Budget Brinkmanship Leads to Unexpected Gains in Fiscal 2000 for R&D at NSF, DOD, and DOE

Let's get this straight: For all the dire predictions of across-the-board reductions, spending caps, and the sanctity of the Social Security trust fund, the Republican-controlled Congress just about finished the sometimes chaotic session by spending roughly $31 billion more in fiscal 2000 than last year. And in a few R&D agencies, Republican lawmakers were able to boast that they delivered more than President Clinton had requested last February, though, for the most part, they did this after the starting gun had gone off for fiscal 2000. And, as PHYSICS TODAY went to press, the period of controversy and compromise persisted without a final resolution.

The fact is that both Clinton's team and the Republican leadership strode confidently to the brink on many of the appropriations bills, only to step back when challenged to leap into a contentious maelstrom. When only two of the 13 appropriations bills had been enacted at the start of the new fiscal year on 1 October, the political strategies changed on both sides. In the ensuing five weeks, Clinton vetoed four of the bills and then turned conciliatory. But both sides remained strident and adamant on several issues—namely, federal or local authority to hire new teachers, payment of two years of back dues to the United Nations, and environmental issues relating to the president's land conservation program and to dumping mine wastes. When PHYSICS TODAY went to press, Congress had passed its fifth "continuing resolution," sustaining federal expenditures for another few days and extending budget negotiations to prevent a government shutdown.

For their part, Republicans had backed off the cause that swept them into the majority in the 1994 elections—to reduce the size and scope of the federal government and to reduce personal and corporate taxes. In fact, despite the often overheated rhetoric, both sides had shifted positions in their negotiations and moved closer to each other on most budget issues. The acrimony unleashed on the floor of the House and Senate during budget debates or on TV talk shows usually obscured just how small the differences were between Clinton and Congress. In the five years since the Republicans took command of Congress, the budget's discretionary portion has been cut only once—in fiscal 1996, after the government had been wracked by two week-long shutdowns. That searing experience made both sides more cautious about pushing large spending cuts or tampering with established programs.

The budget problem this year was aggravated by the caps set firmly in place in 1997. The spending limits leave little money for discretionary programs, such as science and technology. When House appropriators issued their allocations for R&D before leaving town during the August recess, the reaction was explosive. "This year's federal budget for science is a disaster," said D. Allan Bromley, a Yale University physicist who served President Bush as science adviser. "Congress has lost sight of the critical role science plays." Rankled by the House numbers, presidents of several research universities and lobbyists for many scientific societies bombarded the White House with appeals for President Clinton to speak out on the situation.

On 1 September, Clinton's chief of staff, John Podesta, addressed reporters at the National Press Club and accused House Republicans of shortchanging the future by favoring tax cuts over R&D funding. "Investments in science and technology—both public and private—have driven economic growth and improvements in the quality of life in America for the last 200 years," said Podesta. "Many of the products and services we have come to depend on for our way of life—from lasers to communications satellites to vaccines—are all products of US policies to encourage investments in science and technology." He then attacked Republicans for proposing to slash the Clinton administration's budget request by $1.8 billion, or about 10%. The cuts would reduce the information technology research initiative by 70%, block increases for the National Science Foundation (NSF), and knock off $1 billion from NASA's budget, thereby threatening to eliminate or eviscerate some 30 space missions. "If such cuts are allowed to stand, we will all be leading lesser lives in a lesser land," declared Neal Lane, Clinton's science adviser, a former Rice University physicist.

But, as often happens in the Washington budget game, threatened cuts in R&D have a way of being restored in last-minute dealmaking. "Lifting the caps will be politically difficult," said Senate Budget Committee Chairman Pete Domenici, a powerful Republican from New Mexico, home of two Department of Energy weapons labs, "but we can get around that with bipartisan agreement."

A month into fiscal 2000, the nonpartisan Congressional Budget Office reported that the 13 appropriations bills passed by Congress would pro-

BUDGET BATTLERS: House and Senate appropriators negotiate funding for fiscal 2000. (Photo by Douglas Graham, courtesy of Congressional Quarterly.)

vide about $609 billion in discretionary outlays—up from $574 billion last year and $15 billion above the limit set under the 1997 Balanced Budget Act. Some of the increase went to defense, a traditional Republican priority and, to the surprise of many, to such customary Democratic mainstays as education and science.

The cause for improving R&D budgets has been invigorated by two new Washington phenomena: One is the Senate bill doubling the size of the science budget, which was passed earlier in the year under the leadership of a bipartisan group, led by Republicans Bill Frist of Tennessee and Domenici and Democrats Joseph Lieberman of Connecticut and Jay Rockefeller of West Virginia. A similarly worded bill recently introduced in the House by Heather Wilson, a New Mexico Republican, is also likely to gain wide support. Though no longer in Congress, Newt Gingrich, a former speaker of the House and now a senior fellow at the American Enterprise Institute, wrote an op-ed article in *The Washington Post* on 22 October, calling for a doubling of federal spending on scientific research in the next five years. "No other federal expenditure would create more jobs and wealth or do more to strengthen our world leadership, protect the environment, and promote better health and education for all Americans," he stated. "For the security of our future, we must make this investment now." Gingrich also noted that, in his experience, scientists were among the least effective lobbyists in Washington. Gingrich's comment about scientists underscores the other new phenomenon—the mobilization of the scientific and engineering communities, which have usually tread different paths in Washington, to join together in efforts to influence members of Congress on funding matters.

Such activities have aleady had an effect. Even with the tight spending caps in place, Congress approached its appropriations end game by allocating a total of $82.7 billion to R&D programs—an increase of $3.4 billion, or 4.3%, over fiscal 1999. Not surprisingly, the largest gains would go to research at the National Institutes of Health (13.7%) and Department of Defense (10.4%). Other agencies would also benefit, though by much smaller amounts—Department of Energy research (2.2%), NSF (5.4%) and the National Oceanographic and Atmospheric Agency (3.2%). Still, NASA and the National Institute of Standards and Technology gain little.

Despite what seemed like a wrap-up of the R&D budget, White House negotiators, led by Jacob Lew, director of the Office of Management and Budget, and Republican lawmakers remained deadlocked on some of Clinton's other issues. Lew told reporters the issues "aren't small," though the difference can be counted in millions, not billions, and have "significant political content." One of the biggest unresolved issues is the Republican demand for a 0.97% reduction in all domestic discretionary programs, even for those whose appropriations bills have already been signed into law by the President. Another is a year-old $1.2 billion program that already has put thousands of new teachers into the nation's public schools—most particularly, 200 in Los Angeles, nearly 300 in Philadelphia, and 800 in New York City. Both sides agree that qualified teachers are necessary, but Republicans in Congress argue that school districts should be allowed to spend the money to meet their perceived needs, such as reducing classroom size, hiring teachers trained in math and science, and other priorities. Clinton counters that the program is already coming up with creative answers to local problems and that tinkering with it would undercut its mission.

Following are some R&D budget highlights by agency:

▷ **National Science Foundation.** Research in information technology is the big winner among the research programs. The agency appears to have the lead role in the proposed $366 million government-wide information technology initiative, with $90 million designated for NSF's participation. The administration's original plan was based on a recommendation by the President's Information Technology Advisory Committee (PITAC) (see PHYSICS TODAY, September 1998, page 44), which calls for R&D in the field to be expanded by $1.37 billion over five years. In response, the administration created the information technology program and requested $110 million for NSF's Computer and Information Science and Engineering directorate, to be used for grants in fundamental research on software, scalable information infrastructure, and high-end computing—all areas that PITAC had urged doing. NSF's program is budgeted for $392 million, a 31% jump over fiscal 1999. Another $36 million in the agency's information technology account will come from the major research equipment program, which funds a terascale computer, a project to build a five teraflop system.

Lawmakers also provided $106 million more than the previous fiscal year total to be spread among the other research and related activities (see table on page 47). Within those directorates, the greatest gain will be in the biological sciences, which will get $416 million, a 6.5% boost over the past fiscal year. A House–Senate conference committee ratified both the Senate's decision to raise the funding of the agency's plant genome program by $10 million, to a total of $50 million, and to support a $560 million biocomplexity initiative. NSF's new integrative activities account, which supports emerging cross-disciplinary research and instrumentation, will receive $130 million—far less than the request and well below the 1999 level of $161 million. But Congress failed to provide any money for an opportunity fund that the agency had sought to support esoteric, sometimes eccentric, cross-disciplinary research. In 1999, this fund received $24 million.

House–Senate appropriators gave $697 million for NSF's education and human resources directorate, $35 million more than 1999, and $37 million more than the House had proposed. Within this amount, the conference committee designated $55 million for the Experimental Program to Stimulate Competitive Research (EPSCoR), a program to improve the ability of researchers in 18 states and Puerto Rico to compete for federal grants. In addition, the conference committee allocated $10 million to establish a new office of innovation partnerships, which will manage the EPSCoR program and find techniques that colleges and universities can use to raise their research capabilities "so as to develop a truly national scientific research community with appropriate research centers located throughout the nation," the report observed.

On 24 September, during a Senate discussion of the Veterans Affairs, Housing and Urban Development, and Independent Agencies bill, in which NSF and NASA are funded, senators commended appropriations subcommittee leaders Kit Bond, a Republican of Missouri, and Barbara Mikulski, a Democrat of Maryland, for persuading their colleagues to increase the funds for both NSF and NASA after the House had allocated smaller amounts for most programs. "We were forced to forage for funds," said Mikulski. "The spending caps have put us in a terrible position. We have had to pit one group against another, and one of the biggest losers in this battle has been education." Believing that House lawmakers also deserve credit, NSF's director, Rita Colwell, issued a statement extolling

Bottom Lines: Physics-Related R&D Budgets for Fiscal 2000

	FY 1999 actual	FY 2000 request	FY 2000 enacted	Percentage gain (loss) 1999–2000
	(millions of dollars)			
National Science Foundation	**3710**	**3921**	**3912**	**5.4**
Total research and related activities	2809	3004	2966	5.6
Mathematical and physical sciences	734	754	759	3.4
Engineering	369	379	381	3.4
Geosciences	473	485	489	3.3
Computer-information science and engineering	299	423	392	31.1
US polar programs	245	251	255	3.9
Major research equipment	90	85	95	5.6
Education and human resources R&D	108	108	108	0.0
Other education and human resources programs	554	570	589	6.2
Department of Energy	**17 856**	**18 098**	**17 593**	**(1.5)**
Total science	2651	2778	2654	0.1
High energy physics	689	692	695	0.9
Large Hadron Collider (detectors)	65	70	70	7.7
Nuclear physics	334	343	348	4.3
Fusion energy sciences	222	223	247	11.6
Basic energy sciences	796	888	774	(2.7)
Spallation Neutron Source (construction)	130	214	118	(9.3)
Computational and technology research	162	199	131	(16.3)
Multiprogram laboratory support	21	21	21	0.0
Nuclear weapons and security activities	4400	4531	4444	1.0
Stockpile stewardship	2116	2286	2250	6.4
Inertial confinement fusion	219	218	228	3.8
National Ignition Facility (construction)	284	248	248	(12.7)
Nuclear safeguards, security and intelligence	28	31	41	46.4
Nonproliferation and verification R&D	187	191	191	1.9
National Aeronautics and Space Administration	**13 665**	**13 578**	**13 653**	**(0.1)**
Space science and exploration	2119	2197	2186	3.1
Life and microgravity sciences	264	256	276	4.7
Earth science	1414	1459	1447	2.4
Academic programs	139	100	141	1.6
Space Station R&D	2252	2483	2331	3.5
Department of Defense R&D, Test and Evaluation	**36 757**	**34 375**	**37 606**	**2.3**
Total basic research (6.1)	1108	1113	1172	5.8
Army, including university and industry research centers and in-house laboratory research	184	187	203	10.3
Navy, including in-house labs	362	377	377	4.1
Air Force, including in-house labs	210	210	210	0.0
Defense-wide, including university and industry research and in-house labs	353	340	385	9.0
Total applied research (6.2)	3151	2959	3481	10.5
Defense Advanced Research Projects Agency	1930	2003	1856	(3.8)
Ballistic Missile Defense Organization	3845	3300	3652	(5.0)
Department of Commerce				
Total NOAA R&D	600	600	619	3.2
Total NIST R&D	468	565	475	1.5
Scientific and technical research	233	240	236	1.3
Advanced Technology Program	178	219	131	(26.4)

two House appropriations committee "cardinals," chairman James Walsh of New York and subcommittee chairman Alan Mollohan of West Virginia, for "extraordinary leadership and clear understanding of the importance of investing in science and engineering."

▷ **Department of Energy.** The department's appropriation for R&D increased $223 million, or 3.2%, to $7.2 billion for fiscal 2000. Of this amount, DOE science programs received $2.7 billion, after adjusting for general reductions. The amount is about $100 million less than the administration's request, but roughly $50 million more than either the House or Senate had proposed. Nonetheless, the total is a paltry 0.1% above the previous year's budget.

High-energy physics went up 0.9% above 1999, to $695 million. Nuclear physics was given $348 million, or 4.3% more than 1999, and $5 million more than the president's request. The magnetic fusion program did a lot better. A House–Senate conference committee agreed to give the program $247 million, $24 million above the administration's request. The committee explained its largess by citing a recent report of the Secretary of Energy Advisory Board. SEAB endorsed the revised scope of the program, which has more or less abandoned "a nearly exclusive focus on the achievement of fusion energy in tokamaks" and adopted "a broader program that would also explore scientific foundations and other confinement approaches." In conference, the appropriators allocated $475 million for inertial fusion in DOE's defense programs budget for fiscal 2000. Of this sum, $248 million is for the National Ignition Facility (NIF), under construction at Lawrence Livermore National Laboratory in California and $228 million for core program activities. The conference committee expressed disappointment that NIF has encountered cost overruns, schedule delays, and management troubles, and directed the Secretary of Energy to certify by 1 June a new cost and schedule baseline. "If the secretary is unable to provide such a certification, the department should prepare an estimate of the costs necessary to terminate the project," the committee declared.

In response to the conference committee's threat, Energy Secretary Bill Richardson asked SEAB to review NIF's problems and chose John McTague, a retired Ford Motor Co vice president for research and technology, to head the study. Livermore officials have already acknowledged that NIF, the $1.2 billion cornerstone of the stockpile stewardship program, needs to design better clean rooms for its laser optics systems and is working with Silicon Valley companies to achieve this. Livermore also has admitted that NIF will not be completed on its original schedule of 2003. SEAB is not alone in looking at the project. The General Accounting Office, Congress's watchdog agency, acting on a request by House Science Committee Chairman F. James Sensenbrenner Jr, a Wisconsin Republican, is also investigating NIF.

NIF isn't the only troubled project at DOE. Congress and DOE are concerned about the progress in building the $1.3 billion Spallation Neutron Source (SNS) at Oak Ridge National Laboratory in Tennessee. SNS's timetable is somewhat uncertain because of funding delays, which causes a classic Catch–22. Congress failed to agree to the administration's plan for construction costs, providing $118 million for the project in fiscal 2000, $96.1 million below the request. Still, DOE has about $70 million in carryover funds for SNS from 1999, when the project received $130 million. Martha Krebs, director of DOE's science office, has warned that insufficient funding is almost certain to delay the project's planned opening in 2005 and lead to higher costs for its completion. Meanwhile, DOE has appointed a new project manager, Lester Price, to work alongside of SNS's project director, David Moncton. Price, previously executive director of Oak Ridge's environmental management program, is charged with ensuring that the Oak Ridge team interacts smoothly with SNS's four collaborating DOE labs—Argonne, Brookhaven, Lawrence Berkeley, and Los Alamos.

DOE's energy R&D program emerged from the appropriations process as a mixed bag of increases and decreases. The solar and renewables energy programs fell 7% to $276 million, some $75 million below the

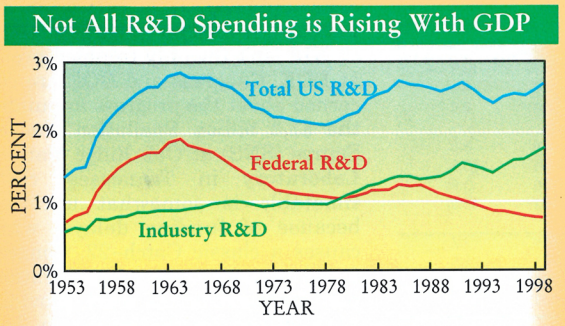
request. The House criticized DOE for continuing to spend federal research dollars on technologies that already receive commercial funding. House lawmakers argued that the program should concentrate on more fundamental, peer-reviewed research. Energy conservation R&D was also hit, declining 3% to $388 million. By contrast, nuclear energy R&D fared extremely well. It was favored with a 19.8% increase, to $91 million, because of Congress's concern that the department had neglected nuclear energy as a source of abundant power that does not contribute to atmospheric pollution.

Despite funding increases, DOE's defense programs are likely to be in turmoil in fiscal 2000 as they are reorganized into a new semi-autonomous agency within the department. Last summer, Republican lawmakers crafted legislation creating the National Nuclear Security Administration as a reaction to allegations that China had acquired data and other "secrets" on nuclear weapons from Los Alamos and perhaps other DOE labs.

The concept of the NNSA originated with the President's Foreign Intelligence Advisory Board, which issued a report titled "Science at its Best, Security at its Worst." The board proposed that the weapons labs should be independent of DOE management—in effect returned to the status of the old Atomic Energy Commission. (See PHYSICS TODAY, August, page 49) On 5 October, Clinton signed the fiscal 2000 Defense Authorization Act, which established the new agency. At the same time, he directed Richardson to assume all the duties of the NNSA administrator, who was to

WASHINGTON BRIEFINGS

R&D Fuels US Economic Miracle in 1990s. If the past decade has had a single theme, it has been the transformation of the US economy. The nation's high-tech companies engaged in computers, communications, biotechnology, and pharmaceuticals have set the pace through innovations generated by corporate behemoths such as IBM, Intel, Lucent, and Hewlett-Packard, just to name a few physics-oriented firms, as well as swarms of "dot-com" start-ups that have invested intensively in R&D. Revolutionary technologies and services have driven up the gross domestic product to the highest level since the race-to-the-Moon boom of the 1960s.



Source: NSF, *National Patterns of R&D Resources, 1998.*

The relationship between investment in R&D and the rise of the GDP is apparent in a new National Science Foundation data brief (NSF 99–357, available on the Web at www.nsf.gov/sbe/srs/stats.htm). By NSF's current projections, R&D could account for 2.79% of the $8.8 trillion GDP this year, up from 2.67% in 1998 and 2.61% in the previous year. The 1999 estimate for R&D's fraction of the GDP is the highest since 1967's 2.80% and continues an upturn that began in 1994 after a three-year downturn—a decline that prompted dire warnings of a loss of US leadership in technological products, productivity, and profitability to Japan and other countries.

Of the projected $247 billion likely to be spent on R&D by American firms in 1999, $40.2 billion (or 15.3%) is expected to go to basic research, $56.5 billion (22.9%) to applied research, and $150.3 billion (60.9%) to development. In comparison with 1998, R&D this year could achieve a 5.1% real increase (adjusted for inflation) in basic research, a 7.5% boost in applied research, and a 7.6% spike in development.

Since 1980, US corporate activity has accounted for the largest share of support for R&D, says the NSF report. Industry is projected to spend $169.3 billion for R&D this year (or 68.5% of the nation's total R&D expenditure), a 10.3% increase in real terms over the preliminary 1998 level. Of these funds, nearly all are being spent for R&D performed by industry itself, and the remainder is going for research at universities and other nonprofit organizations.

According to the NSF report, federal R&D funds in 1999 are expected to total $65.9 billion, a figure that would be virtually unchanged in real terms from 1998. The federal fraction of support for the nation's R&D enterprise first fell below 50% in 1979 and hovered between 45% and 50% until 1988, plunging from 44.9% that year to a dismal 26.7% this year—the lowest it has ever been since NSF began keeping track in 1953. "The federal government is no longer the major benefactor of scientific research," says Craig Venter, president and chief scientific officer of Celera Genomics Systems, which is dedicated to sequencing the entire human genome by 2001. "It is now high tech and biotech that are on the trail of the Holy Grail."

Steven Payson, who gathers the R&D statistics at NSF, is confident that in 2000 the US will equal or exceed Japan's 2.92% of GDP invested in R&D in 1997 (the most recent year available). The US has already exceeded Germany's 2.3% and France's 2.31% (also based on 1997 R&D statistics). But Payson cautions that US totals include defense R&D. Nondefense R&D as a proportion of GDP was lower for the US than that of Japan or Germany in 1997, and, while Japan's outlays for defense have increased slightly in recent years, spending on defense-related research and technology has generally declined in the US and other Group of Seven countries in the 1990s.

Fears Recede over Access to Research Data. After months of fierce debate in academic scientific circles, the new regulations that many feared would make sensitive research data produced under federal grants available through the Freedom of Information Act (FOIA) turned out less alarming than expected. The regulations, published in the *Federal Register* by the White House Office of Management and Budget (OMB) on 8 October, respond to a two-sentence rider slipped into the massive omnibus appropriations bill for fiscal 1999 by Senator Richard Shelby. A conservative Alabama lawyer elected to the Senate in 1986 as a Democrat, who converted to a Republican in 1995, Shelby had amended the bill after a constituent complained that he couldn't find out the scientific basis for a directive issued by the Environmental Protection Agency.

Academic researchers contended that Shelby's amendment would lead to requests for data on incomplete work and possibly hamper the scientific process if scientists had to answer to criticism of preliminary or unreviewed findings. Requests under FOIA might also result in the loss of unpatented intellectual property, they argued. What's more, they said, recruiting participants for medical or behavioral science studies would be difficult if confidential information about them was available for public viewing. But advocates of the proposed law said it would give companies and the public the

have the title of under secretary of energy for nuclear security. The designation of Richardson has angered many legislators, both Republicans and Democrats. NNSA is authorized to begin operating on 1 March, and until then Congress and the administration are likely to continue grappling with the president's attempt to "end-run" Congress's intent for the agency.

▷ **NASA.** The final appropriations bill provides $13.7 billion for fiscal 2000, just $12 million, or 0.1%, less than the previous year. R&D was increased by 1% to $9.8 billion. Legislators apparently robbed housing programs and the international space station to divert some money into space science, which had been shortchanged by both House and Senate bills. In September, the House had approved $240 million less than the agency's $2.1 billion request, and the Senate had cut the request by $120 million. Both actions were loudly protested by White House and NASA officials, as well as by space scientists who sent letters and e-mail to their legislators, arguing for restoration of the budget request.

The science, aeronautics, and technology sector, which funds nearly all of the agency's R&D not related to the space station, received $5.6 billion, a reduction of 0.8% from fiscal 1999, but $182 million more than the request. The final bill has $2.2 billion for space science, 3.1% more than 1999. But Congress reduced funding for future Discovery and Explorer missions, which is almost certain to result in fewer exploratory launches over the next few years and fewer missions to Mars than had been planned. **IRWIN GOODWIN**

right to inspect data used to underpin federal regulations. Such concerns appeared in some 12 000 public comments to OMB after the regulations were first proposed in April. The final version, which went into effect on 8 November, includes several concessions to scientists, who contributed the overwhelming majority of comments on the proposed regulations. To satisfy researchers, OMB narrowly defines data available under FOIA to include "recorded factual material commonly accepted in the scientific community as necessary to validate research findings."

Among the data exempted from FOIA requests: preliminary analyses, drafts of scientific papers, communications with colleagues, trade secrets, and personal and medical information. OMB's original proposal would have required researchers to hand over any data that supported or bore on federal policies and rules. The final revision restricts FOIA requests only to those data cited by a federal agency in an "action that has the force and effect of law." But the regulations still leave many kinds of research potentially open to public scrutiny. The final version, unlike the earlier one, accedes to Shelby's demand that the regulations should allow access to data behind all types of government action, not just rules set by federal agencies. It also removes the existing limitation on FOIA requests to projects expected to exceed $100 million. Though the definition of research excludes personal and medical information, it allows researchers themselves to determine which data may be exempted on the grounds of confidentiality. In addition, the regulations, in the context of OMB's Circular–110, defines published research as research findings that have appeared in a peer-reviewed scientific or technical journal or that a federal agency publically and officially has cited in support of actions that have the force of law.

"We believe OMB has gone a long way in protecting the rights of researchers," said William Colglazier, executive officer of the National Academy of Sciences, which had vigorously opposed the use of FOIA to gain access to research data. Even so, some researchers remain concerned. In a recent report, the Association of American Universities, a Washington, DC, organization representing 59 leading US research universities, contended that the vagueness and imprecision of Shelby's statute may lead to extensive litigation. If this occurs (and it could take months or years for that to happen), it is relevant, the AAU report states, that OMB's general counsel is now apparently asserting that the legal effect of Shelby's amendment expired at the end of fiscal 1999 on 30 September.

Shelby disagrees with that interpretation and sticks by his original concept. In a statement issued by his office, Shelby declared the OMB regulations to be "a good first step. . . . If properly implemented by the agencies, this new provision will serve to enhance public accountability and provide a higher level of transparency in government. This is a great victory for regulatory reform."

White House Defines Scientific Misconduct. Science has a huge stake in the way the rest of society perceives its ethical standards. Past revelations of manipulating research results or of stealing ideas or data from other scientists have given all of science a black eye. The definition of scientific misconduct, and the handling of allegations of and investigations into such behavior, has long been a contentious issue among researchers, federal agencies, and the news media (see PHYSICS TODAY, April 1999, page 62). On 14 October, after more than three years of discussions, the White House Office of Science and Technology Policy (OSTP) issued a policy statement in the *Federal Register* that defines scientific misconduct as "fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results." OSTP's proposed definition and the accompanying guidelines, which emerged from lengthy deliberations by the National Science and Technology Council, a high-level group of government officials representing cabinet and agency heads, would replace a variety of definitions that have been adopted over the years by federal agencies. Publication in the *Federal Register* began a 60-day comment period, after which the final guidelines will come into force.

The definition and guidelines would extend the enforcement of misconduct beyond that of the federal agencies with the most experience in dealing with the problem—namely, the National Institutes of Health (NIH) and the National Science Foundation (NSF)—to other agencies that support research. The proposed policy, said Neal Lane, OSTP's director and President Clinton's science adviser, "provides needed consistency and clear guidance to the research community about the government's interest in the integrity of the research record." The 18 federal agencies that sponsor research have all agreed to the definition and guidelines.

For several years, NIH and NSF had included the phrase "other practices that seriously deviate from those that are commonly accepted in the scientific community" as part of their misconduct protocols. Deciding whether to include this phrase was the biggest stumbling block to reaching consensus on the new definition, according to Anne Eisenstadt, NSF's assistant general counsel. Despite the obvious vagueness of the phrase, NSF had argued in favor of the wording. The agency had invoked a similar clause in at least one case—to discipline a professor accused of sexually harassing several students. In the end, however, the phrase was dropped from the OSTP definition, though agencies and universities would still retain some flexibility to investigate and prosecute other transgressions of ethical scientific behavior.

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