

# **Three Russian Cosmists: Fedorov, Tsiolkovsky, Chizhevsky**

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### **Abstract**

The Russian Cosmists were a loosely connected group of 19th and 20th century Russian thinkers, three of whom developed radical - and perhaps eccentric - ideas about the role human beings should play in the evolution of the cosmos, and the role the cosmos has played in the evolution of humanity. Nikolai Fedorov (1829-1903), the illegitimate son of a Gagarin prince, and the inspiration for subsequent Russian Cosmism, urged his countrymen to undertake space travel and colonization as part of a grandiose project for the resurrection of the dead. His protégé, the grandfather of Russian rocket science, Konstantin Tsiolkovsky, (1857-1935), believed that life exists in some form throughout the cosmos. And Tsiolkovsky's protégé Alexander Chizhevsky (1897-1964), found significant correlation between solar eruptions and major events in human history. This paper will discuss these three thinkers and their ideas in relation to the western esoteric tradition.

In the late nineteenth and early twentieth century, a tendency emerged in Russian thought that went beyond considerations of socio-economic, political or geographic man, to examine our cosmic dimensions, to suggest that our field of awareness, activity, and influence extends beyond city, state, continental, and even planetary boundaries to include the entire universe.

The Russian Cosmists<sup>1</sup>, as these thinkers are known today, did not consider themselves part of a coherent school, and only in retrospect can be seen to have shared a common core of themes and convictions. Some, like Vladimir Solovyov, Nikolai Berdyaev, Sergei Bulgakov, and Pavel Florensky, were primarily religious thinkers. Others, like Vladimir Vernadsky, Konstantin Tsiolkovsky, and Alexander Chizhevsky were scientists. What they shared was a conviction that we are very much more than earthly beings, that we are active agents of our own evolution, and that we should direct all spiritual, scientific, and even esoteric knowledge and effort to realize the long and widely held dream of universal human immortality. We are, as one of the thinkers put it, not earthlings, but “heaven dwellers.”<sup>2</sup>

Of the ten or so major Cosmist thinkers I would like to focus here on three: Nikolai Fedorov (1829-1903), the eccentric librarian and futuristic religious thinker from whom -- or sometimes against whom-- all the later Cosmists develop their positions; Konstantin Tsiolkovsky, (1857-1935) who as a teenager considered Fedorov his “university” and went on to become the grandfather of the Russian space program; and Alexander Chizhevsky, (1897-1964) who as a young man was mentored by Tsiolkovsky, and investigated among other things periodicity in nature and the influence of cosmic energy on cycles of human behavior.

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1 For further information on the Cosmists, see George M. Young, *The Russian Cosmists: the Esoteric Futurism of Nikolai Fedorov and his Followers*. ( New York. Oxford University Press. 2012)

2 Nikolai F. Fedorov, *Filosofia obshchago dela: stat'i, mysli, i pis'ma Nikolaia Fedorovicha Fedorova* [FOD] Edited by V.A. Kozhevnikov and N.P. Peterson, 2 vols (Farnborough, U.K., Gregg, 1970), first printed Moscow. 1906, Vernyi. 1913, Volume I, p. 283.

Fedorov<sup>3</sup>, (pronounced and sometimes transliterated Fyodorov) , the founder of the Cosmist tendency, was born in the south of Russia, an illegitimate son of Prince Pavel Gagarin, who was a black sheep of one of Russia's oldest and most distinguished families. The roots of the Gagarins extend back to Riurik, the legendary founder of Russia, and extend forward to include Yuri Gagarin, the first man in space. Almost nothing is known about Fedorov's mother, and the surname and patronymic came from the godfather at the christening. Fedorov grew up as both a Gagarin and not a Gagarin, and in his mature writings always takes the point of view of the outsider looking in, a voice from the uneducated masses speaking to a learned elite. A major theme in all his writings is the need to overcome divisions: between classes, generations, academic disciplines, theory and practice, temporality and eternity, ideal and reality. All now divided must be brought back together, especially sons and fathers, the living and the dead. Fedorov's own father, Prince Pavel, left the Gagarin estates to lead a bohemian life as impresario of a theater and burlesque house in Odessa. Duty and responsibility would become cardinal virtues in Fedorov, absent in the world as it is, dominant in the world as it ought to be.

In his lifetime he was best known for his twenty five years of service in the great Rumiantsev Museum, which now forms a wing of the enormous Russian National Library. Occupying a minor position and refusing all offers of promotion, he became a legend of erudition, said to know not only the title but a summary of the contents of every item in the vast library, and when a reader ordered materials for research, he would often receive extra items he had not even heard of, items that turned out to be relevant, even essential, to his research. A lifelong ascetic bachelor, Fedorov lived alone, changing residences every year or so, usually a single closet-sized rented room or corner of someone's apartment. He slept on a humpback trunk, sometimes bare, sometimes covered with newspapers, placing under his head not a pillow but some hard object, usually a book. The only coat he wore every day, summer or winter, was more rag than coat, and strangers easily mistook him for a beggar on the streets. He had no furniture, and each time he moved to new quarters he gave away whatever objects the room had accumulated. He spent nothing on entertainment, diversion, or any conveniences, and he refused to take cabs even in the coldest winter months. He drank only tea, ate hard rolls, sometimes accompanied by a piece of old cheese or salt fish, and lived for months without a hot meal. He considered wealth poisonous and vile, rejected all offers of raises, gave away most of his very meager salary, and cursed himself if he came home at night with a few kopecks left in his pocket that he had not managed to give away.

Every researcher at the library knew him as an ideal, if eccentric librarian. But only a very few knew that Fedorov was also a thinker<sup>4</sup> -- in Berdyaev's opinion the most original and "most Russian" in Russian history. Leo Tolstoy, who looked down on Tsars, Generals, Popes, and French Emperors, considered himself fortunate to have lived in the same century as Fedorov. Solovyov, usually considered Russia's greatest philosopher, considered Fedorov his master and spiritual father and Fedorov's idea the first forward movement of the human spirit since the time of Christ. So what was so important about Fedorov?

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3 Young, 2012, pp. 46-91. For an earlier, fuller monograph, see George M. Young, *Nikolai F. Fedorov: An Introduction*. (Belmont, MA. Nordland. 1979)

4 For Fedorov's relationship to contemporary and subsequent Russian thinkers, see: Young, 2012, pp. 63-68

In Isaiah Berlin's famous dichotomy between foxes who know many things and hedgehogs who know one big thing<sup>5</sup>, Fëdorov would qualify as a supreme hedgehog, a thinker with one huge idea. And though it is a very complex idea with any number of parts, in its simplest statement his idea is that we all should stop everything that we are now diversely doing and devote all our time, energy, effort, and knowledge to what he called "the common task" of resurrecting all the dead. And he meant this literally. In his view everything in the physical, social, moral universe is now disintegrating and pointed toward death, and it is humanity's task to overcome death and redirect everything toward eternal life. Nature is the force of disintegration, and God gave us human reason to regulate nature. We should be mindless nature's mind, blind nature's eyes. For Fedorov, an Orthodox believer, true Christianity can only be the practice of actively resurrecting the dead. All science must become the science of resurrection. As early as the 1860s Fedorov was proposing things like what we now call cloning, genetic engineering, artificial organs, space travel and colonization. For Fedorov, all matter contains particles of our disintegrated ancestors. Advanced science must find a way to restore whole persons from individual particles, and since some of those particles have dispersed beyond earth, we must go into space to gather in the dispersed particles of our ancestors. Combining knowledge and action, science, religion and art, everyone will join the project. Everyone living will become a resurrector, Christian in practice, regardless of belief or unbelief. Sons and daughters will resurrect their parents, who in turn will resurrect their parents, and so all the way back to Adam and Eve. To those who worried about overpopulation and wondered where on Earth we would put all those resurrected, Fedorov answered: that's why we must colonize space. The resurrected ancestors would have new bodies engineered to live in places throughout the universe currently unable to support life. Going even further, Fedorov proposed that as part of regulating nature we learn to overcome gravity and time, and eventually we should be able to guide our planet out of its natural orbit and sail it like a boat toward directions of our own rational choice. A hundred years before Buckminster Fuller, Fedorov proposed that we become "captain and crew of spaceship earth." In today's terminology, Fedorov wanted to turn the exploding cosmos into an eternal steady state, shaped not in imaginary constellations drawn from pagan Greek myths, but as a human regulated sidereal icon of the Holy Trinity.

The few contemporaries who learned of Fedorov's idea and incorporated at least parts of it -- the moral and religious, not scientific or technological parts -- into their own works included three literary and intellectual giants: Tolstoy, Dostoevsky, and Solovyov. Another younger contemporary who did incorporate Fedorov's scientific ideas into his own was Konstantin Edouardovich Tsiolkovsky<sup>6</sup>, a nearly deaf raw youth who came to Moscow penniless but in hopes of somehow obtaining in the great library an education beyond his minimal schooling back home in Kaluga. Fedorov immediately recognized the young man's potential, took him under his wing, brought him stacks of guided readings, set problems for him, discussed all the subjects with him, taught him to take notes and use a conspectus, provided money for necessities

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5 Isaiah Berlin, *The Hedgehog and the Fox: An Essay on Tolstoy's View of History*, (London. Weidenfeld and Nicolson, 1953)

6 For more on Tsiolkovsky, see: Young, 2012, 145-154. K.E. Tsiolkovsky, *Selected Works*, (Moscow. Mir. 1968). Asif Siddiqi, *The Red Rockets' Glare: Spaceflight and the Soviet Imagination, 1857-1957*. (New York. Cambridge University Press. 2010. Michael Hagemester, "Konstantin Tsiolkovskii and the Occult Roots of Soviet Space Travel," in Birgit Menzel, Michael Hagemester, and Bernice Glatzer Rosenthal, *The New Age of Russia: Occult and Esoteric Dimensions*, (Munich-Berlin. Sagner. 2012), pp.135-150.

whenever possible, and as Tsiolkovsky later gratefully wrote, took the place of the university professors he was unable to study under.

After a few years in Moscow, Tsiolkovsky returned to his village near Kaluga to become an elementary science teacher while dreaming of interplanetary travel. He began to make notebook sketches for rocket boats, rocket wagons, and rocket powered space ships and to write fictional accounts of space voyages. What distinguished Tsiolkovsky's imagination from that of any of his contemporaries, is that after writing fantasy narratives and drawing rough pencil sketches, he developed the mathematical formulas that would make the realization of some of his fantasies possible. Over the years, while still teaching school and working after hours in a homemade attic laboratory, he built a series of large wooden model rockets, dirigibles, aerostats, wind tunnels, centrifuges, and primitive space vehicles, and wrote the papers that would eventually lay the foundation for the 1957 launching of Sputnik I, the world's first artificial satellite. Soviet historians of science have noted that Tsiolkovsky's works contain in embryo nearly all the scientific-technical attainments of the Soviet Union in the exploration of space.

His great accomplishment as a scientist was not only to quantify the dream of space travel through mathematical equations, but to actively promote and popularize the idea of flight beyond earth, to inspire an enthusiasm for rocket science among young people and even school children throughout the Soviet Union. He provided a kindly, grandfatherly, down-to-earth image for an otherwise daunting field of study.

Among the young readers who grew up to be outstanding scientists were the cosmonaut and first man in space Yuri Gagarin, and the Cosmist heliobiologist Alexander Chezhevsky, whose ideas we shall discuss below.

But it is not only rocket scientists who are interested in Tsiolkovsky. From early in his career through late in life, he speculated profusely about man's relationship to the cosmos. Some of these speculations found their way into his science fiction narratives, others were published in tiny editions as discursive pamphlets or tracts, but most remained unpublished during his lifetime, and have only begun to emerge since the collapse of the Soviet Union.<sup>7</sup> As a result of these speculations, many of them Gnostic or theosophical in orientation, Tsiolkovsky has become something of a New Age cult figure in Russia, and his home and museum in Kaluga have become a destination for esoteric as well as scientific pilgrims.

One of his central ideas has to do with the presence of life and spirit in all matter. He writes that he is not only a materialist, but also a panpsychist, recognizing the sensitivity of the entire Universe. He considers sensitivity, feeling, to be inseparable from matter. Everything, he tells us, is alive, but with the provision that we consider living only that which possesses a sufficiently strong sense of feeling. Moreover, since everything that is matter can, under favorable circumstances, convert to an organic state, then we can conditionally say that inorganic matter is in embryo, potentially, living.

An idea at the heart of most of his non-technical writings is that of the "atom-spirit" (*atom-dukh*) inherent in every particle of matter in the cosmos, recalling Fedorov's idea of all matter as the dust of ancestors. But where Fedorov believed that we must redirect and reshape the cosmos, Tsiolkovsky's view of the cosmos is that it is already teleological, rationally organized, and hierarchical. Lower life forms, consisting mainly of matter in which spirit is

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<sup>7</sup> See especially two earlier articles by Tsiolkovsky, "Monism vselenoi," and "Kosmicheskaiia filosofiia," published in S.G. Semenova and A.G. Gacheva, *Russkii Kosmizm: Antologiiia Filosofskoi Mysli*, (Moscow. Pedagogika-Press, 1993), pp. 264-277, 278-282.

dormant, naturally evolve into higher ones, in which the spirit is awakened and more dominant, and eventually as we approach perfection we will outgrow our material envelopes and join the rays of cosmic energy that constitute something like the pleroma of the Gnostics. The dark side of Tsiolkovsky's ideal of self-perfecting humanity is that it requires the elimination, the "weeding out," of those of us who are in some way defective. Unlike Fedorov, whose future resurrection society must include absolutely everyone, Tsiolkovsky's future perfect society is highly selective – losers of any kind will not make the cut. In articles titled "Grief and Genius," (*Gore i genii*,) and "The Genius Among the People," (*Genii sredi liudei*)<sup>8</sup>, Tsiolkovsky offers his variation on Plato's idea of the philosopher-king, suggesting that scientific geniuses and inventors should occupy the key positions in future government, and that the many nations of the world should become a single cosmic political system governed by the most advanced and therefore most nearly perfect specimens of humanity. In Tsiolkovsky's view, our earth probably represents an early, primitive stage of planetary evolution, and elsewhere in the cosmos life forms have advanced much further. These advanced "atom-spirits" are already in communication with us, but only geniuses -- artists, scientists, mahatmas and the like-- are attuned to their messages.

As in the 1870s Fedorov was mentor to the sixteen year old Tsiolkovsky, in 1914 Tsiolkovsky became mentor to seventeen year old Alexander Chizhevsky<sup>9</sup>, a sensitive but fragile *wunderkind* from a privileged background, who began his intellectual life as a poet and painter, talents which he continued to exercise through life. As a child, Chizhevsky was taken to Italy every winter where, as he writes in his autobiography, he began his lifelong fascination with, even worship of, the sun. When his father was appointed commander of the regiment in Kaluga, the family moved there and the boy genius Chizhevsky soon came under the wing of the eccentric rocket genius Tsiolkovsky. Though they worked in different fields, their close association continued for the rest of Tsiolkovsky's life, and today in Kaluga the Tsiolkovsky Museum of Cosmonautics houses a Chizhevsky Museum as a wing. It was under Tsiolkovsky's influence that Chizhevsky's intellectual interests, always broad, ranging from ancient languages to post-impressionist painting, gradually began to expand further to include the sciences.

The works that would earn him an international reputation as a "Da Vinci of the twentieth century," and a nomination (though unsuccessful) for a Nobel Prize, were his discoveries in aero-ionization, which included the invention of an air purification device called "Chizhevsky Chandelier," and studies in hemodynamics, which shed new light on the cycling of blood through living bodies. These studies, some first published in French, others in Russian, fell within the limits of acceptable Soviet science and brought Chizhevsky high national and international honors.

But his most important work, in heliobiology, demonstrating the effects of solar pulsations on human life, provoked accusations of mysticism, occultism, irrationality. Eventually, during the Stalinist terror, these accusations led to his arrest as an "Enemy Under the Mask of a Scientist," resulting in sixteen years in prison camps and exile, from 1942 until his rehabilitation in 1958. During this period of imprisonment and exile, despite special punishment for refusing to wear a large prison number on his back and for objecting to being addressed in the familiar second person singular, he still painted, wrote poetry, and with whatever means he could

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8 L. V. Golovanov and E. A. Timoshenkova, eds., *K. E. Tsiolkovskii: Genii sredi liudi* (Moscow, 2002)

9 For more on Chizhevsky, see: Young, 2012, 163-171. A.L. Chizhevskii, "Kolybel Zhizni i Pul'sy Vselennoi," in Semenova and Gacheva, *Russkii Kosmizm*, 163-171.

find, continued to conduct scientific research. At one point, realizing that they had an internationally famous biologist in their hands, prison authorities dragged Chizhevsky barely alive from a punishment cell to see if he could help stop a cholera epidemic that was sweeping the camp – which, with bleaching powder and other crude remedies at hand, he managed to do. As a reward, he was allowed to set up a minimal laboratory in the prison clinic, in which, using only a borrowed microscope and glass capillaries, he conducted groundbreaking investigations into the movement of blood. that would later, after his rehabilitation, be publicly endorsed by the President of the Academy of Sciences of the USSR.

In one of his most controversial works, published in 1922<sup>10</sup>, he provides a number of charts in which he correlates the fluctuations of sunspots with the up and down periods of violence in human history. In these charts, the correlation is almost too perfect, with periods of what he calls maximum universal excitability coinciding with maximum solar activity, and stretches of relative international calm coinciding with minimal solar activity. He calls this new science “historiometria,” and though Chizhevsky’s charts and graphs suggest that some rough relationship may well exist between cosmic energies and mass human actions, it seems clear that historiometria, at least in this charted and graphed form, is not yet ready to join the academic mainstream as an accredited scientific discipline.

During his career, Chizhevsky, like the other Cosmists, was frequently accused of trying to take science back to a pre-scientific state, for attempting to replace chemistry with alchemy, astronomy with astrology. Chizhevsky, like the other Cosmists, strongly denied these allegations, but added that he did respect and did wish to restore to modern science not the actual practices of alchemy and astrology, but the intuition underlying those pre-scientific efforts, that in some very profound and mysterious but eventually definable way we and all matter in the cosmos are one, and that through exchanges of energies and matter, via particles and rays, transformations between elements, cosmic and local, physical and psychological, can result.

The significance of the scientific branch of Russian Cosmism may not lie so much in the specific discoveries that emerged, as in the Cosmists’ willingness to seek new scientific truths in bodies of knowledge and manners of investigation long discredited as esoteric, occult, pseudo-scientific. As one of them noted, Marx’s injunction to “challenge everything” should also be applied to the axiom that true knowledge began with the scientific revolution. In Russian Cosmism, the scientific imagination is extended to treat such ancient instances of outdated credulity as the resurrection of the dead, the vitality of all matter, and the influence of cosmic forces on human behavior as legitimate topics for scientific investigation, tasks for practical application. The Russian Cosmists pioneered the once surprising but now frequently observed similarity between models of the cosmos presented in theosophical and other esoteric literature and models of the cosmos emerging from advanced particle physics, chemistry, biology, and astronomy. The legacy of Russian Cosmism might in the end be characterized as the emergence of a more scientific esotericism and a more esoteric science.

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10 Available in English as: A.L. Tchijevsky, “Physical Factors of the Historical Process,” *Cycles*, January, 1970. Online at: <http://cyclesresearchinstitute.org/cycles-history/chizhevsky1.pdf>

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