Congress Set to Improve Weapons Testing

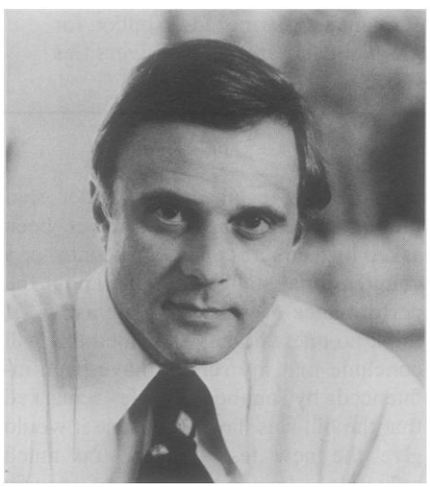
The Pentagon's top scientist will lose responsibility for weapons tests in an effort to eliminate waste

Congress is on the verge of approving a small but important change in the Pentagon's method of buying new weapons. Buried in the mammoth defense bill to be considered in September is a provision that takes the responsibility for testing new weapons away from the under secretary of defense for research and engineering, and hands it to an independent official with direct access to Congress and Secretary of Defense Caspar Weinberger. The effect of this measure is to stop the person who develops new weapons from grading his own creations. Its proponents claim that it can save the treasury billions of dollars annually.

The impetus behind the reform has been a series of scandals over weapons that do not work. Congress has become increasingly concerned that too many costly weapons are not subjected to tests that simulate battlefield conditions. If realistic tests are performed, adverse results are often ignored. The result is that deficiencies are not corrected until hundreds—and perhaps thousands—of the weapons have been constructed. Massive cost overruns result, requiring a last-minute infusion of cash or a sharp curtailment of production. This sequence of events has disrupted the purchase in recent years of tanks, missiles, ships, planes, and sophisticated electronic hardware, according to several reports from the General Accounting Office (GAO) and the Defense Department's Office of Inspector General.

Beset by both internal and external criticism, the senior leadership of the Pentagon has acknowledged some flaws in its weapons-testing program. Paul Thayer, the deputy under secretary, stated recently that unnecessary and frequently undiscovered defects added as much as 30 percent to the cost of most weapons, padding that amounts to perhaps $28 billion or so each year. But he and the others at the Pentagon who control the weapons-buying process have resisted any institutional reforms. The provision establishing an independent director of operational testing and evaluation was incorporated in the defense bill for 1984 over the Pentagon's strenuous objection, and agreed to by a House and Senate conference committee only after it had been watered down. Proponents of the provision acknowledge that it is only a modest step forward but say that more sweeping reforms are impossible to achieve at present.

Those who took part in the struggle say that Russell Murray is responsible for provoking congressional interest in an independent testing office. Murray, an engineer who has worked for the Grumman Corporation and the Center for Naval Analyses, had endorsed the idea while serving as an assistant secretary of defense for program analysis and evaluation under the Carter Administration. It was then that he noticed a "conflict of interest in having one official [the under secretary for research and engineering] in charge not only of developing new weapons but also of their operational testing." Under this arrangement, he says, the deck is perpetually stacked in favor of producing a new weapon—even when it is seriously flawed—simply because the under secretary will have committed his reputation to development by a predetermined date. Additional pressures come from the weapons builder, whose profits may depend upon prompt production and who can always count on receiving additional cash for necessary repairs. The result, Murray says, is a system in which tests are unrealistic or are simply ignored altogether.



Senator David Pryor

"This is the least that we can do"

As an example of a weapon whose defects would have become known earlier if proper testing had been conducted, Murray cites the Patriot antiaircraft missile. Tests of the Patriot were conducted using personnel from the Raytheon Corporation, its principal manufacturer, in lieu of soldiers. Production was begun before the missile had passed tests "under anything like realistic field conditions," Murray says. As a result, "I have no doubt that this system will continue to suffer from low readiness, poor performance, expensive retrofit programs, and cost overruns." He also cites the Maverick antitank missile and the engines for the F-15 jet fighter as examples of poorly tested, defective equipment. Those who Murray believes are the most likely to reject such weapons as unfit for production—the men in the field—"unfortunately tend to have a small voice in Pentagon battles," he says.

In 1977, Murray temporarily accepted testing responsibility at the Pentagon, but the idea was resisted by William Perry, then under secretary of defense for research and engineering, as well as others at the top of the Pentagon hierarchy, and he ultimately gave it up. In 1981, after Murray had returned to private industry, however, he obtained a sympathetic hearing before the Senate Governmental Affairs Committee. A junior member of the committee, Senator David Pryor (D–Ark.), was particularly impressed by Murray's testimony and tried to create an independent testing office through an amendment to the 1983 defense bill when it came up on the Senate floor. There, he butted up against Senator John Tower, the chairman of the Senate Armed Services Committee.

Tower, a conservative Republican from Texas who is known as a fervent and highly skilled supporter of Pentagon policies, disliked Pryor's proposal and noted that "this is the first explanation I have had of this. There certainly have been no hearings held on the creation of this kind of position in the Armed Services Committee." He objected to the implication in Pryor's measure that existing weapons testing is somehow inadequate. "We have, of course, an elaborate system of testing and evaluation in the Defense Department," Tower said.

Lots of New Weapons

The most surprising outcome of the recent House-Senate conference on the 1984 defense bill was a decision to approve the production of chemical weapons. In June, the proposal had been defeated in the House by a wide margin, and it was approved in the Senate only when Vice President George Bush cast a tie-breaking vote. Under a provision of the conference report, which is sure to generate controversy when Congress returns in September, the Administration may spend $96.5 million on a chemical weapons factory and $18.1 million on new binary shells. The shells may not be assembled until 1985, however, and only then if the President certifies that assembly is in the national interest.

Elsewhere in the bill, the conferees approved the construction of 21 MX nuclear missiles, as well as intensive research on a small, single-warhead missile known as the Midgetman. They cut funds for research on chemical lasers for use in space against satellites and ballistic missiles, and added funds for research on short wavelength lasers. They prohibited tests of the existing U.S. anti-satellite weapon against targets in space unless the President certifies that the tests are essential to national security and that the United States is trying to negotiate an antisatellite weapon ban. They also authorized $1.45 billion for a single Trident submarine, $3.76 billion for 10 B-1 bombers, and $30 million to modernize laboratories at universities performing defense-related research.—**R.J.S.**

"It seems to me the suggestion is that we should have some super civilian that supervises testing and evaluation and second-guesses professional military men on the selection of weapons systems. But as a Naval Reservist, if I get called up and have to go to war, I certainly want to know that the weapons that are placed in my hands were selected by a professional military man, and not by some guy from the think tank at Brookings or any place else." Under pressure from Tower, Pryor agreed to withdraw his proposal pending additional hearings by the Senate Governmental Affairs Committee.

By the time the hearings were held last June, Pryor had obtained 17 cosponsors, including Senator William Roth (R–Del.), the conservative chairman of the committee. "We have a situation where the developers of weapons and the promoters of weapons also play a direct role in passing judgment on their own performance," Pryor told his colleagues. "I have three sons of military age. For them and for the hundreds of thousands who may have to someday at some point depend on these weapons for their lives, we must provide them with only the best, and this is the least that we can do."

There were two witnesses from the Defense Department, and they offered sharply contrasting views. One witness was retired Admiral Isham Linder, who directs the current Pentagon testing office under the supervision of Richard DeLauer, the present under secretary for research and engineering. Linder said that in 5 years, he had "never been asked by a congressman or a senator or a congressional staffer anything about the performance of weapons systems. . . . I think no one who has examined this will conclude that my reports have been influenced by anybody." He remarked that the bill was flawed because it would give the new test director too much influence. "In some aspects of specific control . . . it seems to be the kind of micromanagement that would be very hard for the services [the Navy, Air Force, and Army weapons officials] to live with."

Any sympathy for Linder's viewpoint was dissipated by the following witness. Derek Vander Schaaf, the Pentagon's deputy inspector general, reported on the recent internal audits of eight major weapons programs worth $33 billion. The tests of each weapon were inadequate and unrealistic, he said. "Test articles furnished the test agencies were often not representative of the production articles. . . . Adequate test facilities and test equipment were often not made available. . . . [The use of contractor employees] often detracted from a realistic assessment of the test article's suitability for military use." He said that the Air Force decided to produce four electronic warfare systems costing about $9.5 billion "without demonstrated evidence that the electronic warfare systems would function effectively in a wartime environment." The Navy committed itself to building eight guided missile cruisers without any sea trials, and the Army agreed to buy armored personnel carriers and light trucks without realistic road tests. "Some problems we noted pertaining to Defense Department oversight of operational testing may be remedied by this legislation," Vander Schaaf acknowledged. He was supported by a General Accounting Office study released the same day, which revealed a serious shortage of weapons testing equipment within each branch of the Pentagon.

At a news conference several days later, Paul Thayer defended the existing test bureaucracy. "We have nothing to be ashamed of in either the way we're organized, the way we're managed, or the facilities that allow us to go through the development and operational testing of our weapons. That is an allegation which . . . is made by either misinformed people or it's made in an irresponsible manner, because that is not true." He added that U.S. military equipment "is much better, and our testing procedures are much better than they are in any other part of the free world, and from what I know in any phase of the Russian testing complex with the possible exception of their ICBM's." Asked if this meant that Defense Department intended to ignore the GAO report, Thayer replied, "That wouldn't be the first report that was ignored."

The Pentagon leadership again enlisted Tower's assistance in an attempt to quash Pryor's proposal. On 13 July, Tower passed around a "Dear Colleague" letter in which he again stated that the matter fell within the jurisdiction of his committee, which, alas, had not yet held hearings on it. "It is highly irregular for the Senate to take any action on a major piece of legislation offered as a floor amendment to a bill when the committee of jurisdiction has imminent specific plans to study the matter," Tower protested. He also suggested that the creation of an independent, civilian test director was inefficient and of questionable practicality and necessity. Richard DeLauer wrote Tower to thank him for his support, but then undercut Thayer's argument that the Pentagon had nothing to be ashamed of by promising 17 specific testing reforms that could be accomplished without any legislative action.

Simultaneously, DeLauer and Linder approached Representative James Courter (R–N.J.), who had introduced Pryor's bill in the House, with a request that it be modified. He agreed, and altered the bill so that it was more to the

Pentagon's liking. When House and Senate conferees met on 1 August to resolve the differences, they relied primarily on Courter's bill, not Pryor's, and thus eliminated several key provisions. Pryor had insisted, for example, that the Secretary of Defense report to Congress each time the Defense Department produced a weapons system that had failed its operational tests. This provision was dropped. Pryor's bill also said that the director of testing would be completely independent from other Pentagon officials, except the Defense Secretary. The compromise bill preserves this independence, but requires that DeLauer be kept informed of the test director's activities.

Nothing in the legislation requires that the advice of the testing director be accepted by the Defense Systems Acquisition Review Council, a clique of top Pentagon officials who have the final say on weapons production. The General Accounting Office has documented several instances where production was begun despite direct recommendations from the existing test office that it be deferred or limited in some fashion. An independent test director may be emboldened to prosecute the case against production more aggressively, but the groups arranged on the opposite side will continue to wield great influence.

More sweeping reforms were suggested recently by the President's Private Sector Survey on Cost Control, a specially appointed commission of corporate executives that spent 12 months looking for waste and inefficiency at the Pentagon. Their report, which was drafted by executives of the Prudential Insurance Company, the Foreign Policy Association, Johnson and Johnson, and Landmark Communities, Inc., recommended that the under secretary for research and engineering be stripped of all responsibility for weapons acquisition, allowing him to concentrate solely on research. "There are, of course, some arguments for tying research and engineering with procurement," the survey said. "Probably the one reason most often cited is that research and engineering are ongoing processes which continue into the procurement-production phases. While this is undoubtedly true, as the DOD operates today, this is one of the principal causes of stretched-out delivery cycles and resultant cost escalation." The survey also recommended that weapons acquisition for all three services be centralized in a single agency. Due to continuing Pentagon opposition to substantial reform, neither of these recommendations is likely to be implemented in the foreseeable future.—**R. Jeffrey Smith**

End of Road for Barnwell

Time and money have apparently run out on what was to have been the biggest commercial nuclear fuel reprocessing plant in the world. Federal funding of operations at the unfinished Barnwell Nuclear Fuel Plant in South Carolina ceased on 31 July. Unless unexpected help arrives, the work force there will be reduced to zero and the plant padlocked by the first of the year.

Barnwell was built entirely with private funds. The present owner of the plant is Allied General Nuclear Services, a partnership involving subsidiaries of the Allied Corporation, which holds a 50 percent share, and Gulf Oil and Royal Dutch/Shell, each of which holds 25 percent. In 1980 the companies served notice on the government that they would put no more money into the plant. An estimated $700 million would be required to finish the plant as planned. The owners in March filed suit against the government for $500 million to recover their investment plus interest in current dollars. The suit charges that the government induced the companies to invest in reprocessing facilities and then by a change of policy eliminated the reprocessing industry, thus violating the companies' constitutional rights against being deprived of private property for public use without just compensation.

Barnwell has operated in recent years on federal funding of about $10 million annually, which mainly supported a program of research directed toward developing safeguards for plutonium processing and handling.

The Reagan Administration favored completion of Barnwell and its operation as a commercial enterprise. President Reagan ruled out federal purchase of the plant, and a proposal that the government support the plant by guaranteeing purchases of plutonium never got beyond the discussion stage. The search for a formula under which industry could operate the plant profitably did not succeed and the owners set a deadline for finding a solution (*Science*, 1 October 1982, p. 32). Time has apparently run out.

Barnwell's fate was heavily influenced by the changing economics of the nuclear industry. The leveling off of growth in demand for electric power and the rising cost of nuclear plant construction resulted in a shrunken market for nuclear fuel.

Barnwell, however, was primarily a casualty of the controversy over plutonium. Reprocessing yields both uranium and plutonium. When the plant was planned, expectations were that plutonium would be needed for fuel in breeder reactors and also would be mixed with enriched uranium fuel in conventional reactors. Plutonium, however, is regarded as susceptible to diversion to nuclear explosives and critics pressed concerns about the effects of reprocessing on the international proliferation of nuclear weapons. As part of his policy to discourage development of an international plutonium economy, President Carter in 1977 decided to forgo domestic reprocessing and prohibited the use of plutonium as reactor fuel. This effectively stopped Barnwell in its tracks.

After Congress dropped funding for Barnwell from the DOE budget this spring, a last-ditch effort was made to keep reprocessing technology alive by Barnwell officials in concert with a group of utilities and energy companies. The aim was to make Barnwell a kind of demonstration facility, probably concentrating on available supplies of so-called low-burnup spent fuel containing 1 percent or more of uranium-235 that could be reprocessed profitably. The problem of what to do with the resulting plutonium would be resolved by transferring it to the government for use in its breeder reactor program. The project apparently foundered on the difficulties of raising an estimated $200 million needed to upgrade facilities at Barnwell to the standard required.

At Barnwell, staff has been cut from 300 to about 160 with the rest scheduled to depart by the end of the year. The owners are selling off heavy equipment for which there is an industrial market—cranes, generators, boilers. Barnwell's concrete buildings and basic processing equipment made of corrosion-resistant materials are said to be able to withstand deterioration over a number of years and would be eminently usable if the demand for reprocessing revives.—**John Walsh**