

# Limited ASAT Proposal Gains Backers

*Pressured by a congressional ban on ASAT tests, some Administration officials express interest in a limited arms agreement, but the Air Force remains uninterested*

ON 16 December, in an extraordinary display of initiative, Congress enacted a ban on tests of an Air Force antisatellite weapon (ASAT) against targets in space. The ban, which was strongly opposed by the Reagan Administration, runs until new ASAT tests are conducted by the Soviet Union, now considered unlikely for the foreseeable future. As a result, it has the effect of truncating a multibillion dollar, 25-year, research effort just short of its ultimate goal.

Representative George Brown (D-CA), a principal advocate of the measure, calls it "true arms control at its best. It is unquestionably bilateral—we won't test if you don't. It is verifiable through the very technology—satellites—that ASAT's are intended to destroy. And it not only saves billions of dollars for the weapon, it also protects our substantial investments in space." According to supporters, the chief benefit will be to facilitate the negotiation of a formal treaty—to foster "an environment in Geneva conducive to averting an extension of the arms race in space," in the words of Representative Dante Fascell (D-FL), chairman of the House Foreign Affairs Committee.

Congress might have underestimated the Reagan Administration's antipathy to ASAT arms control, however. There is, for example, no evidence of a change of heart in the Air Force. Air Force Under Secretary Edward C. Aldridge, Jr., vigorously attacked the decision in an interview with *Science* shortly after the vote, and reaffirmed that he cannot think of an ASAT agreement "that is in the national security interest of this country and is verifiable." Elsewhere within the Administration there is increasingly favorable talk about a limited ASAT agreement, which would constrain deployment but allow development to continue. But most officials agree that it is too soon to place such a proposal on the table in Geneva, and that the best course of action now is to persuade Congress to change its mind.

As a close observer of the ASAT program and an experienced aeronautical engineer, Aldridge is well equipped to serve as the point man in the Administration's cam-

paign. "I am disappointed with the congressional action," he says, "which in effect puts the fate of our testing of this critical defense program in the hands of the Soviets." He reiterates the twin themes of the Administration's long-standing policy: that ASAT's have substantial military value, and that Soviet cheating on an ASAT agreement might go undetected.

"I don't think that we will ever accept the notion that the Soviets can [deploy] a low-altitude satellite and use it at will to target



**Edward C. Aldridge, Jr.**

*Wants no part of an ASAT treaty.*

our forces," Aldridge says, referring to satellites that are capable of locating aircraft-carrier task forces at sea. "Our national security objectives are best served by our ability to take those systems out." When completed, the U.S. ASAT will reportedly be capable of reaching altitudes of 500 to 700 kilometers, well within range of these targets.

Aldridge's claim about the need for direct ASAT attack has long been controversial, with some naval officials and independent experts asserting that the threatening Soviet satellites can be rendered impotent by less drastic means, such as electronic countermeasures. But it recently attracted the support of Brent Scowcroft, the national securi-

ty adviser to former President Ford; William Perry, the Pentagon's top scientist during the Carter Administration; and Joseph Nye, a deputy under secretary of state for security assistance, science, and technology during the Carter Administration.

In a brief report prepared under the auspices of the Aspen Institute, the trio concluded that "the gains to our security" from pursuing a low-altitude ASAT capability "are, on balance, greater than the costs we incur" by allowing the Soviets to pursue it as well. The reason, they said, is that even though low-altitude reconnaissance and eavesdropping satellites presently pose no major threat to U.S. aircraft carrier task forces, they might in the future, and "ASAT's are an important, though not exclusive, means of countering such threats."

Aldridge, who participated in the Aspen Institute workshop that led to the report, praises it as the first "ASAT policy paper" to support the Administration's position on low-altitude ASAT's. But he strenuously disagrees with another recommendation in the report, calling for restraints on ASAT's capable of destroying targets at higher altitudes, such as early-warning and communications satellites.

The rationale behind such constraints is that "stability in space would be seriously eroded if either side's warning sensors or communications networks became susceptible to instantaneous attacks," the report says. "Fearing preemption, each side might be driven to nuclear alert levels that were inherently unstable. An accidental collision of spacecraft . . . or an unexplained maneuver could prompt a decision to attack. . . . Worst of all, preemption against satellites might be viewed as the wiser course—if, in preempting, the attacker thought it could stave off a coherent missile strike . . . . Like the prospect of a nuclear first strike . . . it would be a seemingly crazy act made logical by desperate circumstances."

The authors prescribe two different arms control measures, and one unilateral step, which would inhibit high-altitude ASAT attacks while leaving the door open for the destruction of less important satellites at lower altitudes. One, commonly known as a "rules of the road" agreement, would seek to constrain the threat from so-called space mines, or satellites of benign appearance but lethal intention. It would formally prohibit any satellite above a certain altitude from maneuvering within, say, 200 kilometers of another and bar any simulated space mine attacks.

A complementary agreement would constrain space- or ground-based directed-energy weapons, which can potentially wreak havoc on many satellites over a great dis-

tance. By restricting power levels to the megawatt range and limiting the size of any orbital relay mirrors, the authors claim, such weapons can be rendered impotent against high-altitude targets yet remain capable of attacking intercontinental ballistic missiles as part of a "Star Wars" system. Both of these measures could be strengthened by unilateral efforts to "harden" high-altitude satellites against weak or distant threats.

This approach has already attracted broad support among aerospace and intelligence community experts (*Science*, 18 May 1984, p. 693). Former Air Force Secretary Hans Mark, for example, recently wrote that he supports "some 'rules of the road' for the operation of space systems and space vehicles in peacetime." Partly in response to congressional pressure, support is also growing within the executive branch, even though pockets of opposition remain. One surprising source of support is the Strategic Defense Initiative Organization, charged with developing a panoply of ground- and space-based systems to defend against a missile attack.

In testimony last year before a closed session of the House Appropriations Committee, the organization's director, Lieutenant General James Abrahamson, noted that a "rules of the road" agreement might indeed constrain the threat of attack by space mines. "A potential kind of a treaty . . . that one might well consider to be a stabilizing treaty, for example, would be one that says you might not allow a device to be within a certain distance of a satellite of another nation," he said. Among other benefits, he added, such a treaty would enable the United States to use potent electronic countermeasures against space mines before they could draw within range.

Air Force Colonel George Hess, director of SDI's survivability and lethality office, also believes that such an agreement "might work to the advantage of the United States." It would, for example, make it more difficult for the Soviets to destroy SDI systems as they are deployed, he told *Science*. An agreement constraining the most potent directed-energy ASAT threats might also aid SDI, he said.

Despite these glimmers of interest in some form of ASAT arms control from within the Pentagon, Aldridge wants no part of it. Even an agreement that restrains high-altitude attacks is of little interest, he says. "Right now, we have no incentives to go after the Soviet Union's high-altitude systems. But that does not mean that we wouldn't have any incentive in the future," he says. "For example, suppose the Soviet low-altitude [ocean reconnaissance] system went to a higher altitude or worst of all used

a relay satellite to pass its data back to the Soviet Union. We may want to shoot at that if the relay controls four or five [satellites]. If you take that one out, you've got them all." Under "some scenarios," he adds, such as "after a war had started," the United States might even want to attack the high-altitude satellites used by the Soviets to command and control their strategic nuclear forces, in an effort to constrain a Soviet attack.

Aldridge also says that he knows of "no agreement that is verifiable for high-altitude ASAT's, none." Several times each month, he says, both the Soviets and the United States test all of the capabilities of such an ASAT when they park new satellites in geosynchronous orbit. "Every one of these launches is potentially an ASAT except for the kill mechanism. It's got propulsion; it's very accurate. There could be a sensor on board the system that could just maneuver over against my satellite and go bang or just hit it. And I cannot verify that it does not have that capability."

But Nye and others who support a limited agreement note that this kind of attack would eliminate only one satellite, not an entire network, and that there would be plenty of warning. (It takes hours for a payload to reach geosynchronous orbit, 22,000 miles above the earth.) Under any arrangement, Nye says, "the vulnerability of any single satellite must be taken for granted. But to attack a whole system without timely warning under the agreement we envision seems highly implausible."

Those within the Administration who favor a limited ASAT agreement, including several who are close to the negotiations in Geneva, say that it is unlikely that a proposal will be put forward soon. "Only when it is clear that the position of both sides on offensive weapons are converging will the pressures be large enough for the United States to negotiate such an agreement. At that point, even those who dislike it will come to view it as the least damaging of bad alternatives," says one official, who adds that this moment may be at least a year away.

In the meantime, the Administration will work hard to change Congress's mind because the ASAT program cannot be completed without further tests against targets in space, such as those launched by the Air Force on the eve of the vote at a cost of \$20 million. The Air Force is expected to bide its time with an additional test against a point in space, as opposed to an actual target, which Congress did not prohibit. Such a test was expected later in the program, to assess the ASAT's capability to operate at extremely low altitudes. But now the test may be moved up, so as maintain the program's momentum. ■ R. JEFFREY SMITH

## Briefing:

### Fossil Research Faces Sharp Cutbacks in '87

The basic and applied fossil energy research programs at the Department of Energy will be chopped by more than half next year, if the Reagan Administration has its way. The Office of Management and Budget has blindsided fossil energy division officials with a proposal to reduce spending from \$312 million this year to a maximum of \$150 million in fiscal year 1987. Accompanying this proposed budget reduction is a plan to hinge department support for applied research on industry's willingness to assume most of the costs.

Past attempts by the Administration in 1983, 1984, and 1985 to slash research expenditures on coal, gas, and oil to the \$100-million range have failed. In 1986, OMB appeared to give up. It submitted a request for \$241 million and its initial budget target for 1987 was \$233 million. The Congress also has managed to enact a separate 3-year, \$400-million Clean Coal Technology demonstration program without much of a fight from the Administration. But with the Gramm-Rudman-Hollings deficit reduction legislation having been adopted by Congress, the White House is again getting tough on fossil energy R&D.

The proposed \$150-million budget in fact may be smaller than it appears. Basic fossil research is funded at \$90 million, with another \$60 million earmarked for so-called "private-sector cooperative R&D partnerships." Just how attractive this latter money will be is uncertain. Kirk Yeager, vice president of coal combustion for the Electric Power Research Institute, says its usefulness may be limited by Administration caveats, details of which were reported 6 January by *Inside Energy*, a McGraw-Hill, Inc., newsletter on energy policy.

The Office of Management and Budget wants DOE to have an equity share in technologies receiving aid that is proportionate to the share of federal support. It says funding must be contingent on the research being "precompetitive" and not "proprietary," and specifies that the research should strengthen the technology base of an entire industry, not just that of a single company. No funding would be provided for specific product development or demonstrations. If the program is too restrictive, says Yeager, "you are not going to get the kind of commercial participation that is desirable." To the extent that companies do participate in this, he warns, it may be to reduce the overhead of private research pro-