

The Star Wars Story

A Shield in Space? Technology, Politics, and the Strategic Defense Initiative. SANFORD LAKOFF and HERBERT F. YORK. University of California Press, Berkeley, 1989. xvi, 409 pp. \$35. California Studies on Global Conflict and Cooperation, vol. 1.

The Strategic Defense Initiative's political fortunes are on the decline. Two years ago, while its progenitor Ronald Reagan was still in office, Congress dealt SDI the first of its cuts in inflation-adjusted funding. A larger reduction followed last year, despite the dazzle of "brilliant pebbles," the miniaturized space rocket concept put forward as the latest supposed SDI miracle weapon. This year, the parallel declines of the Soviet military threat and the U.S. defense budget are leading congressional sentiment toward much deeper SDI cutbacks, over the protestations of President Bush and Secretary of Defense Cheney, who continue to call for deployment of a nationwide missile defense as soon as possible. With the SDI budget facing such continued declines and with strong majorities of both houses of Congress continuing strongly to support the Anti-Ballistic Missile (ABM) Treaty's ban on all development, testing, and deployment of space-based missile defenses, the chances of any widespread missile defense actually being built appear slimmer than ever.

How did we get here? How did a technically uninformed president convince the public that it might be possible to create a defense so perfect as to render nuclear weapons "impotent and obsolete"? How did the United States come to spend some \$20 billion on the program, without ever coming to a clear definition of its goal? What are the technologies involved, and what barriers do they face? What factors have fostered the growing consensus that maintaining the ABM Treaty would better serve U.S. security than abrogating it in order to build a first-phase SDI system?

The reader seeking an answer to these questions could find no better source than *A Shield in Space?* Lakoff and York provide a telling critique of the "illusory faith" that security can be achieved through all-out technological competition and a defense of the alternative path of negotiated restraint, symbolized by the ABM Treaty.

The book's sweep is particularly impressive, aptly combining Lakoff's political sci-

ence expertise and York's extensive background in military technology. (Among other posts, York was Director of Defense Research and Engineering in the early 1960s, when the previous major research effort exploring space-based ABM rockets—brilliant pebbles's equally oddly named predecessor, BAMBI—was under way.) From the technology of space lasers to the strategic implications of a renewed race between missile defenses and offensive countermeasures, from SDI's origins to its impact on arms control, virtually every issue associated with the SDI program is cogently analyzed and placed in its historical context.

Even brilliant pebbles, which did not take center stage in the SDI program until after *A Shield in Space?* was completed, receives effective brief treatment. York and Lakoff point out that the costs and schedules put forward by advocates of these space rockets are wildly optimistic and that, like other missile defense concepts, such a system could be overcome by offensive countermeasures, which would then require new defensive measures, provoking new countermeasures in turn, "so long as those who are asked to pay the costs are gulled into believing there can be a last move in a technological arms race." Since the book's publication, that point has been confirmed by an SDI-commissioned report from the JASON group of independent scientists, which pointed out that fast-burning Soviet rockets and other countermeasures could greatly reduce the effectiveness of a brilliant pebbles defense and warned that the technologies of brilliant pebbles could also be applied to offensive weapons, creating maneuverable "brilliant reentry vehicles" that would be extremely difficult to intercept.

Unfortunately, however, the authors' efforts to leaven their critique of SDI with similar criticism of Soviet efforts lead them to overstate the magnitude of the (admittedly sizable) Soviet strategic defense program. Their assertion that the size of the program "has grown steadily, despite the ABM Treaty" is contradicted by public CIA testimony showing marked ups and downs in Soviet strategic defense spending, with the most recent figures noticeably below the peaks in the late 1960s and mid-1970s; their estimates of Soviet spending on ABM and air defense cannot be derived from the sources they cite and for air defense alone are nearly twice CIA estimates of total Soviet strategic

defense spending; their judgment that Soviet development of an antisatellite weapon is evidence of their "readiness to exploit the loopholes in the ABM Treaty" is undermined by the fact that the system was already undergoing testing when the ABM Treaty was negotiated, without U.S. complaint, and by the system's slow attack approach, which would be of little use against a sudden ballistic missile attack.

Most surprisingly, by claiming that the CIA has predicted that the illegal Soviet radar near Krasnoyarsk "will provide battle-management support for a widespread ABM system" York and Lakoff essentially accept the charges of Star Warriors who have attempted to justify the abandonment of the ABM Treaty by warning that the Soviet Union itself is on the verge of creating a prohibited nationwide missile defense. In fact, though expressing concern over the possibility of such a widespread Soviet ABM, the CIA has never predicted that the Soviet Union would build one, much less that Krasnoyarsk would provide battle management for it. And there is overwhelming evidence that the never finished Krasnoyarsk facility was designed primarily as an early-warning radar and has little ABM battle-management potential. Oddly, Lakoff and York do not mention that construction at Krasnoyarsk was halted in 1987. (The Soviet pledge to dismantle the facility came in the fall of 1989, after *A Shield in Space?* was complete.)

Overall, however, *A Shield in Space?* clearly ranks among the most informative and penetrating analyses of the SDI program yet to reach print. Lakoff and York make an overwhelming case that "at this historic juncture in the cold war . . . it would be senseless and an act of gross irresponsibility to embark unilaterally on an effort to build space-based defenses." If only the President and Secretary of Defense would come to share that wisdom.

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A Scientific Ascent

Science in Germany. The Interaction of Institutional and Intellectual Issues. KATHRYN M. OLESKO, Ed. History of Science Society, Philadelphia, 1989. 313 pp., illus. \$29; paper, \$18. *Osiris*, vol. 3.

During the course of the 19th century Germany developed from a welter of essentially agrarian states whose scientific standing compared poorly to that of France or England to a unified empire whose scientific