Static Budgets Undercut NBS's Competence

Hard times, pay freezes stymie pioneering work at bureau; House science committee eyes truce with Administration, program shifts

Like many federal research programs, the National Bureau of Standards' wide-ranging endeavors in recent years have been constrained by pressures to reduce the deficit. But after 5 years of flat budgets, members of Congress and industry are increasingly concerned that the world leader in measurements, quality-control techniques, and industrial standards is falling behind the cutting edge of new technology.

"The blunt fact is that many of us are unable today to meet the needs of our organizations because the NBS has not been able to provide us with vital measurement standards," complains Edward Nemeroff, president of Datron Industries. He advised the House subcommittee on science, research, and technology at oversight hearings held 1–2 October that NBS's capability in microwave and millimeter wave measurements has failed to keep pace with industry needs. Nemeroff, who represented the National Conference of Standards Laboratories in testifying before Congress, says the bureau's problems can be traced to budget problems.

Indeed, former NBS director, Lewis M. Branscomb, now chief scientist for International Business Machines, notes that the bureau has had to "make Draconian choices" between upgrading existing activities and taking on new challenges. Sufficient appropriations must be provided by the Congress, he says, to maintain the agency's core programs.

Since 1982, however, the bureau's budget has hovered around $120 million. And the slight growth in recent years has largely been earmarked for facility modernization or new ventures. Staff pay raises have been eked from the budget by paring program efforts and through attrition. And between 1980 and 1983, NBS's staff was cut from 3659 to 3048. "There is no fat," says NBS director Ernest Ambler in sizing up his agency's options when considering new tasks. "It is a case of this or that—a question of priorities pure and simple."

But companies such as General Motors and IBM are worried about the trade-offs the bureau is having to make. While this process has allowed the agency to wade into the automated manufacturing, materials processing, semiconductor, and biotechnology fields, for example, the pace has been slow in some instances because of low funding.

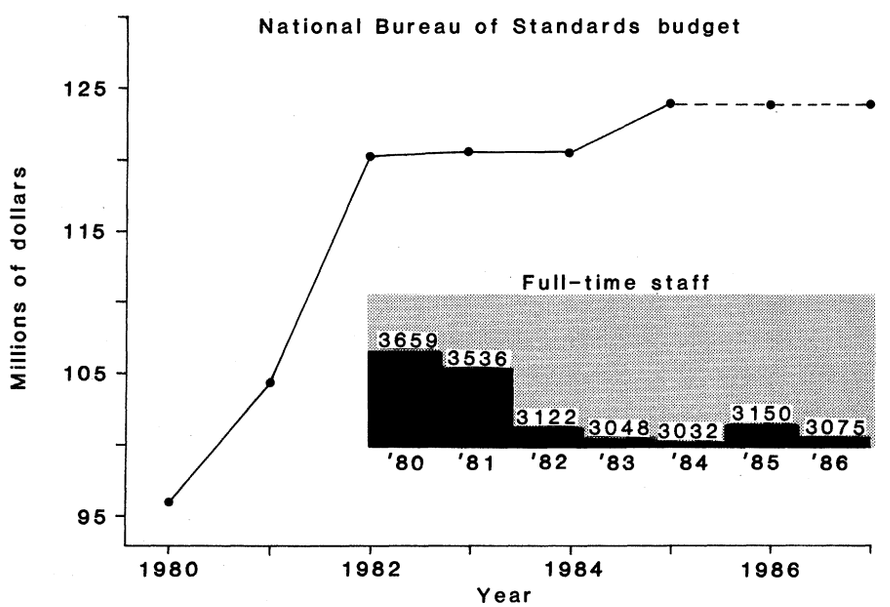
"U.S. science and technology policy seems blind to the critical role, which NBS plays in commercializing . . . [domestic] investment in R&D," says Betsy Ancker-Johnson, General Motors' vice president for environmental activities. A former assistant secretary for science and technology at the Commerce Department, Ancker-Johnson says Congress must provide sufficient funding to: hike annual expenditures on new research areas and plant modernization by 10 percent; complete the cold neutron facility for materials research; and expand fledgling work in biotechnology measurements.

These recommendations are similar to those put forth by Commerce. But in order to finance new undertakings, Administration officials have sought to halt the bureau's fire and building standards research programs, and to cut back computer-related research. Congress has rejected these efforts for three consecutive years. The proposal also has been scorned by the computer industry.

"It seems very strange that government officials in 1985 would suggest that the bureau close or substantially reduce the scope of its Institute for Computer Science and Technology," says IBM's Branscomb, noting the importance of the industry to the U.S. economy. Likewise, GM says the bureau's continuing involvement in the computer standards arena is essential to assure the compatibility of automated manfacturing equipment provided by a myriad of vendors.

Despite such arguments, it appears unlikely that the Administration will support major funding increases for NBS in the near future. Budget deficit problems, in fact, may make it hard to glean funding increases from Congress in the coming years, even though the bureau enjoys strong support in House and Senate science committees. Beyond the chambers of the science committees, selling the value of NBS and the quality of its science to the Congress can be difficult. Says Ambler, "You can get publicity for something new and glamorous, but if I were to tell you of something new about electrical standards, it might be kind of hard to get across."

After 3 years of fighting the Administration's proposals that the agency abandon some functions, key members of the House science and research subcommittee may be ready to strike a deal. Congress wants the agency to have adequate funds to proceed with new research in fiber optics, ceramics, biotechnology, and quality-control processes, says Representative George Brown (D–Calif.). Jettisoning fire research work would free up $5.1 million for these tasks. Brown and subcommittee chairman Doug Walgren (D–Pa.) plan to discuss the matter with Clarence J. Brown, deputy secre-



tary of Commerce and with the Office of Management and Budget.

Specifically, Representative Brown favors transferring fire services research to an outside organization, such as a university, that would take over the function on a permanent basis. But transitional funding, possibly through the National Science Foundation, should be provided for 5 years to allow for the establishment of a revenue base, Brown suggests. The program funding fix that Brown is floating, however, would be just a short-run solution for NBS. Brown contends the agency needs a 25 percent increase in its budget. "Without it they are going to have more and more serious problems," he notes.

In particular, William P. Slichter, chairman of the National Research Council's review board on NBS programs, cites government salary restrictions as a grave problem. Industry already pays more than the government for scientific talent, he notes. The Administration's freeze on salaries and restrictions on key grades 11 to 15, Slichter adds, will further damage the agency's ability to retain talent as well as attract it.—**MARK CRAWFORD**

Soviets Propose New Arms Agreement

Despite some defects, including tough constraints on lab research, a new Soviet arms control proposal might provide the basis for serious negotiations

The announcement of a sweeping new arms control proposal by the Soviet Union has generated both excitement and disappointment among U.S. officials and independent experts. At a press conference in Geneva on 1 October, shortly after the proposal was first described in detail, Max Kampelman, the chief U.S. negotiator, declared that it was a significant development and added that "I feel hopeful that maybe we can start to seriously negotiate." But he and others have also made clear that the offer is highly one-sided at present and that the path to an agreement will not be smooth.

The most favorable provision is thought to be the call for a 50 percent reduction in the nuclear arsenals of each side, a percentage even greater than that proposed by President Reagan in 1982. But the Soviets' price for this cut is U.S. acceptance of a host of ideas shunned by the Reagan Administration in previous negotiations, including a freeze on deployments of new strategic weapons, a ban on the deployment of all long-range cruise missiles, a moratorium on nuclear testing, and a ban on the development of space weapons.

No one disputes that obstruction of U.S. work on a comprehensive missile defense, officially known as the Strategic Defense Initiative (SDI), remains the principal Soviet objective. Their new proposal calls for a ban on all "purposeful" SDI research, development, and testing, which could block even laboratory work performed by the Department of Defense or its contractors. [When asked what they meant by the phrase "purposeful" at the Geneva talks, the Soviets cited the Mansfield amendment, approved by Congress in 1971, which requires that all Pentagon R&D be related to a specific military "function"—thereby suggesting that all Pentagon missile defense research would be encompassed by such a ban.] Most U.S. experts believe that compliance with this constraint would be unverifiable, and President Reagan has specifically ruled out any SDI research and testing limits beyond those already imposed by the SALT I treaty, which bans only field testing on breadboard models or prototypes of ballistic missile defense components.

The proposal on space weapons is officially a hardening of the Soviets' position. Earlier, U.S. officials were encouraged by public statements in which senior Soviet officials, including leader Mikhail Gorbachev and chief negotiator Viktor Karpov, had indicated that a ban need only encompass SDI testing outside a lab that can be readily observed by the other side. But several U.S. officials discount the significance of the latest shift, arguing that the Soviets are merely trying to gain bargaining leverage and that their flexibility on the topic persists. The difficulty is that "the Soviets have generally been unwilling to discuss the issue in any detail," according to a senior arms control adviser. Ultimately, the adviser added, the debate will probably focus on the admittedly ambiguous definition of the "missile defense component" in SALT I, with the Reagan Administration seeking the narrowest possible interpretation, and the Soviets seeking the broadest. "But this could be some way off," he said.

Other aspects of the Soviet proposal are also disliked by Administration officials. Specifically, the proposal characterizes all U.S. intermediate-range nuclear forces deployed in Western Europe, such as the ground-launched cruise missile and the Pershing II, as strategic weapons, while claiming that similar Soviet weapons, such as the SS20, are not. The effect is to expand the total U.S. arsenal subject to a 50 percent cut, while simultaneously excluding an important part of the Soviet arsenal. At a meeting of the Philadelphia World Affairs Council on 3–4 October, the executive director of the U.S. arms control delegation, Warren Zimmerman, called this "totally unacceptable."

In addition, the proposal has been interpreted by some officials as prohibiting the deployment of new U.S. strategic weapons, such as the MX, Midgetman, and Trident II missiles and the B-1 bomber, while allowing the Soviets to continue deployment of several similar new weapons, such as the SS24 and the SS25. But others privy to the discussions in Geneva thus far caution that several elements of the proposal remain ambiguous, and that the prevailing U.S. interpretation is merely an inference.

Despite the "usual hooks," as some officials put it, the proposal is regarded by many as a highly positive development in the strategic arms talks, which have essentially been stalled since 1979. Speaking at the same Philadelphia forum, for example, former Secretary of Defense James Schlesinger said that "the new proposal is something that can be worked on," and indicates a major shift in negotiating strategy by the Soviet Union. Similarly, Theodore Warner, a strategic systems analyst at the RAND Corporation in Washington, said that "it may provide the basis for a serious negotiation, and it indicates a [Soviet] willingness to cut that is truly surprising in the area of central strategic forces."

Should that reduction survive intact, according to several sources, the Soviet Union would have to dismantle roughly