Book Reviews

Nigel Hey, *The Star Wars Enigma: Behind the Scenes of the Cold War Race for Missile Defense.* Washington, DC: Potomac Books, 2006. 275 pp. $27.95.

Reviewed by David Hafemeister, Center for International Security and Cooperation, Stanford University

Nigel Hey's book, *The Star Wars Enigma,* is a diplomatic/political history of President Ronald Reagan's Strategic Defense Initiative (SDI). The book belongs on the shelf with Francis Fitzgerald's *Way Out There in the Blue: Reagan, Star Wars, and the End of the Cold War* (New York: Simon and Schuster, 2000) and William Broad's *Star Warriors: A Penetrating Look into the Lives of the Young Scientists behind Our Space-Age Weaponry* (New York: Simon and Schuster, 1985). *The Star Wars Enigma* avoids technical analysis of SDI beyond stating the consensus view that SDI was made up of a series of difficult tasks that were well beyond the technology of the time. A puzzling question thus arises when Hey describes the political and diplomatic impact of SDI on the Soviet Union. Why did Mikhail Gorbachev remain so concerned about SDI even after he received advice from Roald Sagdeev (the director of the Soviet Space Institute) and Evgenii Velikhov (the vice president of the Soviet Academy of Sciences and deputy director of the Kurchatov Institute) that SDI was modern-day Lysenkoism (p. 133)? I will return to this issue shortly.

Most scientists and engineers who examined the SDI technologies came to the conclusion that SDI was several orders of magnitude away from being a viable system. The daunting obstacles to SDI's success can be seen by asking a question: Would an X-ray laser based on a pop-up missile launched from a U.S. submarine in the southernmost Artic Ocean have had sufficient time to destroy a missile launched 3,000 kilometers away in Kazakhstan? Not enough time would have been available to destroy the Soviet missile in its boost phase. Closer missiles could have used fast-burn boosters to survive, if indeed the X-ray laser ever would have worked in the first place. Beyond these complications, SDI was further compromised by the extreme difficulty of obtaining adequate battle-management information for thousands of directed-energy weapons (DEW) mobilized against a massive nuclear attack. This pessimism was further compounded by the relative ease of offensive countermeasures to foil SDI. Hey describes the technical reservations of Gerald Yonas, who spearheaded the first technical programs when he was the SDI Organization's deputy director and chief science adviser from 1984 to 1986. Hey discusses the reports put out by the Office of Technology Assessment and the National Academy of Sciences back-channel communications with Soviet scientists, but he fails to mention the best technical analysis of SDI,

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which was carried out by the American Physical Society (APS). The APS DEW panel of seventeen scientists had a strong contingent of insiders, four from government weapons laboratories and three from industrial laboratories. These insiders were well-versed in the government's SDI research. After the APS report went through declassification in 1987, the presidential Office of Science and Technology Policy (OSTP), acting for the Executive Branch, refused to allow the APS to present its results. The government denied itself the best study on SDI because APS identified the physical limitations of SDI. While working in the State Department's Office of Strategic Nuclear Policy at the time, I was contacted by the APS to arrange a briefing for the report at the State Department and the Arms Control and Disarmament Agency. OSTP tried twice to cancel the briefing, but my State Department boss would not allow this to happen. He encouraged me to hold the briefing as long as nothing about it was disclosed to the press. Twenty years later it seems reasonable to recount this episode in the *Journal of Cold War Studies.*

In 1987, the SDIO abruptly shifted from DEW to hit-to-kill weapons using kinetic-kill vehicles. Hey does not adequately explain the specific reasons for this major change other than quoting Yonas's 1986 speech: "The most straightforward and best–proven approach to interception of a high-velocity object in space is with a very smart homing projectile" (p. 187). The broader lesson is that our government institutions did not competently examine the science and technology. Why did the Defense Department's own Defense Science Board fail to point out SDI's deficiencies?

This brings us back to the question raised earlier: Why did Gorbachev try so hard to kill SDI? In answering the question we need to bear in mind that scientists debate facts, whereas politicians often prefer to debate perceptions. Roald Sagdeev comments: "I think the moment Gorbachev understood that SDI wouldn't work, he decided that those who were trying to push a futile system must have some kind of hidden agenda. Even some military spokesmen thought . . . [the United States was] planning to use the cover of SDI to deliver nuclear weapons from orbit" (p. 147). Much has been made of the agreement that Ronald Reagan and Gorbachev nearly signed at Reykjavik in October 1986 to eliminate all nuclear weapons. (Whether the Pentagon and Congress would have concurred is doubtful.) The proposal to do away with nuclear weapons failed because Reagan did not agree to Gorbachev's last-minute request for a ban on SDI testing in outer space. Both Reagan and Gorbachev were saddened by their failure to conclude the weapons ban, but over the next few years the two countries achieved several important agreements, including the Intermediate-Range Nuclear Forces (INF) Treaty, the Conventional Forces in Europe (CFE) Treaty, and the Strategic Arms Reduction Treaty (START). So, did SDI shorten the Cold War? Gorbachev responds: "I cannot agree that the SDI initiative had this much importance" (p. 219). Velikhov comments: "The idea that it [SDI] accelerated the collapse of the Soviet Union is nonsense." Sagdeev concurs: "The reasons were completely internal." Sagdeev is aware that "many in the West were persuaded that SDI intimidated the Soviets so much that they decided to dismantle the communist system," but he dismisses this notion as ridiculous and "a kind of historic injustice." Even the late Edward Teller, one of the most ardent proponents of SDI, acknowledged that

SDI was not what brought the Cold War to an end: "The obvious reasons for the failure . . . were, first, misgovernment, and second, failure to acquire military superiority beyond Eastern Europe."

A similar point was made in May 1992 by then-Central Intelligence Agency Director Robert Gates when, in response to complaints by Senator Daniel Patrick Moynihan, he conceded in a speech to the Foreign Policy Association that the U.S. government was surprised by the rapid collapse of the Soviet Union. Senator Moynihan then described his own predictions published in 1979 that the USSR would eventually collapse because of its poor economy and the West only needed to wait. Former Secretary of State George Shultz later concurred: "I think we won the Cold War because their system was essentially a bankrupt system" (p. 233). Reagan's buildup of strategic offensive weapons affected the USSR because of the increased risks of inadvertent nuclear war, not because either side could ever win a nuclear war. The impact of SDI on Gorbachev was much less than that of economics and nuclear instability. SDI could have shortened or extended the Cold War by at most six months.

What actually happened six months after Reykjavik is that the United States abandoned DEW in favor of kinetic-kill vehicles. By that point SDI was becoming irrelevant and did not prevent the Soviet Union from soon accepting INF, CFE and START. One could even argue that SDI slowed the end of the Cold War by preventing major agreements at Reykjavik. One could also argue that the extra push from SDI on top of Gorbachev's other problems made him more compliant, not out of fear but out of system-overload. Either way, though, the effect was not large. Hey does not discuss the possibility that SDI extended the Cold war and concludes: "There is no way of measuring how much SDI contributed to the Soviet Union's fall" (p. 227). *The Star Wars Enigma* is a balanced, well-researched, and well-written treatment of SDI by a government laboratory insider, a fitting volume to read alongside *Way Out There in the Blue.*