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## Rockets and People: Vol. 3, Hot Days of the Cold War

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open to abuse to be a defective theory; if anything, because of that potential it is a realistic one. I highly recommend this work as a useful resource for practical moral formation in just war theory.

ALI GHAFFARI



*Rockets and People*, by Boris Chertok, ed. Asif Siddiqi. Vol. 3, *Hot Days of the Cold War*. Washington, DC: National Aeronautics and Space Administration, History Office, 2010. 796 pages. \$65.

In this third volume of his memoirs, ably edited by acclaimed space historian Asif Siddiqi, Boris Yevseyevich Chertok, who was the most senior surviving Soviet space engineer until his death at age ninety-nine in 2011, offers a unique, firsthand window into Cold War history as he lived it over his six-decade career. He spent most of it at the uppermost level of the OKB-1 design bureau (now S. P. Korolev Rocket and Space Corporation Energia), where he participated in every major project through 1991.

In this series, volume 1 details Chertok's rise from aviation factory electrician to official in charge of extracting Nazi rocket expertise, volume 2 the post-1946 emergence of the Soviet missile program. In volume 3, Chertok recounts and reflects on the golden age of Soviet cosmonautics, from Yury Gagarin's historic orbital flight in 1961 to the death of key figures in the Soviet space program in and around 1967. Volume 4, released in early 2012, covers the U.S.-Soviet moon race. Chertok's personable, technically informed, and somewhat politically detached perspective, as well as his frankness regarding credibility of sources and

where he lacks information, makes for an accessible, historically useful account.

From his perch in the Soviet missile bureaucracy, Chertok observed the Cold War as a scientific-technological-military competition. Manned space-flight was regarded as an indicator of national prestige—and socialist superiority: “There was an ongoing battle at the front line of the Cold War’s scientific-technical front. Rather than soldiers, it was scientists, engineers, the ‘generals’ of industry, and workers who determined the battle’s outcome. And warriors of another sort came on the scene—cosmonauts” (p. 61). Each side fed off the other in constant one-upmanship, Chertok stresses: “American operations had a very strong effect on our plans. American historians of aeronautics assert that our successes were the primary reason why the United States converted its space programs into a top-priority, nationwide challenge” (p. 246).

Central to this competition, for some time, was a race to land a man on the moon. On August 3, 1964, Central Committee and USSR Council of Ministers Resolution 655-268, “On Work for Lunar and Space Research,” recommitted Moscow to “land a man on the moon and return him to Earth by 1967–68” (p. 397). This goal was restated in a similar decree of October 25, 1965 (p. 568). This competition was very real, and there was no substitute: “[N]o matter how successful [other] programs might be, they could not compensate for our loss of superiority if the Americans were to become the first to fly around the moon” (p. 523).

Then, despite suffering a major setback in the Apollo 1 fire of 1967, the United States started pulling ahead. The Soviet

program was held back by a year of time-consuming yet inadequate ground testing and the tragic death of Vladimir Komarov when Soyuz 1 crashed in 1967.

In retrospect, there were larger reasons for these results. The Soviet defense industry that Chertok depicts suffered from both direct involvement by party organizations throughout the production process and limited government capacity, ruinous bureaucratic and interpersonal struggles and finger-pointing, overly ambitious deadlines, lack of systematic review of decisions, and lack of politicians who understood the benefits of a comprehensive military-civilian approach. So much depended on a single individual. Chief Designer Sergey Korolyov was a microcosm of Soviet society, having both suffered significant repression and marshaled significant technical resources. His untimely death in 1966, itself partly a result of medical malpractice, devastated the Soviet space program. Korolyov's successor Vasily Mishin would prove far less effective at cultivating the Kremlin bureaucracy. Obsessive secrecy reigned. The Central Committee maintained a categorical prohibition on acknowledging space failures, even when detected by foreigners. Inefficient use of limited resources imposed additional burdens: "For a long time during the post-Khrushchev period, we continued to develop and produce several *parallel* lines of strategic missiles, allowing unjustified redundancy" (p. 155), their overproduction camouflaged by creative budgeting (p. 146).

The United States led significantly in missile numbers, accuracy, and nuclear weapons—a tremendous disparity during the Cuban missile crisis, although subsequently the Soviets worked to

reduce the gap. Spaceflights served propaganda purposes, in part to cover up missile limitations. Risky space spectacles were attempted, including—on Khrushchev's personal orders via telephone to Korolyov—the 1964 cramming of three cosmonauts without space suits and with only limited life support into a Voskhod capsule whose "new landing system had only been tested once" (p. 237). Soviet mission-control facilities were less advanced: "[T]he mission control centers at Cape Canaveral and Houston seemed like a fantasy to us" (p. 599). The USSR fell behind in integrated circuits, microchips, and computers, in part because of a lack of civilian applications. Quantity reflected lack of technological integration: "[T]he first Soyuzes had so much varied radio technology on board that they required twenty antennas" (p. 580).

Looking to the present and beyond, Chertok condemns the present Russian government's "crime" of dismantling the nation's great technological infrastructure (p. 331). He makes fascinating future projections: by 2015, "China (and perhaps India) will become superpowers, surpassing Russia in terms of military-strategic might." Future conflict may center on resource access; the United States, Europe, and China may covet Russia's unparalleled reserves of oil and gas, China its fresh water and eastern territory as well. "Under those conditions, it appears that the strategic significance of high-precision, nonnuclear weaponry together with intermediate and even short-range tactical nuclear weapons might become a factor in deterring a large war just as ICBMs were in the 20th century" (pp. 156–57). Chertok judges further that "Chinese rocket and space technology will overtake the

Russian space program in ten to twelve years; and perhaps it will overtake the American program as well” (p. 585).

As in previous volumes in the series, Chertok documents the toils of Soviet designers, who were remunerated poorly, subjected to difficult working conditions, and hidden from foreign sight and contact. Chertok learned of his nation’s deployment of missiles to Cuba, for instance, from Kennedy’s speech (p. 95)! Driven in part by heartfelt ideals tempered by knowledge of the horrors of the Stalin era, these designers achieved so much, so quickly, under such formidable constraints—truly amazing accomplishments. Theirs is not only a Soviet legacy, rooted now in a bygone era, but a part of a larger human legacy that will inspire further exploration as mankind moves farther into space.

ANDREW S. ERICKSON



*America’s War for the Greater Middle East: A Military History*, by Andrew J. Bacevich. New York: Random House, 2016. 453 pages. \$30.

The most recent book by Andrew Bacevich—a retired U.S. Army colonel and now-retired professor of history and international relations at Boston University—details the history of the four-decade U.S. involvement in “the Greater Middle East,” a region Bacevich defines as encompassing areas of the Persian Gulf, North Africa, and the Balkans.

The book starts with the formulation of the Carter Doctrine: how the OPEC oil embargo, the Iranian Revolution, and the Soviet Union’s invasion of Afghanistan, combined with America’s need for

oil and the fact that most of the world’s oil at the time came from this area, led then-president Jimmy Carter to declare the security and stability of this region to be a vital national interest. Bacevich believes the doctrine created a broad, open-ended commitment that expanded with time. Early in the book he describes the decision making, strategy and policy development, and organizational changes that positioned the United States as the guarantor of regional security. This was the context for the formation of U.S. Central Command, which included in its geographic area of responsibility not only the Persian Gulf states but a total of nineteen countries, including Egypt, Ethiopia, Somalia, Kenya, and Pakistan. Bacevich argues that this new combatant command created both an expectation of and the pretext for future military intervention in the Central Command region. The “Soviet threat of the 1980s served as a placeholder, providing a handy rationale for developing capabilities subsequently put to other purposes”; that “posture justified by the need to defend the Persian Gulf from outside intrusion positioned the United States itself to intrude.”

Bacevich offers a broad overview of significant events in this area of the world over the last thirty-five years. In addition to the Soviet invasion and occupation of Afghanistan and America’s support of the mujahideen “freedom fighters,” Bacevich discusses the Marine Corps barracks bombing in Lebanon, the U.S. attack against Mu’ammar Gadhafi in Libya, and the war between Iraq and Iran. His broad synthesis similarly includes Somalia, Saddam Hussein’s invasion of Kuwait and the ensuing Gulf War, the conflict in the Balkans, and, of course, the attacks of