An R&D Victory, But for How Long?

The drastic cuts in federal R&D proposed by House Republicans in 1995 failed to materialize, but long-term funding prospects remain uneven regardless of who wins in November

It was early 1995 when the alarm bells first went off on university campuses, in the offices of corporate R&D chiefs, and at federal science agencies. They were triggered by a proposal from House Republicans, fresh from a stunning election victory, to trim science and technology programs by one-third over 7 years as part of sweeping cuts in federal spending. The alarm continued to sound later that year as a dispute between the White House and Congress led to a 3-week shutdown of whole agencies, including NASA, the National Institutes of Health (NIH), and the National Science Foundation (NSF). As recently as a few months ago, science policy-makers were still fretting about the fate of several research programs.

But last month the bells stopped ringing. The immediate threat of wholesale cuts in federal R&D dissipated in the waning weeks of the 104th Congress as Republicans acceded to some of the wishes of the Clinton Administration in a rush to adjourn and campaign for reelection. Led by strong bipartisan support for NIH, which received even more money than the White House had sought, federal R&D spending will go up by more than 4% in 1997, according to an analysis by the American Association for the Advancement of Science (which publishes *Science*). Even a contentious initiative such as the Advanced Technology Program (ATP), which many Republicans had sworn to kill, held its own.

Science lobbyists insist the threat was no false alarm. "It was absolutely real," says Jack Crowley, director of the Massachusetts Institute of Technology's Washington office. "Two years ago we were looking at a very serious and very real proposal to sharply reduce science and technology across the board. But this turbulent Congress came to a gratifying and surprising conclusion." Says Nan Wells, government relations director for Princeton University, "In a period of upheaval, science held its own."

But political analysts can still hear the ringing in their ears. The 104th Congress, for all its bickering, still managed to forge a bipartisan agreement to eliminate the deficit without making significant cuts in defense and entitlement programs. That puts more pressure on domestic programs, including civilian R&D spending, in coming years. "With both sides having a 7-year plan to balance the budget, science [funding] is going to go down no matter who is in office," says David Goldston, an aide to Representative Sherwood Boehlert (R–NY), a longtime supporter of civilian R&D.

One saving grace for researchers, even if Clinton wins a second term and Congress remains in Republican hands, may be an easing of the bitter philosophical rifts over issues ranging from industry and government partnerships to science education, say Administration and congressional aides. Moderate Republicans have asserted their power over more ideological party members in the wake of last year's budget stalemate, which the public blames largely on Congress. And some lawmakers with more radical agendas, including House Science Committee Chair Robert Walker (R–PA) and freshmen Representatives Todd Tiahrt (R–KS) and Dick Chrysler (R–MI), are either retiring or struggling to win reelection.

Those programs that generate little partisan controversy are likely to ride out the fiscal storm or even flourish. That's a plus for NIH and NSF, say Administration officials and congressional aides. But agencies with shakier political support, including NASA and the Department of Energy (DOE), could well suffer significant reductions. Further down the R&D chain, the fate of specific programs such as ATP and NASA's multibillion-dollar Mission to Planet Earth rests on which party wins control of the House next month.

Run over

Eighteen months ago, a favorable outcome for overall R&D spending in the 1997 fiscal year, which began on 1 October, was hard to imagine. Republicans were on the offensive in cutting applied research and technology efforts and scaling back funding for Earth observation, global-change studies, and environmental research. The House budget resolution called for civilian R&D to drop 33% between 1995 and 2002, and lawmakers began approving a series of individual spending bills for 1996 intended to fit that long-range budget profile. By fall, Congress was ready for a showdown with a weakened White House, and large parts of the government were shut down as the two sides battled over spending.

But the showdown didn't turn out the way that Republicans had expected. One Republican staffer puts it succinctly: "We got totally run over by the president. We lost. He won." This year, still reeling from that defeat, Republicans

R&D LEGACY OF 104TH CONGRESS

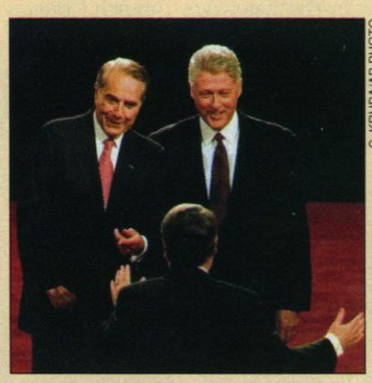
Agency/Program	FY '95	FY '96 (in millions)	FY '97
Losers:			
Office of Technology Assessment (1)	$21	$6	0
National Biological Service	$162	$137	$138
Magnetic fusion (DOE)	$357	$244	$233
Academic infrastructure (NSF)	$118	$100	0
Technology Reinvestment Program (DOD) (2)	$327	$195	0
Advanced Neutron Source (DOE) (3)	$20	0	0
Department of Defense Basic research	$1195	$1132	$1090 (est.)
Environmental Technology Initiative (EPA)	$68	$10	$10
Winner:			
National Institutes of Health	$11,305	$11,939	$12,747
Staying afloat:			
Advanced Technology Program	$345	$221	$225
Mission to Planet Earth	$1300	$1300	$1400
National Science Foundation	$3227	$3220	$3270
U.S. Geological Survey (excl. Biological Service)	$571	$578	$585

(1) OTA was eliminated on 30 September 1995. (2) TRP was eliminated and some funds were transferred to a new program for dual-use applications. (3) No money was requested for ANS in FY '96.
SOURCE: VARIOUS FEDERAL AGENCIES

Dole, Clinton Lay Out Opposing Views

In his first detailed discussion of science and technology as the Republican presidential candidate, Bob Dole says he would favor basic research even as he reduces overall civilian spending for science to help eliminate the federal deficit. Dole intends to encourage industry to invest in R&D through tax breaks and regulatory reform, rather than through direct government funding. And he promises to overhaul the federal R&D bureaucracy.

Dole's comments, offered in response to questions posed by *Science*, set him apart from President Bill Clinton (see p. 361). In his responses to the same questions, Clinton pledges to continue funding his Administration's science and technology priorities "to the highest levels possible" but stops short of promising any specific increases for 1998. He says a second Clinton Administration will continue to push for government-industry partnerships, and he criticizes attempts to kill such programs as "dangerous and reckless." Although both candidates list the same priorities—protecting basic research, improving science education, and encouraging technology transfer—their proposed methods of achieving those goals are quite different.



C. KRUPA/AP PHOTO

Toe to toe. Dole and Clinton, appearing after their first debate, disagree on R&D policy.

These extended remarks provide a much fuller picture of each candidate's views than voters are likely to get on the campaign stump, say senior science policy-makers. "I don't think science policy figures at all seriously in either party's approach to the election," says Yale University physicist Allan Bromley, science adviser to President George Bush.

While Clinton has built a 4-year track record that is familiar to researchers, Dole's 30-year tenure in the Senate provides few clues to his feelings about science. "I owe my own life to progress in medical research," he says in response to one of *Science*'s questions, citing treatment of his World War II injuries with an experimental drug. While he adds that biomedical research "will continue to receive strong, growing support in my Administration," he was not a prominent advocate of medical research as a legislator.

Perhaps the area of greatest disagreement between the two men is their view of how Washington administers R&D programs. Dole pledges to conduct "a complete review of how to make the government's science support infrastructure more coherent," but he stops short of recommending the creation of a Department of Science and Technology. Clinton, on the other hand, says that his Administration will focus on streamlining bureaucracy "rather than shuffling pieces around the government."

Clinton's long-term budget plan would result in sharp reductions at virtually all science agencies, although not as radical as those proposed by Dole. In his economic plan released in August, Dole calls for huge cuts in the federal bureaucracy to pay for a 15% tax cut that is the centerpiece of his economic program. He would make a sweeping 10% cut in domestic programs, which include civilian R&D efforts, according to that plan. He also would seek $15 billion in savings from the Commerce Department and $32 billion from the Department of Energy (DOE) over the next 6 years. In addition, Dole told *Science* that he wants further review of government lab consolidation.

Democrats like Representative George Brown (D–CA), ranking minority member on the House Science Committee, warn that DOE civilian science would essentially cease under Dole's plan, while research programs at Commerce would be eviscerated. But Representative Robert Walker (R–PA), the retiring chair of the House Science Committee and a senior adviser to the Dole campaign, argues that basic research would rise under the Dole plan. Dole's proposal to cut the capital gains tax rate, says Walker, would promote greater industrial R&D spending if combined with regulatory and legal reform. Dole also pledged to convene a science summit to examine ways to encourage industry to invest in research.

Notwithstanding these differences, the battle over science and technology remains a minor skirmish in the overall electoral campaign. With polls showing that Americans are oblivious to repeated warnings from prominent scientists about a pending crisis in science and technology, neither candidate feels compelled to focus much attention on the issue. And the community's traditional apathy—and antipathy—toward politics reinforces the view that it is not a constituency worth wooing. **–A.L.**

abandoned plans for major funding reductions, fearing that disgruntled voters would blame them again if the government were paralyzed. And like the White House, they were eager to spread the largess before voters went to the polls.

As a result, Congress gave in to many of Clinton's demands during hurried negotiations in September. That process, combined with a strong push by Republicans for a major increase in medical research, explains why the 1997 spending levels for civilian R&D are $1.3 billion higher than the $32.2 billion proposed in the 1997 budget resolution passed 5 months earlier by the House. Jack Gibbons, the president's science adviser, thinks his boss deserves credit. "The major restoration of funding shows the president's steadfast commitment" to R&D, he says.

To be sure, Clinton's own budget plan promises long-term cuts to federal R&D efforts that differ little in total from those proposed by the Republicans. But agency chiefs were quietly told not to take the figures too seriously as they testified before Congress. "You have to work these things out year by year," says Gibbons. That attitude infuriates Republicans, who say the president wants credit for a balanced budget plan without enduring the political pain of actual cuts. And the scientific community shares the blame, says one Republican aide, for siding with the Administration and ignoring the deficit. "They just want a blank check," he says.

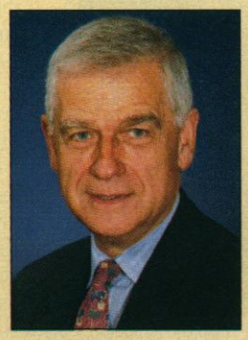
Still vulnerable

It was Congress, however, that gave NIH the closest thing to a blank check in this constrained fiscal environment. Successive Clinton budgets have requested roughly a 4% annual increase for NIH, and the 1996 House budget resolution flatlined the institutes' funding through 2002, with no growth even for inflation. But thanks to strong Senate support and pressure from Representative John Porter (R–IL), who chairs the House appropriations panel with NIH oversight, Congress eventually agreed to an increase of nearly 6% for 1996, and it raised that figure to nearly 7% for the current fiscal year. That bipartisan support is unlikely to wane anytime soon, say Administration officials and

Congress: Tough Races and New Faces

When the 105th Congress convenes in January, some of the most prominent supporters of science will be absent, either through voluntary retirement or by dint of voter preferences in next month's election. The outcome of several close races, combined with the selection of new committee chairs by the majority party in each house, will play a large role in shaping the flow of R&D money during the next 2 years.

Preeminent among the group of retiring lawmakers is Senator Mark Hatfield (R–OR), outgoing chair of the powerful Senate Appropriations Committee and a long-standing champion of medical research in general and the National Institutes of Health (NIH) in particular. If the Republicans retain control of the Senate—as seems likely—his successor would be Senator Ted Stevens (R–AK). Stevens has headed the panel's defense subcommittee, where he has championed Arctic research, but he is also well versed in the importance of medical research: In 1991 he underwent surgery for prostate cancer and encouraged his fellow male senators to be tested. "I wouldn't see much change" in the panel's support for NIH, predicts one Senate staffer.



Next. Hatfield, left, hopes Stevens will take reins of Senate spending panel if Republicans retain control.

Advocates of energy research wish they could make the same claim in the wake of the retirement of Senator Bennett Johnston (D–LA), former chair and most recently ranking minority member on the committee's energy and water panel. "It's a big loss," says one Energy Department official. Johnston has been a consistent backer of science projects ranging from the Superconducting Super Collider to fusion. The panel's chair, Senator Pete Domenici (R–NM), is almost certain to be reelected, however, and to remain the most outspoken supporter of the department and the two defense laboratories in his state. "He will pick up the slack," says a congressional aide. But Administration and university officials aren't happy about depending so much on a single legislator.

Meanwhile, the chair of the Commerce, Science, and Transportation Committee, Senator Larry Pressler (R–SD), is facing a difficult race. Although the panel traditionally has focused far more on trade than on R&D, it has the power to authorize spending for much of civilian R&D. A new chair could invigorate the panel and make it easier for House authorizers to move their bills through Congress.

In the House, Representatives Tom Bevill (D–AL) and John Myers (R–IN), successive chairs of the House Appropriations Committee panel that oversees energy R&D spending, are retiring, and there is no clear successor. There is also some uncertainty about who will lead the House Science Committee. The former chair, Representative George Brown (D–CA), is once again in a tight race in a district with a preponderance of Republican voters. But he would dearly love to regain the helm of the committee if the Democrats win back the House. If the Republicans hold on, retiring Representative Robert Walker (R–PA), a strong advocate for basic research and a close ally of Speaker Newt Gingrich (R–GA), has anointed Representative James Sensenbrenner (R–WI) as his successor. Sensenbrenner has chaired the committee's space panel in recent years.

A number of House freshmen who agitated for major cuts in the federal bureaucracy also face tough going in their reelection efforts. If Representatives Dick Chrysler (R–MI), who sought to eliminate the Commerce Department, and Todd Tiahrt (R–KS), who wishes to ax the Energy Department, are turned out by voters, Republicans will have a much harder time generating enthusiasm to do away with those departments.

Not surprisingly, Walker and Brown are predicting victory for their respective parties in the hotly contested House. "Republicans are going to gain between 10 and 20 seats," says Walker. For his part, Brown thinks Democrats can pile up enough victories—particularly in California and Washington state—to put his party back in power. That prediction assumes, of course, that President Bill Clinton will be wearing lengthy coattails on 5 November. **–A.L.**

congressional aides. NSF is likewise viewed favorably by both parties, and its role as the chief supporter of academic basic research outside the life sciences appears to protect it from major cuts.

But those two organizations represent less than half of civilian science and technology spending. "I am concerned that there is a sense that if you take care of NSF and NIH, you take care of science," says Yale University physicist Allan Bromley, former science adviser to President George Bush. DOE faces a particularly tough time, given the disparate disciplines and constituencies the department embraces. "DOE is not a favorite agency either in the Administration or among Republicans," says Wells, whose university runs the Princeton Plasma Physics Laboratory. "It is extremely vulnerable, partly because it's easy for those who want to reduce the budget to play one group off against another."

NASA also faces a continuing downward spiral. Agency officials are seeking assurances for long-term level funding as an outgrowth of a meeting scheduled for December between Clinton and congressional leaders on the future of the nation's civilian space effort. Other research programs embedded in large agencies like the Environmental Protection Agency and the Commerce, Interior, and Agriculture departments will face stiff internal competition.

The real losers in the years ahead may be those researchers in disciplines, such as high-energy physicists or fusion scientists, that demand larger and costlier facilities. "If you want to start something new, you have to stop something old," says Gibbons. Both he and Republicans favor greater international participation to share the heavy burden of new accelerators, space missions, and other costly efforts.

For the moment, however, science lobbyists are breathing a sigh of relief. They say the failure of Congress to carry through on the major cuts or shifts in R&D funding discussed in 1995 may be a sign that the public does not want to balance the budget on the back of science. "At the end of the day, there was broad bipartisan recognition of the primacy of research," says Crowley. But he predicts the move toward a balanced budget will continue to threaten funding for university research. "Vigilance is the price of success," he says.

–Andrew Lawler