When Federal Science Stopped

The budget battle that closed the government for 3 weeks also put the squeeze on much of civilian science. But NIH collected an unexpected dividend as the deadlock eased

The 3-week shutdown of much of the federal government may have ended last week, but the impact on some science programs could linger for months as affected agencies dig out from a mountain of mail and delayed grant awards, and try to get tightly choreographed planning meetings and review-panel sessions back on track. For many agencies, the problems are compounded by the fact that they still don't know how much money they can spend in the 1996 fiscal year—which actually began on 1 October 1995. But at least one agency has cause for celebration: the National Institutes of Health (NIH), which emerged from the budget morass with a stunning increase of 5.7% in its 1996 budget, thanks to a deal worked out between Congress and the White House (see box).

The agreement that finally broke the partisan fiscal deadlock late on 5 January will keep the government running at least until 26 January. It gives both the White House and Congress additional time to craft an agreement for a 7-year balanced budget—the main point of contention that led to a brief shutdown in November and the recent 3-week closure. These shutdowns hit most civilian science agencies, including NIH, the National Science Foundation (NSF), the National Aeronautics and Space Administration, the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and the National Institute of Standards and Technology. (The Departments of Agriculture, Defense, and Energy were not affected because their 1996 appropriations have already been approved.) Aside from NIH—whose budget is now set for 1996—these agencies will continue to operate temporarily at levels lower than they had sought in 1996. Typically, that means the lesser of either their 1995 budgets or the amount approved by Congress in bills that were vetoed in recent weeks by the president.

RICK KOZAK

Paper trail. The backlog in NIH's mailroom.

The truce was welcome news to the furloughed science officials and researchers, who saw their most recent paychecks cut in half. But even if the combatants manage to come up with a formula in the next 3 weeks that will keep the federal government running for the rest of the fiscal year, some federal officials believe that what has happened in the past month has put an indelible stain on U.S. science. "I think it has done irreversible damage not just to government service, but also to science in this country," says NSF Director Neal Lane. "I don't know when we will recover from it."

Waiting for the word

The biggest challenge facing federal officials this week was a mountain of paperwork. At NIH, for example, about 1000 peer comments ("pink sheets") from the December round of reviews were piled up, awaiting shipment to the next stage of review. About 4000 grant proposals are stalled at some point in the system, estimates NIH Director Harold

5.7% Increase Catches NIH By Surprise

The National Institutes of Health (NIH) was one of the privileged few agencies that went from rags to riches in the budget negotiations last week that reopened many government activities after a 3-week shutdown.

Congress included NIH in a list of 18 agencies earmarked to receive special funding through the remainder of the fiscal year, and surprised it with an increase of 5.7% for fiscal year 1996 (which actually began on 1 October 1995). That gives NIH the full amount recommended last summer by Representative John Porter (R–IL), chair of the House appropriations subcommittee that writes the budget bill for the departments of Labor and Health and Human Services (HHS). It tops the 4.2% increase the Clinton Administration requested and far exceeds the 2.6% offered by the Senate appropriations committee, part of a spending bill that is still pending in the Senate. In another coup for NIH, the budget agreement is free of the policy riders—such as abortion-related restrictions—that were in the original House proposal. However, an aide to Porter says some riders could reappear in the final bill funding HHS.

"We are very pleased," says NIH Director Harold Varmus, "but we are still concerned that many programs in [HHS] have not been funded for the year. And the National Science Foundation—our partner in supporting grants in science—still hasn't been funded."

Varmus predicts that the new budget will allow NIH to move forward in 1996 on all programs it had proposed. Institutes, which had been holding back funds for most new grants and "competing renewals," will now begin to fund those grants. But Varmus cautioned that "there will still be lots of competition" for limited dollars. He and his staff have yet to decide whether to reinstate the cost-of-living increase for ongoing grants that was canceled last November.

While the budget increase is good news, says NIH Deputy Director Wendy Baldwin, "the research community has to realize that because we've lost time, we're still down about $1 billion in terms of processing grants." In addition, many NIH grant peer-review meetings scheduled for early February will be postponed until March, causing further delays down the line. "It's going to be a long time before anyone can call in and find out what's happening," she says. Indeed, Varmus said he is asking extramural researchers to tap into the NIH's World Wide Web home page (http://www.nih.gov) for information rather than calling program officers.

–E.M.

Varmus, and payments for many extramural grants that were to have gone out in December have been delayed. NIH's deputy director for extramural affairs, Wendy Baldwin, estimates that "it will take us 6 to 9 months to dig out" and get grants fully on track.

This delay has already resulted in frustration for researchers like radiation biologist Joseph Dynlacht of the University of Oklahoma. Officials at the National Cancer Institute (NCI) told him in November that his proposal to study the effects of heat and radiation on the nuclear structure of mammalian cells would be funded. But the shutdown prevented NCI from making good on its word. "You're supposed to obtain extramural funding" after 2 to 3 years of academic support, Dynlacht notes. "Right now I'm on life support from my university."

NIH's intramural researchers were also starting to feel the pinch. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, says storage cabinets were running short of radioisotopes, culture media, and labware. "It's extraordinarily frustrating," Fauci says. "You're fighting a retreat game where you say, 'Let's just pack up and keep the cultures alive or freeze them down.' "

NSF officials report a similar backlog caused by the shutdown and the ban on spending any money for programs. An estimated 250 proposals a day have piled up in the foundation's mailroom in Northern Virginia, and each day of the shutdown meant about 80 scheduled awards were put on hold. In addition, principal investigators on some 156 continuing grants did not get expected payments on 1 January, and NSF officials face the task of processing an additional 266 grants with a 1 February continuation date.

Larger projects also suffered. The San Diego Supercomputing Center missed a $5.5 million lease payment last month on a $22 million Cray C-90 machine and faces a penalty of $23,000 for every 15 days the check is late. NSF officials, with only a 3-week window between the first and second government shutdowns, failed to process and send the center its quarterly payment on time. "We're hoping to work out something that is fair to both sides," says Peter Arzberger of the center, one of four supported by NSF. Several of NSF's 25 multimillion-dollar university-based Science and Technology Centers are now anxious about their next infusion of funds on 1 February. The Antarctic program is expected to be able to operate normally through its summer season, which ends in late February, but the lack of a final appropriation could seriously jeopardize preparation for the 1996–97 season.

Another problem whose effects will linger for months was the forced cancellation of meetings in which outside experts were to review plans for upcoming programs or make scientific judgments on proposals already submitted. NSF officials reluctantly pulled the plug last week on a meeting in which more than 100 reviewers were to sift through some 600 preproposals sent in last fall for a new $12 million initiative in optical science and engineering that spans several directorates, says Bill Harris, assistant director for the mathematical and physical sciences. Some 50 to 60 projects would have received further consideration, Harris says, of which about half would receive awards ranging from $200,000 to $500,000. "We're not certain we can do that any more in FY '96," he says.

For physical oceanographer Breck Owens of Woods Hole (Massachusetts) Oceanographic Institution, NSF's shutdown is likely to delay a multimillion-dollar collaborative project he hoped to run this fall in the North Atlantic. The project, which examines heat transfer cycles as the water cools in the fall, sinks and heads south before warming up in the spring and moving northward, was supposed to be the capstone of a 6-year international effort to understand world ocean circulation. "We know more about the North Atlantic than most other oceans, so we wanted to take the next step and explore some important drivers of the overall system," says Owens. But the project is on hold because a meeting of the NSF panel to review some 60 proposals was canceled twice—once during each shutdown.

If nothing else, the events of the past month have forced federal science administrators to roll with the punches. Surprisingly, many still feel good about their jobs. "I still think it's a great opportunity to keep up with the latest research and have an impact on my field," says mathematician Sallie Keller-McNulty, an NSF program manager on leave from Kansas State University. She sweated through 2 weeks of a threatened loss of medical and life insurance benefits when the shutdown prevented NSF from making a necessary payment to her university. Andrew Lovinger, the new head of NSF's polymer science program, knows what it's like to cope with uncertainty. The 47-year-old Lovinger, who spent 19 years at Bell Laboratories before starting work at NSF on 10 November, just in time for the first shutdown, says "What happened was unique, and I don't think it will occur again." But Lane expects to hear "a combination of anger, disbelief, and disappointment," when he walks down NSF's halls. "It's shaken their faith in government."

–Jeffrey Mervis and Eliot Marshall

With reporting by Andrew Lawler and Jocelyn Kaiser.

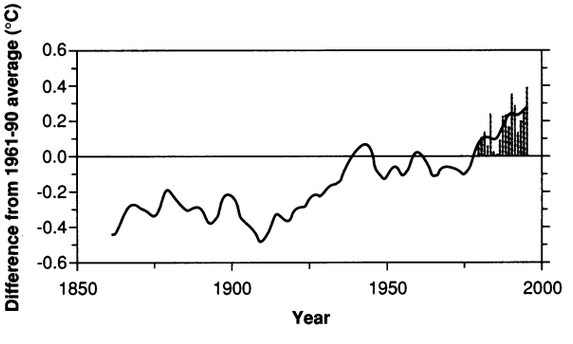
CLIMATOLOGY

1995 the Warmest Year? Yes and No

A month after a United Nations panel declared that the climate record of the last century shows subtle signs of greenhouse warming (*Science*, 8 December 1995, p. 1565), the alarm bells rang again. " '95 the Hottest Year on Record ..." said the headline at the top of the front page of the *New York Times* last week. Just 3 days into the new year, one leading group of climatologists had crunched its numbers to discover that 1995 had placed first in the global warming sweepstakes, shattering the previous record for warmth, set in 1990. "Global Trend Keeps Up," the headline continued, referring to the warming of the past 20 years, attributed by many to greenhouse warming. But this time, even the climatologists whose data prompted the claim agreed that there was less to the news than met the eye.

"I wouldn't read too much into the fact that last year was the warmest or even that 1990 was," says Philip Jones of East Anglia University, in the United Kingdom, whose numbers the *Times* used. Last year failed to exceed 1990 by a statistically significant amount both in Jones's data and in data analyzed by James Hansen of the Goddard Institute for Space Studies in New York City. In any case, says Jones, no one year, no matter how warm, can be taken as a sign of greenhouse warming: "It's the underlying trend on the decadal time scale that's key." And on that scale, climatologists have seen just one big push upward lately, in the late 1970s; nothing comparable has happened since.

According to Jones's preliminary data, which he compiled with the U.K.'s Meteorological Office in Bracknell, the 1995 global temperature was 0.04°C higher than that of 1990. Jones estimates that only a difference



U.K. METEOROLOGICAL OFFICE/UNIV. OF EAST ANGLIA

A new record, sort of. Last year's temperature *(far-right-hand bar)* nosed out 1990's for the warmest since 1860, but not by a statistically significant margin.