remember, he started from the premise that thought is a necessary attribute of matter. But how is this necessity of thought effectuated? How does it prove itself? Here we enter the proper realm of Ilyenkov's cosmology. The elements that Ilyenkov introduced at previous points in his argument come together into an astonishing narrative.

As he himself acknowledges, this narrative is a rather "poetic fantasy." However, he still grounds his argument in the authority of dialectical materialism, mostly referring to Engels's *Dialectics of Nature*, which also raised questions about the end of the universe due to its thermal death—definitely not what one expects from the optimistic coauthor of the *Communist Manifesto*! Engels devotes several pages to the issue of thermal death and suggests that the movement of matter will overcome the entropic threshold in an as-yet-unknown way. Here Engels also discusses the ideas of Rudolf Clausius, a nineteenth-century German physicist and mathematician who was the first to introduce the concept of entropy based on the Second Law of Thermodynamics. Engels notes that "only a miracle" can neutralize entropy.[19]

What Engels called a "miracle" will, in Ilyenkov's hypothesis, turn into a gesture of self-destruction on the part of communist reason. When thermal death is imminent, the sun and other stars will gradually cool down. But with scientific-technological progress, argues Ilyenkov, humanity will be able to access a new and more powerful source of energy, as well as the capacity to restructure matter itself. This will lead to humanity's increasing autonomy from the material conditions of its existence, including from the most fundamental laws, such as the law of the cosmic growth of entropy. However, these new powers will not save humanity from a lethal cosmic standstill: "This turns out to be the absolute boundary in which all conditions under which the thinking spirit can exist, inevitably disappear."[20] We have arrived at the most striking part of Ilyenkov's cosmological narrative.

He claims that contemporary science still cannot explain the transition from the thermal death of the universe to the big bang, since the law of entropy only suggests that the collapse of the universe will bring it to a "zero outcome"—absolute homeostasis at the lowest point.[21] The universe needs a special *intervention* to rechannel the energy that was radiated during the cycle of matter's development into a new "global fire."[22] The question of what (or who) sets the universe on fire is crucial. According to Ilyenkov, it is the cosmological function of thought to provide the conditions to "relaunch" the universe, which is collapsing due to thermal death.[23] It is human intelligence which, having achieved the highest potency, has to launch the big bang. This is how thought proves *in reality* that it is a necessary attribute of matter. As Ilyenkov writes:

> In concrete terms, one can imagine it like this: At some peak point of their development, thinking beings, executing their cosmological duty and sacrificing themselves, produce a conscious cosmic catastrophe—provoking a process, a reverse "thermal dying" of cosmic matter; that is, provoking a process leading to the rebirth of dying worlds by means of a cosmic cloud of incandescent gas and vapors. In simple terms, thought turns out to be a necessary mediating link, thanks only to which the fiery "rejuvenation" of universal matter becomes possible; it proves to be this direct "efficient cause" that leads to the instant activation of endless reserves of interconnected motion, in a similar manner to how it currently initiates a chain reaction, artificially

> destroying a small quantity of the core of radioactive material ... This being said, thought remains a historically transitional episode in the development of the universe, a derivative ("secondary") product of the development of matter, but a product that is absolutely necessary: a consequence that simultaneously becomes the condition for the existence of infinite matter.[24]

Especially touching here are phrases like "in concrete terms" or "in simple terms," which contrast with the universal scale and singularity of the event. After proposing such a mind-blowing hypothesis, Ilyenkov is very careful to repeat that this narrative does not break with any of the principles of dialectical materialism. For Ilyenkov, this science-inspired speculation, based on contemporary physics, also matches with the classic philosophy of Spinoza and his notion of the attribute; an "attribute" designates something that is strictly necessary for the infinite existence of substance (i.e., matter, from a dialectical-materialist point of view). As Ilyenkov notes, if the thinking brain, as the highest form of matter, were only contingent and "useless," it would be, in Spinoza's technical language, merely a "mode" (*modus*) and not an "attribute."[25]

Ilyenkov's hypothesis also undermines any religious or idealistic teleology that ascribes to human (or nonhuman) intelligence the goal of self-perfection or absolute knowledge. The real goal, notes Ilyenkov sarcastically, is "endlessly greater" than "those pathetic fantasies."[26]

Finally, there is one more important point in this narrative, which appears rather marginal in the text but remains crucial for its interpretation. The political condition that Ilyenkov mentions in his text, as something obvious, is *communism*, or a "classless society":

> Millions of years will pass, thousands of generations will be born and go to their graves, a genuine human system will be established on Earth, with the conditions for activity—a *classless society*, spiritual and material culture will abundantly blossom, with the aid of, and on the basis of, which humankind can only fulfill its great sacrificial duty before nature ... For us, for people living at the dawn of human prosperity, the struggle for this future will remain the only real form of service to the highest aims of the thinking spirit.[27]

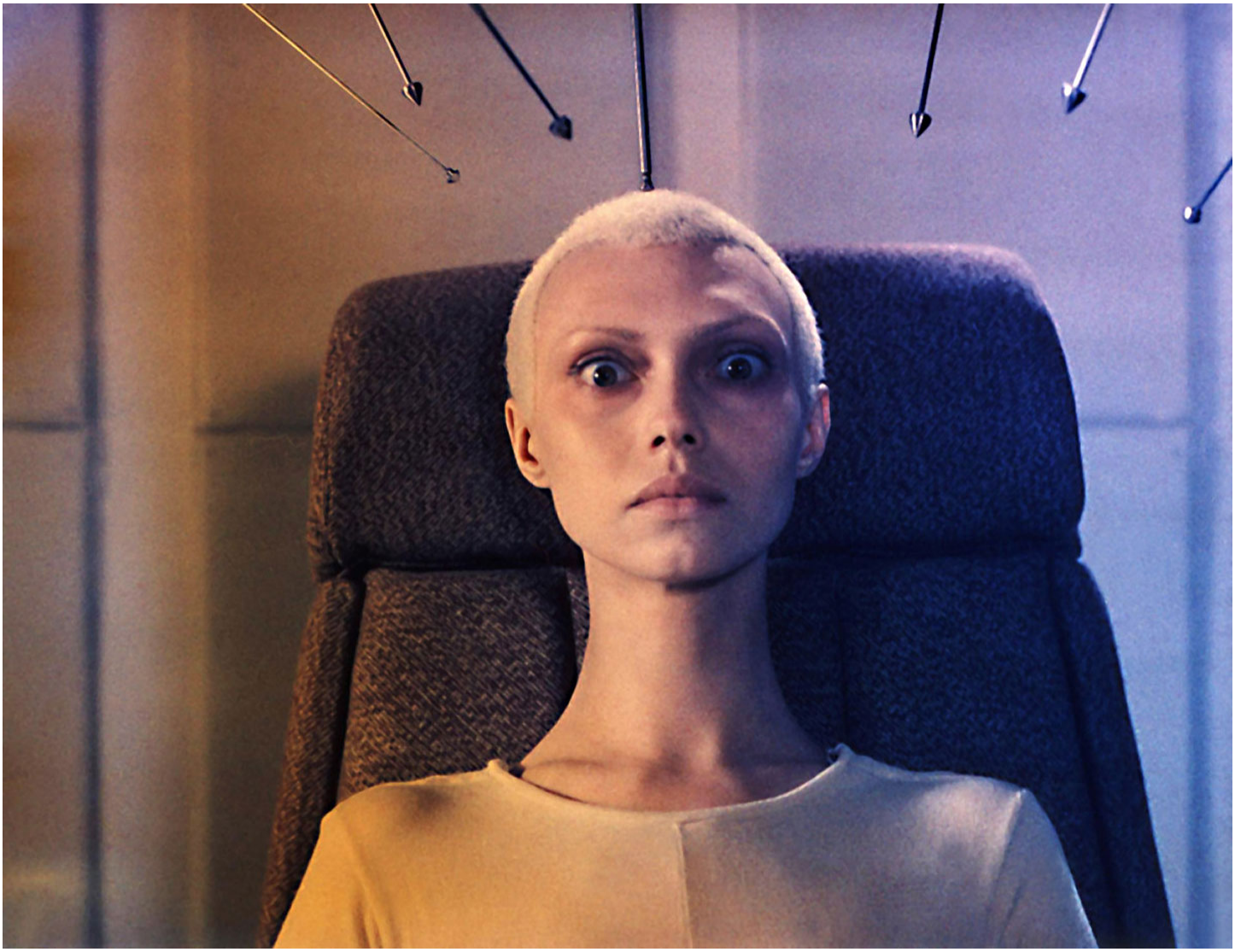
What was obvious for Ilyenkov is far from obvious to us now, in a so-called "postcommunist" time that is much more pessimistic about social progress. Ilyenkov's hypothesis now appears as more conditional and more dramatic: *if* humanity is unable to achieve communism, then collective human intelligence will not achieve its highest stage of power either, as it will be undermined by the capitalist system, which is as far as one can get from any self-sacrificial or otherwise sublime motivation. If, to follow the assumptions of Ilyenkov's phantasmagoria, the final thermal death of the universe is imminent, and even the materialist ontology will crack, then thought ceases to be an attribute of matter, degrading into a contingent outcome of its local development. Thus, "Cosmology of the Spirit" proclaims the necessity of communism from the point of view of the universe's immanent logic of becoming. In Ilyenkov's text, communism turns out to be a much more serious historical and cosmic event, not limited to the scale of the planet. If the world still exists, this is because it was shaped by a previous cycle of the ontological machine whose necessary cog is fully actualized communist reason.

4. "Cosmology" as Mythology, Symptom, and Exercise in Communist Subjectivity

How can a contemporary—presumably "enlightened," critical, and, perhaps, ironic—reader approach "Cosmology of the Spirit"? Of course, Ilyenkov was aware that it was "too much" even in the context of the post-Stalinist USSR of the 1950s, and so he emphasizes his reservations throughout the text, as well as his adherence to official dialectical materialism. He also presents his argument as a hypothesis (one he was reluctant to publish in his lifetime). But nor did he repudiate this early text—the way Lukács rejected *History and Class Consciousness*, for example—since he continued to share it with his students and close friends throughout his life.[28] That is why the text—with its enormous, almost "mad" claims—deserves attention. I will outline several interpretations in arguing for the contemporary relevance of the "Cosmology."

One could say that this text expresses archaic, premodern contents wrapped in the language of classic philosophy, science, and dialectical materialism. The indicator of this mythic content is, especially, the theme of heroic self-sacrifice and "global fire," a familiar Promethean motif. When I sent this text to Boris Groys, he offered a much more radical reading of its paganism, calling "Cosmology" "a revival of the Aztec religion" of Quetzalcoatl, who "sets himself on fire to reverse the entropic process." Of course, Ilyenkov would probably have welcomed such a comparison with a healthy dose of good philosophical laughter, provoked, as it is, by the enormous claims of his text which appears, to the contemporary reader, to be a self-deconstructing entity.

However, as we recalled at the outset, Aristotle already noted that the mythical is also philosophical to some



Richard and Nikolai Viktorov, To the Stars by Hard Ways, 1981.

degree and in some sense, as it is based on the same effect of astonishment and wonder. To classify the genre and intention of "Cosmology," one could also mention here the paradoxical idea of the "mythology of reason." The mythology of reason was one of the themes of the 1796/97 essay *The Oldest Systematic Program of German Idealism*, which lacks an author name but was presumably written by a young Hegel, Schelling, or Hölderlin. This "mythology" conveys the emerging contents of German idealism by way of sensory images and narratives that aim to be directly accessible to the masses. Similarly, Ilyenkov's hypothesis could be called a "communist mythology of reason" that conveys, in a dramatic narrative, the condensed meanings of the communist project.

Another critical and rather reductive way of approaching the text would be to read it as a psychological symptom of its author, given the tragic personal circumstances that led Ilyenkov to commit suicide at the end of the 1970s. This reading would make this text seem like a primordial suicidal fantasy sprinkled with communism and dialectical materialism. It could also be read as a politico-ideological symptom generated by the short-lived gap between the post-Stalinist moment and the disenchantment of late socialism. This gap combined both the optimism of socialist expansion, backed by the real position of the USSR after WWII as a global superpower, and a melancholy at the transience and fragility of "real communism." We could say that Ilyenkov's text prefigures the USSR's future collapse as a cosmic catastrophe.

In a more general way, the text could also be regarded as a condensed symptom of real communism as a philosophically articulated historical totality, if we recall Boris Groys's seminal book *The Communist Postscript*; this book presented the USSR as a purely linguistic being, where language, detached from its instrumentalization at

the hands of the market, was the sole medium of society, expanding the "forces of the paradox" to a cosmic scale—an expansion which is vividly expressed in Ilyenkov's text.[29] The visionary narrative of the future cosmic catastrophe and self-extinction of communist humanity can also be linked to the theory that—against "sweet" and idealizing utopian representations—endows real communism with the force of radical negativity that is also expressed in "Cosmology."[30]

A subtle and important aspect of Ilyenkov's argument is that the singular event of relaunching the universe through the action of a superintelligence depends on the realization of communism. Otherwise, the unfolding of all scientific and technical powers of thought will be blocked and suppressed by the narrow interest of a capitalist system operating in stubborn disregard for the fortunes of the universe, which it subordinates to short-term profit. Against the backdrop of contemporary debates on the so-called "Anthropocene," this part of Ilyenkov's argument is especially relevant. In contrast to Ilyenkov and other Soviet thinkers and writers of the 1950s, the Anthropocene theorists seem to claim the *opposite*—i.e., that life itself generates the entropic process, which destroys the planet precisely when it achieves human and intelligent form. But this interpretation is only possible because of the contemporary eclipse of past historical opportunities (together with such texts as "Cosmology"). The crucial condition of the anti-entropic process, according to Ilyenkov, is not only the biologically and intellectually enabled self-organization of matter, but also the "real movement" of communism. Thus "Cosmology," pointing out the missed opportunity of communism, works well with the left critique of the Anthropocene which argues that this notion rather masks a "Capitalocene," the destructive and toxic effects of full capitalist domination itself and not of abstract thinking life or humanity.[31]

A late-Foucauldian interpretation is also possible here. It would similarly link the text to the totality of real communism, presenting it as an "exercise" in building the communist subject, which this text expresses and performs. Indeed, as noted by Foucault and such scholars as Pierre Hadot, the physics and material ontology of the universe can have a strictly ethical and political function. For example, the Stoics regarded physics and cosmology as more than just forms of knowledge or discourse; they were also a meditative exercise, a practice that detached the subject from his or her immediate narrow environment and allowed them to ascend to the contemplation of the whole world. This contemplative ascension presents everyday passions and affects as insignificant, compared to the greatness of celestial bodies; one of the frequent topics of such meditations was the imagining of a global catastrophe—in order to strengthen the subject's capacity for self-mastery in extreme conditions.[32]

Ilyenkov's text is indeed just such an exercise. If it had been published and used in Soviet times, it could definitely have had a mobilizing effect—as a paradoxical meditation on the transience of all things in the world, including the most valuable things, such as communism and the very existence of humanity. Even after the collapse of real communism, when the contemporary political subject is plunged into a miserable combination of neoliberalism, neo-imperialism, and neo-nationalism (not to say neofascism), this text is able to produce both a calming and an invigorating effect.

V. Ilyenkov's Communist Hypothesis and Today's Speculative Thought

For a deeper understanding of the different layers and the philosophical wager of the "Cosmology," I will offer two additional ways of reading it, which I can only briefly elucidate by way of conclusion.

The first way is to read this text immanently, in view of Ilyenkov's later, more mature work.[33] I can briefly point out at least one such connection. This connection concerns the problem of "thought" and the mode of existence of its ideal contents. In his masterwork *Dialectical Logic* (1974), Ilyenkov attempts to elaborate the materialist version of dialectics based on an interpretation of the philosophical classics, from Descartes, Leibniz, and Spinoza to German idealism, and then to Marx, Engels, and Lenin.[34] In the chapter on Spinoza he repeats the crucial point of "Cosmology," suggesting an understanding of thought as a necessary attribute of material substance (i.e., of nature as an infinite whole). We should stress that Ilyenkov does not mean here that finite human thought is an *attribute* of matter. Thought is only an attribute when it is taken in relation to the whole of substance (nature); otherwise, thought would be a contingent mode, not a necessary attribute. Spinoza distinguished between *cogitatio* (thought as an attribute, as a necessary and essential quality of matter, or nature as a whole) and *intellectus* (thought as a particular mode). So in this technical language, the question in Ilyenkov's "Cosmology" is about how a mode (the *intellectus* of the human species) can become an infinite attribute through a singular *event*. However, in this later, more "standard" work, Ilyenkov does not return to this radical point of "Cosmology," which claims that the final proof of the necessity of thought is demonstrated by thought's capacity to rescue the universe from entropic death. In his earlier text, Ilyenkov definitely goes beyond the philosophical paradigm of his time, anticipating the contemporary philosophical logic that assigns to the event the capacity to generate truths and retroactively assert their necessity.

Of course, today the philosophy of Alain Badiou exemplifies the elaboration of such a function of the event. In an interesting parallel with the "twisted" Spinozism of the "Cosmology," Badiou discovers in his reading of Spinoza's ontology an "implicit and paradoxical

Spinozism" that allows for the concept of the event, albeit in the form of "the event torsion."[35] Badiou derives this implicit ontology from Spinoza's admission of "infinite modes," and their exemplary form, the *intellectus infinitum* (God's infinite intellect). Spinoza refers to these types of modes only in passing, as normally he discusses modes as finite—they are things or living beings we encounter in the world. According to Badiou, the admission of infinite modes produces a problematic contamination of infinite modes by a fundamentally different concept, i.e., attributes, which are infinite by definition. This highlights the general problem of the obscure relations between the infinite and the finite in the whole of Spinoza's ontology. According to Badiou, this inconsistency introduces the figure of the "void," which Spinoza explicitly forbids in his ontology. Of course, the void is understood not in naturalistic terms (as a "vacuum") but as a name for the inconsistency, the incommensurability, or the hidden exclusion that is a meta-ontological precondition for the event. However, in his published work Badiou only hints at "the event torsion" in relation to Spinoza, not explaining how it could be conceived. If one dared to formulate, in the technical language of Spinoza, a similar theme in "Cosmology," one could say that Ilyenkov's self-destruction of communist humanity for the sake of saving matter (i.e., substance) is an event that responds to the same problem, since it suggests a transition from thought, understood as a finite mode (as collective human intelligence), to thought as an infinite mode (as the collective intelligence at the stage of full communism). Thought thus becomes a necessary and infinite attribute of matter (substance) in the singular event of the relaunching of the universe in "global fire." Ilyenkov's event presents a cosmic short-circuit between the finite and the infinite, which, one could hypothetically say, radically changes or supplements Spinoza's ontology.[36]

The second way to indicate the relevance of the "Cosmology" for today's situation is to compare the speculative drive of Ilyenkov's text to contemporary "speculative" orientations in philosophy, by which I mean—very loosely—"new materialism," "speculative realism" (or "new realism"), etc. Here I will only take one thread from an exemplary and strong work in this field, Quentin Meillassoux's *After Finitude*. The core argument of this text is that contemporary thought is bound by a hidden "correlationism" shaped by Kant's philosophy, which prohibits any speculation about the external world and its ontology per se, if this world is detached from correlation with a transcendental subject, or later, from correlation with a human subject. But instead of a pre-Kantian metaphysics based on the principle of sufficient reason as a ground for the existence of particular objects in the world, Meillassoux suggests a speculative version of ontology based on only one necessity: the "necessity of contingency." This hypothesis, according to Meillassoux, still enables "stability" in the phenomenal world; it does not turn it into absolute "chaos," though this "chaos" always remains at the ontological horizon. And if there is no "sufficient reason," this ontology can only be built on "facticity" or "factiality," which somehow elevates positivist "facts" into a speculative concept. Summarizing his argument, Meillassoux writes:

> Instead of laughing or smiling at questions like "Where do we come from?", "Why do we exist?", we should ponder instead the remarkable fact that the replies "From nothing. For nothing" really are answers, thereby realizing that these really were questions—and excellent ones at that. There is no longer a mystery, not because there is no longer a problem, but because there is no longer a reason ["reason" in the sense of metaphysical "sufficient reason," "ground"]."[37]

This ontological perspective, of course, rejects any historical or cosmic teleology based on questions like "For what purpose?" or "What is the final goal of something?" There have already been a number of criticisms of Meillassoux's hypothesis, but the standpoint of Ilyenkov's "Cosmology" allows us to develop, perhaps, a more radical one.

Indeed, "Cosmology" provides us with a powerful counterpoint to speculative realism, even while being no less speculative, and no more metaphysically "naive." Meillassoux's argument revolves around a prehuman and factual "arche-fossil" from the distant past; according to Meillassoux, this arche-fossil proves that in this bygone era, the correlation between subject and object did not yet exist. Ilyenkov's thought strives for a posthuman singularity following the event of communist reason's self-destruction in the distant future (or "hyper-future")—a scenario intended to demonstrate that *in reality* the correlation between thought and matter was, actually, a weak one, always already not enough, and only the action of the communist subject upon the global "object"—the universe—finally both fulfills and overcomes correlation. Meillassoux, also ascending to the cosmological scale, attempts to ground speculative thought in pure contingency and hence in the contingency of thought itself, suggesting, literally, "a world that can dispense with thought."[38]

Ilyenkov argues for a necessity that dramatically reveals itself only through an event. This event is an outcome of both the development of forms of matter and the cosmic struggle for communism. "Cosmology" presents the idea of communism as the fundamental condition for achieving the level of intelligence (or "thought") that would retroactively constitute its own necessity as an "attribute of matter" and fulfill its function of relaunching the ontological machine of the universe. Praising the "necessity of contingency," Meillassoux promises—with

humble but rationally argued slogans like “From nothing. For nothing”—only a new (and rather liberal) Enlightenment that would subvert any new fideism or religiosity that might emerge from the correlationist skepticism about the powers of rational thought. For his part, Ilyenkov—as if he were desperately throwing “a message in a bottle” from his time—suggests that thought is a “contingent necessity” in the universe. From a contemporary perspective, we can already discern what Ilyenkov implied as obvious, i.e., that the event-based necessity of thought is subject to the achievement of communism. The ontological status of communism thus shifts from being imagined as a “final” social state of happiness and joy, or as an open-ended process of emancipation without any teleology, to the tragic cosmological function of “vanishing mediator”—since otherwise the universe collapses into an eternal black hole.

X

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1
As we will see, the theme of myth—or rather a "mythology of reason"—will play a role in understanding our theme.

2
See Martin Heidegger, *What is Philosophy?* (Was ist das—die Philosophie?), eds. W. Kluback and J. T. Wilde (New York: Twayne Publishers, 1958), 29–31.

3
Aristotle does, however, mention "self-moving marionettes," "solstices," and "the incommensurability of the diagonal of a square with the side" as examples of objects that can provoke astonishment (*Metaphysics* A, 2, 983 a 19–85).

4
According to David Bakhurst, "Ilyenkov was important in the revival of Russian Marxist philosophy after the dark days of Stalinism. In the early 1960s, he produced significant work in two main areas. First he wrote at length on Marx's dialectical method ... Second, Ilyenkov developed a distinct solution to what he called 'the problem of the ideal'; that is, the problem of the place of the non-material in the natural world ... After the insightful writings of the early 1960s, Ilyenkov's inspiration diminished as the political climate became more oppressive ... He died in 1979, by his own hand." David Bakhurst, "Meaning, Normativity, and the Life of the Mind," *Language & Communication* 17, no. 1 (January 1997): 33–51. For more on Ilyenkov, see the Marxist Internet Archive https://www.marxists.org/archive/ilyenkov/ .

5
See the work of David Bakhurst, Vesa Oittinen, Alex Levant, Andrei Maidansky, and Sergei Mareyev.

6
The first English translation of "Cosmology of the Spirit" was recently published in a special issue of the journal *Stasis* (vol. 5., no. 2, 2017) http://stasisjournal.net/images/Stasis_v05_i02/eng/stasis_v05_i02_06.pdf .

7
"Cosmology of the Spirit" (Kosmologia dukha) was first published in Russian in 1988, in the journal *Science and Religion*.

8
Among these few works and commentaries, see, for example, a chapter on "Cosmology" written by Ilyenkov's friend and student Sergei Mareyev (Sergei Mareyev, "Cosmology of Mind," *Studies in East European Thought* 57, no. 3–4, 2005: 249–59). See also the deeply informed commentary of Giuliano Vivaldi, the translator of the English version of "Cosmology" published in *Stasis*; his commentary assembles rare sources and provides a rich context for the genealogy of the work (Giuliano Vivaldi, "A Commentary on Evald Ilyenkov's Cosmology of the Spirit," *Stasis* 5, no. 2, 2017).

9
See Mareyev, "Cosmology of Mind."

10
See Pobisk Kuznetsov, "Once Again about the Thermal Death of the Universe and the Second Law of Thermodynamics" (1955), published in Russian at http://www.xn--80adbkckdfac8cd1ahpld0f.xn--p1ai/files/Kuznetsov/Library/1955-OnceAgain.pdf . In this text, Kuznetsov refers directly to the work of the cosmist Vladimir Vernadsky. Another, later version of this text was indeed published as the entry on "Life" (*Zhizn*) in Ilyenkov's *Encyclopedia of Philosophy* , vol. 2. (Moscow: Soviet Encyclopedia, 1962), 133–34.

11
Of course, in Fedorov's key text, *The Philosophy of Common Task* , women definitely play a part in the resurrection process, but this part is determined by stereotypical and patriarchal gender roles—men "hunt" for remnants of past generations, while women "give birth" to them by collecting and revitalizing them in special laboratories. However, the symbolic register of the text does not acknowledge even this—actually, essential—contribution.

12
Officially, Fedorov's legacy was not welcome in the USSR, and his books were not in print during the Soviet era.

13
Evald Ilyenkov, "Cosmology of the Spirit," trans. Giuliano Vivaldi, *Stasis* 5, no. 2 (2017): 165.

14
This book was unfinished and remained unpublished during Engels's lifetime. It was published in 1925 under the direction of David Riazanov at the Moscow Marx-Engels Institute.

15
Vesa Oittinen, "Evald Il'enkov as an Interpreter of Spinoza," *Studies in East European Thought* 57, no. 3–4 (2005): 320.

16
Ilyenkov, "Cosmology of the Spirit," 166.

17
Ibid. Italics in the original.

18
Ibid., 171.

19
Friedrich Engels, *Dialectics of Nature* , in Karl Marx and Friedrich Engels, *Collected Works*, vol. 25 (London: Lawrence & Wishart, 1987), 563.

20
Ilyenkov, "Cosmology of the Spirit," 177.

21
Ibid., 187.

22
Ibid., 176. This stance is definitely an implicit projection of Lenin's interventionist politics into the realm of cosmological and ontological speculation. Lenin honed this approach in debates with Bolshevik representatives of the so-called "economist" tendency, starting with his famous text "What Is To Be Done?" (1902). The "economists" defended the idea that the conditions for the revolutionary subjectivation of the proletariat are determined by objective economic development and its natural laws. In opposition to this, Lenin emphasized the subjective intervention of party intellectuals, who have to bring radical consciousness to the working class.

23
While the big bang theory remains a prevailing paradigm in physics today, the theory of the thermal death or "heat death" of the universe that emerged in the mid-nineteenth century and was integral to Engels's *Dialectics of Nature* is not considered so influential. For example, the work of Russian-Belgian physicist Ilya Prigogine (1917–2003), which rethinks thermodynamics and introduces the capacity of matter to "self-organize" (and not only in its biological form), proposes a new perspective on thermal death; however, Prigogine's theories operate on the level of specific and closed systems, not on the universe as a whole, thus abandoning a central component of Ilyenkov's thermal death hypothesis.

24
Ilyenkov, "Cosmology of the Spirit," 185, 188.

25
Ibid., 184–85.

26
Ibid., 188.

27
Ibid., 189–90. Italics added.

28
For evidence of this, see the book *Ilyenkov: zhit' filosofiei* (Evald Ilyenkov: To live by philosophy) by Ilyenkov's younger colleague and friend Sergei Mareyev (Moscow: Akademitcheski Projet, 2014), 156–71.

29
Boris Groys, *The Communist Postscript* (London: Verso, 2009). See also my article "Stalin Beyond Stalin: A Paradoxical Hypothesis of Communism by Alexandre Kojève and Boris Groys," *Crisis and Critique* 3, no. 1 (2016).

30
On real communism and negativity, see the article by Artemy Magun, "Negativity in Communism: Ontology and Politics," *Russian Sociological Review* 13, no. 1 (2014). This negativity was a risky move in political polemics, as it led the most odious critics of "real socialism" to claim that the secret goal of communism was the self-destruction of humanity.

31
The term "Capitalocene" was introduced by Jason Moore in his book *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (London: Verso, 2015).

32
See, for example, Pierre Hadot, *The Inner Citadel: The Meditations of Marcus Aurelius* (London: Belknap Press, 1998).

33
In his introduction to the English translation of "Cosmology," Vivaldi summarizes some of these connections.

34
Evald Ilyenkov, *Dialectical Logic: Essays on its History and Theory*

(Moscow: Progress Publishers, 1977).

35
Alain Badiou, *Briefings on Existence: A Short Treatise on Transitory Ontology* (New York: SUNY Press, 2006), 87.

36
Of course, both Badiou and Ilyenkov are criticized for "misreading" Spinoza. See, however, a sympathetic account of Badiou's reading in Sam Gillespie, "Placing the Void: Badiou on Spinoza," *Angelaki: Journal of the Theoretical Humanities* 6, no. 3 (2001).

37
Quentin Meillassoux, *After Finitude: An Essay on the Necessity of Contingency* (London: Continuum, 2008), 110.

38
Ibid., 116.

Robert Bird

How to Keep Communism Aloft: Labor, Energy, and the Model Cosmos in Soviet Cinema

In his 1937 review of a memoir by the aviator Georgii Baidukov, writer Andrei Platonov provides a richly speculative picture of Soviet socialism:

> A symbolic image of the entire modern economy might be a heavy body, supported in air space by the thrust of a propeller; at one and the same time, this image gives a precise picture of the most intense work of the mechanism and of the person of our time. But what kind of person is it who works on a machine in the air, on a machine that pulls behind it all of modern technology? Does the pilot-person not have some new features that will later be transferred to the character of the future person?[1]

Andrei Platonov's "symbolic image" suggests that Soviet socialism can be kept aloft, defying gravity at least for the time being, as a precisely calculated interaction of mechanical energy and human labor. But there is, Platonov suggests, the possibility of a different economy, one yet to be defined, let alone achieved, where natural limitations like gravity, entropy, and perhaps even death will not have to be resisted so forcefully, where the flight of socialism will become effortless, free, and final. This would be communism, albeit in a version that owes as much to the cosmism of Nikolai Fedorov and Aleksandr Bogdanov as it does to Marx and Lenin.

Platonov's eccentric vision of a cosmist communism has made him into one of the most intriguing and inspiring Soviet writers for our day, but this cosmic horizon was also available in mainstream Soviet discourse, and specifically in the popular cinema, albeit in softer, less conspicuous forms than the literal belief in the "resurrection of fathers," the need to populate other planets, and the possibility of suspending the economy as a *perpetuum mobile*. Nowhere is this as evident as in the Soviet fascination with the scale model, a dialectical mode of representation that informed the Soviets' broad optimism about what we today might call the Anthropocene, an optimism that now seems quaint, if not dangerous, but from which we still have much to learn.

1. From Mechanics to Energetics

Marxism is fundamentally cosmist, at least in its Soviet version. The most common quotation from Marx in Soviet discourse of the 1930s, really more a paraphrase, was that "by transforming nature, man transforms himself."[2] This dialectical understanding of nature was evident in Lenin's 1920 slogan "communism = Soviet power + electrification of the entire land," and it was boosted by the publication in 1925 of Friedrich Engels's *Dialectics of Nature*. Stalin's "transformation of nature," beginning with the First

Unknown photographer. Iurii Shchebenkov at work on a functioning model airplane. Krasnoiarsk, May 1939. Behind him is an aviation poster by Nina Vatolina and Nikolai Denisov with the slogan: "All Hail Soviet Pilots, the Proud Falcons of Our Homeland!" (1938).

Five-Year Plan in 1928, was expedient, opportunistic, and brutally cynical, especially in its murderous reliance on convict labor; but the Five-Year Plans also allowed cosmist-minded comrades like Platonov to continue to dream of an apocalyptic transubstantiation or, at the very least, a decisive leap into a different, freer state of nature.

One of the most authoritative statements of cosmist Marxism came in August 1931 when Nikolai Bukharin described an impending technological revolution, or "technological re-equipping of the entire land," under the auspices of the Five-Year Plans. In an official report, Bukharin lays the greatest emphasis on the increased production of electricity, the automatization of production, and the acceleration of communications:

> The old *methods of organizing* production are disappearing and are being replaced by the *flow method* with an automatic workbench, with the automatism of the entire process, with its division into a series of steps, coming one after the other, as on a cinematic film strip.[3]

This montage—as cinematic as it is industrial—is not merely the Taylorist fantasy of total efficiency, which was popular in the Soviet Union in the 1920s, particularly among the artistic avant-garde. Bukharin was also describing a world in which the laws of mechanics would be superseded by those of energetics, that is to say, a unified force field that at high levels of energy would defy the laws of classical physics.[4]

The leap into this new state of material being required not only new mechanisms, but also a new relation between consciousness and matter, and a new mode of labor:

> The old methods of *organizing labor* are displaced by the use of psychotechnics [*psikhotekhnika*] and methods of employing [*eksploatatsiia*] the working class—tested in the

> laboratory, measured and scientifically thought through—with which the possible shortening of the work day and increase of wages are to the utmost degree compensated for by the heightened intensification of labor, by its unusual concentration [*uplotnenie*] and sharp rise of norms of employment.(312)

In order to keep communism aloft, in other words, the Soviet Union required not only "the convergence of theory and practice" (326) in a coordinated intensification of tempos of automatic and human labor. It also required "the transformation of the USSR into a single cultural whole on the technical basis of a developed communications system" (317), one that "must be much less verbal, 'humanitarian' in the old sense of this word, and ... more 'technological'" (319). It sounds almost as if Bukharin was calling for the psychotechnologies of avant-garde cinema to be realized as an economic system.

Although one version of it was published in *Pravda*, the Party leadership's response to Bukharin's 1931 report was uniformly negative. Stalin called it "an empty, non-Bolshevik report that is out of touch with real life."[5] Lazar' Kaganovich accused Bukharin of "a schematic approach, mechanistic philosophy, and Bogdanovism [*bogdanovshchina*]."[6] But although Bukharin's presentation still betrayed the cosmist tendency towards magical thinking, some of the resources he named for the "convergence of theory and practice" (326) seem startlingly prosaic, local, and small scale: "technical museums ... technical libraries, exhibitions, repositories of blueprints and diagrams, etc., etc." (323–24). The schematization advocated by cosmism is not that of the metaphysical modernism of a Malevich, but rather that of the museum: displays of technical drawings, models of miniaturized mechanisms, etc. Common to all these modes of bridging theory and practice was the scale model, a central component in the "iconography of materialism,"[7] and the dialectical object par excellence.

2. Marxist Model

The scale model is already present in the image from Platonov with which I began: the economy as an autonomous airborne motor. The model is at once a "symbolic image" that signifies powerfully in the present, an experimental object that initiates the achievement of the future, and a machine for transforming the subjectivities of those who labor on it.

Platonov evokes common images from the 1930s in the entire range of media of children working on scale models, transforming themselves as they produce new technologies on a small scale. In the above photograph from 1939, a smartly dressed boy works on a model airplane at a workbench, with aviation posters pinned to the wall behind him. The poster on the right, made in 1938 by Nina Vatolina and Nikolai Denisov, shows the white-suited Stalin and Kliment Voroshilov, commissar of defense and chief enthusiast of airplane modeling, saluting a formation of aircraft. It bears the slogan: "All Hail Soviet Pilots, the Proud Falcons of Our Homeland!" The poster plugs this provincial children's workshop into the centralized structures and discourses of power; the boy is working with the intention of adding his own modest project to the already assembled ranks of aircraft, fashioning it as an object that ultimately will be beheld by the elevating gaze of Stalin and Voroshilov. As in Platonov's image, this boy's scale model exhibits categorical fluidity: it begins life as a toy, becomes a prototype, and potentially will end up in a museum exhibit about the genesis of a new inventor. In the virtuous cycle of the Soviet model, hands teach heads, which then, having become more intelligent, teach hands.

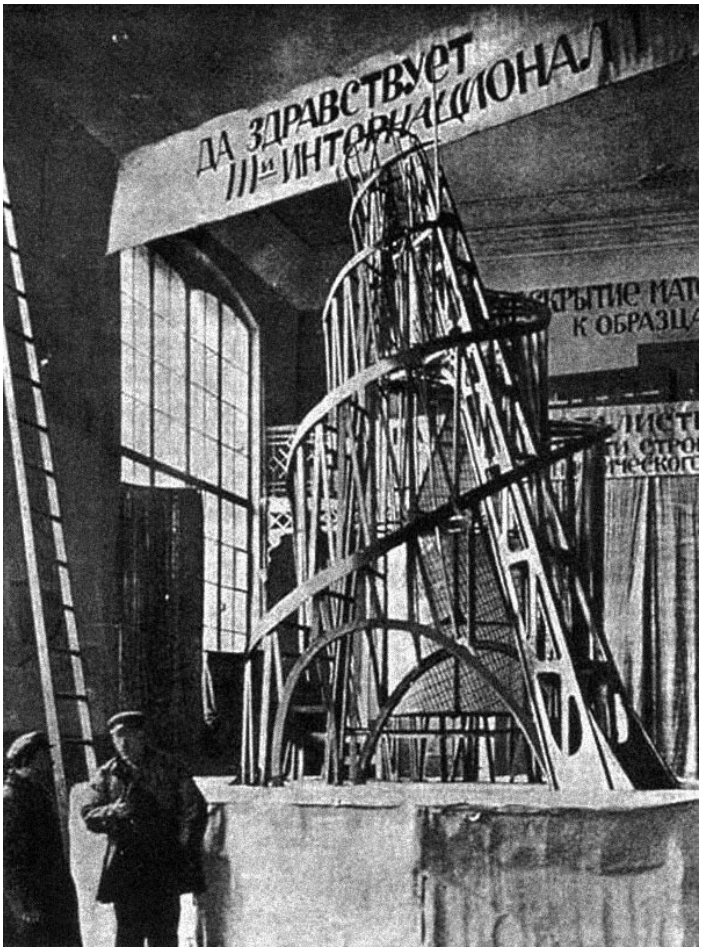
The Soviet fascination with models had deep roots in Marxist thought. In the very same passage of *Capital* that speaks about the mutual transformation of humans and the natural world, Marx highlights something akin to modeling as the distinguishing feature of human labor: "What distinguishes the worst architect from the best of bees is this, that the architect raises his structure in his imagination before he erects it in reality. At the end of every labour-process, we get a result that already existed in the imagination of the labourer at its commencement."[8]

In a 1925 analysis, the young Soviet psychologist Lev Vygotskii elaborated on this process. Whereas the spider and bee act "on the strength of hereditary instinct, like a machine, always identically and without finding in this any more activity than in all other adaptive reactions," humans are defined by their "doubling of experience":

> In hand movements and the changes of material labor repeats what has previously been done in the worker's imagination [*predstavlen'e*] as if with models of these same movements and this same material. The animal lacks this very *doubled experience*, which allows man to develop forms of active adaptation.[9]

If the spider and the bee demonstrate "a passive adaptation to the environment," then humans display "the active adaptation of the environment to oneself."[10] Humans by nature are cosmists.

The Soviet theory of model labor in the 1930s owes its most direct debt to the constructivists, beginning with Tatlin's *Model for a Monument to the Third International*, which encoded cosmist ideas on an anthropometric scale, evidently directed less at full-scale production than at the stimulation of further generations of models. Above



Vladimir Tatlin and collaborators alongside his Model for a Monument to the Third International (1920).

the model, Tatlin and his team have hung a partially visible slogan that reads, hypothetically, "Through the revelation of material to exemplars of the new object." Theorizing the logic of these models was the particular province of constructivist theorist Nikolai Chuzhak, who wrote in the first issue of *LEF*:

> Accepting the auxiliary status of cognition, the working class is everywhere—both in real, actual science, and in real, actual art-making, and in real, talon-to-talon battle for the needed social structure—everywhere the proletariat is shifting the center of gravity from the moment of cognition to the direct construction of the thing, including the idea, but only as a specific engineerial model.[11]

Modeling was emphasized as an activity in the avant-garde curriculum of the Higher Artistic-Technical Workshops, or VKhUTEMAS, where designers modeled functional furniture under the instruction of constructivists Aleksandr Rodchenko and Varvara Stepanova, and where student architects were asked to produce material, three-dimensional models of abstract concepts like space and volume.

For Chuzhak, the model is an inevitable mode of art production for a materialist society oriented towards the future realization of its scientific ideas:

> The construction of dialectical models of tomorrow—whether predominantly from an emotional angle (art) or a logical one (science)—is just as necessary for the class of the future as the construction of the object itself. And scientifically both kinds of creativity are equally justified by dialectical materialism. It is not difficult to see that the art of communist constructions will lean increasingly to the model.[12]

Chuzhak was right; the model quickly spread from the studios and workshops of the avant-garde to vocational classrooms and clubs. Under the First Five-Year Plan, the model ceased to be the exclusive province of the radical avant-garde, and by 1932 it had become a signal mode of aesthetic production under socialist realism.

Bukharin's philosophical arguments in favor of scale modeling, both in theory and as a material practice, were gratefully noted by the authors of the 1932 book *The Art of Modeling*, D. Greitser and V. Bibikov, who underscore the dynamism of the model as an ontological category, as it passes from experimental object to production prototype and to "study device." Greitser and Bibikov argue that, far from being merely a modest element in pedagogical practice, the model challenges the most basic notions of Soviet production and labor. Requiring individual initiative, the model cannot be planned. Requiring handicraft and intuition, it cannot be mass-produced. Once produced it cannot be commodified, since it is immediately superseded by a new and improved model. Its singularity and categorical fluidity make the Soviet model distinct from mere replicas: "The USSR of the reconstruction period cannot allow itself the luxury of building dead models," write Greitser and Bibikov. "We need living models which awaken initiative and teach how to build."[13] The model not only makes representations of the future into concrete steps towards achieving it, but also initiates the transformation of labor into a new psychotechnological process. Models, then, are nothing less than machines for keeping communism aloft.

One Stop to the Moon (Na lunu s peresadkoi), dir. Nikolai Lebedev, 1934/39.

3. Model Constructivism, Model Cinema

In the 1930s, scale models proliferated in Soviet sound cinema, fulfilling a wide range of forms and functions. Dziga Vertov's 1930 *Symphony of the Donbass* features a working model of the Five-Year Plan, recalling the VKhUTEMAS models of abstract constructive principles: this is a three-dimensional, working model of the future economy. A central scene in Nikolai Ekk's 1931 *Ticket to Life* shows a commune of juvenile delinquents being converted to collective labor by playing with a model railway, emphasizing the model's role as a machine for remaking the Soviet subject. The 1932 film *Who Will I Be?*, produced by a star-studded crew of former constructivists—Aleksandr Rodchenko, Vitalii Zhemchuzhnyi, Osip Brik, composer Arsenii Avraamov—demonstrated the fluid interchange between playing with scale models and labor on a full-size apparatus, united in the socialist production of non-fetishized objects. In putting the handmade, miniaturized model to work for the entire Soviet state, these films defy any firm distinction between documentary and fiction, history and fantasy. They help Soviet cinema to live up to Bukharin's expectations, both in the establishment of a nationwide system of ideological communication and in the replacement of purely "humanitarian" discourse with "psychotechnics": Soviet cinema becomes a soul machine.

The ability of Soviet cinema to function as a soul machine is at issue in the 1934 film *One Stop to the Moon* (Na lunu s peresadkoi), shot by Nikolai Lebedev and based on a screenplay by Leonid Panteleev. Kolkhoz whiz kid Lenia Glebov begins by building a model spaceship named *The Earth-Moon Non-Stop Express* in an abandoned windmill. Together with classmates he manages to shoot the *Express* out of the windmill, but it crashes into a nearby field, where it is discovered by the head of the local political section, who identifies the culprit thanks to a note from Lenia addressed to "comrade Lunatics." Summoning Lenia to his office, the political boss instructs the boy to approach things more gradually: to begin with paper airplanes, with a view to learning eventually to construct a glider, before proceeding to real airplanes. The group reconvenes to build the glider, encouraged by Natasha, a woman pilot from Moscow and the sister of the head of the political section. After crashing, Lenia recovers from his injuries just in time to take the glider to a nationwide contest in Koktebel' at Natasha's invitation.

One Stop to the Moon establishes not only a conceptual dialectic between play and labor, toy and technology, but also a visual relay between the children and the posters and slogans that decorate the interiors. As they make their glider, the children look like Tatlin and his collaborators in their model workshop, surrounded by slogans based on Voroshilov's 1933 order in support of modeling: "From the model to the glider, from the glider to the airplane."[14] Thus, though the film counsels caution, and though as a silent film in 1934 it demonstrates the lag of Soviet technology behind its ambitions, the technologies of flight and of representation present themselves as dialectical steps towards global socialism. Fêted as a departing hero, when he leaves the kolkhoz for Koktebel' Lenia proclaims: "In one or two Five-Year Plans I will fly to the moon after all!"

Cosmic Voyage (Kosmicheskii reis), dir. V. Zhuravlev, 1935.

4. The Cine-Model

The role of Soviet cinema was not only to broadcast model-thinking and model-making to far-flung populations; it also participated directly in modeling the new world that it was called to propagandize, most directly in miniaturized

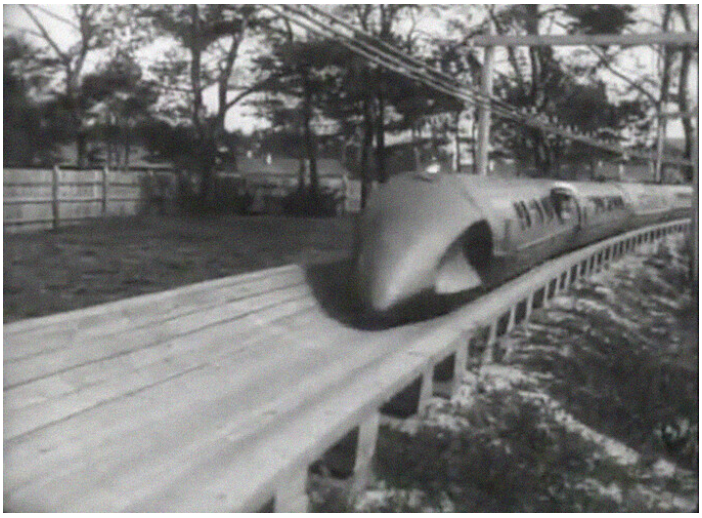
sets that allow for special effects. Special effects based on scale models make possible moving photographic documentation of worlds that have never and could never have existed.

In 1934, theorist Kornelii Zelinskii—a former constructivist—drew a direct analogy between models of experimental technologies and the functioning of the cinema under socialism. Naming three prominent examples from his time, Zelinskii asks, "How will our transport look, if Iarmol'chuk's idea of a spherical train and spheremobile [*sharopoezd, sharomobil'*] wins out? Or Val'dner's [idea of] the high-speed train?" Zelinskii then describes the task of socialist realist cinema as one of providing a "cine-model of our immediate future," an attempt to "bring closer the look of communism to our eyes with the telescope of art."[15]

The film that responded most emphatically to Kornelii Zelinskii's call for a "cine-model of our immediate future" was *The Cosmic Voyage* (Kosmicheskii reis, 1935). Set in the "immediate future" of 1946, *The Cosmic Voyage* narrates the first manned mission to the moon by a venerable academic with similarities to rocket scientist and cosmist theorist Konstantin Tsiolkovsky, who in fact consulted on the film's design and who approved its screenplay before his death in the year of the film's release. Though *The Cosmic Voyage* was billed as a sound film, the soundtrack is wholly musical, and the actors follow conventions of silent cinema. And yet, despite its stylistic archaism, the film exhibits several features that make it into a powerful model not only for the "immediate future," but also for a future cinema.

Most notably, the film's spaceships bear distinct similarity to the experimental technologies that Zelinskii cites as analogies for his "cine-models": Nikolai Iarmol'chuk's spherical train or spheremobile, and Sevast'ian Val'dner's high-speed train. As featured in the newsreel *Science and Technology* (Nauka i tekhnika), Iarmol'chuk developed a series of projects for a train on convex wheels running along a concave channel. In this newsreel, Iarmol'chuk displays a one-fifth scale model of his train, glistening in the sun. Around the same time, Val'dner projected a monorail aerotrain, driven by propellers, a one-tenth scale model of which was exhibited at Gorky Park from 1933 to 1936.[16] Like these real experimental vehicles, the spaceships of *The Cosmic Voyage* are represented only in clearly miniaturized form, attended to by tiny figures, as much toys as the "interplanetary giants" they are described as in the film's intertitles. Like Val'dner's and Iarmol'chuk's inventions, and like Tsiolkovsky's rockets, the spaceships of *The Cosmic Voyage* are model objects, materialist hypotheses about an imagined, but imminent, future.

Evidently, *The Cosmic Voyage* was drawing not only on the same construction and design principles as these experimental technologies, but also on their logic of



Nikolai Iarmol'chuk's miniature spheremobile, with full-size passengers, from the newsreel Science and Technology (Nauka i tekhnika), 1934.

modeling. Featured in the same newsreel as Iarmol'chuk's train was Vladimir and Ivan Nikitchenko's pathbreaking method using scale models for the creation of special effects on screen, which was deployed in *The Cosmic Voyage*. The action of *The Cosmic Voyage* unfolds amidst a scale model of a futuristic Moscow landscape dominated by the unbuilt Palace of the Soviets. The Nikitchenko method of perspectival foreshortening is used to plot full-size human actors within this model landscape.

The most innovative feature of *The Cosmic Voyage* is its fluid, long-take cinematography, quite distinct from the Nikitchenko method, that naturalizes the model spacecraft. The spacecraft in *The Cosmic Voyage* are first presented in a remarkable long take of approximately one hundred seconds, where the camera tracks along and around the models. As it tracks, the camera catches other vehicles and even human figures in motion, making them part of a dynamic, polycentric world. The viewer is unlikely to mistake the model people and objects for the full-size, real world. *The Cosmic Voyage* simulates less a verisimiltudinous world than a verisimiltudinous gaze upon a world that is, for now, fantastic. That is to say, it operates not by animating the model itself, but by animating a subjectivity capable of viewing the reality it models. *The Cosmic Voyage* produces three-dimensional models not only of the things of the new world, but also of its subjects.

5. Model Art

I was reminded of the image from Andrei Platonov with which I began when I watched *The Communist Revolution Was Caused by the Sun* (2015), the second film in Anton Vidokle's cosmist trilogy. Superficially, the film appears to continue the legacy of Soviet cybernetics, which drew on cosmist sources to produce a new theory

of modeling, no longer as a material practice, but as virtual reality intended to replace the material world. However, Vidokle's film also features airborne machinery that not only represents cosmic revolution, but which also is intended to produce it materially, following some vague logic and displaying quite dubious results. Vidokle's model is deeply rooted in the history of such installations, from Tatlin to Francisco Infante-Arana's *Model of Space-Movement-Infinity* from 1963 and beyond. Ilya Kabakov carefully follows the logic of the model in the visitor's movement through the three sections of his *Palace of Projects* (2000): from improving the world and the self to the task of stimulating new projects. Here, cosmism remains primarily an operation of scale.

Olafur Eliasson has commented on the way in which we seem to be returning to the model as a way of working through our intractable current predicaments:

> Previously models were conceived as rationalized stations on the way to a perfect object … Thus the model was merely an image, a representation of reality without being real itself. What we are witnessing is a shift in the traditional relationship between reality and representations. We no longer progress from model to reality, but from model to model while acknowledging that both models are, in fact, real … Models have become co-producers of reality.[17]

In light of the foregoing, this sounds as if socialist realism has conquered contemporary art. Could this be a good thing?

One thing that distinguishes our contemporary model-making from that of socialist realism is its irony. Kabakov in particular foregrounds the model's history of failure at keeping communism aloft. Project 52 in the *Palace of Projects*, by V. Stozharov, a retiree from Leningrad, proposes the digging of canals across the entire country, which directly recalls the Soviet abuse of convict labor on canal projects.[18] These projects all represent impossible, self-destructive desires, and Kabakov lampoons any world in which they are held seriously—primarily, of course, the world of Russian and Soviet cosmist Marxism—and he ridicules the frankly silly idea that such impossible desires can be achieved by being modeled as miniaturized material objects.

However, when Kabakov provides a material installation of these desires—a model of their fulfillment and their failure—and when Vidokle documents the puzzlement of the residents of Karaganda, Kazakhstan over his experimental technology, the animating desire is allowed to persist despite its patent impossibility. By installing these models and documenting their tentative operation, Vidokle has provided us with a mode, if not of realizing them as reality, then at least of inhabiting them briefly, experiencing materially the space of the impossible. That is, I want to say, these experiments in revolutionary irony might not model a viable formation of the Anthropocene, but they might help to model us as subjects of what will succeed it. In their wistful embrace of models, these ironic cosmists breathe soul back into the contemporary art machine.

X

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Kornelii Zelinskii, "My vybiraem budushchee," *Sovetskoe kino* 1–2 (1934), 88.

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