is important for all our fellow Americans to recognize that federal tax dollars have funded much of this research, and that this and other wise investments in science are leading to a revolution in our ability to detect, treat, and prevent disease. . . .

"We ought to keep in mind, government-funded research brought supercomputers, the Internet, and communications satellites into being. Soon, researchers will bring us devices that can translate foreign languages as fast as you can talk; materials 10 times stronger than steel at a fraction of the weight; and—this is unbelievable to me—molecular computers the size of a tear drop with the power of today's fastest supercomputers."

At that point in the address, Clinton delivered a pitch to Congress for his R&D budget: "To accelerate the march of discovery across all the disciplines in science and technology, I ask you to support my recommendation of an unprecedented $3 billion in the 21st Century Research Fund, the largest increase in civilian research in a generation. We owe it to our future."

The reaction on Capitol Hill was markedly different from the often scathing responses to Clinton's previous appeals for support of his programs and philosophy. "I am confident that together we can make fundamental research and development a real priority this year," declared James Sensenbrenner Jr, the Wisconsin Republican who chairs the House Science Committee, although he added that he hoped the budget priorities aren't "merely promises within the context of a larger spending spree." Representative Nick Smith, a Michigan Republican and chairman of the House basic research subcommittee, said he found much to admire in both of Clinton's speeches on science and technology, and he would endorse the proposed initiatives as long as they are compatible "with other priorities, like strengthening Social Security, paying down the debt, and providing tax relief for working families."

Others threw such caution to the winds. Clinton's Caltech talk was "just fantastic," said Richard C. Atkinson, president of the University of California system and former director of NSF. "It means . . . more ideas from academic researchers that will transfer into the private sector and launch whole new industries like those in Silicon Valley." Wyatt R. Hume, an executive vice chancellor of UCLA, called the speech "right on target. It's a phenomenally exciting time." **IRWIN GOODWIN**

WASHINGTON BRIEFINGS

R&D TAX CREDIT EXTENDED FIVE YEARS After weeks of bickering and dickering, budget negotiators from Congress and the White House agreed just before midnight on 17 November to accept a muddled deal that wrapped up 5 of the 13 appropriations bills into one, thereby enabling the government to formally begin fiscal 2000 at last, six weeks late. But before the lawmakers could adjourn the first session of the 106th Congress, they needed to enact one more measure—the so-called tax extenders bill, which included, among a handful of tax breaks, the R&D credit.

The credit had expired at the end of June, and lobbyists for the nobility of America's corporations had been beating the drums for months that the R&D credit had to be extended. The big R&D spenders—the pharmaceutical, biotechnology, telecommunications, semiconductor, and computer companies—proposed that Congress would make the credit provision permanent in the US tax code, but if that wasn't possible the next best action would be a multi-year extension.

For more than a decade, the credit had avoided extinction from year to year. That, corporate lobbyists argued, led to uncertainties that inhibited companies from performing long-term research. For many firms, the credit covers about 20% of their R&D costs above a fixed average. The credit saves the companies about $2 billion per year in taxes. The government, for its part, makes up much more than $2 billion in taxes from company profits, high paying jobs, and increased sales.

So the extenders bill was passed overwhelmingly by the House on a vote of 418–2 on 18 November and the next day by the Senate, 95–1. It provides for a five-year extension, to 30 June 2004. But there's a hitch: Businesses cannot claim their credits until 1 October 2000, an act of creative budgeting in the House to make the measure more affordable to conservatives in Congress.

Even so, the government, as well as the entire country, is certain to benefit from greater R&D spending. Corporate spending on R&D is likely to increase to about $187.2 billion this year, a 10.6% boost over 1999, according to the most recent annual forecast by Battelle Memorial Institute and *R&D* magazine. If the R&D spending estimates hold up, it will be the second year in a row that industry has exceeded 10%. Last year, corporate spending on R&D was figured to be $169.3 billion, a 10.3% increase (adjusted for inflation) above 1998 (see PHYSICS TODAY, December 1999, page 48). American industry's higher R&D budgets continue a rebound that began in 1997, after several years of sluggish growth. By contrast, the federal government's funding of R&D has steadily declined, but is destined to rise in fiscal 2000 to $66.4 billion, an increase amounting to less than 1% (after accounting for inflation).

IT'S RESCISSION TIME FOR FEDERAL AGENCIES Since the days of the Nixon administration, the White House and Congress have squabbled over rescissions—a term meaning reductions in already allocated funding or already existing programs. In early January, the White House Office of Management and Budget (OMB) issued a complicated plan for carrying out the across-the-board cut that both sides agreed to impose on all federal agencies as a condition for enacting the Consolidated Appropriations Act for fiscal 2000. The reduction of 0.38% was negotiated in an eleventh-hour compromise crafted during the weekend before the massive appropriations bill was passed by the House on 17 November. The trade-off for Republican leaders was their grudging acceptance of some of President Clinton's priorities for education and the environment: funds for hiring 100 000 newly trained, highly qualified teachers over the next six years, for enlarging the Head Start and Gear Up programs to improve student preparedness, respectively, for grade school and college entry, and for a Lands Legacy that is intended to preserve and protect green swaths in local communities.

To make sure Clinton's initiatives didn't dip into the Social Security trust fund, Republicans had first proposed a 1% across-the-board reduction. But with stricter arithmetic applied to the programs, they settled for 0.38%, resulting in cuts totaling $2.3 billion.

OMB's plan instructed the agencies on how to make the cuts and gave them some leeway in making the reductions. The appropriations act allowed OMB some discretion. So OMB declared that $1.7 billion would be taken from general programs. About $1 billion would come from mainly acquisition programs at the Pentagon, and $478 million would be rescinded from selected congressional earmarks (more familiarly known as "pork") that the Clinton administration hadn't

requested. One such earmark, added to the Defense bill by Senate Majority Leader Trent Lott, was a $375 million ship project to be built at Pascagoula, Mississippi, Lott's hometown.

The rescission for the National Institutes of Health, which had received a 15% funding boost in fiscal 2000, totaled $100 million, or 0.55%, most of the cuts spread over each of the agency's institutes and centers in direct proportion to the funds Congress had appropriated. The National Science Foundation had to cut $15 million from its fiscal 2000 appropriation, which had received a 6.6% increase. NSF's rescission lopped $7.5 million from the research and related activities account, a 1% hit. The agency's education account was cut by $5.7 million, with Congressional add-ons sharing the brunt. Congress had added $10 million to the Innovative Partnerships program and $5 million to the Experimental Program to Stimulate Competitive Research. EPSCoR and the partnership program will lose $5.7 million. In addition, $1.5 million was taken from one project in the major research equipment account—namely, the High Performance Instrumented Airborne Platform for Environmental Research (called HIAPER), for which Congress provided an extra $10 million for another aircraft in the fleet of the National Center for Atmospheric Research.

At the Department of Energy, the rescissions amounted to $66 million, most of this taken from projects that Congress heaped with pork, almost all of them in the biological and environmental research program of the Office of Science. DOE accordingly cut 3.4% from add-ons such as the West Virginia National Education and Technology Center, the Natural Energy Laboratory in Hawaii, the Center for Research on Aging at Rush-Presbyterian-St. Luke's Medical Center in Chicago, and the University of Las Vegas Science Complex. A cut of $3 million was made in Congress's $250 million allocation to the department's magnetic fusion program, which had been well above the president's request for $222.6 million in fiscal 2000. "While rescissions are generally repugnant to scientists," said a DOE official, "the R&D budget can withstand these cuts with nary a thought about recession."

US Eases Export Controls on Fastest Computers Both the White House and Congress have been under pressure from the computer industry for five years to reduce restrictions on exports of the latest high-performance desktop and laptop equipment to Russia, China, and 47 other countries considered security risks. Throughout that period, the Clinton administration was in a quandary: It didn't want to bar the way of an industry that had contributed so greatly to the longest economic expansion in American history. It also didn't want to be accused of laxity in restraining the spread of technology that could provide significant performance gains in fields such as cryptography and genetics, as well as technology that could be used to create weapons of mass destruction.

Nevertheless, on 1 February, President Clinton issued an executive order lowering the barrier on exports of all computers running slower than 12 500 millions of theoretical operations per second, or Mtops, to all countries except for the so-called rogues and the politically unstable. The decision just about doubled the current Mtops level of 6500, set only last year. The new Mtops number raises the speed limit for the fourth time since 1993. Computer firms had sought a ceiling of 25 000 Mtops.

At 12 500 Mtops, the computer makers must ask the Department of Commerce for licences to ship computers to India, Pakistan, Middle East countries, including Israel, former Soviet countries, China, and Vietnam, among others. Under current rules, there are no restrictions on exports to countries in Western Europe, Japan, Mexico, and Canada. Countries such as South Korea and those in South and Central America and most of Africa require no permits for computers with speeds up to a threshold of 30 000 Mtops under the new rules, a leap of 10 000 Mtops above the current limit. Iraq, Libya, North Korea, and Cuba, considered unstable or security risks are under virtual computer embargoes. Congress has six months to review the new limits.

The updated export control rules represent "the Clinton administration's efforts to ensure effective controls on militarily sensitive technology while taking into account the increased availability of commodity products, such as servers and work stations, of which millions are manufactured and sold worldwide every year," the White House said in a statement.

Still, the new limits disappointed companies such as Intel Corp and Compaq Computer by rejecting their calls to ease controls enough to allow unrestricted sales of new products. Later this year, for instance, Intel is expected to unveil a 6132 Mtop microprocessor that will show greater speed and performance through multiprocessor servers and workstations. Computer company executives contend that technology quickly outpaces Mtops limits, making it an absurd method for setting export controls. California Republican David Dreier, chairman of the House Rules Committee, took issue with the administration's Mtops limits. Admitting that the limits would "help alleviate a short-term problem" by reflecting the realities of today's market abroad, the change didn't go far enough. "Our cutting-edge computer industry is constantly recreating itself with technological advances that are the envy of the world," said Dreier. Still, he added, export controls must be brought "in line with the pace of technological change." While the law allows the president to change the type of computer for export, it also requires the industry to wait six months for the regulations to go into effect. President Clinton wants to shorten the time period to one month.

Tax Break for the Spallation Neutron Source In the past year, the proposed Spallation Neutron Source has been on a collision course with Congress. The House Science Committee, led by its feisty chairman, James Sensenbrenner Jr, a Wisconsin Republican, raised objections to its funding and management, and when those issues weren't enough to stall or scuttle the $1.3 billion facility, to be built at Oak Ridge National Laboratory, he raged against the Tennessee use tax that would be imposed. Sensenbrenner argued that federal facilities should not be obligated to pay a state tax. At his urging, Congress prohibited the Department of Energy from spending $100 million in construction funds appropriated for fiscal 2000 until the tax for SNS was canceled. (In all, SNS was allocated $117.9 million for this fiscal year.)

On 27 January, Tennessee Governor Don Sundquist signed special legislation that exempts SNS from paying the use tax, which was reckoned at some $30 million. Sensenbrenner was ecstatic. He immediately issued a statement that called the state's action "a victory for US taxpayers" who got "some fiscal credibility" for SNS. He thanked Sundquist and two Republican members of Congress, Zach Wamp and Bart Gordon, "for their invaluable efforts in getting the SNS on the right track" in making the project at Oak Ridge "a reality." Even so, Sensenbrenner pledged "to continue aggressive oversight of the SNS project . . . to ensure this scientific endeavor stays in the public's good graces and is able to deliver on possible scientific breakthroughs." His next encounter with SNS is likely to take place in early March, when DOE delivers a review of the project's construction and funding milestones.

Irwin Goodwin