

at best—but nothing like the decades necessary to build the capabilities of a great research institution like Brookhaven or other national laboratories.

“To restore public confidence in the nation’s investment in science and technology, we must build back trust in science and technology itself and in the public institutions responsible for administering that investment. . . . The scientific community may believe, with justification, that it has done little to be unworthy of confidence and that the need for science to open new frontiers is no less apparent than in Vannevar Bush’s time. But the reality of our times is that the public whose dollars we propose to use for this investment—and the public representatives, for that matter—need convincing. And it is the scientific community that must make the case.”

Curtis exhorted the scientific community “to define and explain its work better in terms of public benefit.” So as not to be misunderstood, Curtis took another shot at his message: “I am urging that the scientific community needs to do a better job of articulating the relevance of its work in terms the public can understand and relate to. . . . We in government cannot do it without you. To paraphrase a familiar expression: Now is the time for all good scientists to come to the aid of their country.”

Following Curtis’s remarks to AUI by a day, John H. Gibbons, President Clinton’s science adviser, addressed the board of the Universities Research Association. In the past, Gibbons has preached to scientists at every opportunity to make their case to Congress and the American public. His remarks often sounded like sermons—admonishing scientists for their inwardness

and elitism and advocating their participation in the national debate over the role of government as patron of science and technology. In his talk to URA, Gibbons quoted from Lane’s address at the San Antonio meeting of astronomers. When told about Curtis’s talk to AUI, he quipped, “All three of us use the same handbook.”

Gibbons reminded URA’s board that NSF, NASA and the Environmental Protection Agency were functioning without signed appropriations bills, while the Energy Department, whose operations, and indeed, whole existence are subject to partisan political debate, received its budget last November (PHYSICS TODAY, January, page 49). DOE’s labs, at the core of high-energy and nuclear physics in the US, have been operating normally since then. Meanwhile, NIH, which was closed last December during the first government shutdown, was dramatically rescued by Congress just before the second shutdown and given preferential treatment (see following news story). “That didn’t happen by accident,” said Gibbons. “NIH is perceived in Congress as directly relevant to taxpayers. Science has respect in Congress but is not seen as immediately relevant.”

To be sure, Representative Robert S. Walker, the Pennsylvania Republican who heads the Science Committee, made overtures to House leaders to approve NSF’s appropriation for all of fiscal 1996, but he was told that “cherry picking” was frowned on while contentious negotiations were going on with the White House. Undaunted by Walker’s inability to enlist support from his party mandarins, Representative Vernon J. Ehlers of Michigan, a former physics professor, sent a “Dear Col-

league” letter to all 435 House members seeking their support for full-year funding for NSF. Ehlers, a Republican member of Walker’s Science Committee, received bipartisan support from 88 House members, who signed a letter to Livingston of the House Appropriations Committee and Jerry Lewis of California, who heads the appropriations subcommittee that oversees NSF.

Ehlers’s letter, sent on 2 February, made a forceful case for full funding: “Because the NSF is primarily a granting agency . . . damage is beginning to occur in thousands of university laboratories and research centers, large and small, throughout our nation. We can assure you that, without correction, it may become even more severe. We will not trouble you with a list of horror stories, although we could. Rather, let us simply state that a number of major scientists have alerted us to many problems which are beginning to become evident, such as grants being held up, that put us at risk of losing highly skilled technical people. . . . Worst of all, without certainty that grants will be awarded or continued, scientific programs are unable to attract top-flight, world-renowned scientists needed to maintain our nation’s leadership in scientific research. It is especially important to note that research done now provides the foundation for our future economic development. While we are currently harming our scientific effort, the Japanese have just decided to increase their overall research effort by 8% . . . which will assist their lagging economy.”

Congress is unlikely to react quickly to Ehlers’s appeal. It is in recess until the end of February.

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Almost Halfway into FY 1996, Many Science Budgets Still Uncertain as Next Budget Cycle Begins

Just about halfway through fiscal 1996 the battle between the Republican-led Congress and President Bill Clinton has left several research agencies operating on the year’s fourth temporary budget, which expires on 15 March. The uncertainty over 1996 appropriations for some R&D agencies, including the National Science Foundation, NASA and the National Institute of Standards and Technology, has delayed the release of detailed budgets for the next fiscal year, which begins on 1 October. President Clinton’s budget document issued on 5 February to satisfy the statutory deadline is little more than a teaser, containing broad themes but no bottom lines for any

agency. The White House has promised a more detailed budget, with each agency getting its traditional spending plan, on 18 March.

Three departments that support research—namely, Agriculture, Defense and Energy—are able to function normally from a funding baseline for fiscal 1996 since President Clinton signed their appropriations bills late last year (see PHYSICS TODAY, January, page 49). By contrast, the agencies operating on temporary budgets are hard-pressed to make new spending requests or justify new programs. As a result, this year’s outlays at NSF, NASA and NIST, among many other agencies, ran 20% to 25% below those of the first quarter

of fiscal 1995, according to the Congressional Budget Office.

The budget impasse has left six of the thirteen appropriations bills in limbo. These include legislation for the Commerce Department, which provides funds for the National Oceanic and Atmospheric Administration and NIST, the Interior Department, which covers the US Geological Survey, and the Veterans Affairs, Housing and Urban Development and independent agencies, which funds NSF, NASA and the Environmental Protection Agency. President Clinton has vetoed all three bills, and Republican attempts to override the vetoes have failed.

All efforts to bring the appropria-

tions bill for Labor, Health and Human Services and Education to the Senate floor have been unsuccessful. Even so, the National Institutes of Health, which is included in the bill, received bedside treatment. Bypassing customary legislative practices, Representative John Porter of Illinois, who heads the appropriations subcommittee that oversees NIH, mobilized scientists and business leaders to get House Speaker Newt Gingrich's support for a 5.7% increase over 1995 for NIH—way above the drastic cut of 10% advocated by most members of his own party and even more than the President's requested increase of 4%. Stymied by the Senate, which had opposed "targeted appropriations," Porter called on the majority leader, Bob Dole of Kansas, and soon enough an exception was made for the agency by including its appropriation for the full fiscal year in the most recent temporary budget agreement, called a "continuing resolution."

Appropriations for several major science agencies, including the NSF, NIST and NASA have not been enacted, but these agencies are faring better than expected only six months ago. Under the continuing resolution signed by President Clinton on the eve of yet another possible government shutdown on 26 January, NSF is allotted the figure specified in the House-Senate conference report for fiscal 1996—a total spending allocation about 1.5% below fiscal 1995, though funding for research is actually higher than last year by about 1.3%, at \$2.27 billion. At NIST, the core research program is given the House-Senate conference mark, but the agency's Advanced Technology Program, which is slated for elimination according to the latest conference report, would be allowed to operate until 15 March at 75% of its 1995 budget. EPA is operating with 14% less than last year.

On the first Monday in February, Bill Clinton submitted a \$1.64 trillion spending outline for the year beginning on 1 October. The proposed fiscal 1997 budget is virtually identical to the final offer Clinton laid before Republican lawmakers in January during contentious 1996 negotiations. Republican leaders rejected the President's plan then and dismissed his 1997 budget, which he termed "a thematic overview" of priorities, as "wholly inadequate." The White House Office of Management and Budget is now filling in the details of the 1997 budget but is finding that difficult to do because many spending decisions for the current fiscal year are incomplete.

Though Clinton delivered his State of the Union message to Congress for 62 minutes in January without once mentioning science, his new 20-page budget

Unfinished business: Physics-related R&D budgets for fiscal 1996

	FY 95 actual	FY 96 request	FY 96 House	FY 96 Senate	FY 96 conference
(millions of dollars)					
National Science Foundation	3228.7*	3360.0	3160.0	3200.0	3180.0
Research and related activities	2245.0*	2454.0	2254.0	2294.0	2274.0
Major research equipment	126.0	70.0	70.0	70.0	70.0
Academic research infrastructure	118.1*	100.0	100.0	100.0	100.0
Education and human resources	606.0	599.0	599.0	599.0	599.0

*After recissions by Congress from FY 1995 appropriations of \$3360.5 million for the entire agency, \$2280 million for research and related activities and \$250 million for academic research infrastructure.

National Aeronautics and Space Administration	14,376.7	14,260.0	13,671.8	13,798.5	13,820.0
Advanced X-Ray Astrophysics Facility (AXAF)	234.3	237.6	237.6	237.6	237.6
Gravity Probe B development	50.0	51.5**	51.5	51.5	51.5
Solar Terrestrial Physics probes	—	0.0	0.0	46.0	20.0
Thermosphere, Ionosphere, Mesosphere Energetics and Dynamics development (TIMED)	—	0.0	0.0	41.0	15.0
Magnetospheric Imager development	—	0.0	0.0	5.0	5.0
Explorer series development	120.4	129.2	129.2	132.2	132.2
Space Infrared Telescope Facility definition (SIRTF)	5.0	15.0	0.0	10.0	10.0
Stratospheric Observatory for Infrared Astronomy (SOFIA)	—	48.7	28.7	48.7	35.0
Cassini development	255.0	191.5	191.5	191.5	191.5
Discovery program	129.7	103.8	103.8	103.8	103.8
Mars surveyor program	59.4	108.5	108.5	108.5	108.5
New Millennium spacecraft	—	30.0	30.0	30.0	30.0
Mission to Planet Earth	1340.1	1341.1	1002.5	1280.1	1260.1
Consortium for International Earth Science (CIESIN)***	5.0	6.0	0.0	0.0	0.0
Space station development and operations	2100.0	2100.0	2100.0	2100.0	2100.0

**The budget request for fiscal 1996 contained an equivalent offsetting reduction of \$51.5 million.

***Congress directed NASA to merge CIESIN into Mission to Planet Earth with its existing contracts—though, according to the House-Senate conference report, CIESIN is allowed to compete for future NASA contracts.

National Institute of Standards and Technology	665.5*	1023.1	404.1	299.3	N/A
NIST laboratory research and services	246.9*	310.7	263.0	222.7	259.0
Industrial technology services					
Advanced Technology Program (ATP)	341.0*	491.0	0.0	109.1**	0.0
Manufacturing Extension Partnership (MEP)	74.2*	146.6	81.1	76.3	80.0

*After recissions by Congress from FY 1995 appropriations of \$763.8 million for the entire agency.

**The Senate appropriation included \$25.3 million in new funding and \$83.8 million remaining in FY 1995 funding.

National Oceanic and Atmospheric Administration	1953.4	2096.7	1752.4	1866.3	1796.0
Oceanic and atmospheric research					
Interannual and seasonal climate	78.8	97.8	60.4	64.0	65.5
Long-term climate and air quality	27.3	39.1	27.3	27.3	27.3
Weather research, including numeric modeling	33.6	34.7	33.6	33.6	33.6
Solar-terrestrial research and services	5.5	7.8	5.5	5.5	5.5
Undersea research program*	19.4	0.0	0.0	14.4	12.0
Sea Grant program	54.3	49.4	53.3	50.4	53.3

*For the third successive year the agency proposed to cancel this program. Since the program began in FY 1981 it has been the source of support for six regional research centers, including those in the Caribbean, Hawaii and Alaska. Despite NOAA's intention, though, the Senate has allocated funds to the program.

document speaks about strengthening or investing in science or research, the environment, technology and education a half-dozen times. The implication is that the fiscal 1997 budget will contain increases for basic and applied research at NSF, DOE, NIST and EPA. The real crunch for science will come in the years 2000 to 2002, when both the White House and Congress intend to reduce the deficit drastically.

Economists, using the most sophisticated tools of their craft, can't forecast

with any precision what unemployment levels, interest rates, business growth, trade balances or the Dow Jones industrial average will look like even two quarters from now. But that hasn't stopped Republicans and Democrats in Washington from pretending that they can produce a credible fiscal policy leading to a balanced budget on the basis of what the Congressional Budget Office estimates the economy will look like a full seven years hence.

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