

# KONSTANTIN TSIOLKOVSKII AND THE OCCULT ROOTS OF SOVIET SPACE TRAVEL

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The word “occult” has two meanings: firstly, it means “hidden” or “concealed”, but it can also mean “esoteric” and “supernatural”, relating to the transcendental, magic preternatural world. Both meanings apply to “the occult roots of Soviet space travel”: the previously hidden, repressed, and therefore unconscious roots of the Soviet space program and its connection with the world of the supernatural.

Konstantin Eduardovich Tsiolkovskii (1857–1935), a nearly deaf school-teacher of physics and mathematics in the then obscure provincial town of Kaluga, is considered to be the “father” or even “grandfather” of Soviet space travel. His patriarchal status rests on a series of path-breaking ideas—all being developed and published before the Bolshevik revolution—such as the expansion into outer space by means of liquid-propellant rockets, plans for manned space stations as well as the description of survival conditions in spacecraft.<sup>1</sup>

Already during his lifetime, the shy “eccentric from Kaluga” (*kaluzhskii chudak*), as he was called, was made into a hero by Soviet propaganda. In November 1921, while the luminaries of “bourgeois science” were starving or driven out of the country, the Council of People’s Commissars granted the provincial autodidact (*samouchka*) a lifelong honorary pension. In reality though, as Asif Siddiqi has pointed out,<sup>2</sup> the material and institutional support

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1 See James T. Andrews, *Red Cosmos: K. E. Tsiolkovskii, Grandfather of Soviet Rocketry* (College Station: Texas A&M University Press, 2009). This is the only monograph on Tsiolkovskii’s life and work written by a non-Russian author. Unfortunately the description remains rather superficial and conventional, awkward and disputed themes are neglected. Russian biographies, intended for a broad audience, always create a highly idealized picture; see most recently Valerii Demin, *Tsiolkovskii* (Moscow: Molodaia gvardiia, 2005), published in the popular series “Zhizn’ zamechatel’nykh liudei”. The author (1942–2006) was a “cosmist philosopher” who wrote science fiction stories and supported the pseudoscientific “Hyperborean” or “Aryan” idea. Any attempt at a critical study on Tsiolkovskii hits a wall of resistance in his home country; this applies especially to the books by Gelii Salakhutdinov, *Blesk i nishcheta Tsiolkovskogo* (Moscow: AMI, 2000) and *Mify o tvorchestve K. Ė. Tsiolkovskogo* (Moscow: AMI, 2003).

2 See Asif A. Siddiqi, *The Red Rockets’ Glare: Spaceflight and the Soviet Imagination, 1857–1957* (Cambridge: Cambridge University Press, 2010), 51–55. Siddiqi’s monograph, based on extensive archival research, contains the only critical portrayal of Tsiolkovskii in the context of

from the state was insignificant. During the 1920s and early 30s Tsiolkovskii still lived in poverty and obscurity. As an amateur he was ignored by the academic scientific community and denied access to research facilities and to current literature. He financed his research and publications out of his own pocket and aimed to publicize them with his broad self-created network of space enthusiasts and science writers. It was only in his last years that he received the official recognition for which he yearned. On his 75<sup>th</sup> birthday he was awarded the distinction of the Order of the Red Banner of Labour. He was deeply moved and wrote to Stalin just before his death, bequeathing all his “work on aviation, rocket travel, and interplanetary communications” to the party of Bolsheviks and to the Soviet authorities.<sup>3</sup> But it was the era of space travel that truly made this self-taught theorist and visionary a cult figure. Tsiolkovskii was feted as “one of the greatest Russian scientists”, “a brilliant son of the people” and “a prophet of a new era”. A huge monument was built in Moscow in front of the Hotel *Kosmos* in his honour; his modest wooden house in Kaluga was turned into a museum; his portrait appeared on stamps, medals and postcards; streets and schools and a large crater on the far side of the moon were named after him; and the story of his life became the basis for a film, with the poet Evgenii Evtushenko playing the lead role.<sup>4</sup>

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Although Tsiolkovskii’s technical and scientific texts and his literary works were widely distributed and are well-known, at least among the specialists, it is less well known that the “father of Soviet space travel” had developed a unique “cosmic philosophy” (*kosmicheskaiia filosofiia*), and that the cosmonautical calculations and sketches that made him famous emanated from this philosophy.<sup>5</sup>

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Russian-Soviet culture in any western language. See also idem, “Imagining the Cosmos: Utopians, Mystics, and the Popular Culture of Spaceflight in Revolutionary Russia,” In: Michael D. Gordin, et al., eds., *Intelligentsia Science: The Russian Century, 1860–1960* (Chicago, Ill.: University of Chicago Press, 2008), 260–288.

- 3 Siddiqi, *Red Rockets’ Glare*, 69–70. For more details idem, “Nauka za stenami akademii: K. È. Tsiolkovskii i ego al’ternativnaia set’ neformal’noi nauchnoi kommunikatsii,” *Voprosy istorii estestvoznaniia i tekhniki*, 2005, no. 4, 137–154. Tsiolkovskii’s much quoted letter to Stalin probably came about without his involvement. He only added his signature to it.
- 4 On the canonization of Tsiolkovskii and the resurrection of his legacy, see Andrews, *Red Cosmos*.
- 5 In Andrews’ recent monograph (Andrews, *Red Cosmos*) Tsiolkovskii’s cosmic philosophy is not even mentioned.

Tsiolkovskii's philosophical writings, according to Siddiqi, "form a corpus of work that easily exceeds in size his combined works on aeronautics, rocketry, and space travel".<sup>6</sup> Between 1914 and 1931, Tsiolkovskii himself published some of these writings in Kaluga in the form of small booklets. Having only small print-runs, they soon became bibliographic rarities, although they were never forbidden. Only upon the emergence of the so-called "Russian cosmism" (*russkii kosmizm*) in the 1970s, did Tsiolkovskii's "cosmic philosophy" attract greater attention. The most important forum for their presentations and discussions were the Tsiolkovskii Lectures (*Tsiolkovskie Chteniia*), which took place annually in Kaluga from 1966 on. In addition to providing a setting for hero-worship they also served as a meeting point and platform for non-conforming thinkers and mystics.<sup>7</sup> One of the first who pointed to Tsiolkovskii's 'cosmic philosophy' in a broad public way was the always trend-conscious Evgenii Evtushenko in his novel *Wild Berries* (*Iagodnye mesta*, 1981). Since the mid-1980s Tsiolkovskii's philosophical and social-utopian writings have been published together with previously unknown works from the archive.<sup>8</sup> Only recently collections of Tsiolkovskii's 'theological' writings have been released, including the extensive comments on the four Gospels from the positions of his "scientific faith" (*nauchnaia vera*) and a demythologizing description of the life of Jesus.<sup>9</sup> A real breakthrough occurred in 2008 when the Russian Academy of Sciences made Tsiolkovskii's entire personal archive available online.<sup>10</sup>

Tsiolkovskii regarded his philosophy as the work of a genius and redeemer and did not shy away from comparisons with Jesus Christ (or as he always

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6 Siddiqi, *Red Rockets' Glare*, 81.

7 One of the sections of the Lectures was dedicated to „philosophical problems of the conquest of space“; in this section alone hitherto more than 500 papers have been presented. Large parts have been published in collected volumes. However, these had such an extremely small amount of copies that only very few made their way into Western libraries.

8 The most important editions are: Konstantin Tsiolkovskii, *Kosmicheskaia filosofia*, eds., Tatiana Zhelnina, Valentina Mapel'man (Moscow: Èditorial URSS, 2001); idem, *Genii sredi liudei*, eds., Leonid Golovanov, Elena Timoshenkova (Moscow: Mysl', 2002). A selection of his philosophical writings appeared in German translation in Boris Groys, Michael Hagemeister, eds., *Die Neue Menschheit. Biopolitische Utopien in Russland zu Beginn des 20. Jahrhunderts* (Frankfurt a. M.: Suhrkamp, 2005), 236–390.

9 Konstantin Tsiolkovskii, *Evangelië ot Kupaly* (Moscow: Samoobrazovanie, 2003); idem, "Shchit nauchnoi very". *Sbornik statei* (Moscow: Samoobrazovanie, 2007). Tsiolkovskii's demythologizing of the New Testament message is far from being inventive as it draws heavily from David Friedrich Strauss and Ernest Renan.

10 <http://www.ras.ru/ktsiolkovskyarchive/about.aspx>.

collegially called him the “Teacher from Galilee”). Just like Thomas Carlyle, Friedrich Nietzsche or Edouard Schuré, Tsiolkovskii was enthralled by the great charismatic leaders of mankind—Buddha, Plato, Jesus, Newton—and obviously he had no doubt about himself being one of these intellectual giants, who had shown mankind paths towards a radiant future. It is clear that space exploration for Tsiolkovskii was ultimately only a *means*—a technical instrument for the self-perfection of humanity and to the achievement of “eternal bliss” (*vechnoe blazhenstvo*).<sup>11</sup>

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Initially, for Tsiolkovskii the emancipation from the Earth and expansion into outer space was a matter of securing the continued existence of humanity. Since in his view, life on Earth was endangered by overpopulation and by geological and cosmic catastrophes (explosion of the inner core of the Earth, impact of an asteroid, extinction of the sun), humans must leave Earth and emigrate to outer space in order to save their species. The “reactive vehicle” will ensure the “salvation of the human species”.<sup>12</sup> By conquering the interplanetary and intergalactic spheres, man could, according to Tsiolkovskii, overcome damaging cosmic conditions, discover new habitats and sources of energy and become indestructible. However, emancipation from the Earth was intended not merely to expand human powers and ensure the survival of the human

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11 For a competent and critical view of Tsiolkovskii’s philosophy, Nikolai Gavriushin, “Kosmicheskii put’ k ‘vechnomu blazhenstvu’ (K. È. Tsiolkovskii i mifologiiia tekhnokratii),” *Voprosy filosofii*, 1992, no. 6, 125–131 (also in English Nikolai Gavriushin, “The Cosmic Route to ‘Eternal Bliss’ K. E. Tsiolkovskii and the Mythology of Technocracy,” *Russian Studies in Philosophy*, 1995, no. 34, 36–47); idem, “Prozreniia i illiuzii russkogo kosmizma,” In: *Filosofia russkogo kosmizma*, eds., Aleksandr Ogurtsov, Liudmila Fesenkova (Moscow: Fond “Novoe tysiacheletie”, 1996), 96–107; Salakhutdinov, *Blesk i nishcheta*, 193–205; a thorough overview, albeit apologetic, Vladimir Kaziutinskii, “Kosmicheskaiia filosofiiia K. È. Tsiolkovskogo,” In: *Filosofiiia russkogo kosmizma*, 108–132; Demin, *Tsiolkovskii*, 166–282; Vera Alekseeva, “Religioznye sochineniia Tsiolkovskogo,” In: Tsiolkovskii, *Evangelie ot Kupaly*, 223–248; eadem, *K. È. Tsiolkovskii: filosofiiia kosmizma* (Moscow: Samoobrazovanie, 2007). See also Michael Hagemeister, “The Conquest of Space and the Bliss of the Atoms – Konstantin Tsiolkovskii,” In: Eva Maurer, Julia Richers, Monica Ruethers, Carmen Scheide, eds., *Soviet Space Culture – Cosmic Enthusiasm in Socialist Societies* (Houndmills, Basingstoke: Palgrave Macmillan, 2011), 27–41.

12 Konstantin Tsiolkovskii, *Issledovanie mirovykh prostranstv reaktivnymi priborami* (Moscow: Mashinostroenie, 1967), 98–100.

species but also to rebuild the human body in order to accommodate it to the conditions of life in the cosmos.

The controlled selection of the fittest,<sup>13</sup> their artificial reproduction, and the liquidation of all inferior beings would, in Tsiolkovskii's view, give rise to a species of super-humans, who were infinitely superior to today's humans in all respects: physically, morally, and aesthetically. Tsiolkovskii condemned sexual reproduction as "humiliating", as it is based on "low animal passions", which only lead to decay.<sup>14</sup> According to him, it should be replaced by artificial fertilization or parthenogenesis. The biblical "legend" of the birth of Jesus from the Virgin Mary he interpreted as an "ideal of the future woman, who will provide children, but will not be subject to animal passions".<sup>15</sup>

As the cosmic evolution developed, the perfected human race, which would inhabit the entire universe, would lose its corporeality and turn into a kind of energy or radiation (*luchistoe chelovechestvo*), and thus become "immortal in time and infinite in space".<sup>16</sup> As early as 1911, Tsiolkovskii wrote: "There is no end, neither for life nor for the intelligence and the refinement of man. It will eternally advance. And if that is the case, there also can be no doubt about its achieving immortality."<sup>17</sup>

However, Tsiolkovskii's belief in progress had terrible consequences: Since every atom carries in itself the quest for perfection and happiness, the "ethics of the cosmos" demands that there should not be one single trace of disease,

13 The procedure is described in detail in *Gore i genii* (Kaluga: izd. avtora, 1916); "Ideal'nyi stroi zhizni," [1917] *Samooobrazovanie*, 1998, no. 2, 4–22.

14 Konstantin Tsiolkovskii, *Prichina kosmosa. Konspekt. Avgust 1925 g.* (Kaluga: izd. avtora, 1925), 14–15; idem, *Monizm Vseennoi* (Kaluga: izd. avtora, 1931), 21.

15 Tsiolkovskii, *Evangelie ot Kupaly*, 23. Auguste Comte had already praised parthenogenetic reproduction and the "vierge-mère" as "female utopias".

16 Aleksandr Chizhevskii, "Teoriia kosmicheskikh èr", In: idem, *Aëriony i zhizn'. Besedy s Tsiolkovskim* (Moscow: Mysl', 1999), 659–678, here 667, 677 (first published with substantial differences in *Khimiia i zhizn'*, 1977, no. 1, 23–32). In September 1992 I took part in the 27<sup>th</sup> Tsiolkovskii Lectures, which took place in the large plenary hall of the provincial council in Kaluga. One discussed with striking passion the characteristics of the "radiant super-humanity" (*luchistoe sverkhchelovechestvo*) predicted by Tsiolkovskii. Nowadays such ideas are resurfacing in the post-humanist, neo-gnostic technoescatologies of the liberation of the 'pure' spirit from the natural and thus decrepit body and a perfect virtual and potentially immortal existence in cyberspace. See, e.g., Hans Moravec, *Mind Children. The Future of Robot and Human Intelligence* (Cambridge, Mass.: Harvard University Press, 1988); Frank J. Tipler, *The Physics of Immortality. Modern Cosmology, God, and the Resurrection of the Dead* (New York: Doubleday, 1994).

17 Tsiolkovskii, *Issledovanie mirovykh prostranstv*, 100.

suffering and irrationality “anywhere in the entire universe”.<sup>18</sup> Man as the “manifestation of the will of the universe” has been granted the task of eliminating all imperfect, useless and harmful forms of life—that is, all victims and sources of suffering—, among which Tsiolkovskii includes all animals (he was a vegetarian himself)<sup>19</sup> and most plants, as well as physically and morally defective humans, and populating the planets with his perfected race.<sup>20</sup> “It is”, he explains, “as if a gardener were to destroy all the useless weeds and only allow the best vegetables to grow!”<sup>21</sup>

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Tsiolkovskii’s world-redeeming “cosmic philosophy” is not based exclusively on the belief in unfettered progress with its monstrous consequences. It also is constructed from a bricolage of ideas drawn from very different philosophical, para-scientific and occult traditions.<sup>22</sup> Tsiolkovskii called himself a “biocosmist”<sup>23</sup> and “panpsychist” as he believed—apparently drawing on Ernst Haeckel (1834–1919) and Gustav Theodor Fechner (1801–1887)<sup>24</sup> and maybe

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18 Idem, *Nauchnaia ètika* (Kaluga: izd. avtora, 1930), 19, 44.

19 See Peter Brang, *Ein unbekanntes Russland. Kulturgeschichte vegetarischer Lebensweisen von den Anfängen bis zur Gegenwart* (Cologne: Böhlau, 2002), 293–295.

20 Konstantin Tsiolkovskii, *Liubov’ k samomu sebe, ili istinnoe sebiialubie* (Kaluga: izd. avtora, 1928), 36–37; idem, “Zhivaia Vselennaia” [probably 1918], *Voprosy filosofii*, 1992, no. 6, 135–158, here 151; idem, *Volia Vselennoi. Neizvestnye razumnye sily* (Kaluga: izd. avtora, 1928), 2–4.

21 Idem, *Nauchnaia ètika*, 45; cf. idem, *Volia Vselennoi*, 5. Here Tsiolkovskii is in the tradition of “rational egoism” (*razumnyi ègoizm*) of Dmitrii Pisarev and Nikolai Chernyshevskii, whereas his gardening metaphors quite overtly draw on the language of totalitarian utopias.

22 See also Michael Hagemeister on the following, “Russian Cosmism in the 1920s and Today,” In: Bernice G. Rosenthal, ed., *The Occult in Russian and Soviet Culture* (Ithaca, London: Cornell University Press, 1997), 185–202, here 196–198; idem, „Die Eroberung des Raums und die Beherrschung der Zeit: Utopische, apokalyptische und magisch-okkulte Elemente in den Zukunftsentwürfen der Sowjetzeit,” In: Jurij Murašov, Georg Witte, eds., *Die Musen der Macht. Medien in der sowjetischen Kultur der 20er und 30er Jahre* (Munich: Fink, 2003), 257–284, here 275–283.

23 Lev Kassil’, *Zvezdoplavatel’ i zemliaki*, In: K. È. Tsiolkovskii. *Sbornik Aëroflota* (Moscow: Aëroflot, 1939), 159–172, here 165.

24 On the esoteric character of Haeckel’s monism and Fechner’s panpsychism, see Robert Matthias Erdbeer, *Die Signatur des Kosmos: Epistemische Poetik und die Genealogie der Esoterischen Moderne* (Berlin: de Gruyter: 2010), esp. 507–580. Haeckel’s „unique and exciting mixture of science and philosophy“ had, according to Alexander Vucinich, “an inordinately wide circulation” in Russia. Alexander Vucinich, *Darwin in Russian Thought* (Berkeley, Los Ange-

also influenced by contemporary Russian secular panpsychism<sup>25</sup>—that all matter, organic as well as inorganic, is alive and animated and spoke of “lively and happy atoms-spirits” (*zhivye i shchastlivye atomy-dukhi*). In inorganic bonds the atom sleeps—dreamlessly and timelessly, as if in state of deep unconsciousness. If the atom enters a plant or animal, it takes on the ability to feel or sense (*chuvstvitel'nost'*). It lives the life of the organism and experiences happiness and sorrow. In the brain of a highly developed form of life, the atom becomes conscious,<sup>26</sup> and in the brain of the most highly developed being it ultimately turns into an “irreversible form of a special energy, which has a cosmic and telepathic conscience”.<sup>27</sup>

Man is nothing more than a temporary albeit complex “realm” (*gosudarstvo*) or “common home” (*obshchezhitie*) of indestructible—that is, immortal—“atoms-spirits”, which are scattered at death only to be reconfigured, according to the cosmic law of evolution and the quest for happiness, into more perfect, blissful “realms”.

Death is one of the illusions of the weak human mind. Death does not exist... [...] The universe is constructed in such a way that not only itself is immortal, but also all of its parts, in the form of living, blessed beings. There is no beginning and no end to the universe, and thus no beginning and no end to life and to bliss.<sup>28</sup>

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les: University of California Press, 1988), 195. Tsiolkovskii owned Haeckel's *The Riddle of the Universe* (*Die Welträtsel*) and *Lectures on Science and Philosophy* in the Russian editions of 1906 and 1913; see Alekseeva, K. È. *Tsiolkovskii*, 42–44, 134–135, 138. A Russian translation of Fechner's famous *Little Book of Life After Death* (*Das Büchlein vom Leben nach dem Tode*) appeared in 1915.

<sup>25</sup> Represented by Aleksei Kozlov (1831–1901), Lev Lopatin (1855–1920), and Nikolai Losskii (1870–1965), Russian panpsychism regarded all being in the universe as psychic and conscious. Individual psychic substances were seen as parts of a cosmic system striving towards perfection and harmony. Kozlov like Tsiolkovskii was concerned with the improvement of the human breed and “argued that ‘mediocre’ people may be used as ‘manure’ to promote the flowering of great men”. See James P. Scanlan, “Russian Panpsychism: Kozlov, Lopatin, Losskii,” In: Gary M. Hamburg, Randall A. Poole, eds., *A History of Russian Philosophy 1830–1930: Faith, Reason, and the Defense of Human Dignity* (Cambridge: Cambridge University Press, 2010), 150–168 (quotation 156).

<sup>26</sup> Konstantin Tsiolkovskii, *Monizm Vselennoi. Konspekt. Mart 1925 g.* (Kaluga: izd. avtora, 1925), 9.

<sup>27</sup> Chizhevskii, “Teoriia kosmicheskikh èr,” 677

<sup>28</sup> Tsiolkovskii, *Volia Vselennoi*, 7; see also idem, *Nauchnaia ètika*, 24–32. The poet Nikolai Zabolotskii (1903–1958) was an avid reader of Tsiolkovskii's philosophical tracts: however he contended that the belief in the immortality of matter would not satisfy the quest for individ-

Tsiolkovskii's conception comes close to the idea—developed by some of the Theosophists—of the “permanent atom” which passes from one incarnation to another.<sup>29</sup>

The universe was for Tsiolkovskii an “ocean of bliss” (*okean schast'ia*),<sup>30</sup> created by an almighty and benevolent, but for humans incomprehensible “cause” (*prichina*), which he saw as a “most kind and rational living being” (*zhivotnoe*), as a “living organism”, whose rationality and “absolute will” also defined the actions of mankind and its quest for happiness and reason-driven perfection.<sup>31</sup> He also believed in the existence of immortal beings, who were much more developed than humans and almost bodiless, “ethereal” (*éfirnyi*) and therefore hardly visible to humans.<sup>32</sup> He also believed that these alien beings—which are similar to angels or spirits in his description—constructively intervene into the lives of humans, read their thoughts and send them messages through “heavenly signs” (*nebesnye znamenii*). And he assured that he had seen such signs himself several times.<sup>33</sup> Viktor Shklovskii reports a conver-

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ual immortality. Zabolotskii, like Tsiolkovskii, termed himself a „monist“, making no distinction between the spiritual and the material, but in sharp contrast to the latter dreamed of the “humanization” of animals and the reconciliation between man and nature. See Darra Goldstein, *Nikolai Zabolotsky. Play for Mortal Stakes* (Cambridge: Cambridge University Press, 1993), 143–148.

- 29 For Tsiolkovskii's atomism, see Nikolai Gavriushin, “Mistik-tekhokrat (K. È. Tsiolkovskii),” In: Vladislav Lektorskii, ed., *Filosofiia ne konchaetsia. Iz istorii otechestvennoi filosofii. XX vek* (Moscow: ROSSPÈN, 1998), 702–717; idem, “Tsiolkovskii i atomistika,” *Trudy sed'mykh chtenii, posviashchennykh razrabotke nauchnogo nasledia i razvitiu idei K. È. Tsiolkovskogo* [1972] (Moscow: IET AN SSSR, 1973), 36–50; idem, “Antichnyi kosmos v tvorchestve K. È. Tsiolkovskogo,” *Voprosy istorii estestvoznaniia i tekhniki*, 1989, no. 4, 11–16.
- 30 Konstantin Tsiolkovskii, “Kosmicheskaiia filosofiia” [1935], In: idem, *Kosmicheskaiia filosofiia*, 348–354, here 349.
- 31 Tsiolkovskii, *Volia Vselennoi*, 5. The ancient atomists (e.g. Lucretius in his poem *De rerum natura*) as well as Renaissance philosopher Giordano Bruno saw the universe as a living being which had to be born and die. In modern Western New Age thinking the idea of Earth or the whole universe as an animated self-regulating organism occurs in the so called “Gaia” hypothesis.
- 32 A specimen of an „ethereal being“ (*éfirnoe sushchestvo*) is displayed together with models of aliens and UFOs in the planetarium of Kharkiv (Ukraine), see: <http://planetarium-kharkov.org/?q=gumanoid-ephirnyi> (accessed September 11, 2010).
- 33 Tsiolkovskii, *Volia Vselennoi*, 9, 22–23; idem, *Nauchnaia ètika*, 37, 39–43; idem, “Fatum, sud'ba, rok,” 47–51, here 50. Referring to Tsiolkovskii, Soviet scientists in the 1970s developed ancient astronaut theories and tried to establish such para-sciences as *paleovizitologiia* and *paleokontaktologiia*. See Iurii Morozov, Vladimir Rubtsov, “K otsenke sovremennogo sostoiianiia problemy paleovizita,” *Trudy chetyrnatdatsykh chtenii, posviashchennykh razrabotke nauch-*



sation with Tsiolkovskii in the 1930s, in which Tsiolkovskii admitted that he frequently talked to angels.<sup>34</sup>

The influence of Gnostic, Theosophical and spiritualist teachings on the philosophical work of Tsiolkovski has been hardly researched up to now because it was to a large extent taboo in the Soviet Union.<sup>35</sup> The provincial town of Kaluga, in which Tsiolkovski lived, was—as Maria Carlson has demonstrated—the most important center after St. Petersburg of the Russian Theosophical movement at the beginning of the 20<sup>th</sup> century.<sup>36</sup> It can now be regarded as certain that Tsiolkovskii knew the writings of the Theosophists, of which many were published since 1905 in the Kaluga ‘Lotos Publishing House’, and incorporated several of their ideas and formulas—such as “cosmic thought”, “cosmic consciousness”, “citizen of the universe” or the description of the “heavenly worlds and their inhabitants”—into his “cosmic philosophy”, an essential component of which was the aspiration to achieve a “holistic world-view” (*tsel’noe mirovozzrenie*), a “synthesis of science, religion and philosophy”<sup>37</sup>. Indeed, Tsiolkovskii’s claim that he received messages from super-

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*nogo nasledii i razvitiu idei K. Ė. Tsiolkovskogo* [1979] (Moscow: IIET AN SSSR, 1980), 26–50. See also, Ben Finney, Vladimir Lytkin, „Tsiolkovsky and Extraterrestrial Intelligence,” *Acta Astronautica*, 46 (2000), nos. 10–12, 745–749.

34 Viktor Shklovskii, “Konstantin Ėduardovich Tsiolkovskii,” In: idem, *Zhili-byli* (Moscow: Sovetskii pisatel’, 1966), 519–528, here 525. The assumption of the existence of extraterrestrial intelligent beings which had gained a growing popularity not only among spiritualists (Johann Heinrich Jung-Stilling, Allan Kardec et al.), but also among scientists since the 19<sup>th</sup> century is conflicting with both, Christianity’s anthropocentric doctrine of salvation, and equally anthropocentric Historical Materialism. For Aleksandr Bogdanov, however, the objective laws of evolution were valid not only for societies on Earth but also for societies on other planets, Mars in particular. See his *Krasnaia zvezda* (1908) and *Inzhener Mënni* (1912).

35 Even in more recent publications, as the 300-page monograph on Tsiolkovskii and the philosophy of cosmism by Alekseeva from 2007 (see note 11) there is not the slightest mention of this aspect.

36 See Maria Carlson, “No Religion Higher Than Truth”. *A History of the Theosophical Movement in Russia, 1875–1922* (Princeton, NJ: Princeton University Press, 1993), 62–65. Kaluga’s attraction for cosmists and occultists has been explained by the impact of a meteor on the outskirts of the city. Vladimir Lytkin, vice-director of the Tsiolkovskii State Museum for the History of Cosmonautics in Kaluga, personal communication, Kaluga, 18 May 1992.

37 So the subtitle of Elena Blavatsky’s *Secret Doctrine*. On the influence of Theosophy and occult teachings on Tsiolkovskii’s view of the world, see Gavriushin, „Kosmicheskii put’,” 127–129; idem, “Mistik-tekhokrat,” 712–715; Demin, *Tsiolkovskii*, 118–122, 254–255. The “cosmic” attribute can be found in the works of mystics and occultists since the late 19<sup>th</sup> century (Max Théon, Blavatsky, Annie Besant, Petr Uspenskii) as well as in Anglo-American philosophies of evolution (John Fiske, *Outlines of Cosmic Philosophy Based on the Doctrine of Evolution*, 1874; Richard M. Bucke, *Cosmic Consciousness. A Study in the Evolution of the Human Mind*, 1901).

evolved beings is remarkably similar to the alleged communication with the “Mahatmas” or “Ascended Masters”, whom Madame Blavatsky claimed to consult.

Tsiolkovskii’s notion that part of humanity would become highly developed and ultimately turn into luminous rays is a central motive in the Gnostic myth as it was popularized in Russia through the “secret doctrines” of the Theosophists and later the Anthroposophists: According to these teachings it is the goal of the earthly process to free the bright and divine part of the human soul from the dark and suffering earthly body and let it rise to the celestial realm of light. The inferior, earthly, decaying beings, on the other hand—and especially the animals—should be pushed back and obliterated. This recalls less Spencer’s and Darwin’s “natural selection” or “survival of the fittest” than Blavatsky’s and Steiner’s highly fanciful—and dangerous—speculations about the ascent of higher races and the destruction of the racial “failures of nature”.<sup>38</sup>

While Tsiolkovskii’s views most heavily reflected a Theosophical influence, his ideas on nonterrestrial life may also have developed from his reading of the esoterically minded French astronomer Camille Flammarion (1842–1925) and the cosmic-spiritualist philosopher and natural scientist Carl du Prel (1839–1899), whose works were wide-spread in Russian translation around the turn of the 20<sup>th</sup> century.<sup>39</sup> In his *Philosophy of Mysticism* (1885)<sup>40</sup> the Bavarian private scholar outlined a peculiar synthesis of Darwinism and occultism in an attempt to determine the “status of humans in the universe” and their cosmic tasks. Expecting the end of the Earth, he forecasted a “cosmic expansion” of the history of mankind.<sup>41</sup> According to him “cosmic traffic” opens the possibility that even after the cold death of the Earth “the achievements of the earthly culture can be preserved”.<sup>42</sup> By applying the principle of evolution and selec-

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See, e.g., Nikolai Gavriushin, “‘Kosmicheskaia filosofii’ Dzhona Fiska (1842–1901),” *Trudy odinnadtsatykh chtenii, posviashchennykh razrabotke nauchnogo nasledii i razvitiu idei K. É. Tsiolkovskogo* [1976] (Moscow: IET AN SSSR, 1978), 117–123.

38 See Harald Strohm, *Die Gnosis und der Nationalsozialismus* (Frankfurt a. M.: Suhrkamp, 1997).

39 For a summation of Flammarion’s and du Prel’s views, see Michael J. Crowe, *The Extraterrestrial Life Debate, 1750–1900: The Idea of a Plurality of Worlds from Kant to Lowell* (Cambridge: Cambridge University Press, 1986), 378–386, 426–427 and passim.

40 In Russian: *Filosofia mistiki, ili dvoistvennost’ chelovecheskogo sushchestva* (St. Petersburg, 1895). See also the bibliography of the Russian versions of the works of du Prel in Carlson, “No Religion Higher Than Truth”, 260.

41 Carl du Prel, *Die Philosophie der Mystik* (Leipzig: Günther, 1885), 509.

42 Ibid., 511.

tion to the cosmic sphere, du Prel—as well as Tsiolkovskii—, believed it was not only possible “that on Earth itself man could be replaced by an even higher form of organization”, but also “that the initiative to start cosmic history was triggered by inhabitants of another star”.<sup>43</sup>

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It is quite remarkable, and fully deserves further investigation, that it was the esoteric teachings of redemption and escape from this world which motivated Tsiolkovskii in his concrete research and technical developments. These in turn formed the basis of the Soviet space program and its propagation<sup>44</sup>—a program that was supposed to open the cosmic way to the transfiguration and perfection of humanity, and finally to immortality and eternal bliss.<sup>45</sup>

Tsiolkovskii is probably the most important, but by no means the only, founder of space flight with strong occult inclinations. It is remarkable that the prominent German rocket pioneers, the engineers Hermann Ganswindt (1856–1934), Hermann Oberth (1894–1989), and Max Valier (1895–1930) were also engaged in extensive metaphysical and occult speculation, and were fascinated by paranormal phenomena. Valier not only developed powerful rocket engines but also followed the pseudoscientific cosmic ice theory (*Welteislehre*) and published an extensive *Occult Doctrine of the Universe* (*Okkulte Weltallslehre*, Munich 1922), in which he—like Tsiolkovskii—described the universe as well as the atom as a “living and besouled organism”, in accordance with the Hermetic doctrine of the analogy between microcosm and macrocosm.<sup>46</sup> The eminent rocket pioneer John Whiteside Parsons (1914–1952), whose research was central to the United States rocket program in the 1930s and 1940s and who—again, like Tsiolkovskii—has a crater on the dark side of

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<sup>43</sup> Ibid.

<sup>44</sup> Literary scholar Michael Holquist has gone so far as to claim that “Tsiolkovsky’s great achievements in science were in fact exercises in applied philosophy.” And “... without Tsiolkovsky there would have been no Soviet space program.” Michael Holquist, “The Philosophical Bases of Soviet Space Exploration,” *The Key Reporter*, 51 (1985), no. 2, 2–4, here 3, 4.

<sup>45</sup> Asif Siddiqi refers to the link between technological utopianism and the Russian mystical occult tradition in the Soviet dream of spaceflight in the 1920s, see “Imagining the Cosmos”, 260–288.

<sup>46</sup> See Christian Thiel, “Zur Dynamik von Wissenschaft, Grenzwissenschaften und Pseudowissenschaften in der Moderne,” *Zeitschrift für Parapsychologie und Grenzgebiete der Psychologie*, 30 (1988), nos. 1–4, 152–171, here 163–169. See also Hermann Oberth’s tract *Research and the Other World* (*Forschung und Jenseits*), published in 1932.

the moon named in his honour, was also an avid practitioner of the hermetic and magical sciences, and for several years, the leader of the US branch of Aleister Crowley's Ordo Templi Orientis (O.T.O.).<sup>47</sup>

We can only speculate about the reasons for the partiality these pioneers of space travel felt for occult doctrines. This partiality most likely has its roots in the mythological importance that heaven, and thus outer space, has had since the era of Aristotelian-Ptolemaic cosmology: as the realm of perfection, gods and paradise, and the eternal home of blessed mankind. The assault on heaven (*shturm neba*) would therefore open the road to humanity's self-perfection (*samosovershenstvovanie*) and self-deification (*samoobozhestvlenie*), including the realization of immortality.<sup>48</sup> Since the conquest of heaven will be achieved through science and technology, these fields are given esoteric qualities and magical functions. Esoteric knowledge differs from modern—that is, post-metaphysical and empirical—knowledge in its aim to be holistic (*tsel'noe*), integrated (*edinoe*) and lively (*zhivoe znanie*), and—in the tradition of Gnosticism—in its alleged magic power to transform and redeem the world.

A magical, Gnostic understanding of science and technology was widespread among Tsiolkovskii's contemporaries. What had previously been the business of magicians, sorcerers and alchemists became the task of scientists and engineers, namely: the conquest of natural laws, the transmutation of species and elements, the absolute domination over space and time, the advance into new dimensions, and the creation of an omnipotent and immortal super-human.<sup>49</sup>

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<sup>47</sup> See George Pendle, *Strange Angel: The Otherworldly Life of Rocket Scientist John Whiteside Parsons* (Orlando: Harcourt, 2005); Francesco Dimitri, *Comunismo magico. Leggende, miti e visioni ultraterrene del socialismo reale* (Rome: Alberto Castelvecci, 2004), 417–425.

<sup>48</sup> See, e.g., David F. Noble, *The Religion of Technology. The Divinity of Man and the Spirit of Invention* (New York: Knopf, 1997). As Ryan J. McMillen has demonstrated in his excellent dissertation (which unfortunately I discovered only after finishing this manuscript), the dream of space colonization, as it stretches back to Isaac Newton and his contemporaries, also has deep roots in the Christian apocalyptic fantasy of the “rapture”—the supposed ascension of the chosen and blessed part of humanity into heaven—and the imminent destruction of the Earth. The technology of rocketry, according to McMillen, provides the apocalyptic end to history, both in its liberating power of departure from the Earth and its destructive power of Earth annihilation. See his *Space Rapture: Extraterrestrial Millennialism and the Cultural Construction of Space Colonization*, PhD. Diss., University of Texas at Austin, 2004, unpublished manuscript. Online at [http://74.125.155.132/scholar?q=cache:\\_JVQd-j6xuwJ:scholar.google.com/+Space+Rapture:+Extraterrestrial+&hl=de&as\\_sdt=2000](http://74.125.155.132/scholar?q=cache:_JVQd-j6xuwJ:scholar.google.com/+Space+Rapture:+Extraterrestrial+&hl=de&as_sdt=2000) (accessed September 11, 2010).

<sup>49</sup> See Hagemeister, „Die Eroberung des Raums“; Dimitri, *Comunismo magico*, 167–219. Already in 1916, Nikolai Berdiaev had pointed to the magic origins of natural sciences and technology,

A few examples may suffice:<sup>50</sup> Aleksandr Bogdanov (1873–1928) and Valerian Murav'ev (1885–1932 [?]) attempted to create a “universal science”, a kind of *mathesis universalis*, bringing the various strands of diverse findings together into one grand unified theory. This theory would be useful not only for attaining total command of the world but also for perfecting it. Psychologists, biologists, and physicists such as Naum Kotik (1876–1920), Piotr Lazarev (1878–1942), Leonid Vasil'ev (1891–1966), and Aleksandr Chizhevskii (1897–1964), the latter being a close friend of Tsiolkovskii, tried to uncover a hitherto concealed, all-powerful psycho-physical, nervous or cosmic radiation. Bogdanov's famous experiments in mutual blood transfusion, aiming to create a powerful superhumanity (*sverkhchelovechestvo*), are based on deeply archaic notions of blood as the site of the vital force (as in vampirism) and on the ability of blood to build and maintain a sense of community (as in Holy Communion). Bogdanov's magic vitalism could well have been influenced by Rudolf Steiner's lectures on “occult medicine”.<sup>51</sup> Perhaps the clearest example of the combination of modern (rational) science and technology with esoteric (irrational, mystical, Gnosticist) knowledge is the work of the priest, sophiologist, scientist, and engineer Pavel Florenskii (1882–1937): recall his speculations about “organ projection”, “bio-technology” and “bio-industry”, the alchemy of synthetic resin, the magic energies of names and numbers, or his efforts to employ the theory of relativity to prove the existence of the *empyreum*, the realm of Platonic ideas, the abode of God and the heavenly host.<sup>52</sup> What Ger-

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see his *Smysl tvorchestva. Opyt opravdaniia cheloveka* (Moscow: G. A. Leman, 1916), chap. XIII: “Tvorchestvo i mistika. Okkul'tizm i magiia”. On the close connections between Gnosticism and Soviet Dialectical Materialism, see Boris Groys, „Elemente des Gnostizismus im Dialektischen Materialismus (sowjetischen Marxismus),“ In: Peter Koslowski, ed., *Gnosis und Mystik in der Geschichte der Philosophie* (Zurich, Munich: Artemis, 1988), 352–367.

- 50 For the following, see Michael Hagemeister, „‘Unser Körper muß unser Werk sein.’ Beherrschung der Natur und Überwindung des Todes in russischen Projekten des frühen 20. Jahrhunderts,“ In: Groys, Hagemeister, eds., *Die Neue Menschheit*, 19–67.
- 51 According to uncertified information, while in Europe, Bogdanov attended Steiner's lectures on „occult medicine“, in which he talked about the magic meaning of blood. See Aleksandr Eliseev, „Krasnye mistiki,“ *Nezavisimaia gazeta – religii*, 14 November 2001; Oleg Odnokolenko, „S pritselom na voskreshenie,“ *Itogi*, 22 March 2006.
- 52 See Michael Hagemeister, „Wiederverzauberung der Welt – Pavel Florenskij's Neues Mittelalter,“ In: Norbert Franz, Michael Hagemeister, Frank Haney, eds., *Pavel Florenskij – Tradition und Moderne. Beiträge zum Internationalen Symposium an der Universität Potsdam, 5. bis 9. April 2000* (Frankfurt a. M.: Peter Lang, 2001), 21–41; also in Russian: „Novoe srednevekov'e Pavla Florenskogo,“ In: Modest Kolerov, ed., *Issledovaniia po istorii russkoi mysli. Ezhegodnik za 2003 god* (Moscow: Modest Kolerov, 2004), 86–106 (a pirate translation appeared in

man sociologist Niklas Luhmann has described as “the differentiation of the systems”—namely the separation of modern science, metaphysics, and religion (including their institutions and discourses)—is reversed by these theories (or is considered never to have taken place).

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A magical-esoteric understanding of science and technology is still prevalent in today's Russia. This can be seen by “Russian cosmism”, a hybrid ideological concept, of which Tsiolkovskii was later declared as one of its founders, along with philosopher Nikolai Fedorov (1829–1903), geochemist Vladimir Vernadskii (1863–1945), and the already mentioned heliobiologist Aleksandr Chizhevskii.<sup>53</sup> In reality, however, “Russian cosmism”—which is a typical case of the “invention of a tradition” (also with intent to support a tradition of invention)—originated in the late Soviet period and has fed into a nationalist discourse about Russian identity in post-Soviet Russia.<sup>54</sup>

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*Zvezda*, 2006, no. 11, 130–144). See also L. I. Vasilenko, “O magii i okkul'tizme v nasledii o. Pavla Florenskogo,” *Vestnik Pravoslavnogo Sviato-Tikhonovskogo Gumanitarnogo universiteta* 3 (2004), 81–99. Florenskii's attraction to the occult, magic, Gnosticism and neo-Platonism was already criticized by his contemporaries.

- 53 Tsiolkovskii has often been called a disciple of Fedorov. This, however, raises serious questions, since Tsiolkovskii's ‘solution’ of the death problem is incompatible with Fedorov's central idea of personal resurrection by technological means. According to Andrews, *Red Cosmos*, 17, Tsiolkovskii joined “a group of scientists who saw themselves as Fedorov's disciples, amateur philosophers called the Biocosmists”. In reality, this group, which according to Andrews included Vladimir Vernadskii, Leonid Krasin, and Valerian Murav'ev, never existed. There was, however, a group called the “Biocosmists”, but it was an ephemeral assortment of anarchists and poets. Boris Groys is definitely mistaken in stating that Tsiolkovskii conducted his research on rocketry in the tradition of Fedorov “with the aim to bring the awakened ancestors to other planets”. Boris Groys, „Unsterbliche Körper, oder die materialistische Metanoia,“ In: Vittoria Borsò, et al., eds., *Benjamin – Agamben. Politik, Messianismus, Kabbala* (Würzburg: Königshausen & Neumann, 2010), 49–58, here 57. For a highly fanciful depiction of “Nikolai Fedorov's cosmism” (including Fedorov's alleged influence on Stalin), see R. Bruce Elder, *Harmony and Dissent. Film and Avant-Garde Movements in the Early Twentieth Century* (Waterloo, Ont.: Wilfrid Laurier University Press, 2010), 346–350, 422–423.
- 54 See the chapter on cosmism by Marlène Laruelle in this volume. See also Michael Hagemeister, „Der ‚russische Kosmismus‘ – ein Anachronismus oder die ‚Philosophie der Zukunft‘?,“ In: Anne Hartmann, Christoph Veldhues, eds., *Im Zeichen-Raum. Festschrift für Karl Eimermacher zum 60. Geburtstag* (Dortmund: Projekt, 1998), 169–201. One of the earliest sources for the term „Russian cosmism“ is Renata Gal'tseva's article on Vladimir Vernadskii in the 5<sup>th</sup> volume of *Filosofskaia entsiklopediia* (1970) which became famous for its ideologically daring positions. For a good overview, see Aleksandr Ogurtsov, *Russkii kosmizm* (Obzor literary i

Feted by its advocates as a “philosophy of the future”, capable of “solving the urgent problems of humanity” by paving the path toward the “divine stage of human development”,<sup>55</sup> and denounced by its opponents as “science mysticism”, “gnosticism”, “technocratic pseudo-religion”<sup>56</sup> and the “occult shadow ideology” of Soviet Marxism,<sup>57</sup> “Russian cosmism” elaborates an image of humanity, which spreads its “noocratic rule” over the universe, whence it can fulfill the “universal cosmic plan” of turning itself into an almighty immortal organism, thus attaining the status of God. Tsiolkovskii’s fantasies appeared at the beginning of a century in which totalitarian doctrines of universal salvation made their way to power.

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navigator po saitam Interneta), <http://vox-journal.org/content/vox4-11ogurcov.pdf> (accessed September 11, 2010).

55 Arsenii Gulyga, „Wir leben im Zeitalter des Kosmismus,“ *Deutsche Zeitschrift für Philosophie*, 40 (1992), 870–881, here 873–874.

56 Gavriushin, „Kosmicheskii put’“, 125; idem, „A byl li ‚russkii kosmizm’?,“ *Voprosy istorii estestvoznaniia i tekhniki*, 1993, no. 3, 104–105 (in this article the Orthodox philosopher calls “Russian cosmism” a “Trojan horse” which served to hide “theosophists, occultists, Christian heretics, as well as mystic and positivistic natural philosophers”).

57 Alexandre Douguine [Aleksandr Dugin], “Le complot idéologique du cosmisme russe,” *Politica hermetica*, 6 (1992), 80–89. Dugin introduces himself as a “metaphysician, conspirologist and an expert in sacred geography”. See also Slavoj Žižek, *In Defence of Lost Causes* (London, New York: Verso 2008), 186.



*Konstantin Tsiolkovskii*  
*Palekh lacquer miniature, ca. 1980*