

## CHAPTER 3

# IN SEARCH OF A RED COSMOS: SPACE EXPLORATION, PUBLIC CULTURE, AND SOVIET SOCIETY

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In the Soviet 1920s, a proliferation of popular books, newspaper articles, and pamphlets on air and spaceflight filled the popular press and Soviet readers became part of a cosmopolitan readership throughout Europe engaged in news on exploration of the cosmos. Indeed, as I have argued in my book *Science for the Masses*, this only continued a pre-Revolutionary fascination with the stars, heavens, and the universe beyond. Astronomy and amateur space societies proliferated in Soviet Russia until the Stalinist 1930s and genuinely were generated from below, independently from the state.<sup>1</sup>

However, to a certain degree, two catalytic time periods changed that public response—both 1935, in Stalin’s times, and 1957, in Khrushchev’s. In 1935, Stalin and the Central Committee sanctioned Konstantin Tsiolkovskii to give a taped speech on May Day from Red Square, which would be broadcast all over the former Soviet Union. Tsiolkovskii’s speech would be used by the regime to boast the preeminence of early Soviet rocket theorists over Western thinkers. Along with Stalin’s Soviet nationalist cultural campaigns, it would begin a contest with the West of technological superiority that wrenched the early popular enthusiasm for space flight into a politicized and ultimately nationalized context. By 1957, with the launching of Sputnik 1, the Khrushchev regime and its successors would continue that program, only this time directing memorial celebrations to earlier rocket theorists; launching popular campaigns from above in the press and journals; mythologizing cosmonauts and physicists alike; and urging Soviet citizens to engage in the contest with the West, while focusing on its “national” resonance.

This article will begin by analyzing in more detail how the early, more cosmopolitan fascination with spaceflight in Russia shifted to become directed from above in the shaping of popular consciousness of spaceflight after both 1935

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1. See James T. Andrews, *Science for the Masses: The Bolshevik State, Public Science, and the Popular Imagination in Soviet Russia, 1917–1934* (College Station, TX: Texas A&M University Press, Russian and East European Studies Series, 2003).

and 1957. It will also attempt to theorize how one can deconstruct that campaign in a censored state, and whether there still remained the genuine, popularly driven response and enthusiasm to space exploration during the Stalin and Khrushchev eras. Indeed, some ordinary Russians as well as well-known cultural critics criticized the campaigns to place space exploration on the national cultural agenda. Furthermore, this paper will explore how the popularization of space exploration in Soviet Russia may have also had a genuine inspirational effect on future physicists regardless of the political context within which these texts and campaigns were created from above. Yet, ultimately this was a dialogical tension between state and society, and although the public attempted to respond in independent ways, the monumental shifts from 1935 through 1957 nevertheless served to constrain the Soviet public's enthusiasm while it directed it into "proper channels."

### AIR- AND SPACEFLIGHT, THE COSMOS, AND THE POPULAR IMAGINATION FROM TSARIST TO STALIN'S SOVIET TIMES

On a cold, wintry day during Lenin's regime in 1921, a long line of people waited, freezing in the Moscow snow to hear another lecture in a series on the planet Mars; it would be presented at the famed Moscow Polytechnic Museum by the astronomer A. A. Mikhailov.<sup>2</sup> Soviet citizens in the 1920s had flocked to hear talks on astronomy, air flight, and popular rocketry, and frequented museums in both capital and provincial cities to expand their knowledge on these topics. These densely populated lectures and long lines in the 1920s were not anomalous because, since as far back as the late nineteenth century, Russians had been fascinated by popular scientific themes. In the late nineteenth and early twentieth centuries, Tsarist Russia witnessed an explosion of scientific and amateur societies that helped sponsor lectures and events on popular topics such as air flight, astronomy, and the cosmos beyond. These societies proliferated before the onslaught of World War I and the Russian revolution, while their membership grew as well. By the 1920s, after the Bolshevik Revolution of 1917 and the Russian Civil War (1918–1920), a period called the New Economic Policy (1921–1927) allowed for a mixed economy to flourish and thus books, pamphlets, and even some newspapers could be published independently of the state.<sup>3</sup> Within this economic and political context of the Soviet 1920s, air- and spaceflight, along with astronomy, became not only popular themes in the mass media—they literally became crazes.

2. "Otchet M.O.L.A. na pervoe polugodie 1921 goda," Gosudarstvennyi Arkhiv Rossiskoi Federatsii—State Archive of the Russian Federation (hereafter cited as GARF), f. 2307, op. 2, d. 371, l.69.

3. For a critical overview of the transitional qualities of the period of the New Economic Policy (NEP), see William G. Rosenberg, "Introduction: NEP Russia as a 'Transitional' Society," in *Russia in the Era of NEP, Explorations in Soviet Society and Culture*, ed. Sheila Fitzpatrick et al. (Bloomington, IN: Indiana University Press, 1991), pp. 1–12.

In Soviet Russia during the 1920s, professors such as N.A. Rynin in Leningrad became almost full-time popularizers of spaceflight, in particular, while the public eagerly consumed journal and newspaper articles devoted to this topic.<sup>4</sup> Rynin, a prolific writer on Russian rocketry and astronautics, was also interested in organizing public astronomical societies in the 1920s. In the late 1920s he began to write and publish a multivolume encyclopedia on cosmonautics that placed him at the forefront of the popularization of rocketry in Russia.<sup>5</sup>

This Soviet aeronautical craze was certainly part of a pan-European phenomenon, as the reporting of aeronautical feats in Europe were popular news items and were anticipated well ahead of time. This fixation with air flight in both the European and Russian public media of the 1920s was similar to the way that U.S. and Soviet rocket flights were both elaborately portrayed by television reporters and eagerly anticipated by a viewing audience in the 1960s and 1970s. Western technological developments were practically revered in the Soviet newspapers of the 1920s, and thus readers were exposed to news on global developments in aeronautics and rocketry. America itself was portrayed as a symbol and emblem of how technology was transforming modern culture, and Soviet readers believed they were part of a cosmopolitan readership that could synthesize European, American, and Russian developments in rocketry and aeronautics in general.<sup>6</sup>

Though interest in spaceflight had predated the 1917 Russian revolution, certain groups in the Soviet 1920s (such as the Biocosmists) believed in the importance of spreading ideas on interplanetary travel for public consumption. The Biocosmists were interested in space travel as a means to achieve immortality, and they included amongst their group the renowned geochemist and science popularizer V. I. Vernadskii. This group also included, amongst their diverse members, the space visionary K. E. Tsiolkovskii, a mathematics teacher from Kaluga, Russia. Besides Tsiolkovskii, other followers of this group included influential Bolsheviks such as Leonid Krasin (the designer of the Lenin Mausoleum) and Valerian Muraviev (editor at the Central Institute of Labor in Moscow and a devout follower of Frederick Taylor). The Biocosmists could, to some extent, aptly be described as millenarians

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4. N.A. Rynin, *Mechty, legendy, i pervye fantazii* (Leningrad, 1930).

5. N. A. Rynin, *Interplanetary Flight and Communication (A Multi-Volume Encyclopedia)* (Israeli Program of Scientific Translation, published for NASA, Jerusalem, 1970). For an overview of the life of N. A. Rynin, see Frank H. Winter, "Nikolai Alexeyevich Rynin (1877–1942), Soviet Astronautical Pioneer: An American Appreciation," in *Earth-Oriented Applied Space Technology*, 2, no. 1 (1982): pp. 69–80.

6. For a look at how America was portrayed in the Russian press and journals, see Jeffrey Brooks, "The Press and Its Message: Images of America in the 1920s and 1930s," in *Russia in the Era of NEP, Explorations in Soviet Society and Culture*, ed. Sheila Fitzpatrick et al. (Bloomington, IN: Indiana University Press, 1991); also Hans Rogger, "America in the Russian Mind," *Pacific Historical Review* 47 (February 1979): pp. 27–51.

and utopians, as they had a belief in the unbound ability of man to transform nature as well as to explore and colonize the cosmos.<sup>7</sup>

The Biocosmists were heavily influenced by the ideas and writings of the Russian pre-Revolutionary philosopher Nikolai Fedorov. Fedorov had worried that Earth was overcrowded and believed that humans could overcome this Malthusian pressure by exploring and colonizing space. Fedorov's vague notions of space travel as a way to achieve immortality for the human race was at the crux of his mystical utopian ideas and were very popular among Russian intellectuals.<sup>8</sup> One of Fedorov's most avid disciples was the space visionary Konstantin Tsiolkovskii. According to the science journalist Victor Shkolovskii, Fedorov had hoped Tsiolkovskii would popularize notions of space flight and rocketry amongst the Russian reading public.<sup>9</sup> In the Soviet period, the Biocosmists became devout followers of Fedorov, and they spread his (and Konstantin Tsiolkovskii's) ideas in the popular media for an eager readership willingly consuming articles on space travel.<sup>10</sup>

However, during the Soviet 1920s, professional science educators also served as popularizers of space flight and rocketry. Those Russian intellectuals, such as the Leningrad physics professor Ia. I. Perel'man, had more didactic purposes in mind. Perel'man, for instance, published many articles on rocket science and space travel in the several widely distributed popular journals he edited, such as *In Nature's Workshop*. These articles had an educational focus, attempting to explain the basics of gravitational forces and rudimentary rocketry to a popular audience.<sup>11</sup> Perel'man was particularly interested in spreading the ideas of the space visionary Konstantin Tsiolkovskii, and popularized Tsiolkovskii's theories on space flight in his widely read book entitled *Mezhplanetnoe puteshestvie (Interplanetary Travel)*. Perel'man adamantly defended the notion of space flight against skeptics, explaining to readers how rockets could potentially overcome gravitational forces by projectiles traveling

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7. For a good overview of the participants and focus of the Biocosmists and other utopian groups, see Richard Stites, *Revolutionary Dreams: Utopian Vision and Experimental Life in the Russian Revolution* (New York: Oxford University Press, 1989), pp. 168–170.

8. For an analysis of Fedorov and his school of mysticism, see Peter Wiles, "On Physical Immortality," *Survey*, nos. 56/57 (1965): pp. 132–134.

9. See Victor Shkolovskii, "Kosmonavtika ot A do Ia," in *Literaturnaia gazeta* (7 April 1971): p. 13.

10. For an analysis of the philosophical roots of Russian cosmism, see Michael Hagemester, "Russian Cosmism in the 1920s and Today," in *The Occult in Russian and Soviet Culture*, Bernice Glatzer Rosenthal, ed. (Ithaca, NY: Cornell University Press, 1997). Hagemester argues that the city of Kaluga, Russia, where Tsiolkovskii lived most of his life, was a center for cosmism whose followers professed a belief in the omnipotence of science and technology. According to some Biocosmists, such as Tsiolkovskii, by traveling to outer space the human race could lose its corporeality and gain a type of immortality in infinite space and time. See A. L. Chizhevskii, "Stranitsy vospominanii o K. E. Tsiolkovskom," *Khimiia i zhizn'*, no. 1 (1977): pp. 23–32.

11. For an example of these types of articles, particularly those explaining the basis of rocketry and overcoming the Earth's gravitational forces, see Ia. I. Perel'man, "Za predely atmosfery," in *V masterskoi prirody*, nos. 5–6 (1919): pp. 32–33.

at high speeds with the use of liquid fuels (something Tsiolkovskii had dreamed of earlier).<sup>12</sup> Perel'man was also editor of the popular-science journal *Priroda i liudi* (*Nature and People*), which also carried articles on science and the cosmos. During the 1920s, Perel'man had served in the Soviet Commissariat of Enlightenment (Ministry of Education), where he worked on school curricula reform. There he made great strides in introducing the basics of physics, mathematics, and astronomy into secondary school curricula—a crucial building block for young students in understanding rocketry and space discovery.<sup>13</sup>

Though Perel'man fought hard to substantiate the importance of rocketry in the public mind, on some level the fascination with air flight had already forged an interested and impressionable public. State and privately commissioned (by each journal or newspaper) reader surveys in the 1920s offer historians detailed responses to reader interests. This survey data showed there was a genuine fascination with rocketry and that air flight and space exploration were extremely popular topics amongst readers. Interestingly enough, the surveys pointedly show how readers were actively exposed to news and information on air- and spaceflight from Western European and American sources. However, during the Stalinist 1930s and 1940s, this would soon change.<sup>14</sup>

By the mid-1930s, a cultural shift had occurred in Russia under Stalin, dubbed by the 1940s historian Nicholas Timasheff as “The Great Retreat.” Timasheff, and some current cultural historians, have argued that during high Stalinism Russia embodied a retreat away from socialist cultural norms back toward greater Russian, more nationalistic themes.<sup>15</sup> It is within this context that the Soviet aeronautical feats during the 1930s were glorified and popularized through propagandistic means by the Soviet press.<sup>16</sup> During the earlier 1920s, international aeronautical feats (especially those in the West) were covered with the same frequency as equivalent Russian achievements. However, during the Stalinist 1930s and 1940s, prior to the Sputnik era, Russians began to witness a departure toward an increasingly nationalistic, triumphal manner.

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12. See Ia. I. Perel'man, *Mezhplanetnoe putestestvie* (Leningrad, 1923).

13. See editor's biographical entry in *V masterskoi prirody*, nos. 5–6 (1919).

14. For an overview of these sociological reader surveys, particularly focusing on reader questionnaires, see M. Rapoport, “Chto dala nasha anketa?” *Nauka i tekhnika*, 13 January 1926. For a look at the specific reader surveys of one popular scientific journal in the 1920s, see “Nasha anketa,” *Iskra*, no. 6 (June 1927): pp. 38–39.

15. See Nicholas Timasheff, *The Great Retreat: The Growth and Decline of Communism in Russia* (New York: E. P. Dutton & Co., 1946). For a more current analysis of cultural practices during the Stalinist 1930s, see Sheila Fitzpatrick, *Everyday Stalinism: Ordinary Life in Extraordinary Times, Soviet Russia in the 1930s* (New York: Oxford University Press, 1999).

16. In the popular journals, the 1930s were characterized as years of “Stakhanovite Socialist Aviation.” In the summer of 1936, Chkalov, Baidukov, and Beliakov made their historic, nonstop flight in a Soviet ANT-35. In 1936, Levanovskii and Levchenko flew from Los Angeles to Moscow, and Molokov flew along the arctic seaboard of the USSR. See L. Khvat, *Besprimernyi perelet* (Moscow, 1936). Also see “Po stalinskomu marshrutu,” *Chto chitat'*, no. 2 (1936): pp. 45–47.

It is during this era that the visionary rocket and space theorist K. E. Tsiolkovskii was asked to give his catalytic speech on the future of human space travel on May Day, 1935, from Red Square. Though catalytic moments are, individually, critical junctures in history, Tsiolkovskii's speech must be contextualized within the greater Russian cultural nationalism propagated at the time by the Stalinist regime. Nonetheless, this was no ordinary speech; its repercussion was extraordinary amongst the public, politicians, and physicists alike. His taped speech was also broadcast by radio throughout the former Soviet Union, across 11 time zones, with an enormous social impact. Both Stalin, and later Khrushchev, would use the figure of Tsiolkovskii to focus on the superiority of Soviet technology over Western capitalism and its scientific system. However, both during this speech and at times prior to this event, Tsiolkovskii used these Soviet public venues to promote his own ideas about the future possibility of space flight. This speech was given while impressive Soviet airplanes flew above Red Square, and Tsiolkovskii described them as "steel dragonflies" which were only a tip of a more profound iceberg.<sup>17</sup>

Though events like this were certainly propagandistic public spectacles (see figure 3.1), scientists and future physicists alike were still very impressed with the secondary, depoliticized vision (or meaning) that Tsiolkovskii's ideas embodied. In his memoirs, the nuclear physicist and science advisor to Gorbachev, Roald Z. Sagdeev, acknowledged the duality embedded in these Soviet public spectacles. On one hand, he believed Stalin used Tsiolkovskii's 1935 broadcast from Red Square to further build the notion of the superiority of Soviet technology in the ensuing arms and space race. On the other hand, Tsiolkovskii's work became better known in the 1930s and 1940s, and many future space scientists read his popular work voraciously. Sagdeev argues that on 1 May 1935, enthusiastic Soviet citizens (including his parents, educated scientific academics) were enthralled by the speech.<sup>18</sup>

In a recollection related to Sagdeev's above, Valentin Glushko, designer of Energiya and many rocket engines that operated on Tsiolkovskii's dream of using liquid propellants, to some extent corroborates Sagdeev's perspective in his own memoirs. Glushko corresponded with Tsiolkovskii as a teenager and was inspired by his popular books in the 1920s and 1930s. Glushko believed that, mixed in with the Soviet propaganda and nationalist fervor propagated from above, was sheer enthusiasm and pride on the part of future scientists (and young space enthusiasts)

17. K. E. Tsiolkovskii, "Osyshchestvliatsia mehta chelovechestva, Pervomaiskoe prevetstvie K. E. Tsiolkovskogo na plenke," a speech taped in his office/laboratory Kaluga, Russia in the last week of April 1935. The speech is transcribed in *K. E. Tsiolkovskii, Sbornik posviashchennyi pamiati znamenitogo deiatelia nauki* (Kaluga, 1935).

18. See Roald Z. Sagdeev, *The Making of a Soviet Scientist: My Adventures in Nuclear Fusion and Space from Stalin to Star Wars* (New York: John Wiley & Sons, Inc., 1994), pp. 4–6, 181–182.

from below.<sup>19</sup> This reflects somewhat on the popular surge of both interest in spaceflight (which continued in Stalin's time) and the symbiosis that coalesced this public interest with the nationalist drive from above. Many physicists as well as ordinary citizens made pilgrimages to Kaluga, Russia to see Tsiolkovskii before his death in September of 1935. Tsiolkovskii's funeral in provincial Russia was almost a type of national, cathartic dirge and thus a reflection of the spontaneous interest in local space heroes.

This genuinely popular adulation for space heroes continued into the Khrushchev era as well. The eminent historian of Russian science, Loren R. Graham, reported in his recent memoirs that he had a similar impression on 12 April 1961, when he marched through Red Square at the celebration for the cosmonaut Yuri Gagarin sponsored by the Soviet leadership. Graham found this to be a mix of propagandistic spectacle from above and sincere, heartfelt public outpouring of support from below. As Graham looked back at that day and canonization, he also ruminated on the views of Soviet citizens and their pride in Gagarin:

In later years when the Soviet Union became [a] decrepit and failing society, I often recall that day as the apogee in Soviet citizens' belief that they held the key to the future of civilization. The celebrations on the street were genuine and heartfelt. Soviet science was, they were sure, the best in the world, and Soviet rockets succeeded where American ones failed.<sup>20</sup>

## SPACE PERVADES THE SOVIET CONSCIOUSNESS: SPUTNIK, THE KHRUSHCHEV ERA, AND THE PUBLIC SPHERE

During the era of the Second World War, and during Soviet reconstruction in the late 1940s and 1950s, Soviet aeronautical and cosmonautic feats were, to some extent, relegated to the periphery of the public landscape while the country was rehabilitated physically, politically and psychologically. But with the Khrushchev era and the dawn of Sputnik in 1957, the country witnessed a return to the nationalistic fervor of Soviet aeronautical and space development; again, as momentous as 1957 was, it built on the Stalin years but this time the regime orchestrated the public and social response more elaborately.

With the launching of Sputnik 1 in 1957, as part of the myriad of celebratory events, a host of journals filled pages with laudatory articles on Soviet rocketry, the history of spaceflight, and the life of the new cosmonaut. They included eclectic

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19. See Valentin Glushko's reminiscences in his grandiose history of the Soviet space program, *The Soviet Encyclopedia of the Cosmos* (Moscow: Nauka, 1974).

20. See Loren R. Graham, *Moscow Stories* (Bloomington, IN: Indiana University Press, 2006), pp. 18–19.

journals such as *Ogonek* (*Little Flame*), literary journals such as *Literaturnaia gazeta* (*Literary Journal*), and more politicized, official ones such as *Kommunist* (*The Communist*) and *Partiinaiia zhizn'* (*Party Life*). While most writers (and journalists) glorified Soviet achievements in space, there were the occasional letters to editors (which were actually published in newspapers such as *Komsomol'skaia Pravda*) that questioned the public support of the space effort, but they were generally anomalous to the norm.<sup>21</sup>

All the same, public debate on the efficacy of the space program did exist in the popular press under Khrushchev. Sometimes ordinary, concerned citizens wrote letters to editors of newspapers, such as *Komsomol'skaia Pravda*, that questioned why so much funding was shunted to the space program at a time when salaries for workers in factories were woefully low and consumer items were so scarce.<sup>22</sup> Other letters were queries regarding whether automatons could accomplish similar feats conducted by human cosmonauts in outer space. Many of these types of letters, in general, also questioned the safety of space travel in rockets for Soviet cosmonauts.<sup>23</sup>

With the above exceptions aside, however, public discourse on the space program was mostly constrained, and even limited to voices with large public reputations (such as major writers of literary significance). Some literary figures, such as Il'ia Ehrenburg, were concerned about how technology and the space race obscured the importance of other aspects of Soviet life on Earth, such as the development of literature and the arts, and questioned the substantial funds and government subsidies put into these technical arenas.<sup>24</sup> These critiques by literary figures as well as citizens may have been a repercussion or reflection of the Khrushchev "thaw"—the limited loosening of controls on artistic and public expression in the Soviet Union from 1953 until approximately 1962.<sup>25</sup> Furthermore, they may have reflected the need for a more outspoken segment of the cultural intelligentsia to remind the public of Russia's great artistic tradition (which should not be masked by its recent technological feats). All the same, these critiques, as well as ordinary citizens' letters mentioned above, were never outright diatribes against the regime's achievements in spaceflight, and much of the public discourse still remained, in a censored state, oriented toward glorifications of those achievements.

21. See Paul R. Josephson, "Rockets, Reactors, and Soviet Culture," in *Science and the Soviet Social Order*, ed. Loren R. Graham (Cambridge, MA: Harvard University Press, 1990), pp. 180–185.

22. For an example of this, see a worker's letter to *Komsomol'skaia Pravda* published under the name Aleksei N., "Ne rano li zaigryvat's lunoi," *Komsomol'skaia Pravda*, 11 June 1960: p. 1.

23. For an example of articles (as well as letters to editors) in the popular Soviet press and journals on the controversy of humans vs. automatons being sent into space, see B. Danilin, "Kto poletit v kosmos—chelovek ili avtomat?" *Molodaia gvardiia* 1 (1961): pp. 204–208.

24. See Il'ia Ehrenburg, "O lune, o zemle, o serdtse," *Literaturnaia gazeta* 1 (January 1960): pp. 3–4.

25. For an overview of the cultural and public/civic thaw under Nikita Khrushchev, see Priscilla Johnson, *Khrushchev and the Arts: The Politics of Soviet Culture* (Cambridge, MA: The MIT Press, 1964).

The historian Paul Josephson, in his analysis of the public ramifications of nuclear, atomic, and space science, argues that celebrations and mass rallies (particularly in Moscow) became an important site for the Soviet “masses” to become involved in the spectacle of display for Soviet “big science.”<sup>26</sup> Planetariums hosted lectures on outer space; writers produced short stories with exaggerated platitudes for adults and children; and Soviet composers created popular songs (especially short *chastushki*) celebrating Sputnik to be sung to children at schools.<sup>27</sup> However, official institutions such as the Academy of Sciences became the greatest proponents and conduits for disseminating more detailed public lectures on the significance of these achievements. It was S. P. Korolev, the director of the post-WWII Soviet rocket program and, in actuality, the real father of the Russian space program, who was asked to direct these celebrations at the Academy; he was also asked to give the 1957 keynote commemorative speech for the capstone series of events planned in the era of Sputnik which honored Soviet space legends such as Konstantin Tsiolkovskii (the grandfather of the Russian space program—*Ded kosmosa*).<sup>28</sup>

What is interesting about the various speeches given by academics such as Korolev, however, is that although they were prescribed to mythologize great feats in Soviet rocketry (and help build a pantheon of iconic figures in Soviet space history), the actual speeches focused as much on small (yet significant) scientific contributions these figures made. For instance, Korolev’s 1957 speech glorifying Tsiolkovskii certainly painted him within the Soviet paradigm of one of the “first” to conceive of rockets with liquid fuel. However, Korolev also spent as much time in his speech, if not more, discussing the more pertinent contribution of Tsiolkovskii’s mathematical equations on the velocity of rockets leaving Earth’s atmosphere.<sup>29</sup>

26. See Josephson’s analysis of public display of big science in the former Soviet Union in his excellent chapter entitled “Rockets, Reactors, and Soviet Culture,” in *Science and the Soviet Social Order*, Graham, ed.

27. See S. Ostrovskii, “Pesenka o sputnike,” *Kul’turno-prosvetitel’naia rabota* 1 (1958): pp. 30–33. These children’s *chastushki* were two- or four-line folk verses to be sung in an upbeat tempo with fervor. See G. Liando, “Nebesnye chastushki,” *Kul’turno-prosvetitel’naia rabota* 1 (1958): p. 34.

28. In the 1940s during the war, but primarily after the war and into the 1950s, the Soviets make unsubstantiated claims of national priority in scientific discoveries. These claims ranged from the ludicrous assertion of the invention of the electric light, radio, and telegraph, to more specific scientific assertions of Soviets discoveries in a variety of disciplines, such as structural chemistry. Loren Graham believes most of these claims were abandoned later in the Brezhnev era in the 1960s and 1970s. However, he rightfully asserts that a few of those disciplinary claims (particularly revolving around certain scientific figures) should be investigated more seriously and need to be further analyzed in isolation of the general nationalistic assertions. See Loren R. Graham, *Science in Russia and the Soviet Union: A Short History* (New York: Cambridge University Press, 1993), pp. 142–143. These assertions are relevant to this public debate since the Soviets glorified their early theorists of cosmonautics, such as Tsiolkovskii, claiming at times that they were the first to conceive of rocket flight.

29. See S. P. Korolev, “On the Practical Significance of the Scientific and Engineering Propositions of Tsiolkovskii in Rocketry.” Lecture given on 17 September 1957, based on the centennial celebrations of the birth of Tsiolkovskii held in Moscow, in *K. E. Tsiolkovskii, Izbrannyye trudy* (Moscow, Academy of Sciences Publishers, 1963), pp. 16–18.

Though nationalistic in orientation, these public speeches at the Academy sought the small kernel of scientific truth, so to speak, while downplaying the greater Soviet myth. Academician Boris Chertok, an engineer and the deputy director under Korolev, later described Korolev's speech on Tsiolkovskii as critical to the rocket community, if not overlooked at the time. Chertok, in his recently published memoirs, admitted that he and Korolev agreed that it was Tsiolkovskii's velocity equation that was his real, lasting legacy of scientific contribution to the future of rocketry.<sup>30</sup> Chertok admitted that the regime exaggerated these iconic figures and, at times, those such as Korolev tried to focus on real scientific contributions generally overshadowed by the regime. Ironically, it was Chertok himself who believed that myth and reality are nebulous concepts and those lines were sometimes blurred historically. In his memoirs, Chertok recanted a story about how mythic Tsiolkovskii actually was, despite his real scientific contributions to rocketry:

Of the first missile decade, the last three years were certainly the most interesting in terms of science and engineering. The people who joined the missile programs during 1954–56 to a great extent determined the subsequent development of our cosmonautics program. While these people were still relatively young, someone's quip caught their fancy. According to our personal history forms, our personnel fall into one of two categories: they are either Tsiolkovskii's best students or individuals whose youth isn't their main shortcoming.<sup>31</sup>

## EPILOGUE: THE MYTHOLOGY OF SOVIET COSMONAUTICS AND ITS SOCIAL AND CULTURAL IMPACTS AND RAMIFICATIONS

By the height of the Khrushchev era in the early 1960s, and after Yuri Gagarin's historic piloted circling of outer space, the Soviet paradigm as propagated in public went beyond national enthusiasm toward emphasizing how the regime made quantum leaps to outpace the West. In April of 1961, just after Yuri Gagarin became the first human being to rocket into space orbit, the Soviets held a gala diplomatic banquet in the Kremlin in his honor. At the event, the beaming Soviet premier, Nikita Khrushchev, embraced Gagarin and then made a toast. He said, "We used to go barefoot and without clothes and arrogant Western theoreticians predicted that bast-shoed Russians would never become a great power."<sup>32</sup> Furthermore, he said, "once-illiterate Russia, which many regarded as a barbaric country, had now

30. Boris Chertok, *Rockets and People*, vol. 1, NASA History Series, NASA SP-2005-4110 (Washington, DC, 2005), p. 3.

31. Boris Chertok, *Rockets and People, Creating a Rocket Industry*, vol. 2, NASA History Series, NASA SP-2006-4110 (Washington, DC, 2006), p. 168.

32. *Pravda*, 15 April 1961: p. 2.

pioneered the path into space.”<sup>33</sup> This speech, published the next day in *Pravda* for all Soviet citizens to read, propagated a notion that the Soviets overcame great adversity to show the West how they could lead in the space race. Although this speech maintained the triumphal tone of the Stalin era, it went beyond that to emphasize the “Promethean” nature and “quantum leaps” of Russia’s advances

Ironically, Khrushchev’s boastful speech disregarded the real legacies his regime inherited. That is, Russia had a long history of not only rocket design and invention stretching back to the Tsarist era, but also an enthusiastic, engaged public that was fascinated with global discoveries in aeronautics and rocketry going back to the Tsarist era and the cosmopolitan 1920s. In fact, Russia had a tradition in the Tsarist era of public display of rocketry going back to the eighteenth century. The Romanov dynasty was especially well known for being fond of fireworks displays at public festivities in St. Petersburg, which may have been a catalyst for public interest in rocketry. This interest, as mentioned above, was fostered in the late Tsarist and early Soviet press and popular journals of the time, and well into the late 1920s.

Though this cosmopolitanism and enthusiasm may have changed in the Stalinist 1930s and 1940s as the regime propagated more nationalistic myths of Soviet scientific triumphs, a fascination with and national pride in space discovery and rocketry was still maintained in the minds of average Soviet citizens and physicists alike. By the time of the Khrushchev thaw, with its limited public debate, citizens may have questioned both the efficacy of the Soviet space program and its propagandistic celebrations, but they (like most citizens globally) maintained that fascination which stretched back to the eras of the Tsars and Lenin. Though we may not be able to document that “fascination from below” with the same set of sociological reader surveys and social-scientific data available to historians for the pre-WWII era, and though that imagination clearly was highly constrained and orchestrated in a censored state “from above,” it existed (legacy intact) in memories and oral testimony all the same.

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33. Ibid.



Figure 3.1—Photo of a 1933 public demonstration of the Stalin-era technical society, Aviation and Chemistry. Konstantin Tsiolkovskii (space visionary), second from the left, was more frequently asked to take part in these Stalin-era festivities glorifying the regime as the 1930s unfolded. These festivities were part of a larger movement to expand public spectacles, while focusing on the achievements of Soviet science and technology. Photo courtesy of Russian Academy of Sciences Archive in Moscow. (From ARAN, fond 555, op. 2, d. 149, l.3.)