Weapons Bureaucracy Spurns Star Wars Goal

Contrary to popular belief, the Pentagon did not endorse Reagan's vision of a missile-free world

A year ago, President Reagan announced on national television that he was "launching an effort which holds the promise of changing the course of human history," a long-term program of scientific research intended to eliminate the threat posed to the civilian populations of the United States and its allies by Soviet strategic nuclear missiles. The idea, which came as a complete surprise to all but a few high-level Administration appointees, was quickly put before two panels of prominent weapons scientists, who gave it their hearty endorsements in two classified reports delivered last fall.

This, at least, is the impression that the White House has sought to convey through a series of press briefings, interviews, and formal statements about the idea, which is generally known as the "star wars" proposal. As presidential science adviser George A. Keyworth, II, told *Science* last November, "I think truly the most important thing that happened in the reports is that a bunch of people from very different perspectives concluded at the end that just what the President said, his objective, was feasible."

In fact, the conclusions of the reports fall considerably short of a hearty endorsement, and—as it became clear in recent congressional hearings on "star wars"—there remains considerable skepticism, even within the defense bureaucracy, that the President's idea is sensible, much less attainable. A feud on the subject between Reagan's technical advisers in the White House and those in the Pentagon has now broken into the open, with one group favoring the goal of total population protection and the other largely dismissing it. As a result, prospects for congressional approval of the costly program have dimmed considerably. Despite recent attempts in some quarters to paper over the differences, dissension is rife and confusion about the program's goals and practicality remains widespread.

Although some high-ranking Pentagon officials now deny it, President Reagan's idea was clearly to devise a military system that would protect the public from all Soviet intercontinental ballistic missiles. As Secretary of Defense Caspar Weinberger said shortly after Reagan's speech, "The defensive systems the President is talking about are not designed to be partial" and "What we will try to do will be to develop a system that is so reliable that it will, in effect, render impotent *all* of these nuclear missiles" [emphasis added].

The clear implication—and chief political attraction—of Reagan's proposal is that such a defense would provide an alternative, not a complement, to offensive nuclear weapons. As Reagan explained at a press conference, he wants a system that will enable some future president to tell the Soviet premier, "I am willing to do away with all my missiles. You do away with yours." Keyworth in particular has used this as a selling point,

> "[We] recognized from the outset that a completely leakproof defense is certainly impractical if not impossible."

telling a meeting of the Armed Forces Communications and Electronics Association last October, for example, that the President seeks to abandon the doctrine of mutual assured destruction in favor of "a new stability based on, as he called it, rendering nuclear weapons obsolete."

The difficulty is that this goal, though laudable, is generally thought by most experts to be completely unattainable. As Ashton Carter, a research fellow at MIT who consults on ballistic missile defense (BMD) for the Pentagon and the Office of Technology Assessment, notes in a book on the topic published this spring by the Brookings Institution,* there is a broad consensus within the technical community that the prospects of defending people from nuclear missiles are "so remote as to be of no practical interest." There is, he says, "no extrapolation from present BMD capabilities and costs that could enforce near-perfect, high-confidence protection against a determined opponent. . . . Mutual assured destruction, seen as a condition of technological life rather than a chosen doctrine, seems unavoidable."

Despite White House assertions to the contrary, neither of the two "star wars" reports prepared at its request explicitly states that a foolproof defense of the general public against Soviet missiles is achievable, permitting the eventual abandonment of offensive weapons. One report, prepared by a panel of 12 weapons analysts under the direction of Fred Hoffman, goes so far as to say that even a slightly imperfect defense, or one that permits a few Soviet warheads to reach U.S. or allied territory, "may prove unattainable in a practical sense against a Soviet effort to counter" it. The report, which has not yet been officially cleared for release, dwells instead on the virtues of enhancing deterrence against a Soviet attack with a *mix* of offensive and defensive weapons, and speaks enthusiastically about the attractions of limited systems designed expressly for the defense of weapons, not people. Specifically, it recommends pursuing three options as "intermediate" steps on the path to a more complicated, but still imperfect, ballistic missile defense: a system capable of defending against short-range tactical nuclear missiles; a system capable of defending only military command and control centers against a limited nuclear attack; and a space-based system capable of destroying a limited number of the Soviet Union's missiles within seconds after their launch.

An unclassified summary of the other report, which was prepared by 50 experts in BMD technology under the direction of former NASA administrator James Fletcher, says only that additional research and development are necessary before a decision can be made "on how to begin an engineering validation phase . . . that, in turn, could lead to an effective defensive capability in the 21st century." Although the term "effective" is never precisely defined, the report indicates that at best, a complex BMD system could not keep all Soviet warheads from striking U.S. territory. Edward Gerry, a former director of the strategic

**Ballistic Missile Defense*, Ashton B. Carter and David N. Schwartz, Eds. (The Brookings Institution, Washington, D.C., 1984).

technology office in the Defense Advanced Research Projects Agency who directed a key Fletcher panel subcommittee, explained in recent congressional testimony that the group "recognized from the outset that a completely leakproof defense is certainly impractical if not impossible." In short, it differed not only with Weinberger and Keyworth but with the President as well.

The issue is significant because a massive Soviet attack against anything but a perfect ballistic missile defense would still cause widespread destruction of cities and massive civilian deaths in the United States. The Fletcher panel report claims, for example, that a BMD system composed of three successive layers, each of which was 90 percent effective, would allow penetration by only 0.1 percent of the attacking warheads. Skeptics

Star Wars Panels Highlight Uncertainties

"We took an optimistic view of newly emerging technologies and . . . concluded that a robust, multitiered ballistic missile defense [BMD] system can eventually be made to work," says James Fletcher, in describing the conclusions of the Defensive Technologies Study Team that he chaired. But neither his group nor a second panel chaired by Fred Hoffman was able to say exactly when such a system would work, how well it would work, or how much it would cost. And both listed enough political and technical uncertainties to satisfy even the most ardent BMD critics.

The Fletcher panel, for example, noted that the deployment of directed energy weapons in space—a key element of most BMD concepts—"not only requires significant technical advances but also poses difficult policy issues which need to be addressed." It also said that the need to protect such weapons from preemptive attack "is an especially critical issue whose resolution requires a combination of technologies and tactics that remain to be worked out." Similarly, the Hoffman panel noted that the first two layers of a full-scale defensive system "may present problems of both vulnerability and high sensitivity to attack size." It added that such a system "might decrease stability" if it was paired with offensive nuclear weapons that were vulnerable to a large Soviet attack.

In an interview with *Science*, Fletcher said that the members of his group all felt that the technical problems could eventually be overcome. (Richard DeLauer, the Pentagon's top scientist, is more skeptical. Last November, he said that the challenges are equal to or greater than those posed by the Manhattan Project in each of nine different research areas.) "But the question is: can it be done for a reasonable cost? I think the answer to that will be unresolved for a long time," Fletcher says. He cautions that even the best ballistic missile defense will be incapable of defending the total U.S. population. "Total is one thing, substantial is another," Fletcher says. "What you want to do is to minimize the casualties. There is no such thing as a nuclear umbrella." Hoffman agrees. "If what you want defenses to do is to protect the bulk of our population against an attack by a large Soviet force that has the objective of destroying our population, then you would need everything [in a BMD system] to work," he says. "Even as a nontechnician, it seems to me that the likelihood of this happening is small."

The Hoffman panel report, which was prepared by a group of weapons industry representatives and established Pentagon consultants, emphasizes that less complex defensive systems, primarily intended to protect military assets, may be more practical as well as more useful. "You have to ask yourself where attacks on cities would rank in the actual [Soviet] war plans," explains Hoffman, an affable, soft-spoken economist with 30 years of experience in strategic weapons analysis, who is now director of Pan Heuristics in Marina del Ray, California. "That's not what they would primarily be interested in. This raises the question: how do you deter an attack? One way is by convincing an opponent he'll suffer terrible damage in response; another is to convince him that he simply won't achieve the objective that he wants." If military assets are the primary objective, their protection puts the biggest obstacle in the path of an attack, he says.

A defense against a limited nuclear attack would be particularly valuable in the event of a conventional conflict between U.S. and Soviet forces in Europe, Hoffman argues. If the Soviets wanted to block U.S. equipment and troop reinforcements, they might attack a limited number of U.S. ports and airfields, believing that the President would choose to end the conflict rather than retaliate. By raising the price of a successful limited attack, a BMD system would reduce the prospect that it would remain limited, he says. As a result, the attack would never occur. It is reasonable to ask, however, whether such an attack by the Soviets is likely in the first place, and how the Soviets could believe that the United States would fail to retaliate in the face of hundreds of thousands of deaths and widespread coastal destruction.

Asked why a defense of U.S. military assets would not be destabilizing, Hoffman responds that the Soviets probably don't fear a first-strike by the United States. "We've been through periods when on the usual criteria of stability, [the Soviets] should have been attacked and weren't. Look at their behavior during the period [in the 1950's and early 1960's] when they were subject" to U.S. strategic superiority, he says. "Was it recessive, did they never give us any trouble, did they always behave obsequiously? Not quite." He also notes that "neither side will ever be confident" how well a ballistic missile defense will work. As a result "I do not believe they would impute to our defenses a degree of perfection that says, 'This is going to leave the United States in a position to liquidate the Soviets with impunity.' " Consequently, it seems unlikely that they would attack the United States to prevent the deployment of such a system.

Hoffman agrees, however, that any predictions about the new strategic defense initiative must be hedged by uncertainty. As the Fletcher panel concluded, "the ultimate utility, effectiveness, cost, complexity, and degree of technical risk in this system will depend not only on the technology itself" but also on the Soviet Union's ability to develop similar technology and limit its offensive forces.

—R.J.S.

within the scientific community, such as Hans Bethe, Kurt Gottfried, and Richard Garwin, say that such effectiveness cannot be achieved. Even if it was, dozens of nuclear warheads would still strike U.S. territory under the maximum Soviet threat envisioned by the panel. Everyone agrees that as long as such a threat exists, it can be deterred only by the threat of retaliation with offensive nuclear weapons. This is why Richard DeLauer, the Pentagon's top scientist, said in testimony on 8 March before the Senate Armed Services Committee that he could not envision any ballistic missile defense system that would eliminate the need for offensive missiles. "Does anyone?" asked Senator Sam Nunn (D–Ga.). "Not in the foreseeable future," DeLauer replied.

The danger of deploying both offensive and defensive strategic weapons simultaneously was specified by Reagan in his initial "star wars" announcement. "I clearly recognize that defensive systems have limitations and raise certain problems and ambiguities," he said. "If paired with offensive systems, they can be viewed as fostering an aggressive policy and no one wants that." The basis for this concern is that even a somewhat imperfect missile defense might be regarded as militarily useful in the face of a drastically diminished Soviet threat—diminished that is, by a preemptive U.S. attack. As implausible as such an attack may be, construction of such a defense would at best create extreme anxiety in the Soviet Union, and at worst evoke an attack to keep it from becoming operational, an attack that, as DeLauer points out, "is not hard if you are deliberate about it."

Unable to vouch for the technical feasibility of the perfect missile defense envisioned by the President, both the Pentagon and the panels of BMD experts have resorted to a recitation of old and familiar arguments on behalf of an imperfect defense: Oriented to the protection of offensive weapons, for example, it could enhance deterrence either by limiting the "military utility" of a massive preemptive attack or by increasing the number of Soviet warheads required to achieve a given amount of destruction. In the face of a much more limited attack, including one launched from a country other than the Soviet Union, such a defense might even be able to protect population centers. And in the unlikely event of an all-out war, an imperfect defense might keep the number of civilian deaths down to what many weapons officials consider to be a relatively small number. "Faced with the prospect of losing 180 million people versus 10 million, it makes sense to try for the latter," remarks Major Peter Worden, a special assistant for BMD in the Pentagon's research and development office.

None of this has gone down easily at the White House, where Keyworth in particular has been pressing for research on a total defense of population centers. "The President was not talking about improving warhead exchange ratios; he was talking about a change in our defense posture," Keyworth told *Science* last fall. "We're not trying to preserve our nuclear deterrent in this program, we're trying to move away from reliance upon the nuclear deterrent." Another White House official familiar with this issue, who asks to remain anonymous, now says that "as politely as I can put it, these guys at the Pentagon are incorrect.

Richard DeLauer

He says that no one at the Pentagon foresees an end to the need for offensive weapons.

It is most specifically not our intent to advocate defenses solely for offensive military systems." The official acknowledges, however, that such defenses might be more feasible in the near-term and insists that they "would eventually evolve into a multifaceted capability to defend the people as well."

Keyworth himself stresses that "Hoffman, DeLauer, and myself all agree on the need to produce a path that will reduce our reliance on nuclear weapons, and any step you take to develop defensive weapons reduces the military usefulness of offensive ones. My definition of a perfect or ideal system is one whose effectiveness is so great that no enemy would conceive of attacking it. Now whether that means 99.9 percent effectiveness or something less depends on the type of weapons in his arsenal. What does rendering nuclear weapons obsolete mean? Nuclear weapons are so devastating that they will never be truly obsolete; they will continue to exist and be feared. But the world would be a lot safer if they were no longer so heavily relied upon."

Confusion about the program has considerably harmed its prospects in Congress. The Administration has requested an appropriation of $1.77 billion for work on the President's Strategic Defense Initiative during fiscal year 1985, a 78 percent increase over the budget for 1984. In 1986, the budget is scheduled to jump 114 percent, to $3.77 billion. The entire program, which is intended to facilitate a decision in the early 1990's about whether and how a missile defense should be constructed, is expected to cost at least $25 billion. And this is merely a downpayment, as the BMD itself is expected to cost hundreds of billions of dollars more.

During recent congressional hearings, Senators Barry Goldwater (R–Ariz.) and Sam Nunn indicated that these costs might be more palatable if the program truly offered a chance to eliminate the threat of nuclear missiles. "It is one thing for the American people to believe they are supporting a program based on doing away with offensive weapons," Nunn said. "When [they] wake up and find out that is not what we are going to be doing, [that the Administration is] going for both offensive and defensive, they will have a change of heart." Goldwater noted that "we are faced, in my opinion, with a threat far more destructive than anything that Russia might throw at us in missiles, and that is our deficit." He said that it was his "strong feeling" that Congress would never fund such a costly project.

The initiative's fate is far from settled, but the debate thus far has clarified a key issue. A total defense of the population and the elimination of offensive weapons, the goals that initially caught the President's attention, are now acknowledged to be infeasible, even by the military bureaucracy. As a result, policymakers can turn their attention to the same questions that bedeviled Washington in 1968 and 1969: Is it destabilizing to deploy a system designed to protect offensive nuclear weapons? Does it make sense to defend against the possiblity of a limited nuclear attack? Will a limited nuclear attack ever occur? What about the Pentagon's existing relatively inexpensive BMD effort—a Navy program designed to reduce the noise emitted by missile-carrying submarines, so as to prevent their detection and destruction in a global conflict? There is a long list of relevant questions, each worthy of earnest debate.—**R. JEFFREY SMITH**