

found in mainstream literature and is useful to both scholars and graduate students of history of science and technology.

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**Red Cosmos: K. E. Tsiolkovskii, Grandfather of Soviet Rocketry.**

By James T. Andrews. College Station: Texas A&M University Press, 2009.  
Pp. xviii+147. \$49/\$23.

Konstantin Tsiolkovskii (1857–1935), a nearly deaf high school teacher of mathematics and physics in the provincial Russian town of Kaluga, occupies a special place in the mythology of the Space Age. Along with Robert Goddard and Hermann Oberth, he completes the canonical trio of world pioneers of rocketry and space travel. In the politically charged Soviet and post-Soviet contexts, Tsiolkovskii's legacy was subjected to a series of reinterpretations. In the Stalin era, he was paraded as a "poster boy" for the Soviet state's technological aspirations. In the Khrushchev period, he was cast as a visionary "grandfather" of the Soviet space triumphs. On the wave of post-Soviet criticism of Soviet-era myths, he was denounced as a mere crank whose meager technical contributions were blown out of proportion by Soviet state propaganda. James Andrews's short, readable biography draws on rich Russian archives to retell the Tsiolkovskii story in its fascinating complexity. While documenting the Soviet state's efforts to enlist Tsiolkovskii in its propaganda effort, Andrews portrays his protagonist not as a passive pawn of the regime, but as an active manipulator of the system for his own agenda.

Briefly sketching Tsiolkovskii's technical ideas, Andrews argues that, contrary to a widespread myth (and contrary to what the book's promotional material says), Tsiolkovskii's idea of multistage rockets was not new, but had been preceded by Goddard, Oberth, and the Russian Iurii Kondratiuk. Nevertheless, Tsiolkovskii's efforts to describe mathematically, and provide detailed sketches of, liquid-propellant rocket designs pointed the direction for Soviet rocketry enthusiasts to follow. Andrews is less interested in priority disputes, however, than in Tsiolkovskii's role as an educator and propagandist for space travel, as a man who inspired a new generation of Soviet engineers to engage in rocketry.

Tsiolkovskii wrote a large number of short stories and novellas about space travel, and Andrews persuasively argues that for Tsiolkovskii science fiction was more than a mere vehicle for conveying his ideas to the broad-

est possible audience. In his fictional narratives, he often revealed more technical detail of his designs than in his purely technical publications. His fiction served as a “laboratory of visions” (p. 69) in which literary imagination helped rectify his technical innovations.

Andrews places the story of Tsiolkovskii’s relationship with the Soviet state in the context of scholarly debates over the nature of identity formation in the Soviet Union. While some historians argue that Soviet citizens interiorized ideological dogmas and sincerely sought to model themselves after a state-sponsored ideal of the new Soviet man, others assert the opportunist motives behind Soviet citizens’ public rhetoric, noting that it took clever maneuvering to navigate the ritualized settings of Soviet power. Andrews positions Tsiolkovskii somewhere in the middle of this spectrum. Tsiolkovskii believed that he had been unjustly treated by the pre-revolutionary Russian scientific elite and was sincerely grateful to the Soviet state for the propagation of his ideas, as well as for material support. At the same time, he gained that support to a large extent due to his own dexterous appropriation of the Bolshevik rhetoric and his “self-fashioning” as a sufferer under the tsarist regime and thinker of a Marxist bent. As he worked the Soviet system, Tsiolkovskii adapted his identity to fit the Soviet pattern, but the state apparatus also adjusted its template to fit his case: Tsiolkovskii’s official obituary, for example, drew heavily on his own autobiography. Occupying a middle ground between the “true believers” and the “pure opportunists,” the Tsiolkovskii case suggests a useful framework for thinking about the relationship between Soviet scientists and engineers and the state—a relationship both sides valued and yet constantly negotiated, actively pursuing their own, sometimes differing, agendas.

One important period in the evolution of Tsiolkovskii’s public image deserves more attention than it has received in this book. Andrews writes that Tsiolkovskii’s legacy went “somewhat dormant” in the 1940s and early 1950s (p. 91). While his public praise in that period might indeed sound quiet in comparison to the huge fanfare of the mid-1930s and post-1957, it was during the late 1940s that Tsiolkovskii was recast as a founding father of Soviet cosmonautics. In 1947, taking advantage of an ongoing nationalist campaign that touted Russian-born “founding fathers” of various scientific and engineering fields, the chief designer of Soviet rocketry, Sergei Korolev, delivered an address on the occasion of the ninetieth anniversary of Tsiolkovskii’s birth, evoking his name in support of Korolev’s own space exploration agenda. In the early 1950s, under pressure from Korolev and other leading rocketry specialists, the Soviet Academy of Sciences began widely publishing Tsiolkovskii’s works and propagating his legacy. Asif Siddiqi’s recent book, *The Red Rockets’ Glare: Spaceflight and the Soviet Imagination, 1857–1957* (2010), suggests that Tsiolkovskii’s public image was shaped not only by himself and by the state propaganda apparatus, but also by numerous space enthusiasts and rocket engineers, who made Tsiolkov-

skii into a symbol of space aspirations in order to garner state support for their ambitious projects.

This biography is a welcome addition to the history of Soviet rocketry. Students of the history of astronautics and Russian and Soviet technology would find here a penetrating analysis of one of the main forerunners of modern rocketry.

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### **Would Trotsky Wear a Blue Tooth? Technological Utopianism under Socialism, 1917–1989.**

By Paul R. Josephson. Baltimore: Johns Hopkins University Press, 2010.  
Pp. 342. \$65.

Paul Josephson's latest book argues that practitioners of socialist construction were technological utopians. Lenin, Trotsky, et al. had supreme confidence in the ability of technology to overcome centuries of backwardness and create the promised land of communist plenty. Their faith in technology, however, fatally overlooked the human factor: the actual needs of the workers as well as the environmental impact of large-scale technomania. As a result, the Soviets "discovered that technology was not the panacea they anticipated" (p. 60). In the end, technology glorified the power of the state and weakened the power of the workers in whose name the revolution had supposedly been conducted. Instead of utopia, the Soviets created an environmental wasteland and some of the most dangerous workplaces in the world.

The author's argument is not original. This book is largely a rehash of ideas presented elsewhere by the author as well as by other scholars, including Loren Graham's more succinct *Ghost of the Executed Engineer* (1993). While the book provides an overview of existing secondary literature on the topic, there are some gaps. For example, the author does not provide references to many of the articles in *Technology and Culture* on Soviet and Russian technology in the last decade—other than his own. He analyzes tensions between Soviet and Russian craft traditions and the Soviet industrialization project without engaging the recent literature devoted to this topic. He talks about Soviet consumerism without reviewing some of the more recent scholarship on the issue, just as his discussion of the construction of the Moscow metro overlooks recent research.

As a comprehensive review of technology in socialist society, the book also falls short. There is almost nothing on Soviet triumphs in space and on