Reagan Plans New ABM Effort

Although vague, his plan for more research on antiballistic missile systems has drawn scientific criticism

John Gardner and Robert Cooper apparently were surprised as they listened to President Reagan's "Star Wars" speech on the evening of 23 March. Gardner is director of defensive systems at the Pentagon and Cooper is director of the Defense Advanced Research Projects Agency (DARPA). Together, they supervise the bulk of the government's research on ballistic missile defense, a large ongoing effort to determine whether it is possible to make a device to destroy incoming enemy missiles before they explode near U.S. forces in a nuclear conflict.

Reagan's speech was primarily about the flagging fortunes of his proposed 1984 budget for the Department of Defense. At the end, however, he announced the start of a new program "to counter the awesome Soviet missile threat with measures that are defensive"—measures that would permit the interception and destruction of missiles before they "reached our own soil or that of our allies."

Neither Gardner nor Cooper was consulted—or even informed—in advance of the President's announcement, according to their colleagues. Consequently, they had difficulty fielding inquiries about it, as did the rest of the military. What sort of program is planned? No one seemed certain. The President's speech mentioned "a comprehensive and intensive effort to define a long-term research and development program." What does this mean? No one knew. But senior Administration officials mentioned the possibility of constructing lasers, particle beams, microwave devices, or projectile weapons. Will the budgets for these programs be increased? Not this year. Next year? No one knew. What will the government be doing in the future that it does not do now? That is uncertain.

It was hardly an auspicious inception for what the President grandly characterized as "an effort which holds the promise of changing the course of human history." Much of the mystery was caused by the fact that Reagan himself drafted the nuclear defense portion of the speech and invited only a few members of his staff to review it. "It was very closely held," says presidential science adviser George A. Keyworth II, who played a major role on the inside. "This was not a speech that came up; it was a top-down speech . . . a speech that came from the President's heart."

Reagan clearly intended the announcement to quiet fears about his military proposals. "Up until now," he said, "we have increasingly based our strategy of deterrence upon the threat of retaliation. But what if free people could live secure in the knowledge that their security did not rest upon the threat of instant retaliation?" This thought has proved far less comforting than he anticipated. The Democratic party, in its official response, accused Reagan of creating a fantastic scenario for Star Wars. Soviet Premier Yuri Andropov said that, should Reagan's "conception be converted into reality, this would actually open the floodgates to a runaway race of all types of strategic arms, both offensive and defensive."

Although Reagan might have expected such statements from political sources, he is undoubtedly surprised by the reaction in the scientific community. In his speech, he explicitly called upon "those who gave us nuclear weapons to turn their great talents to the cause of mankind and world peace; to give us the means of rendering these nuclear weapons impotent and obsolete" through the development of antiballistic missile technology. Endorsements came from a few members of the current White House science council, which Keyworth heads. But nearly a dozen other prominent scientists attacked the idea. Wolfgang Panofsky, director of the Stanford Linear Accelerator, said it was "spiritually troubling." Jerome Wiesner, a former White House science adviser and past president of MIT, said that "it's really a declaration of a new arms race." And Richard Garwin, a physicist at IBM, said simply that "it won't work."

Keyworth and others in the White House recount the development of the proposal as follows: Since Reagan was sworn into office, he has been visited by a number of conservative weapons analysts who believe that the United States should construct a strategic defense. One such analyst is Edward Teller, who spoke with Reagan last autumn about the feasibility of constructing nuclear-pumped lasers for the purpose of destroying Soviet missiles shortly after their launch. "Defense is by far the best deterrence if it works," Teller says. He believes that such lasers could be launched into space whenever a Soviet attack appears imminent. "Perhaps I did have an influence on Reagan, yes," Teller told *Science*.

Reagan also met with major contributors to a group known as High Frontier, which has recommended swift deployment of antiballistic missiles on hundreds of satellites in space, as well as more rapid development of space-based beam weapons. The contributors included Joseph Coors, Jack Hume, and Karl Bendetson, prominent industrialists who are often considered part of Reagan's Kitchen Cabinet. Daniel Graham, a former Defense Intelligence Agency official who directs High Frontier, and Senator Malcolm Wallop (R–Wyo.), who supports many of its proposals, have also discussed space-based weapons with Reagan.

Keyworth insists that "nobody who was promoting a particular technical concept in any way influenced the President's views on this subject. He has asked me many questions on the subject, and I have always argued that we needed to know more to identify some of the promising alternatives. However, [Teller's] objective—of moving off of mutual assured destruction—certainly resonated with the President's views. He has felt very strongly about this—in fact I'll go so far as to say that . . . I have never seen him anywhere near as committed to anything as he is to this."

In February, the Joint Chiefs of Staff came to the White House for their monthly chat with Reagan, and the discussion focused on the difficulty of ensuring that the MX nuclear missile would be invulnerable to Soviet attack. "The Joint Chiefs expressed to the President that what we are wrestling with on MX basing is another clear indication of the difficulty of maintaining a balanced deterrent. What we should do is develop a sense of strategic vision, to develop a broad-based research and development

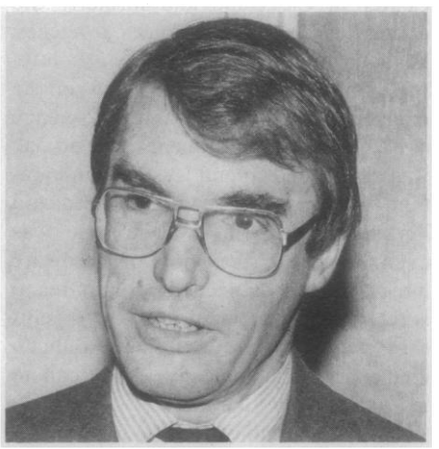
program in defensive technology," Keyworth says. Although the chiefs envisioned a device for defending *missiles*, Reagan apparently took the concept and ran with it, deciding that what the nation needed was a device that would defend *people* as well, sources say.

The distinction is important because construction of a system for limited defense of a missile field is generally regarded as plausible, while construction of a system for perfect defense of the entire country is regarded by most scientists as a pipe dream. William Perry, a former under secretary of defense for research and engineering, recently wrote for example that a space-borne laser system might destroy only half of an attacker's missiles. "If by remarkable improvements in defense technology we are able to deploy an antiballistic missile system with 95 percent effectiveness and during this period the Soviets made no changes in their present force of ICBM's, they would still be able to place a residual force of 300 ICBM warheads on our cities, each of which was 30 times larger than the atomic bomb that devastated Hiroshima."

Reagan chose to listen to other counsel, and insisted on making the proposal in his speech. This was not a popular move among his advisers, several of whom felt that it was the wrong moment to announce a new strategic initiative. Congressional antagonism on the budget was increasing, and a coalition of 500 business, academic, and political leaders had just called for substantial cuts in both conventional and strategic weapons.

No scientific analysis or decision memorandum was prepared for the President in advance of his announcement. Sources say that Keyworth learned of the President's intentions less than a week before the speech was scheduled for delivery on national television. He and William Clark, the national security adviser, honed the portion of the speech on defensive weapons and sent it to other officials for comment. Secretary of Defense Caspar Weinberger was apparently informed in Spain, where he was busy negotiating agreements on several military bases. According to one source, Secretary of State George Schultz expressed "genuine concern about the impact of the announcement on our allies." He worried that any hint of a shift from offensive to defensive weapons would sow alarm in Europe, which relies in part on the threat of U.S. retaliation to deter a Soviet attack. Schultz helped draft language to assure the Europeans of "close consultation" on the new initiative. Senior officials also said that benefits from the antiballistic missile research might be shared with the Europeans.

Keyworth, who is enthusiastic about the President's idea, sought advice on the speech from Solomon Buchsbaum and William O. Baker, two scientists from Bell Labs who serve on the White House science council. Ultimately, he included them in a group of 13 scientists that were invited to the White House for dinner on the evening of the telecast. "We were told that the President would announce an important new initiative and that he needed the assistance of the scientific community," said Burton Richter, the technical director of the Stanford Linear Accelerator. The other



George Keyworth

"can't conceive of it being destabilizing"

invitees were Harold Agnew, Hans Bethe, John Foster, Edward Frieman, William Nierenberg, Frank Press, Charles Townes, Victor Weisskopf, Simon Ramo, and Teller. Along with members of Reagan's Cabinet, his top aides, the Joint Chiefs of Staff, and nine former national security officials, they heard short, private lectures by Under Secretary of Defense Fred Ikle, national security aide Robert McFarlane, and Keyworth.

The President's proposal received mixed reviews from those who attended. Agnew says that "my only reservation is that would-be peaceniks will kill it before it has a chance to get started." Buchsbaum called it "a difficult problem which is worth exploring" and said that "the scientific community needs to rise to the challenge." He added that although there was "no crystallizing event on the science and technology front" to justify the development of an antiballistic missile system, 23 March was "as good a day as any" to announce a program of increased research. Ramo, who expressed some skepticism during the private briefing, later said that "it was a great idea to make this announcement." He cautioned, however, that "we don't know how to do this yet, and there will be pitfalls and problems all the way." One drawback is that the technology needed for destruction of incoming missiles might also be useful for attacks on airplanes and ground-based targets. "You can't be sure that the offense won't be enhanced along with the defense," Ramo says.

Ramo does not believe this is an overriding problem, but many other scientists do. Hans Bethe, for example, says that he is "terribly worried we are going right into space wars. We will be in serious trouble if these systems work." Possession of defensive and offensive weapons at the same time would enable the United States to launch a first strike without fear of retaliation, he says, a highly destabilizing prospect. "We cannot from one day to the next shift from the offensive to the defensive; there will be some overlap." Bethe says when he raised this objection at the White House, "the answer I got was essentially nil, so empty that I don't remember it."

In an interview, Keyworth took issue with Bethe. "To me, the tortuous arguments I have heard from very brilliant people on the subject of the destabilizing prospects are much more academic than they are pragmatic. They require the United States pulling off a whopper in defense capabilities that will [require] years and years of development and implementation. I can't seriously conceive of it as being destabilizing." Similarly, a senior Administration official told reporters that the transition from offense to defense would be gradual, "with clear negotiations in process," and that in any event the Soviets would not be far behind in defensive technology.

"I think it is the prerogative of the American people, not the Defense Department, to ensure that the United States does not attempt to achieve a first strike capability," Keyworth says. "Do you think . . . the more thoughtful members of the freeze movement will rest secure if the United States holds an impenetrable shield and at the same time wields swords?"

The issue clearly worries a substantial portion of the scientific community. Keyworth compares Reagan's initiative to the Manhattan Project, "although the degree of urgency is somewhat reduced." Sidney Drell says that it "would be terrible" if Reagan had this in mind. Herbert York, Lee DuBridge, James Van Allen, William Pickering, Carl Sagan, and Victor Weisskopf agree. It seems unlikely that their advice will get far at the White House.—**R. Jeffrey Smith**