Rozanov are marred by repetition (again, with respect to Solov'ev) as if this chapter may have originally been intended as a stand-alone essay. But, overall, Crone's grasp of the subject is undoubtedly impressive and ranks as a novel contribution to existing studies of the Russian religious renaissance.

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The Red Rockets' Glare: Spaceflight and the Soviet Imagination, 1857–1957. By Asif A. Siddiqi. Cambridge, Eng.: Cambridge University Press, 2010. xiii, 402 pp. Notes. Bibliography. Index. Illustrations. Tables. $85.00, hard bound.

The major milestones of the origins of the Soviet space program comprise a common narrative familiar to a range of audiences. It begins with Konstantin Tsiolkovskii's theoretical writings about the possibilities for space travel using liquid propellant rockets at the turn of the century. After the revolution, the Bolsheviks recognized Tsiolkovskii's brilliance and lavished him with awards. At the same time they supported the efforts of young enthusiasts searching for practical applications for his ideas. The purges crippled the innovative work conducted at the Reactive Scientific Research Institute in the 1930s, but with the end of World War II the Soviet rocketry program was revived through the appropriation of expertise from a vanquished Germany and the visionary dedication of Sergei Korolev. When Korolev convinced the Soviet leadership to use one of the new R-7 intercontinental ballistic missiles to launch a small spherical satellite into space, the space era was at hand.

This pathbreaking study offers a nuanced retelling of the familiar story of Sputnik's birth that complicates every chapter and recasts many of them. While scholars have naturally emphasized the state's role in the quest for space travel, Siddiqi relocates the development of rockets and advocacy for spaceflight in a broader social and cultural history of the century prior to Sputnik. Focusing on the social influences that made spaceflight a compelling, popular undertaking, as well as on contributions from outside Russia and the state's fluctuating interest in the spaceflight project, Siddiqi shows that Sputnik's success depended on long-term popular support and interest in spaceflight as well as official imperatives and the commitment to harness science and technology to achieve the state's ends. Eschewing a comprehensive narrative, Siddiqi instead focuses on a series of key moments highlighting the interplay between imagination and engineering. Amateur, unofficial, and popular impulses were critical to several episodes before the 1940s, when the state's interest in rocketry became more dominant. These include the emergence of "cosmonautics" in the prerevolutionary period, when the boundaries between popular science, science fiction, and the theoretical work of individuals such as Tsiolkovskii were blurry and facilitated a gradual shift from the view of the cosmos as a fantastical realm to one that modern science might make accessible. Popular interest also underpinned the efforts of amateur and civilian groups to develop rockets by any makeshift means available in the 1920s and early 1930s. Siddiqi reconstructs two important reorientations of these activities in the early 1930s, when the innovators' original dreams of using rockets to travel to space began to focus on the more feasible goals of aviation. This more practical orientation attracted the interest of government and military agencies that now lent financial and institutional resources to support the cause of rocketry. The purges did considerable damage, but the crippling blow to liquid propellant rocketry was dealt by the war and the demand for simpler, cheaper short-range artillery, notably the *katiusha.* For the postwar period, Siddiqi again complicates the standard notions of overwhelming state control by showing how key individuals such as Mikhail Tikhonravov, Anatolii Blagonravov, Mstislav Keldysh, and Korolev influenced political and military agendas both by working within institutional frameworks and by cultivating and then leveraging a revival in popular enthusiasm for space exploration in the clubs and publications associated with the civil defense organization, DOSAAF. Incorporating more discussion of the formative

efforts behind manned spaceflight would have further strengthened the author's claims about the diffuse, multilateral, and evolving agendas of individuals and agencies. But at nearly 400 pages, this is an ambitious book of admirable depth.

The Red Rockets' Glare is meticulously documented. The author has mined archival materials at the Academy of Sciences, the Russian State Archive of the Economy (RGAE), the former party archive (RGASPI), the State Archive of the Russian Federation (GARF), and numerous other repositories, many of which are notoriously inhospitable to researchers. This research, which rests on an extensive foundation of published materials, consolidates and extends the history of the Soviet space program outlined in the author's previous books: *Sputnik and the Soviet Space Challenge* (2000) and *The Soviet Space Race with Apollo* (2000). *The Red Rockets' Glare* presents a social history of the scientific forces that led to Sputnik and takes on a number of received truths about Stalinist science along the way. It has much to offer the specialist and general reader alike.

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Lenin's Laureate: Zhores Alferov's Life in Communist Science. By Paul R. Josephson. Transformations: Studies in the History of Science and Technology. Cambridge, Mass.: MIT Press, 2010. v, 307 pp. Notes. Index. Photographs. $29.95, hard bound.

This is an important and frustrating book. Josephson provides as complete an account as we are likely to get in English of Zhores Alferov's career, which spanned postwar Soviet/Russian science. Alferov's Nobel autobiography (*Nauka i obshchestvo,* 2005) is informative but not self-reflective. Josephson's book comes closest to delving into Alferov's motives and contradictions—the stuff that makes people both human and great—in the brief afterword. Josephson interviewed Alferov multiple times over an extended period, and he raises a host of important issues. The frustration is due to carelessness, contradictions, and a penchant for noting rather than confronting big questions.

Chapter 1 chronicles Alferov's early years, providing extensive background about his parents, the revolution, and socialist construction. The family's upward mobility in the Stalinist system reveals important aspects of that era and helps explain their loyalty to the system. The Alferovs were successful *vydvizhentsy* who became emblematic of the "Big Deal" described by Vera Dunham. Greater historical accuracy would have made this contribution stronger. The claim that the "vast majority" (3) of people were illiterate is contradicted by data on page 17. Ivan Alferov could not have studied Stakhanovism at the Industrial Academy if he graduated in 1935, since Aleksei Stakhanov became headline news only in August of that year. Josephson attributes the review of purge cases in 1938 to "a fit of temporary concern over . . . murderous policies" (27) rather than to Lavrentii Beriia replacing Nikolai Ezhov and accusing his predecessor of what today might be termed "legal nihilism."

Josephson does better when he turns to Alferov's education and early career and the developing Soviet science system. Offering perspective on Soviet accomplishments, he notes that the Leningrad Physical Technical Institute (LPTI) produced three Nobel laureates in addition to Alferov (Lev Landau, Petr Kapitsa, and Nikolai Semenov). Nevertheless, some would question Josephson's claim that "the Bolsheviks were ahead of most countries" (49).

The second chapter is devoted to World War II, the death of Alferov's brother Marx at Kursk, and Alferov's secondary education after the war. Josephson includes one of Alferov's few reflective moments here, noting the impact of Nikolai Lysenko as an example of what happens when "politics and power interfere in science" (81). Josephson does not address the contradiction of that same political system providing what he repeatedly refers to as generous funding for science.

Perhaps the greatest missed opportunity comes when Josephson describes Alferov questioning his choice of specialty and institute after three years of study, and his switch to