Societal Impact of Spaceflight

Steven J. Dick and Roger D. Launius
Editors

National Aeronautics and Space Administration
Office of External Relations
History Division
Washington, DC

2007

NASA SP-2007-4801

Library of Congress Cataloging-in-Publication Data

Societal impact of spaceflight / Steven J. Dick and Roger D. Launius, editors.
p. cm. — (The NASA history series, NASA SP-2007-4801)
Includes bibliographical references and index.
1. Astronautics and civilization. 2. Astronautics—United States—History. I. Dick, Steven J. II. Launius, Roger D.
CB440.S63 2007
303.48'3--dc22
2007042444

Chapter 27

Making Spaceflight Modern: A Cultural History of the World's First Space Advocacy Group

Asif A. Siddiqi

Since the opening of the Space Age in 1957, space exploration has become a powerful embodiment of modernity. This connection between spaceflight and modernity is so fundamental to our vision of space exploration that it no longer requires articulation or elaboration. Like many other technological legacies of the twentieth century, such as aviation, microelectronics, communications, and the Internet, space exploration represents one effective way for nations to assert their arrival on the international stage, i.e., to underscore a nation's commitment to modernity, modernization (especially for developing nations), and ultimately, the future. In the early twenty-first century, this link between spaceflight and modernity is reinforced through cultural imagery and iconography that makes space exploration synonymous with "progress"—through exploration of new frontiers, via accumulation of new knowledge, and by bringing benefits to society. All of these associations are predicated on the fundamental relationship between spaceflight and science and technology. The scientific and technological dimensions of spaceflight—for example, the science of space trajectories and the technology of launch vehicles and spacecraft—have identified spaceflight firmly with a post-Enlightenment view of mastery over nature and "progress" in general.

How did space exploration come to be linked to modernity and, more specifically, with the discourse of science and technology? In other words, how did our collective perceptions of space exploration, as represented through popular culture, become grounded in scientific and technological concerns? This is the question I explore in this paper, focusing particularly on the Russian case.

In Russia, as in other major European nations, space travel was associated for centuries with mythology and mysticism—often in the form of dreams, parables, folk tales, superstition, or mythical tales. A fundamental shift occurred beginning only in the last decades of the nineteenth century, a transformation that culminated in the 1920s. The beginning of this change is rooted in the dissemination of the works of Jules Verne in Russia in the 1860s and 1870s and the general rise in interest of science fiction, in particular the genre of the *astronomicheskii roman* (or the astronomical

novel). Partly inspired by such fictional works, the self-educated village school teacher Konstantin Eduardovich Tsiolkovskii (1857–1935) published his first meditations on the mathematics of spaceflight in 1903. Popular interest in space exploration first peaked around the time of the Great War but it was not until the 1920s—after the Russian Revolution—that mass interest in cosmic travel became a cultural phenomenon in Soviet Russia, embodied in the so-called Soviet space fad. It was also at this time that the idea of space travel weakened its link to mythology and superstition; helped by a vast network of scientifically minded amateur space enthusiasts, the language of spaceflight shifted into the domain of science and technology.

During the 1920s Soviet space fad, amateur and technically minded enthusiasts formed short-lived societies to discuss their interests and exchange information on space travel.[1] These societies—the first in the world that were dedicated to space travel—operated largely without material support or encouragement from the state. The men and women who organized the cosmic societies did, of course, absorb official Marxist discourses on the role of technology as a panacea for all social ills. But the record of their actions underscores their own agency in infusing the idea of space travel (and its corollary, rocketry) with the cold, hard power of rationality, science, and mathematics. Moving from fantasy, mysticism, mythology, and lunacy, these enthusiasts appropriated the language of modernity for their case.

In this article, I revisit one specific episode in the cultural history of Soviet space exploration: the formation of the world's *first* active society dedicated to the cause of space travel. In 1924, university students in Moscow formed the Society for the Study of Interplanetary Communications—"interplanetary communications" being a then-common euphemism for "interplanetary travel." The Society sponsored lectures, established networks of enthusiasts, and wrote articles on the value of cosmic flight at a time when few had considered the possibility. Historians in both Russia and the West have described the activities of the Society in very general terms, but a lack of primary sources has prevented a fuller exploration of its significance in the early history of spaceflight.[2] Using archival documents, my goal is not only to reconstruct the Society's activities but also to explore the ways in which the rhetoric and activities of 1920s space enthusiasts showed a distinct appreciation for the language of science and technology. Ultimately, I hope to underscore that the relationship between the culture of space exploration and discourse of modernity was not always a given, but was grounded in historically contingent forces.

1. For a detailed description of the Soviet "space fad" of the 1920s, including an analysis of art (literature, painting, poetry, architecture, etc.) as a site for contesting visions of space exploration, see Asif A. Siddiqi, "Imagining the Cosmos: Utopians, Mystics, and the Popular Culture of Spaceflight in Revolutionary Russia," *Osiris*, forthcoming.

2. See for example, Frank H. Winter, *Prelude to the Space Age: The Rocket Societies: 1924–1940* (Washington, DC: Smithsonian Institution Press, 1983), pp. 27–30; G. Kramarov, *Na zare kosmonavtiki: k 40-letiiu osnovaniia pervogo v mire obshchestva mezhplanetnykh soobshchenii* (Moscow: Znanie, 1965).

Fridrikh Tsander

Historians typically trace the history of the Soviet space program to Tsiolkovskii, who in 1903 published the first mathematical substantiations that spaceflight was possible. In the 1920s and early 1930s, Tsiolkovskii's original ideas on space exploration—which he republished once he discovered that others such as the Romanian-German Hermann Oberth and the American Robert Goddard had also come to the same conclusions—fed enormous popular interest in the Soviet Union in the cause of cosmic travel. Several technology-enraptured (and short-lived) societies coalesced during the period of the space fad. Of these, the most important and influential was the Moscow-based Society for the Study of Interplanetary Communications, formed in 1924. It was not only the first in the world to effectively organize for the cause of space exploration, but was also the first to build a domestic and international network around the idea. The history of the organization—a combination of serendipity, willful devotion, and eventual loss of momentum due to indifference from the state—illustrates the ways in which the technological fascinations of the day inspired a few to bring an esoteric idea to many.

No one played a more important role in spearheading the Society than Fridrikh Arturovich Tsander, who, although not a founding member, gave the Society its heart and soul. Raised in the Latvian capital of Riga, Tsander was an early devotee of the many science fiction novels of the era, and was a convert to the cause of spaceflight by the time he was 20. Unlike Tsiolkovskii, who was concerned only with the theoretical aspects of space travel, Tsander engaged in rudimentary experimentation at an early age. As early as January 1916 he built a lightweight greenhouse that would supply fresh vegetables and absorb excess carbon dioxide for travelers in space. After graduation from the Polytechnic Institute, in 1915 he started work at the Provodnik Factory, a rubber-producing facility, evidently because he believed that rubber could be used as insulating material for spaceships. Soon after the Revolution, in February 1919 he moved to the Aviation Factory No. 4 (the "Motor" Factory) where he spent his free time working on designing a new kind of aircraft equipped with an engine that could breach the atmosphere and fly into space.[3]

Tsander later claimed that soon after the Revolution he had personally met Lenin at a regional conference for inventors, and had told the Soviet leader about his cosmic airplane. Tsander reminisced that "Lenin made a tremendous impression on me: that night I could not sleep. Pacing up and down in my small room, I thought of the greatness of this man—our country is ravaged by war, there is a lack of bread, of coal, and the factories are at a standstill, but this man who controls this huge country

3. For a biography, see L. K. Korneev, "Zhizn', tvorchestvo i deiatel'nost' F. A. Tsandera," in *F. A. Tsander: Problema poleta pri pomoshchi reaktivnykh apparatov. Mezhplanetnyye polety. Sbornik statei*, L. K. Korneev, ed. (Moscow: GNTI Oborongiz, 1961), pp. 5–73.

finds time to listen to interplanetary flights."[4] Like many other stories of the early space years, the veracity of the meeting (which most certainly never happened) is less important than the mythic quality it conveyed. Post-Sputnik Soviet writers repeatedly alluded to the meeting to illustrate the Bol'sheviks' interest in forward-thinking ideas at a time when the very survival of the Soviet state was in doubt.[5]

Within six months of the alleged meeting with Lenin, in June 1922 Tsander quit his job at the Motor Factory to devote all his time to developing a working design of the spaceplane. He survived by the generosity of his former factory workers, who formed a pool of donations to help feed the scientist. Although they might not have shared Tsander's unyielding belief in the possibility of space travel, they were extremely fond of Tsander; in July 1922 the chief of the production section and the chief engineer of the factory jointly wrote a formal review of his interplanetary spaceship.[6] Tsander received a certificate from the Association of Inventors for his "invention" the following month.[7] During this period of self-willed unemployment, Tsander also initiated contact with Tsiolkovskii.[8]

In April 1923, after he quit his factory job to devote his full energy to his interplanetary spaceship, he thanked his coworkers for paying for his living expenses and claimed, "I hope . . . that the money which you have given me will not be in vain, but will make it possible for me to present something of value to your factory." Going beyond pure technical considerations, Tsander genuinely believed that interplanetary flight would be for the benefit of all of humanity, thus underscoring one of the major rationales behind the popular discussions of space travel among

4. Tsander mentioned this meeting in a short autobiography he wrote in 1927 for publication in volume 4 of Nikolai Rynin's famous *Mezhplanetnykh soobshchenii* (*Interplanetary Communications*) encyclopedia published in 1929. He also gave the same account to a future coworker, L. K. Korneev, in 1932. Korneev, "Zhizn'," pp. 23–24.

5. The leading Soviet rocket engine designer of the postwar era, academician Valentin Glushko, requested that the Institute of Marxism-Leninism of the Central Committee of the Communist Party conduct a special investigation into whether Lenin ever met Tsander. The institute found no evidence. G. S. Vetrov, "K voprosu o nauchnom istolkovanii istoricheskikh dokumentov," in *Issledovaniia po istorii i teorii razvitiia aviatsionnoi i raketno-kosmicheskoi nauki i tekhniki: vypusk* 7, B. V. Raushenbakh, ed. (Moscow: Nauka, 1989), p. 191.

6. The review is mentioned in Tsander's letter to Glavnauka (the science agency of the Bol'shevik government) dated 8 October 1926. F. A. Tsander, "Zaiavlenie v Nauchnyi otdel Glavnauki ot 8.X.1926 g.," in *F. A. Tsander: iz nauchnogo naslediya*, F. A. Tsander, ed. (Moscow: Nauka, 1967), p. 82.

7. The certificate is mentioned in Glavnauka's letter to V. P. Vetchinkin dated 15 October 1926. See "Pis'mo Nauchnogo otdela Glavnauki V. P. Vetchinkinu ot 15.X.1926 g.," in *F. A. Tsander: iz nauchnogo naslediia*, p. 85.

8. Tsander first wrote to Tsiolkovskii on 5 March 1923. Archive of the Russian Academy of Sciences (ARAN), f. [collection] 555, op. [unit] 4, d. [file] 670, ll. [pages] 1–8. For a summary of the correspondence between Tsander and Tsiolkovskii, see K. Belyi, "Tsiolkovskii-Tsanderu," *Nauka i zhizn'* no. 10 (1962): pp. 20–21.

Soviet enthusiasts in the early 1920s. As an incurable utopian, he noted, "A flight around the Earth would have tremendous significance; flying like the Moon, we could use telescopes to observe the other planets much better, and could probably construct a habitation in which living conditions would be much better than on the Earth . . . ." To the factory workers, he spoke of "senior citizens [who] will find it much easier to maintain health in [space]," of the "inhabitants of Mars . . . [whose] inventions could help us to a great extent to become happy and well off," and of "[a]stronomy, [which] more than the other sciences, calls upon man to unite for a longer and happier life . . . ."[9]

Tsander was not a scientific dilettante; in fact, he had a masterful grasp of complex mathematics and was full of ground-breaking ideas. In his research (and in his public talks), he compared the properties of various propellant combinations and considered the heat processes, aerodynamics, and engineering behind building rocket engines. To his rapt audience, Tsander also provided details of his new spaceship, a metallic airplane that would literally devour itself as it took to the heavens. The plane would take off from land using a conventional piston engine, use its wings for additional lift until it reached a height of about 17 miles (28 km), at which point the pilot would turn on a powerful rocket engine that would accelerate the vehicle into outer space. Tsander had found that one of the most important weight penalties in designing such a spaceship would be the huge mass of fuels it would have to carry. In order to circumvent this problem, he proposed an idea, radical even today, wherein the space rocket engine would use the melted aluminum parts of its own fuselage as fuel for the engine, in combination with either liquid hydrogen or liquid oxygen. The remaining unused portion of the spaceship would then either go into orbit around Earth or fly to the other planets. He also analyzed the problems of guided reentry into Earth's atmosphere using special wings, and various techniques of landing such a vehicle back on Earth.[10]

The Section on Reactive Motion

Tsander had frequently spoken of trying to organize a group to study space travel. Luckily for him, public discourse on the idea of spaceflight reached a crescendo in early 1924, just as he was looking for a forum to organize. The first intense wave of public fascination with spaceflight was set off by a story "Is Utopia Really Possible?" in the newspaper *Izvestiia* in October 1923, about the recently published meditations on spaceflight by the foreigners Oberth and Goddard.[11] Spurred to

9. F. A. Tsander, "Doklad inzhenera F. A. Tsandera o svoem izobretenii," in *F. A. Tsander: iz nauchnogo naslediia*, pp. 10–13.

10. Ibid., pp. 10–14.

11. "Novosti nauki i tekhniki: neuzheli ne utopiia?," *Izvestiia VTsIK*, 2 October 1923.

promote a Russian source for such ideas, the 66-year-old Tsiolkovskii, ensconced in the provincial town of Kaluga, immediately republished his own pre-Revolutionary works under the title *Raketa v kosmicheskoe prostranstvo* (*The Rocket into Cosmic Space*), and had them distributed to bookstores and "editors and scientists" in Moscow in April of the following year, thus bringing his strange ideas about space exploration to a huge and new audience.[12] Almost simultaneously, the Soviet media began to devote considerable attention to the cosmos. News and rumor of Oberth's and Goddard's exploits, the publication of Aleksei Tolstoi's new space fiction novel *Aelita*, and the "Great Mars Opposition" of August 1924—when Mars and Earth were closer to each other than in hundreds of years—fed an unprecedented explosion public interest in space. On April 15, the newspaper *Pravda* published a long article, "Voyage Into Cosmic Space," in which the author provided a complete history of the idea of space exploration, reaching back to Leonardo da Vinci, Cyrano de Bergerac, Jules Verne, and H. G. Wells, and bringing the story up to date with the works of Tsiolkovskii, Oberth, Goddard, and popular Soviet science writer Iakov Perel'man. Infected by the optimism of the times, the author, Mikhail Lapirov-Skoblo, concluded that "[W]ithin a few years hundreds of heavenly ships will furrow into the starry cosmos."[13] Three days later, *Izvestiia* published yet another article on Tsiolkovskii and Oberth, noting that Goddard had a sensational plan to launch a rocket to the Moon in the near future.[14]

The renewed interest in space in early 1924 might have remained little more than a passing media fad had it not been for the efforts of a few dedicated individuals. Inspired by the recent publications on space travel, in mid-April 1924 students at the prestigious Zhukovskii Academy of the Air Fleet (now the Zhukovskii Military Air Engineering Academy) took action; about a dozen students from the Academy's Military-Science Society (VNO) set up a Section on Reactive Motion to exchange

12. Chizhevskii to Tsiolkovskii, 6 April 1924, ARAN, f. 555, op. 4, d. 689, l. 9. See also Chizhevskii to Tsiolkovskii, 17 November 1925, ARAN, f. 555, op. 4, d. 689, l. 23.

13. M. Ia. Lapirov-Skoblo, "Puteshestviia v mezhplanetnye prostranstva," *Pravda*, 15 April 1924: pp. 5–6.

14. F. Davydov, "Raketa v kosmicheskoe prostranstvo," *Izvestiia VTsIK*, 18 April 1924: p. 7. For Goddard's prominent role in the space fad, see Asif A. Siddiqi, "Deep Impact: Robert Goddard and the Soviet 'Space Fad' of the 1920s," *History and Technology* 20, no. 2 (2004): pp. 97–113.

ideas about rockets.[15] The members of the Section wrote up a short list of objectives that included the following: "(1) to unite all persons, working in the USSR on the given problem; (2) to obtain all possible information on work carried out in the West; (3) to disseminate correct information on the condition of problems on interplanetary communications, and in connection with that, publish on [such] activities; [and] (4) to [conduct] independent scientific-research work and in particular, study questions on the military application of the rocket." Additional goals included scheduling a competition to design a small rocket capable of reaching approximately 60 miles (100 km) up into space; creating a group (*kruzhok*) for more in-depth theoretical study of important problems; organizing a laboratory; opening a book kiosk to "satisfy . . . the wide demand for literature"; and establishing a separate "film group" which would work on sets for films.[16] In other words, the Section touched on all the primary dimensions that would characterize the ensuing space fad, from its technical side (building rockets) to outreach (lectures, publications, and bookstores), to building a community (by involving others interested in the same topics), to opening a channel to the West (by collecting information from overseas), and acknowledging the artistic medium as a possible way to educate and popularize (by branching into film). This Section, although only a student organization, was probably the first organized group in the world dedicated to the cause of space exploration.[17]

The Section may have been small and without any resources, but such considerations did not limit its ambition. In enumerating a list of supplementary goals, it sought to host public reports on astronautics from serious scholars such as Vladimir Vetchinkin and Fridrikh Tsander. At the time, the 35-year-old Vetchinkin was a deputy director at the Central Aerohydrodynamics Institute (TsAGI), the leading aeronautics institution in the country. Well known nationally as a theorist of aeronautics, he also held a dual position as a professor at the Zhukovskii Academy whose students had formed the space group. Vetchinkin's most notable research work had been on the theory of propellers but, after the Revolution, like a few

15. The leading VNO student members included V. P. Kaperskii, M. G. Leiteizen, A. I. Makarevskii, M. A. Rezunov, and N. A. Sokolov-Sokolenok. ARAN, r. 4, op. 14, d. 197, ll. 32–33. The VNO was established in 1923 with seven subsections devoted to aviation and gliding, engines, aerodynamics, scientific organization of labor, tactics, photography, and popularization. In the technical vernacular of the 1920s, Russians considered the word "reactive" or "reaction" (*reaktivnyi*) to represent any mode of propulsion that depended on the force of exhausted particles. Forms of reactive motion included rockets (where the vehicle carries both its fuel and oxidizer) and jets (where the vehicle carries only the fuel and uses natural air as an oxidizer). Rockets were thus capable of working in vacuum whereas use of jets was limited to inside the atmosphere.

16. "Organizatsiia v S.S.S.R. O-va mezhplanetnykh soobshchenii," *Tekhnika i zhizn'* no. 12 (6 July 1924): p. 1.

17. Winter refers to an earlier organization, the Rocket Society of the American Academy of Sciences formed in Savannah, GA, in 1918. Little is known about the organization, which focused on rocketry rather than space exploration. *Prelude to the Space Age*, p. 27.

other prominent aeronautics specialists, he had begun to dabble in prognostications on space travel.[18] Vetchinkin's support of the Section added a critical ingredient to the Section: a patina of legitimacy.

Unlike Vetchinkin, Tsander did not enjoy a high governmental position, but there were few individuals in the Soviet Union who were more qualified to speak on the scientific and technological aspects of space travel than this 37-year-old Latvian savant. Tsander heard of the new student group on space through Vetchinkin and, although discouraged that they were not planning to immediately build rockets, quickly joined forces with them.

Having established a mandate, the Section's first order of business was to establish contact with one man who, because of Soviet media's search for a domestic counterpart to Oberth and Goddard, had assumed the wizened role of patron saint of the cause of spaceflight—Konstantin Tsiolkovskii. On 22 April, Moris Leiteizen, the de facto leader of the Section, composed a letter informing the old man of its recent formation, noting that 23 of its 25 members were Academy students. If Tsiolkovskii could not move to Moscow to take up leadership of the Section, then Leiteizen invited him to at least give a public talk on space travel, which they would organize at the Polytechnic Museum.[19] In a couple of letters, Tsiolkovskii responded that he was "joyous" to hear of the creation of the Section, having already heard of its existence via newspaper reports. In poor health and terrified of leaving Kaluga, Tsiolkovskii declined the offer to visit Moscow but suggested that the Section might read excerpts to students from his recent science-fiction novel, *Beyond the Earth*, two copies of which he sent to Leiteizen.[20] Less a work of literature than a dryly written polemic describing such fantastic conceptions as space suits, multistage rockets, and mooring ships in space, the novel was not known widely beyond Kaluga. Inspired by receiving the initial two copies, the Section requested the Academy administration to purchase copies of Tsiolkovskii's books for the school library since the "demand for them was [so] great."[21]

Through May, the Section continued to correspond with Tsiolkovskii on various topics, although the latter's responses often evinced a certain irritation when the young enthusiasts took action that the pioneer did not agree with. In one letter dated May 4, Leiteizen informed Tsiolkovskii that one of the immediate goals of the Section was to "study reactive engines, independent of their application . . . [and] in

18. For background to Vetchinkin, see A. M. Tarasenkov, "29 iunia—100 let so dnia rozhdeniia V. P. Vetchinkina (1888 g.)," *Iz istorii aviatsii i kosmonavtiki* 59 (1989): pp. 59–64. One of the initial organizers of the Section, Georgii Kramarov, notes that Vetchinkin was "one of the first" to support the group. Kramarov, *Na zare kosmonavtiki*, p. 12.

19. Leiteizen to Tsiolkovskii, 22 April 1924, ARAN, f. 555, op. 4, d. 356, ll. 1-1ob.

20. For Tsiolkovskii's four letters to the Section in 1924, all addressed to Leiteizen, see ARAN, f. 444, op. 3, d. 102a, ll. 1–2 (April 29), ll. 3–4 (May 14), l. 5 (May 31), and l. 6 (June 4).

21. Kramarov, *Na zare kosmonavtiki*, p. 14.

order not to complicate [matters] . . . use them in the most simple form of motion on the Earth's surface: in a reactive automobile."[22] Tsiolkovskii tersely replied that "[I]t's known that reactive automobiles . . . are playthings and won't provide any nothing new to you."[23] Despite the often strained communications, members of the Section clearly considered Tsiolkovskii some sort of spiritual guide whose works could convert the uninitiated, not just in the Soviet Union but everywhere, to the cause of space exploration. On behalf of the Section, Tsander wrote to Tsiolkovskii on 16 May, asking for permission to translate Tsiolkovskii's classic works from 1903, 1911, and 1914 into German. Amazingly, the old pioneer replied that although he was "grateful," he could not provide original copies of the said publications since he had no copies left.[24] Tsander, unable to find the originals, did not translate them, significantly limiting Tsiolkovskii's reach beyond the Soviet Union.

"How Modern Science and Technology Solves This Question"

The Section's first public task was to organize a lecture. In picking a first speaker, the members of the Section not only looked for someone with authority but also an individual who would dispel the notion that space travel was a fantasy. The Section students invited one Mikhail Lapirov-Skoblo, a propitious choice since he was personally acquainted with Lenin. An engineer by education, Lapirov-Skoblo had been part of the pre-Revolutionary technical intelligentsia but was also one of the first of that demographic to wholeheartedly put his faith behind Lenin's vision of a modern Russia. In the early 1920s, Lapirov-Skoblo was the deputy chairman of the Scientific-Technical Department of the Supreme Council of the People's Economy (VSNKh or *Vesenkha*), a job that put him in charge of intellectuals who were engaged in introducing modern technology to the Russian economy. When Lenin supervised the formation of the State Commission for Electrification of Russia (GEOLRO) in 1920, Lapirov-Skoblo was tapped to represent the *Vesenkha* on GOELRO. His many other ad hoc duties included service as head of the Department of Science and Technology of the newspaper *Pravda*.[25] Having read Tsiolkovskii's recently published works, Lapirov-Skoblo wrote the first comprehensive expositions on the topic in the post-Revolutionary era in

22. Leiteizen to Tsiolkovskii, 4 May 1924, ARAN, f. 555, op. 4, d. 356, ll. 2–3.

23. Tsiolkovskii to Leiteizen, 14 May 1924, ARAN, f. 555, op. 3, d. 102a, ll. 3–4.

24. Tsander to Tsiolkovskii, 16 May 1924, ARAN, f. 555, op. 4, d. 670, ll. 4–5.

25. Lapirov-Skoblo was also a member of the collegium of the Electrical Industry Association, an academic, a member of the State council, and member of the collegium of the People's Commissariat of Communications. For biographies, see ARAN, r. 14, op. 14, d. 197, ll. 30–30b; Kramarov, *Na zare kosmonavtiki*, pp. 22–23.

Pravda and other publications in 1924.[26] In the waning days of May 1924, members of the Section put up posters at various key intersections in Moscow proclaiming that Lapirov-Skoblo would give a talk on "Interplanetary Communications" ("How Modern Science and Technology Solves This Question"); the paid lecture would begin at 8:00 in the evening on Friday, 30 May at the main auditorium of the Polytechnic Museum. All monetary contributions would go to fund a laboratory for the Section.[27]

The event was successful beyond all expectations. Tickets sold out two days before the event; on the day of the lecture, the Museum's administrators were forced to call for the police to control the mass of people who had arrived to attend. All the literature on space travel that the students had on hand to sell—Russian editions of H. G. Wells's *War of the Worlds*, Russian science fiction from Aleksei Tolstoi and Aleksandr Beliaev, and books by the popular science writer Iakov Perel'man—had been sold out in minutes. In total, the group amassed 2,500 rubles—an astronomical amount for the time. Lapirov-Skoblo's lecture, quite possibly the first talk on space exploration in Russia open to the general public, consisted of a short history of rocketry and space exploration.

Lapirov-Skoblo approached the idea of space travel much like one would treat an arcane discussion on any branch of science or technology. He considered the different technical options for reaching space, methods of propulsion, and the choice of propellants. At the same time he also linked the promise of space travel with the future modernization of the Soviet Union, grounding his words into a narrative that privileged national development over universal significance. Like many others of the period, he took pains to emphasize that the Russian Tsiolkovskii had done decades earlier what the foreigners Oberth and Goddard were only doing now. Yet Lapirov-Skoblo was also generous to the Westerners. Using hand-built models, he explained to the rapt audience the characteristics of multistage rockets and spaceships proposed by Oberth and Goddard. On the latter, Lapirov-Skoblo was less confident that the American would be able to launch a rocket to the Moon, given the vast technical difficulties of such a project. He ended his lecture by calling on Soviet populace to focus on a more immediate goal, to build rocket engines in order to "transform into reality the centuries-old dream of flight into space."[28]

---

26. "Puteshestviia v mezhplanetnye prostranstva," *Pravda*, 15 April 1924: pp. 5–6; "O puteshestviiakh v mezhplanetnye prostranstva," *Molodaia gvardiia* no. 5 (1924); "O puteshestviiakh v mezhplanetnye prostranstva," *Khochu vse znat'* no. 3 (1924): p. 140.

27. For a reproduction of the poster, see Kramarov, *Na zare kosmonavtiki*, p. 23.

28. The complete text of Lapirov-Skoblo's lecture is stored in ARAN, r. 4, op. 14, d. 194, ll. 49–62. For recollections of attendees, see ARAN, r. 4, op. 14, d. 197, ll. 35–38; Kramarov, *Na zare kosmonavtiki*, pp. 25–28.

The Society for the Study of Interplanetary Communications

After the lecture Section members informed the audience that they were intent on expanding the Section into a larger Society for the Study of Interplanetary Communications (*Obshchestva izucheniia mezhplanetnykh soobshchenii*, or OIMS) not limited to Academy students but open to the general public, and invited audience members to sign up. As a result, 179 people from the audience put their names on a list. Of the 121 names preserved in the archives, 104 were men. The majority of the members (about 60 percent) were young, between the ages of 20 and 30; most of the rest were either teenagers or in their 30s. The signatories were also asked to list their professions. A total of 96 members (roughly 80 percent) were evenly split between being students and workers. A smaller number identified themselves as "scientific workers," "writers," and "scientists and inventors."[29]

We know some personal details of these young men and women. Of the Zhukovskii Academy students, the most active was 27-year-old Morris Leiteizen, the son of the old Bol'shevik, G. D. Lindov-Leiteizen, who was killed in 1919 on the eastern front. The Leiteizen family lived with the exiled Lenin in Finland before the Revolution.[30] After the October Revolution, Leiteizen worked briefly in the People's Commissariat of Foreign Affairs in Finland before opting to come back to Russia to fight in the Civil War. On the way back from Helsinki, Leiteizen was arrested by the White Finnish imperial forces and thrown into prison in Helsinki. Lenin took a personal interest in the matter, and only after a series of diplomatic moves did the Finnish free the near-dead prisoner. Leiteizen, who was fluent in German, French, and English, had been interested in astronomy since his youth, and, according to a contemporary, believed that space travel was "a matter of the relatively near future."[31]

The rank-and-file members included V. S. Berdichevskii, only 17 years old; V. L. Pul'ver, the son of a well-known musician-composer, Anatolii Beliaev, who managed a local astronomical observatory; and Nataliia Sysoeva, a young assistant who worked there. Then there was Valentin Chernov, a young musician apprentice so taken by reading the works of Tsiolkovskii that he had visited the old man in Kaluga. Unable to decide between a career in music or space travel, he had decided to do both. He enrolled in a university to get a degree in astronomy while working part-time as a violinist at the Bol'shoi theater.[32]

29. "Spisok chlenov obshchestva mezhplanetnykh soobshchenii," ARAN, r. 4, op. 14, d. 196, ll. 6–21. See also V. M. Komarov and I. N. Tarasenko, "20 iunia—50 let so vremeni sozdaniia v moskve obshchestva izucheniia mezhplanetnykh soobshchenii (1924g.)," *Iz istorii aviatsii i kosmonavtiki* 22 (1974): pp. 75–82; Kramarov, *Na zare kosmonavtiki*, p. 28.

30. Ia. A. Berzin, ed., *Vospominaniia o Lenine: tom 3* (Moscow: Gospolitizdat, 1960), p. 76.

31. Kramarov, *Na zare kosmonavtiki*, p. 11.

32. Kramarov, *Na zare kosmonavtiki*, pp. 38–56.

Some Society members, including theorist Tsander, popular science writer Perel'man, and Academy professor Vetchinkin, were part of the pre-Revolutionary technical intelligentsia, i.e., they were older than the main body of members but still young enough to have been energized by the possibilities opened up by the Revolution. Vetchinkin provided the necessary institutional backing; Perel'man served as a conduit to the media, and Tsander represented the spiritual nexus for the group's activities. The de facto leader of the Society, however, was Grigorii Kramarov, a 36-year-old Comintern worker who had had a long history of active work on behalf of revolutionary causes. In January 1905 he was arrested by the Tsarist police for his illegal activities—the first of six times he was incarcerated for a variety of revolutionary activities on behalf of the Russian Social Democrats. After his last arrest in February 1913, Kramarov fled Russia and escaped to the United States. During the four years he lived in San Francisco, he worked at a fabric factory and actively participated in the Russian section of the American Communist Party, and was also a member of the Committee to Aid Political Prisoners and Exiles in Siberia. Hearing of the February 1917 revolution, Kramarov immediately returned home to work with the Men'sheviks. Following active duty with the Fifth Army on the eastern front during 1919–1920, Kramarov worked abroad for Comintern before returning to the Soviet Union.[33]

The Soviet media were surprisingly attentive to the work of these men and women and, with a few exceptions, journalists favorably reported on their activities. *Vecherniaia izvestiia* (*Evening News*), a widely read evening newspaper, and the journal *Iskra* (*Spark*) gave prominent space to the Society's structure, goals, and members. The former underscored that the Society's activities were not divorced from the masses, whereas the latter emphasized that Tsiolkovskii's and Goddard's work gave, for the first time, hope to bridge the gap between aspiration and achievement.[34] The biweekly *Tekhnika i zhizn'* (*Technology and Life*), one of the most popular science journals of the day, published a special issue in July 1924 dedicated to interplanetary travel; its cover story on the OIMS included a picture of Kaperskii, Rezunov, and Leiteizen in Academy uniforms, huddled over their documents. The author of one article, A.A. Mikhailov, the director of the Pulkovo observatory, introduced his readers to the elementary concepts of rocketry and space exploration and Tsiolkovskii's various spaceship designs. He singled out Tsander's scientific contributions to the field. In another article, "The Rockets of Goddard and Oberth," Ia. Gol'berg provided illustrated summaries of various Oberth projects, including a "passenger

33. I. N. Tarasenko, "1 dekabria—90 let so dnia rozhdeniia G. M. Kramarova (1887 g.)," *Iz istorii aviatsii i kosmonavtiki* 33 (1978): pp. 173–176.

34. *Vecherniaia izvestiia* issues for 25 June and 7 July 1924. These articles are preserved in ARAN, r. 4, op. 14, d. 194, ll. 115–116.

rocket," a "station in space," and Goddard's alleged Moon rocket.[35] Other articles in the issue dealt with the biology of high-altitude flight, long-distance aviation, and "superguns." The issue was illustrated with detailed artists' impressions of rockets and spaceships taken without attribution from the popular American science magazine *Science and Invention*.[36]

The Society's Work

Having formed the core of the Society, the members now set out to define precisely what they wanted to do. On 20 June 1924 the OIMS held its first official organizational meeting in the auditorium of the astronomical observatory of the Moscow region's Department of National Education (MONO).[37] About 200 people filed into the relatively small hall adorned with portraits of Newton, Kepler, Herschel, Bredikhin, and other renowned scientists. The three main organizers of the event, Leiteizen, Kaperskii, and Rezunov, sat at the main podium. As the first order of business, all assembled unanimously elected two men as honorary members of the Society: Tsiolkovskii, the founding father of Soviet rocketry, and Perel'man, the most important publicizer of the cause of spaceflight.

The meeting then led into a spirited discussion over the future goals of the Society. Using the blueprint of the smaller student Section of a few months earlier, the OIMS drew up a six-point charter (*ustav*), the first point of which was to "work on the accomplishment of extra-atmospheric flight with the aid of a reactive vehicle." Knowing that such an ambitious goal was out of the immediate reach of the Society, members emphasized more immediate activities like its predecessor Section, such as establishing a network of people all over the Soviet Union interested in the science of interplanetary travel, collecting data from the West, and most important, disseminating "reliable information" to the "broad masses" by way of "lectures, reports, organizing libraries, exhibitions, publishing scientific and popular literature, both original and translated."[38] Outreach and publicity were central to the Society's mandate and crossed over international barriers: the members decreed that one of their main goals would be to contact Goddard and Oberth and translate into Russian their respective 1919 and 1923 monographs.[39] At the end of the meeting,

35. A. Mikhailov, "Mezhplanetnye puteshestviia" and Ia. Gol'berg, "Rakety goddarda i oberta" in *Tekhnika i zhizn'* no. 12 (6 July 1924): pp. 10–12 and 12–13.

36. Compare the illustrations on p. 11 and the inside cover of *Tekhnika i zhizn'* issue with those from Don Home, "Can We Visit the Planets?" and Raymond Francis Yates, "Picture of the Earth," both in *Science and Invention* 11 (February 1924): pp. 962, 977.

37. "Otchet ob organizatsionnom sobranii OIMS," ARAN, r. 4, op. 14, d. 196, l. 1.

38. "Ustav obshchestva mezhplanetnykh soobshchenii," ARAN, r. 4, d. 196, ll. 2–3.

39. V. Chernov, "Obshchestvo izucheniia mezhplanetnykh soobshchenii," *Iskra* no. 8 (1924): p. 35.

all the members voted to elect a central body of the OIMS, the "presidium," that included Tsander, Leiteizen (secretary), Kaperskii, Rezunov, Chernov, Veigelen, and Kramarov. For the time being, the Society's home base would be the MONO astronomical observatory.

Kramarov, who was chosen to chair the presidium, recalled 40 years later that no one had any illusions that they would soon be sending men into space. He remembered that "[I]n the work of the Society [they] all saw one more possibility to aid the Motherland, to aid in the building of socialism." They would do this not by actually building rockets, but by bringing science to the masses. They were "convinced that the Society's work would contribute to the preparation of cadres, who in the future would create the economic and scientific and technical base for solving the greatest problems."[40] Like many utopians of the day, they justified their actions by establishing the most tenuous of connections with the exigencies of the new Soviet state. The technological fascination of the era provided a perfect bridge to connect utopian dreaming with real problems.

The OIMS was officially divided into three thematic sections, which loosely reflected its activities: a scientific-research section to do experimental work; a literature and propaganda section to publish the work of the Society; and a scientific-popularization section to organize lectures at various institutions.[41]

Because of limited funds, the Society produced little in terms of technical achievement—the goal of their first section. During its lifetime, there was no unanimous agreement on the clear distribution between performing "real" science and doing outreach at the OIMS. Tsander, one who frequently let his enthusiasm exceed his reach, most passionately believed that the members should immediately move to scientific and engineering work. No one in the Society, however, had the slightest idea of how to cultivate practical work. In this vacuum, Tsander took control. In a report to the Society's "board of directors" (*pravleniia*) on July 15, he asked rhetorically "How can we perform our investigations, what should we undertake first . . . ?" He laid out a four-point plan that would begin with "laboratory work" and end with the "construction of a large vehicle to lift men into the higher layers of the atmosphere and interplanetary space itself; we hope we will be able to shake hands on other planets." His detailed laboratory plan included considerations on testing small rockets, researching the various dimensions of rocket design; designing and cooling fuel tanks and engines; ideas on propellant selection and metal selection for the body of the rocket; exhaust gas dynamics; designing

40. Kramarov, *Na zare kosmonavtiki*, p. 50.

41. "Protokol zasedaniia pravleniia o-va iz mezhplan. soobshch. ot 23 iunia 1924 g.," ARAN, r. 4, op. 14, d. 196, l. 38. The scientific research section included F. A. Tsander, M. G. Leiteizen, and M. A. Rezunov; the popular science section included M. G. Serebrennikov and G. M. Kramarov; and the literature and propaganda section was represented by V. P. Kaperskii and V. I. Chernov.

ground systems to test rocket elements; and developing life support and electrical systems. He seemed to believe that the Society's announced contest to develop a rocket "would advance [their] work greatly."[42] Unfortunately, despite talk of closely coordinating theoretical, design, and experimental work, there is no evidence that the OIMS actually established a laboratory for such tasks.

The second section's ambitions also outstripped its material limitations. In May, leading member Leiteizen invited Tsiolkovskii in a letter to contribute an article for a new monthly journal which they would call *Raketa* (*The Rocket*). Their plan was to publish serious works on interplanetary travel and related fields such as astronomy, physics, chemistry, and aeronautics. Since they were unable to find any publishers interested in issuing such a journal, the members had planned to use money collected from both the Lapirov-Skoblo talk and from book sales. Tsiolkovskii offered the first part of his "Life in the Cosmic Ether" for *Raketa*.[43] Others, including Tsander ("On a Flight Over Other Earthly Spheres") and Vetchinkin, as well as OIMS member Rezunov ("The Dream of Humanity") wrote additional articles. Society member Mozharovskii prepared an evocative cover of a rocket flying over a planet with a background of galaxies and stars.[44] In the end, no journal was published. Kramarov remembers that they were unable to "overcome many difficulties, especially insufficient money."[45] Members collectively sent a letter to a major newspaper, asking to have an announcement published, free of charge, explaining that the Society had books and information on space travel for sale at their home location at Bol'shaia lubianka street. The newspaper declined to publish the letter.[46]

The OIMS was more successful disseminating ideas about space travel via lectures. At a meeting on June 30, the scientific-popularization section rejected section head Serebrennikov's suggestions for public presentation topics on specialized topics, and instead voted to have talks that would appeal to a very *general*

42. F. A. Tsander, "Organizatsionnyi doklad inzhenera F. A. Tsandera on predpolagaemykh rabotakh Nauchno-issledovatel'skoi sektsii Obshchestva izucheniia mezhplanetnykh soobshchenii o reaktivnom dvitatele," in *F.A. Tsander: iz nauchnogo naslediia*, pp. 30–31.

43. Leiteizen to Tsiolkovskii, 21 May 1924, ARAN, f. 555, op. 4, d. 356, ll. 6–7; Tsiolkovskii to Leiteizen, 4 June 1924, ARAN, f. 555, op. 3, d. 102a, l. 6.

44. For the draft of Tsander's manuscript for *Raketa*, see F. A. Tsander, "O pereletakh na drugie zemnye shary," in *F.A. Tsander: iz nauchnogo naslediia*, pp. 44–47. For two other articles for the journal, see V. Chernov, "Raketa na lunu" and M. Rezunov, "Mechta chelovechestva" in ARAN, r. 4, op. 14, d. 194, ll. 1–7. The first issue would have featured 11 articles by Tsiolkovskii, Tsander, Kramarov, Vetchinkin, Mikhailov, Rezunov, Chernov, Perel'man, Sharonov, and Kaperskii. See ARAN, r. 4, op. 14, d. 196, ll. 34–35.

45. Kramarov, *Na zare kosmonavtiki*, p. 60.

46. Kramarov, *Na zare kosmonavtiki*, p. 34.

audience, with a focus on history and forecast.[47] However, few in the Society beyond Tsander knew anything about rocket engine design. In late July, Tsander gave a talk to the OIMS's scientific-popularization section, the first part of which dealt with the history of visions of space travel, and the second part on the mathematics of rocket velocities, complete with differential equations. By teaching the Society's own members something of both the past and the possibilities of space exploration, Tsander not only helped to disseminate ideas about the "correct" way to space, i.e., with liquid-propellant rockets, but also inculcated his young audience with the idea that three men, one Soviet (Tsiolkovskii), one German-Romanian (Oberth), and one American (Goddard), were the true founding fathers of the theory of spaceflight. He helped to establish a pantheon—a holy trinity—for a new scientific era that has endured to the current day.[48]

Mania Over Goddard

The Society not only maintained regular contact with Tsiolkovskii through its existence, but also communicated with the reclusive American rocket scientist Robert Goddard. Society records reveal that in response to an inquiry from Leiteizen, the American wrote to the Society on 16 August 1924, expressing pleasure at the formation of the Society and indicating that he would be interested in cooperating with them.[49] At one of the major talks in Moscow in early October, Tsander read Goddard's letter to the audience.[50] Goddard had also sent the Society a copy of one of his recent articles published in the journal *Monthly Weather Review* wherein he conjectured on the velocity required to send a rocket to the Moon; the Society quickly translated the article into Russian for its members, thus providing one of the most influential sources of information about Goddard's work in the Soviet Union for many years.[51]

Garbled press reports alleging that Goddard was planning to launch a rocket to the Moon fostered a mini-mania among space enthusiasts all over the Soviet

47. "Protokol zasdeaniia pravleniia O.I.M.S. ot 30/VI-1924 g.," ARAN, r. 4, op. 14, d. 196, l. 39. Serebrennikov had suggested talks with such titles as "The Rocket, Its Instruments, Production, and Military Application," "Comparing Steam, Internal Combustion, and Reactive Engines," "Flying to Great Altitudes," "The Atom and Its Energy," "Radioactive Matter," "Observational and Theoretical Astronomy," "Celestial Mechanics," and "Aerodynamics."

48. F. A. Tsander, "Doklad v nauchno-populiarnoi sektsii Obshchestva izucheniia mezhplanetnykh soobshchenii o reaktivnom dvigatele," in *F. A. Tsander: iz nauchnogo naslediia*, pp. 32–34.

49. Goddard to Leiteigen [Leiteizen], 16 August 1924, ARAN, r. 4, op. 14, d. 195, l. 16.

50. For Tsander's note on the reading, see F. A. Tsander, "Nekotorye materially k vystupleniiu na dispute, sostoiavshemsia v 1 MGU 1, 4, 5 oktiabria 1924 g.," in *F. A. Tsander: iz nauchnogo naslediia*, p. 50.

51. Goddard to OIMS, 16 August 1924, ARAN, r. 4, op. 14, d. 195, l. 16. For the sent version of the Goddard article and its Russian translation, see ARAN, r. 4, op. 14, d. 194, l. 44–45ob. The article was "The High-altitude Rocket," *Monthly Weather Review* 52 (February 1924): pp. 105–106.

Union. Original reports had suggested that Goddard would launch a rocket to hit the Moon on 4 July 1924. But in mid-June, the science reporter for *Izvestiia* noted that according to *The New York Herald*, Goddard had postponed his launch to August 1924.[52] As summer turned to fall and there was no news, Goddard fever reached such proportions that the city police once had to be called out in Moscow. Responding to the notoriety over the alleged Goddard shot, the Society asked a prominent Leningrad-based astronomer, V. V. Sharonov, to speak to the public on the Goddard project at the Main Hall of the Physics Institute of the Moscow State University. The Society printed up artful posters under the giant headline "Polet na drugie Miry" ("Flight to Other Worlds") which were put up at several major intersections in Moscow. Sharonov gave two separate lectures, both on the first day of October 1924: "The Truth on the Dispatching of Professor Goddard's Projectile to the Moon on 4 August 1924" and "Debates in the West in Connection with Sending a Projectile to the Moon." At 8:00 p.m. on the night of the talk, so many people showed up that the Moscow horse militia had to be called out to control the crowds who were unable to enter the auditorium. All the tickets, for 30 kopecks each, had been sold out. Due to popular demand, the Society asked Sharonov to repeat the talks—this time followed by public debates—on 4 and 5 October.[53]

Society-organized debates, such as the one on Goddard, were quite common in the fall of 1924. Some were limited to the membership, such as the one on "Cosmogony Hypotheses" by member V. S. Berdichevskii on September 24. Others were open to the public for a small fee—about 30 kopecks. Usually, these public lectures had two components, a first talk by a distinguished guest and then a second talk and open debate (*disput*) on a controversial topic. For example, the Society held highly publicized lectures at the Russian Polytechnical Museum on 31 October and 2 November, this time by Vladimir Vetchinkin, the Zhukovskii Academy professor and aeronautics expert who had helped to establish the Society. His two-part lecture, beginning each night at 8:00 p.m., covered both the popular and mathematical aspects of interplanetary travel. Later, the Society's own Vladimir Chernov gave a talk on "Construction of Rockets," followed by debate on the best way to do so. Those who paid the 75 kopecks to 3 rubles (depending on the seat) were privy to see not only Vetchinkin and Chernov but also to hear spirited discussion among representatives from the Moscow Society of Amateur Astronomers, Glavvozdukhflot (the civil air fleet), the ODVF (a voluntary society for aviation enthusiasts), Dobrolet (Soviet airline), and the journals *Vestnik vozdushnogo*

52. "Preslovutaia 'raketa'," *Izvestiia VTsIK*, 13 June 1924: p. 5.

53. For a reproduction of the poster for 4 October as well as Tsander's comment about the "horse militia," see Korneev, "Zhizn'," pp. 29–30. See also Kramarov, *Na zare kosmonavtiki*, pp. 54–55. Tsander also gave talks on all three days.

flota (*Air Fleet Bulletin*) and *Samolet* (*Aircraft*).[54] Their attendance was critical because it gave these often-bizarre proceedings the implicit stamp of official sanction; ODVF and Dobrolet were important elements in the Soviet government's drive to inculcate a young post-Revolution generation with up-to-date technology by equating aviation with modernity. If some in the press and elsewhere were tempted to derisively speak of the "youth who believe in such fables," others took pause and infused the talk on spaceflight with a certain sense of gravitas. Lectures elsewhere in 1924—at a number of aviation factories, at the Bauman Higher Technical School, and at the Shternberg Astronomical Institute—also expanded the sites of discussion. Society representatives, including Sharonov, Prianishnikov, and the indefatigable Tsander, took their message outside of Moscow in 1924–1925 to give talks in such disparate locales as Khar'kov (on 17 October), Leningrad (on 17 November), Riazan' (in November), Tula (in December), and Saratov (in January 1925).[55] The Society archives contain letters from enthusiasts in places as far away as Zlatoust and Khar'kov, expressing their wish to engage in joint work on interplanetary travel.[56]

The Society and the Arts

The Society produced no work of art or literature but, during its brief existence, its members actively discussed and helped to popularize space-themed artistic works of others.[57] For example, their interest in space travel was catalyzed by a number of famous science-fiction novels such as Aleksandr Bogdanov's *Krasnaia zvezda* (*Red Star*, 1908) and Aleksei Tolstoi's *Aelita* (1923). The former, the first major Russian work in the genre of science fiction to deal explicitly with spaceflight, was written before the Revolution but was widely read and discussed afterward.[58] Bogdanov (a pseudonym for Aleksandr Malinovskii) had had a much-publicized split with Lenin, but his popularity in the 1920s, which rested on *Red Star* and his other science-fiction novel *Inzhener Menni* (*Engineer Menni*), did not suffer. Reprinted in 1918 and 1929, *Red Star* was not, of course, about spaceflight, but about an

54. The Moscow Society of Amateur Astronomers (MOLA) was represented by its chairman A. A. Mikhailov, Dobrolet by engineer Kh. I. Slavernov, and *Samolet* by pilot S. I. Pokrovskii. See the poster for the talk in Kramarov, *Na zare kosmonavtiki*, p. 53. *Glavvozdukhoflot* stood for Main Administration of the Workers' and Peasants' Red Military Air Fleet, i.e., the Soviet "air force." ODVF stood for Society of Friends of the Air Fleet.

55. ARAN, r. 4, op. 14, d. 194, l. 76; Tsander, *F. A. Tsander: iz nauchnogo naslediia*, p. 6. For the texts of many of Sharonov's lectures, see ARAN, r. 4, op. 14, d. 194, ll. 77–91.

56. ARAN, r. 4, op. 14, d. 195, ll. 14–15.

57. For a detailed description of the artistic dimensions of the "space fad," see Siddiqi, "Imagining the Cosmos."

58. A. Bogdanov, *Krasnaia zvezda: roman-utopiia* (St. Petersburg: Tvorchestvo khudozhestvennoi pechati, 1908).

idealized communist utopia on the planet Mars; some have seen Bogdanov's tale as a warning on how socialism would take on distinctly totalitarian tones if sufficiently militarized.[59] In constructing a future administered by a "benevolent technocracy," Bogdanov articulated an explicitly technologically utopian vision that seemed to coincide much more with the prevailing feeling of the 1920s than the pre–World War I period when he wrote the novel.

After the Revolution, when *Red Star* was especially popular among the reading public, the novel resonated deeply with the space enthusiast community who shared Bogdanov's utopian notion that modern technology, especially space technology, could remake society in unimaginable (and positive) ways. At the height of the space fad in 1924, Society for the Study of Interplanetary Communications secretary Moris Leiteizen wrote to Tsiolkovskii, announcing that they were in communication with Bogdanov; among other things, they were particularly interested in Bogdanov's rather unusual proposal to use atomic power to propel his apocryphal spaceship.[60] The novel's lasting relevance for space enthusiasts is underscored by a review of the book published in 1934 by spaceflight popularizer Nikolai Rynin, who gushed (incorrectly) that Bogdanov was the first to predict the use of nuclear power for spaceflight.[61] In general, space enthusiasts were less likely to explore Bogdanov's philosophical arguments than his technological vision; both parties shared a view of technology as autonomous, positive, and liberating.

The space enthusiast community had a similar take on the most famous Soviet science-fiction novel of the 1920s, Aleksei Tolstoi's *Aelita: Zakat Marsa* (*Aelita: Sunset of Mars*), first published in serialized form in 1922–1923.[62] Much has been written about the novel, which is about an engineer's and a soldier's trip to Mars, the latter of whom incites a proletarian revolution in a bourgeois social setting. Aelita is the queen of Mars who falls in love with the Red Army solder. Superficially, *Aelita* has all the elements of post-Revolutionary utopian science fiction: a bourgeois enemy, a Marxist revolution, the most modern science and technology of space travel, adventure and romance borrowed from Edgar Rice Burroughs, and a utopian theme. Yet, as Halina Stephan has pointed out, the novel is also characterized by mysticism and by "themes borrowed from the theosophic and anthrosophic

59. Loren R. Graham, "Bogdanov's Inner Message," in *Alexander Bogdanov: Red Star: The First Bolshevik Utopia*, Loren R. Graham and Richard Stites, ed. (Bloomington, IN: Indiana University Press, 1979), pp. 241–253; Mark B. Adams, "Red Star: Another Look at Aleksandr Bogdanov," *Slavic Review* 48 (Spring 1989): pp. 3–15. Roy Medvedev was perhaps the most well-known historian to make this argument; See his *Let History Judge: The Origins and Consequences of Stalinism* (New York: Alfred Knopf, 1972), p. 374.

60. Leiteizen to Tsiolkovskii, 4 May 1924, ARAN, f. 555, op. 4, d. 356, ll. 2–3.

61. N. A. Rynin, "Tekhnika i fantaziia," *V boi za tekhniku* no. 8 (1934): p. 22.

62. The novel was originally published in three serialized parts in the journal *Krasnaia nov'*. In 1923, it was published as a standalone novel as A. Tolstoi, *Aelita (Zakat Marsa)* (Moscow: GIZ, 1923).

mythology."[63] The immediate reaction to the novel was rather negative since many of the more ideologically active Bol'sheviks viewed *Aelita* as a novel with an ambiguous pro-Soviet message—the Revolution on Mars had, after all, failed. Yet, the technologically-minded spaceflight enthusiasts found it inspiring: Tolstoi's novel was the first major Soviet novel of the period that used a rocket for interplanetary travel—a key aspect that attracted the attention of many. For example, the Society for the Study of Interplanetary Communications was so taken by Tolstoi's use of the rocket that they considered using the story to develop a film script, a project that was brought to fruition by others.[64]

In terms of film, the seminal *Aelita* (1924) and the lesser-known *Kosmicheskii reis* (*Space Voyage*, 1935)—the two movies which bookended the Soviet space fad—were the only film projects that reached fruition, but they were not the only attempts to bring cosmic voyages to the screen. In 1924, the Society informed Tsiolkovskii that they had contacted Proletkino, the official Soviet movie-making authority, with the idea to develop an original film script.[65] Tsiolkovskii insisted that the Society write a script for his novella *Beyond the Earth*, but Society representative Moris Leiteizen responded that they would rather not use that pre-Revolutionary story: "We have decided to give our film some lively character: the action should take place in our day in Soviet Russia."[66] The Society produced two scripts, both extraordinary not for their artistic merit but because they astutely mirrored the concerns of the Society.

Member M. G. Rezunov's four-part script closely followed Tolstoi's *Aelita* with a Martian character named Le (Tolstoi's hero was named Los'), but added an odd twist near the end. The action is initiated when Stepan, a factory worker, reads about Goddard's plan to launch a rocket to the Moon on 4 July. Gripped by the idea of spaceflight, Stepan devises a plan for a spaceship which, after presentation to the ODVF (the voluntary aviation society), the Society decides to build. The central intrigue of the story involves a "foreign" spy who disrupts the construction work. The obligatory voyage to Mars is embellished by scenes of life in space, the hazards of meteorites, befriending a Martian communist, and ultimately a return trip in which Stepan, unable to live without Le, decides to commit suicide by exiting his ship and becoming an Earth satellite. Stepan, it seems, would rather be dead in space than alive on Earth.[67]

---

63. Halina Stephan, "Aleksei Tolstoi's *Aelita* and the Inauguration of Soviet Science Fiction," *Canadian-American Slavic Studies* 18 nos. 1–2 (1984): pp. 63–75.

64. Leiteizen to Tsiolkovskii, 4 May 1924, ARAN, f. 555, op. 4, d. 356, ll. 2–3.

65. Ibid.

66. Tsiolkovskii to OIMS, 14 May 1924, ARAN, r. 4, op. 14, d. 195, ll. 3–5; Leiteizen to Tsiolkovskii, 21 May 1924, f. 555, op. 4, d. 356, ll. 6–7.

67. "Kinotsenarii," ARAN, r. 4, op. 14, d. 194, ll. 118–119.

Society chief Grigorii Kramarov's script was a brilliant synopsis of many of the tropes of the space fad. The action begins in the late Tsarist era when the imperial government forbids any talk of space exploration. A Russian revolutionary inventor, modeled on the great martyred "spaceship inventor" Nikolai Kibal'chich, produces a plan for a rocket ship.[68] He is arrested and executed, but not before bequeathing his plan to his young son, Viktor, who like his father, links the struggle against the autocracy with the struggle against gravity. With his plans and dreams in hand, the young revolutionary moves to the United States to fulfill his father's dream of spaceflight. With the help of likeminded others in America, Viktor begins building the rocket ship when a rich banker discovers the project. The banker decides to build his own ship and asks Viktor to join his company. Angry with Viktor's refusal, the banker seizes Viktor and his model and takes them to his villa, where he employs a team of engineers to finish the design. The banker's daughter, of course, falls in love with Viktor and helps him escape the depths of the banker's capitalist hell. Viktor's industrious American friends convince him that he must return to Russia, for there is a Revolution underway at home. The young man, disguised as an "engineer-expert," manages to free his vaulted ship and fly the rocket-machine to Russia where, upon landing, he is greeted with much fanfare to "start the victory over the cosmos!"[69] Here we find the patron saint (the Kibal'chich archetype), the equation of gravity with oppression, America as a place where technological dreams come true (especially if capitalists get out of the way), and the all-encompassing myth of Bol'shevik recognition of the value of spaceflight—all in one film. Although the Society approached several major studios to finance the project, including Proletkino and Mezhrabpom-Rus', they found no one to produce the movie.[70]

Even though, in 1924, Soviet filmgoers were deprived of the pleasures of watching Stepan and Viktor on screen, they might have seen the most famous Soviet science fiction in the prewar era, *Aelita*, the movie version of Tolstoi's book about a voyage to Mars, directed by the famed pre-Revolutionary Russian director Iakov Protazanov.[71] The silent movie, which was released officially on 25 September

68. Kibal'chich was a member of the People's Will terrorist organization which assassinated Tsar Aleksandr II. Before his execution in 1881, Kibal'chich devised a plan for a rocket-propelled vehicle that later Soviet historians absurdly claimed was an early design for a spaceship.

69. Kramarov, *Na zare kosmonavtiki*, pp. 62–63.

70. "Vospominaniia Kaperskogo," ARAN, r. 4, op. 14, d. 197, l. 41.

71. For Protazanov, see M. Aleinnikov, *Iakov Protazanov: o tvorcheskom puti rezhisera*, 2nd ed. (Moscow: Iskusstvo, 1957); M. Aleinnikov, *Iakov Protazanov* (Moscow: Iskusstvo, 1961); Ian Christie and Julian Graffy, eds., *Protazanov and the Continuity of Russian Cinema* (London: British Film Institute, 1993); Denise J. Youngblood, "The Return of the Native: Yakov Protazanov and Soviet Cinema," in *Inside the Film Factory: New Approaches to Russian and Soviet Cinema*, Richard Taylor and Ian Christie, eds. (London: Routledge: 1991), pp. 103–123. *Mezhrabpom-Rus'* combined *Mezhrabpom* (International Workers' Aid), a Berlin-based relief organization and *Rus'*, a Russian production company formed in 1918.

1924 at the peak of the space fad, contributed enormously to the popularization of spaceflight in Soviet culture in the 1920s. It is no coincidence that space enthusiasts such as the OIMS enjoyed their highest attendance ratings at talks soon after the movie was released.

Protazanov's goal to produce an "impartial" work was not rewarded in like. Despite widespread criticism of the film—many complained about the fact that the revolution on Mars had failed—it was an incredibly popular film; it did, after all, feature dramatic acting, an exotic planet, a glamorous princess, and a romantic story arc. Grigorii Kramarov, the head of the OIMS, effusively remembered years later that "[T]he book and film played a significant role in strengthening interest towards interplanetary communications and contributed to the development of activities of our Society."[72] The movie made a deep impression on many young people. Vladimir Chelomei, who was only 10 years old when the film came out, 45 years later named his dream project—a huge space complex to send the first Soviet cosmonauts to Mars—Aelita.[73]

The Society's End

In the end, lack of financial and governmental support proved to be the Society's undoing. Most Russian sources note vaguely that the Society existed for "approximately a year" and then disbanded.[74] In reality, the Society probably dissolved long before a year was over. Society secretary Leiteizen wrote to Tsiolkovskii on 16 December that the Society was "currently in a period of liquidation." As an explanation, he noted, "[I]t's not so terrible that we hurried, but we ran ahead [of ourselves by] several years, only to come back to the present." He added in resignation, "I'm also inclined to think that such a noisy Society was excessive: we can still work splendidly for now without a Society. And [perhaps] even work better."[75]

Why did the Society fall apart so soon after the successful lecture series in October and November? The most important factor was lack of official state recognition. Although the Society was sponsored by the Moscow Society of Amateur Astronomers (MOLA) and the Military-Scientific Society (VNO) of the Zhukovskii Academy, it was never an *officially* recognized organization. In late 1924, when the Society petitioned the administrative department of the Moscow

72. Kramarov, *Na zare kosmonavtiki*, pp. 19–20.

73. Asif A. Siddiqi, *Challenge to Apollo: The Soviet Union and the Space Race, 1945–1974* (Washington, DC: NASA, 2000), pp. 745–754.

74. See for example, Komarov and Tarasenko, "20 iiunia–50 let," p. 81.

75. Leiteizen to Tsiolkovskii, 16 December 1924, ARAN, f. 555, op. 4, d. 356, ll. 11–11ob. The former wrote his last letter to Tsiolkovskii on 7 January 1925. For the complete (eight) letters from Leiteizen to Tsiolkovskii, see ARAN, f. 555, op. 4, d. 356, ll. 1–15.

city council to officially register the organization, the city council rejected the application on grounds that the Society had "insufficient scientific strength among its members."[76] Probably the most fatal blow for the Society was that its patron, Academy Professor Vetchinkin, declined to formally become a member, thus depriving the group of legitimacy in the eyes of both the Academy and the Soviet security services who had to sign off on any formal social organization in the Soviet Union.[77] The following year, Tsander confirmed that the lack of "scientific workers" among members of the "board of directors," i.e., Tsander, Leiteizen, Kaperskii, Rezunov, Chernov, Serebrennikov, and Kramarov, was a source of dissension that contributed to the Society's dissolution.[78] The members unsuccessfully appealed the city council decision and were dealt a second blow when, upon hearing of the city council's decision, the Military-Scientific Society withdrew its support of the Society.[79] Soon after, the enthusiasts abandoned their efforts.

The Society's members also had deal with less-committed members who were unable to sustain interest in the face of both financial insecurity and the possibility that space exploration was decades away. Society head Kramarov remembers that the most common question from the audience after each lecture was "How quickly would flight to the planets be accomplished?"[80] Tsander's naïve and unbounded optimism that interplanetary travel was imminent raised the hopes of many who had no idea of the incredible technical difficulties. When it became clear that travel into space was years (if not decades) away, the "accidental members" dispersed quickly, leaving only a handful of the truly dedicated to pursue the cause.[81] And eventually even the faithful had to come down to the ground; most, such as Tsander, had little time to devote to activities that did not provide money for living. Chernov, for example, remembered later that his job as a musician forced him to abandon the Society.[82] Because the group was never officially recognized or registered by

76. Rezunov to Korneev, 19 February 1961, ARAN, r. 4, op. 14, d. 197, l. 19.

77. Ibid.

78. Tsander noted in an unpublished manuscript from August 1925 that "[T]he shortage of time which I had free and the comparatively small number of scientific workers in the board of directors is the reason why, after the Society had been approved by a number of others, one last person did not approve it . . ." See F. A. Tsander, "Materialy k knige 'Polety na drugie planety i na Lunu'," in *F. A. Tsander: iz nauchnogo naslediia*, p. 58.

79. "Vospominaniia Kaperskogo," ARAN, r. 4, op. 14, d. 197, ll. 43–44.

80. Kramarov, *Na zare kosmonavtiki*, p. 56.

81. Russian historians Raushenbakh and Sokol'skii note that "the Society absorbed many accidental members since most of those [who] joined the Society in 1924 never contributed to the development of rocketry in any way." B. V. Rauschenbach and V. N. Sokolsky, "The First Soviet Space Flight Organisations," 49th International Astronautical Congress, 28 September–2 October 1998, Melbourne, Australia.

82. Kramarov, *Na zare kosmonavtiki*, pp. 51–52.

any state authority, it never received any funds from the state and maintained its activities by donations or from ticket imbursements. And once the members were unable to register the Society with official authorities, the two major institutions that sponsored the Society, the MOLA and the VNO, cut off their modest support.

Few members of the Society for the Study of Interplanetary Communications went on to participate in the practical development of rocketry funded by the Soviet government in the 1930s. The notable exception was Fridrikh Tsander, who in 1931 founded the Group for the Study of Reactive Motion (GIRD), the semi-amateur team that launched the first Soviet liquid-propellant rockets in 1933. Tsander served as a crucial link between the Society and the most important personality of the early Soviet space program, Sergei Korolev. Tsander's unexpected death in 1933 from poor health was a deep blow to Korolev. In the heady days after the launch of Sputnik in 1957, Korolev searched out Tsander's grave to set up a special memorial in his name.

Others from the 1924 Society for the Study of Interplanetary Communications fared worse, especially the ones who fell at the height of the Stalinist Great Terror in the late 1930s. On 16 April 1939, the NKVD (the Soviet security services) shot former Society secretary Morris Leiteizen—then 42 years old—because he was the son of an old Bol'shevik. Mikhail Lapirov-Skoblo, one of the earliest advocates for spaceflight in the 1920s and the man who gave the first rousing lecture to recruit members for the Society in 1924, also fell to the purges. After a very distinguished career as a vocal spokesperson for the Soviet scientific and technical intelligentsia, he was arrested in 1937, sentenced in 1941, and died in confinement in 1947 while working at a factory.[83]

CONCLUSIONS

The Society for the Study of Interplanetary Communications was the world's first organization dedicated to the study of spaceflight. Besides its claim to priority in the history of space exploration, the organization left behind two important legacies.

First, the Society—with the help of enthusiastic Soviet media—wrenched space travel from the discourse of fantasy and relocated it into the language of science and technology. Prior to the 1920s, in the public imagination space exploration was considered in the same breath as mythology, speculation, and mysticism. In the 1920s, by linking spaceflight with the sciences (mathematics, chemistry, metallurgy, etc.) and suggesting that space travel was possible by means familiar to most people (such as rockets), the spaceflight advocacy community brought such ideas into the realm of reasonable scientific prognostication.

83. "Rasstrely v Moskve-G," *http://mos.memo.ru/shot-13.htm* (accessed 22 January 2007); Medvedev, *Let History Judge,* 444; "Lapirov-Skoblo Mikhail Iakovlevich," in *Repressirovannoe ostekhbiuro*, E. N. Shoshkov, ed. (St. Petersburg: NITs Memorial, 1995), p. 137.

Second, by underscoring the scientific and technological bases of cosmic travel, the community equated spaceflight with "being modern." Space advocates fit their conception of space travel firmly within the Bol'shevik cause of remaking Russia into a modern, technologically capable nation. After the 1920s, spaceflight was, like aviation, a manifestation of the self-reflexive notion of twentieth-century modernity. The equation of spaceflight with science and modernity meant that space travel was now connected not only with the past—such as the Russian Cosmist philosophy which was committed to reanimating the dead by exploring space—but also with the future.[84] Mystical ideas like Cosmism were rare among space enthusiasts of the societies and exhibitions of the 1920s, which favored a fetishistic view of technology in general and space travel in particular. This fetishism, bordering on messianism, is profoundly evident in the works of the Society—particularly in the language that they used, the goals that they set out to accomplish, and the way in which they saw technology as a panacea for many if not all social ills. Writing of the Soviet Union in the 1920s, Anthony J. Vanchu notes that "[W]hile science and technology had the power to demystify religion and magic, they themselves came to be perceived as the locus of magical or occult powers that could transform the material world."[85] This kind of stance toward space travel is not so very different from the visions of space enthusiasts in entirely different social contexts, such as in the United States; many American activists also adopted an almost evangelical view of human migration from Earth into outer space—one that was not only inevitable but essential for the survival of the species.[86] The Society for the Study of Interplanetary Communication was perhaps the first organized attempt to articulate this singular vision of space travel which has continued to play an important role in those who believe—misguidedly or not—that through the power of science and technology, humankind will attain its rightful destiny in the deeper reaches of the cosmos.

84. For Cosmism, see Siddiqi, "Imagining the Cosmos."

85. Anthony J. Vanchu, "Technology as Esoteric Cosmology in Early Soviet Literature," in *The Occult in Russian and Soviet Culture*, ed. Bernice Glatzer Rosenthal (Ithaca, NY: Cornell University Press, 1997), pp. 205–206.

86. Roger D. Launius, "Perfect Worlds, Perfect Societies: The Persistent Goal of Utopia in Human Spaceflight," *Journal of the British Interplanetary Society* 56 (2003): pp. 338–349.