Big Versus Little Science in the Federal Budget

Conference attendees salute a generous budget about to die, and await the program cuts at NASA that are bound to follow

As budget bombs, either the space station ($16 billion) or the superconducting supercollider ($5 billion) is big enough to send ripples across the pond of federal research. But, appearing at the same time in the Administration's 1988 request to Congress, the two have stirred more than a few ripples. At a colloquium on federal R&D, held last week by the AAAS, the superprojects were on everyone's mind.

The concern about the budget-breaking impact of these two items stood out against a generally optimistic view of the future, however. Several people spoke warmly of the increase for basic science in the President's budget and of the promised 200% growth of the National Science Foundation (NSF) budget through 1992. "We are in the golden age of science," said Mildred Dresselhaus of the Massachusetts Institute of Technology. The pace at which new discoveries are being made and the diversity of fields in which they appear are without precedent, she said.

Dresselhaus cited the recent discovery of new superconducting materials as an example of the unpredictability of the muse of invention. Within 6 months, she said, the discovery has transformed what seemed a stagnant field into one of intellectual and economic excitement. Then she turned to the budget.

Dresselhaus said it will cost $1.1 billion just to buy the supercollider's magnets. If 5% of this were given to basic research in superconductivity, it would have a tremendous impact on materials science and might also benefit the supercollider. Her point was that the government should support what seems mundane as well as what seems glamorous.

Her comments came in a session on the conflicts between "big and little science." Even here, where unease about the superprojects was palpable, there was no direct criticism of them. The prevailing hope, if not the expectation, was expressed by Norman Hackerman, former president of Rice University. He said: "Small science increases when big science is introduced."

Politicians, not scientists, threw cold water on the theory of the infinitely expanding budget. Representative Buddy MacKay (D–FL), cochairman of Congress's new "caucus on competitiveness," said he felt like a ragged prophet on a street corner crying, "Repent." Taxpayers must now begin to pay for the spending spree of the last few years, financed by deficits. "The party is over," he said. The Administration has told the public that "perceptions are reality" and that the government can operate without raising taxes. But, MacKay said, people are about to discover that "reality is reality," and taxes will have to be raised. When this hits the public consciousness, MacKay predicted, it will "make the Iran-Contra fiasco look like child's play."

As MacKay spoke, the House voted to reject the Administration's budget and substitute a Democratic plan. It cuts roughly $9 billion from the defense request and $9 billion from other programs. It also requires $22 billion in new tax revenue. The category of general science was cut 4% below the Congressional Budget Office's projection of last year's spending into 1988. Some agencies did worse than others. The National Aeronautics and Space Administration (NASA), receiving a $1.1-billion reduction below the President's request, may have to postpone its space station. But the NSF would get close to what the Administration proposed, just $62 million short.

Representative Buddy MacKay. *Deceptive budgets make the Iran-Contra fiasco look like "child's play."*

The Senate has not voted on a budget resolution, but it will consider four options, including one very like, but more generous than, the House plan. The action in the House, warned Timothy Muris of the White House Office of Management and Budget, "is a bad beginning for science." Although the budget resolution is not binding on the appropriations committees, it serves as a starting line in the race for funds that follows.

Asked about the impact of the scientific superprojects, Muris replied that funding them will not impose hardship on other areas of research. This was not the common view, however. Representative MacKay, Representative Dave McCurdy (D–OK), and former Representative Don Fuqua said that they had been warned that building the supercollider may slow other work at the Stanford Linear Accelerator Center and at Fermilab.

At a small session on the NASA budget, Pete Perkins, minority staff member of the Senate subcommittee on science, technology, and space, listed some of NASA's problems. The big question is whether the agency will ask for funds to acquire a "mixed fleet," including some "expendable launch vehicles." Congress is eager to provide the funds, said Perkins, but the extra $100 million to $125 million for procurement in the first year will have an impact on other projects. So far, NASA has not asked for the money nor clarified its intentions. NASA's chief scientist, Frank McDonald, conceded that this was "an awesome problem." Then there is the space station, controversial not just because of its cost ($767 million the first year), but because of unsettling changes in its schedule and specifications.

The theme of the 2-day meeting was "international competitiveness," an evocation of the theory that government R&D contributes powerfully to industrial health. Attention focused on the new interdisciplinary centers to be financed by the NSF (*Science*, 3 April, p. 18). They have become quite popular, even before establishing that they will be qualitatively different from what has preceded them. One speaker warned against getting carried away with the concept. He saw a risk that pork barrel pressures might lead to overbuilding. But this and others' cautions were quibbles in the general enthusiasm for the Administration's budget. The irony is that the budget will not live beyond April. ■ ELIOT MARSHALL