LBJ's New Budget: Another Tight Year for Research and Development

A scientific community that is already in a state of alarm over a tightening of federal funds in the current fiscal year will find scant cause for rejoicing in the budget* that President Johnson presented to Congress this week. The proposed budget, for the year starting next 1 July, clearly makes an effort to deal with some of the problems that this year's financial setbacks have inflicted on scientific and technical activities. But its overall thrust is to impose what Treasury Secretary Henry H. Fowler calls "a policy of austerity on the expenditure side."

In the area of research and development, the administration proposes to boost federal support by 5 percent above the current level of funding. This means that, even if the President gets everything he asks from Congress—which is doubtful—the federally sponsored R & D effort will barely hold even next year. By most accounts a 5-percent boost is needed annually merely to keep up with increasing costs, and several studies conducted by the National Academy of Sciences have concluded that 15 percent is needed to achieve a reasonable rate of growth for the nation's scientific endeavor.

Moreover, numerous perils and uncertainties lie ahead of the new budget, as can be seen in the treatment accorded the previous budget—the one covering the current fiscal year. President Johnson originally proposed that the federal government obligate (commit itself to spend, though not necessarily within the budget year) $17.6 billion in support of research and development. That figure didn't stand untouched for long. First, Congress, alarmed by the rising costs of Vietnam and by a host of fiscal problems, chopped great chunks out of the proposed R & D budget. Then, the Johnson Administration, in a vain effort to gain congressional approval for a tax increase, devised a formula for still deeper cuts—and Congress promptly enacted the formula into law. On top of this, the Bureau of the Budget held back some of the funds that Congress had appropriated, and finally some agencies siphoned funds out of their research budgets and used them for other purposes. The net result, provided there are no further changes between now and 30 June, is that the federal government will obligate only $16.9 billion for R & D this fiscal year—well below the President's original request of $17.6 billion. The lesson seems clear: there's a long and rocky road between proposing a budget and actually rendering support to the scientist at the bench.

Viewed against this background, the President's new budget offers few bonanzas for the nation's scientific community. The budget proposes that the government obligate $17.8 billion to support research and development, including facilities—a boost of about 5 percent from the current level of $16.9 billion. Not surprisingly in a war-dominated year, the major increases are for agencies with a military mission. The Defense Department is budgeted for a $602-million increase, reflecting greater support of research and accelerated development of an antiballistic missile system, an orbiting laboratory, an air defense system, and various weapons. The Atomic Energy Commission is slated for a $429-million boost, primarily for weapons work and the construction of three new high-energy physics facilities. Meanwhile, all other agencies combined rate less than a $300-million boost for R & D. These increases are partially offset by a proposed decrease of $447 million for the National Aeronautics and Space Administration, reflecting, according to the Administration, a decline in requirements for the manned lunar-landing program.

Within the totals budgeted for R & D, support for the conduct of development (exclusive of facilities) would remain at essentially the level of recent years, rising only slightly from $10.8 billion in fiscal 1968 to $11 billion next year. Support for the conduct of research, a category that includes both basic and applied research, would rise more sharply, from $5.5 billion to $6.0 billion, a jump of about 9 percent. According to Donald F. Hornig, the President's science adviser, the research boost represents "a certain amount of catch-up" from the "very austere figures" of 1967 and 1968. But even with this catch-up, Hornig says, federal support of research in the period since 1966 will have remained at a "very nearly constant level of effort," boosts in federal support being offset by increases in the cost of conducting research.

In general, the new budget is especially rough on contruction programs (it cuts construction outlays of the Office of Education by $401 million from this year's level, health construction outlays by $204 million, and certain construction activities of the Corps of Engineers by $81 million); it tries to hold the line on many ongoing programs; and it offers only a small amount of money for new departures. Most of the new departures reflect a desire to apply research to national problems in such areas as transportation, education, pollution, housing and urban development, and the delivery of mail.

One of the brighter spots in the new budget concerns increased federal support for academic research. This year the Administration dropped its previous practice of analyzing how much money would go to "basic" research and instead emphasized data on "academic" research. Hornig told a press conference that the academic figures are "more definable" and "functionally more meaningful." According to Hornig's figures, federal support of research in "universities proper" (that doesn't include work in contract laboratories, which, in general, are only loosely affiliated with universities) is budgeted for a 13-percent increase, from $1.4 billion to $1.6 billion. Support for academic work in the physical and life sciences would rise at roughly identical rates. The physics boost would reverse an apparent decline over the past 2 years.

The proposed academic increases, according to Ivan Bennett, Hornig's deputy, reflect a recognition that "serious damage is impending in the educa-

*Budget documents for fiscal year 1969 are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (paper covers only): *The Budget of the United States Government, 1969* ($1.75); *The Budget of the United States Government 1969—Appendix* ($6); *The Budget in Brief, 1969* (35 cents); *Special Analyses, Budget of the United States, 1969* (70 cents). This last document contains the only significant textual analysis of federal R & D proposals.

tional system" as a result of previous budget stringencies. For the first time, Bennett said in an interview with *Science*, attention has been focused on "getting funds into universities so they can operate as universities," rather than "just to get new knowledge." This attitude is particularly well reflected in the Defense Department budget, which is expected to boost support of academic research from $240 million to $295 million, thus wiping out declines in the 2 preceding years. According to Bennett, the Defense budget is making "a deliberate attempt to help the engineering and physical sciences" because "it's becoming obvious right now that fairly important groups in universities will get sawed off because funds are not available." The outstretched hand of the Defense Department may offend some academics, but in a tight budget year the military agency may well prove the easiest vehicle for channeling funds into the nation's universities.

Even though the new budget would heal some of the wounds suffered by academic institutions, it provides no cause for unrestrained joy in university laboratories. Part of the academic boost will go for nonscientific activities such as educational research and vocational rehabilitation work; part represents a restoration of advanced funding that was cut back last year, rather than an actual increase in project activity; and, coming on the heels of a miniscule 2-percent increase last year, there is some doubt that the proposed 13 percent boost in academic support will be enough to catch up with burgeoning graduate enrollments. "The academic research situation is tight and will remain tight," says Hornig.

Following are some highlights from the proposed budget.

Fellowships and traineeships. An analysis prepared by the Office of Science and Technology indicates that the budget proposes to restore the number of new predoctoral fellowships and traineeships to the level of 1967, thus reversing a sharp decline in the current year. The analysis reveals that five major agencies hope to offer about 15,400 new awards in 1969, up from 12,500 this year and about even with the 15,300 awarded in 1967. The 2800 drop between 1967 and 1968, though steep, was less than the 5000 drop that some analysts had predicted last fall.

National Science Foundation. Director Leland J. Haworth told a press conference that NSF had asked for "significantly more" than is proposed in the President's budget. The budget calls for increasing NSF's program obligations from $506 million in 1968 (including $21 million recovered from Project Mohole) to $527 million next year (including $27 million from funds that were frozen in reserve this year). The budget proposes steep drops in institutional support of science, from $85 million to $69 million, and in new commitments for research facilities. It would boost the number of grants for support of basic research projects from 3722 to 3995, thus reversing a slight decline in the current year. An administration analysis says the NSF budget provides a "significant increase" in support of basic research in physics, partly in order to assume projects previously supported by the Defense Department, and continues to emphasize programs in oceanography, atmospheric sciences, chemistry, and social sciences.

National Aeronautics and Space Administration. The space agency, which suffered the deepest cuts of any research-oriented agency in 1968, comes in for further gouging in the new budget. NASA's total budget plan would be cut to about $4.4 billion, a drop of about $280 million from the current level. The reduction, according to the Administration, primarily reflects the fact that the Apollo manned lunar mission has progressed from the costly development phase to operational use of the systems. The budget proposes small increases—but less than originally planned—for development of a nuclear rocket engine and for the

Budget Cuts: Study Finds Effects Yet To Be Felt

Universities are yet to feel the full impact of the sizable reductions that the Department of Defense (DoD) and NASA made this year in support of academic activities, according to a survey that DoD conducted in 33 universities.

A DoD staff memorandum based on the survey states that Defense and NASA funding in universities during the current fiscal year will be down by 24 percent from the previous year. But the memorandum, dated 21 December, notes that the effects of these cuts are just now beginning to be felt in the universities. "They realize it is going to get worse, will probably peak next spring," the memorandum states. "There is much more concern at the professorial level than at the executive level. Professors are in constant contact with their project officers who, in many cases, are very skeptical about renewal of programs. The executives, in general, actually look at the cash flow which hasn't changed much yet." To which is added, "Because impacts haven't hit yet, no firm plan of how to deal with them has evolved at any institution interviewed."

The memorandum states that despite the lack of planning, there is, among the universities, "general agreement on priorities:

"a. Post-doctoral fellowship in-take in School Year 1968 will be reduced, while maintaining their present commitments to their on-going fellows.

"b. No investment will be made in major pieces of equipment and technicians will be let go; in fact, at some schools, both these actions are presently in force.

"c. The number of graduate students admitted will be down this year.

"d. Some faculty members' summer salaries will not be covered as in the past by grants and contracts."

The memorandum notes that the reduction in support of post-doctoral support might not be altogether bad for DoD's interests: "In the short term, the impact on DoD will probably be lower quality research, while in the long term, these will get a larger trained manpower pool available to work on DoD problems in the years to come."

Finally, the memorandum concluded that poorly endowed private universities will probably be hurt most by the reductions. "The more affluent universities who believe that the trend will change in 1969 will commit some of their own private resources to tide them over during this period."—D.S.G.

Apollo Applications Program, which will use Apollo systems for scientific work and will prepare for additional lunar flights in 1970 and beyond. The budget also proposes a modest program of planetary exploration consisting of two Mars orbiters in 1971 and two Mars orbiters with landers in 1973. There are currently no planetary missions scheduled beyond two Mars flybys in 1969. The proposed new Mars missions would cost much less than the Voyager program that was cut from the 1968 budget, and would provide less scientific information. They would include no life detection experiments. In proposing the missions, President Johnson told Congress: "We will not abandon the field of planetary exploration." Despite the cuts in NASA's budget, overall federal support of space programs will increase, according to the Administration, primarily because of increases in Defense Department development of an orbiting laboratory.

Atomic Energy Commission. The AEC's operating funds for the conduct of research are budgeted at $1.5 billion, an increase of nearly $140 million, or roughly 10 percent, over current levels. Two thirds of the increase is for the weapons program, primarily involving development of warheads for the Sentinel antiballistic missile system. All other Commission R&D efforts would increase by an average of about 5 percent. Development of civilian applications of nuclear explosions (the Plowshare program) would be cut to $14.5 million from the current level of about $18 million. Obligations for constructing and equipping research and development facilities would increase by $290 million, primarily reflecting a deferral of obligations from 1968. Much of the boost would finance construction of three major research facilities. The budget provides $25 million to initiate construction of the 200-Bev proton accelerator at Weston, Illinois (total estimated cost, $310 million); $26 million for continuation of construction of the Los Alamos Meson Physics Facility (total estimated cost, $55 million); and $35 million for construction of the Fast Flux Test Facility at Richland, Washington (total estimated cost, $88 million).

Public Health Service. The budget would boost PHS obligations for research and development to almost $1.3 billion, an increase of $103 million, or about 9 percent, from current levels. Relatively large increases are budgeted for air pollution research, which would be conducted largely by industry, and for research on improving the methods of delivering health care. The National Institutes of Health is budgeted for an appropriation of $1197 million, an increase of $21.5 million over current levels. Of the eight separate institutes, seven are budgeted for modest increases, while the budget of the eighth —the National Institute of Child Health and Human Development— would rise substantially, from $68.6 million currently to $75.4 million. Regional medical programs (heart disease, cancer, and stroke) would rise to $69 million, a jump of $10 million, while grants for construction would drop precipitously. The National Institute of Mental Health is budgeted for $377 million, an increase of $19 million.

Office of Education. Obligations for research and development are budgeted at $145 million, an increase of $58 million over current levels. The work involves a broad range of efforts to improve educational curricula and instruction. Appropriations for construction grants for higher education would drop sharply, from $450 million in 1968 to $75 million next year.

Public and Educational Broadcasting. There have been no appropriations so far this year. The administration plans to seek supplemental appropriations of roughly $4.5 million for the remainder of this year and proposes an additional $33 million in 1969.

Supersonic Transport. The budget would appropriate $223 million for the SST, up from $142 milion in the current year, but less than originally planned, largely because of delays. (The SST does not count as part of the R&D budget.)

Many uncertainties lie ahead of the President's new budget. North Korea's recent seizure of an American surveillance ship highlights the possibility of unanticipated military activity, which almost certainly would drain off resources from domestic activities. A long, hot summer of riots could focus national attention on urban problems to the detriment of research activities. And there is the still-unresolved question of a tax increase. The President's budget is based on the assumption that there will be a tax boost. But to win approval of new taxes from an economy-minded Congress, the President may have to offer some sharp budget cuts. And if he fails to get the taxes, the President would presumably have to reduce his proposed outlays to avoid a huge deficit. Virtually the only thing certain about the President's budget proposals is that the numerous uncertainties will result in some cuts in the proposed support for R & D. How substantial the cuts will be remains to be seen.—PHILIP M. BOFFEY

Gardner's Resignation: The Crunch between Expectations and Resources

Why, why then, this restlessness?
Because when a great ship cuts through the sea, the waters are always stirred and troubled. And our ship is moving—President Johnson in his 1968 State of the Union address.

President Johnson seems to have lashed himself to the wheel as he sails through troubled waters, but, one by one, his senior officers are leaping off the deck and swimming ashore.

The latest officer to leave the ship is John W. Gardner, the highly regarded Secretary of the Department of Health, Education, and Welfare (HEW). Although for months there had been vague rumors of Gardner's restlessness, the actual resignation greatly surprised Washington, including Gardner's close associates at HEW.

It was a strange time for a resignation. Gardner's announcement came only a few days before the unveiling of the lean Administration budget for fiscal 1969, thus virtually assuring claims that Gardner had left because of the President's failure to give HEW adequate funds. Also, Gardner, who set about modernizing HEW after he took office in 1965, is currently in the midst of unfulfilled reorganization plans. Announcement of