Editorial & Letters

EDITORIAL

The Budget: Too Good or True?

U.S.-based scientists remain astonished at the proposals to bolster most parts of the federal R&D portfolio to all-time highs. President Clinton's 1999 budget differs markedly from the administration's prior offerings of small increases for basic research that relied on Congress to up the ante. This year's budget includes a long-requested increase for basic research in the Department of Agriculture and would provide near-double-digit or larger percent increases for parts of the two major academic research funders, the National Science Foundation and the National Institutes of Health, while holding basic research stable within the Department of Defense. Only NASA's total budget will decrease, and its science could be further squeezed by the space station's anticipated overruns.

Many have worked long and earnestly to bring the economic, educational, and altruistic values of increased investments in basic research to the attention of supporters in the executive and congressional branches. Those efforts have been remarkably successful. A bipartisan group led by Senators Gramm (R-TX), Lieberman (D-CT), Domenici (R-NM), and Bingaman (D-NM) has proposed legislation to double funding for basic research by 2008. Plans were already well under way, with the support of Representative Porter (R-IL), to double the NIH's budget over the next 5 years. Congressman Ehlers's (R-MI) editorial (see *Science*, 16 January) calling for a reformulation of our national science policy was but the latest in a series of bipartisan voices who have spoken through this column and elsewhere to support deeper commitment to scientific research.

Given the president's proposals and this preexisting positive sentiment, the domestic scientific community seems prepared to breathe a collective sigh of relief. The proposed budget numbers seem almost too good to be true. Only an extreme skeptic would seriously doubt that happy days are almost here again. But then, scientists used to the evanescent thrills of a totally unexpected experimental result will be well acquainted with the adage that "if it's too good to be true, maybe it isn't (true)." Before we start spending all those grants to be financed from this new national commitment to research, it may be useful to take a closer look at some of the "little" steps left to be taken.

Now that the president has proposed his budget, the budget game moves to Congress, where three separate processes will be activated: budgeting, authorization, and appropriation. Each function goes through separate committees in the House of Representatives and Senate, whose oversight of the various research agencies is only superficially similar. These fragmented budgetary responsibilities have precluded comprehensive debate to derive a national R&D budget. However, for the first time in nearly 30 years, Congress will be working with an overall budget that projects a surplus. That should make it easier for the budget committees to provide generous spending guidelines for the appropriations committees to respond to the president's proposals.

But will they? Surely, critical political battles lie ahead. Should the additional revenues instead be spent to shore up the Social Security fund, or should that whole system be rethought? Should the predicted revenue surplus be rendered into tax cuts as the Republican leadership has recommended, given that tax revenues will now exceed any prior peacetime budget? Only when these debates are engaged will the community learn which R&D programs the White House will really choose to defend, and which will be surrendered in favor of other politically popular claimants on the federal budget.

Will there really be extra money to spend on science? The not-so-fine print reveals that the proposed funds for enriching biomedical research are yoked to proceeds not yet in hand to be collected from the national tobacco industry settlement. That agreement is yet to be revised in a form that health officials have agreed to recommend to Congress, and congressional approval will be required. In fact, the settlement remains highly controversial and its prospects in Congress remain uncertain (see page 974). Perhaps the scientific community is not quite able to ignore again the dreaded "p" word—prioritization?

With our readers, we fervently hope that these next steps will go smoothly and that citizens of good mind and purpose will agree on the best next steps to be taken. We'll be watching closely. Meanwhile keep those cards and letters flowing and express yourselves.

Floyd E. Bloom

LETTERS

X-ray Data: To Have or To Hold?

For several years, *Science* policy has required that published x-ray crystallographic coordinates be deposited with a publicly accessible database (for example, Brookhaven Protein Data Bank). That policy recognized the high costs and risks of solving important structures and accorded those who have made such investments successfully the time to reap their intellectual benefits. Wlodawer *et al.* (*Science*, 16 January, p. 306) assert that recent technical enhancements have reduced "the time needed to solve a structure [to less than] than the allowed hold period" and have called for immediate release of the data. In cooperative discussions with our colleagues at *Nature* and other journals, *Science* wishes to evaluate how best to fulfill our responsibilities to the community. We urge readers to respond to a survey now under way (see http://us.nature.com/survey/nsb_poll.nclk) and to us, so that future policy may be modified on the basis of scientific judgement.

Floyd E. Bloom

Multilab Partnerships

Andrew Lawler's excellent article (News & Comment, 23 Jan., p. 470) about the new $1.3 billion Spallation Neutron Source (SNS) to be built by a five-laboratory collaboration at Oak Ridge National Laboratory notes that there are skeptics about the management of such a project and even some who regard it as "more...pork than practicality." The skeptics and readers might be comforted to know that two other accelerator projects have been built by laboratory collaborations that have worked very well. Both are colliding beam facilities at the Stanford Linear Accelerator Center (SLAC). The first was built by a SLAC/Lawrence Berkeley National Laboratory (LBNL) collaboration in the late 1970s, and the second is the ß-Meson factory now nearing completion and being built by a SLAC/LBNL/Lawrence Livermore National Laboratory (LLNL) collaboration.

Having been through this twice, I can

say that there are clear advantages to the multilaboratory partnership over the solo approach when the scale of the project is such that the annual project appropriation is a large fraction of budget of the lab that will be its home. The partnership can draw on the special expertise of each lab; avoid the need for a large short-term increase in personnel at the project home base; avoid the need to duplicate infrastructure that may exist at other labs; and ramp up to full speed faster, be completed faster, and thus cost less.

Of course, one rarely gets something for nothing, and the multilab approach is more complicated to manage. To pull it off successfully requires the commitment of all the laboratory directors involved, direct access to those directors by the project leadership when needed, a unified scheduling and budgetary system, and full authority vested in the project leader to move work around when the inevitable problems crop up that require such action. In our ß-Meson factory project, LBNL Director Charles Shank, LLNL Director Bruce Tarter, and I agreed to all of this at the outset, and Jonathan Dorfan, the project leader, is bringing the ß-Meson factory in on budget and on schedule.

Bill Appleton, Al Trivelpiece, and the other laboratory directors involved in the SNS know all of this. They are committed to the multilaboratory approach, including having the project leadership at Oak Ridge in full charge. The comment by Jim Decker of the Department of Energy (DOE) that this approach makes more fiscal sense than a single-laboratory approach is backed by experience. DOE has been the target of considerable criticism in Washington, part deserved and part undeserved. However, DOE and its laboratories do know how to build major projects, and the laboratories know very well how to work together. I have every confidence that the SNS will come in on time and on budget.

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As Lawler's article points out, the enthusiasm with which the neutron community has greeted the good news that the SNS will be built is somewhat tempered by the shutdown of the High Flux Beam Research (HFBR) reactor, the DOE's best neutron beam reactor, at Brookhaven National Laboratory. However, the response has not been to drive U.S. scientists "to work at more modern neutron sources in Europe," which is for most an impractical alternative.

Global concerns

The pros and cons of multilaboratory high-energy physics collaborations are addressed. Opposition to genetic research in Switzerland (left) is defended. The Chief Executive of the United Kingdom's Medical Research Council explains his institution's funding policies, and a U.S. scientist suggests changes in funding by the U.S. National Institutes of Health. And a group of researchers discusses the possible effects of climate change on global disease incidence and distribution.

In fact, many of these scientists have sought to perform experiments at our National Institute of Standards and Technology (NIST) reactor, currently the most heavily used U.S. neutron facility, at the High Flux Isotope reactor at Oak Ridge, and at other DOE facilities. Unfortunately, there is no way to fully compensate for even the temporary loss of the HFBR reactor.

Lawler emphasizes the exciting new opportunities for neutron science offered by the SNS; it should be noted that, while high-powered spallation source projects are being planned or funded in the United States, Japan, and Europe, new or refurbished reactor sources also have been recently completed or approved in Germany, France, Japan, Korea, Indonesia, Australia, and Taiwan. High-performance reactor and pulsed neutron sources have complementary strengths, with reactors more efficient or cost-effective for many crucial applications, such as small-angle neutron scattering, crystal spectrometry, or isotope production. Thus, for the next generation, and likely beyond, neutron research will be widely served by both modern research reactors and emerging spallation sources.

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"More of the Same" in Switzerland?

Opponents of gene technology in Switzerland and elsewhere are portrayed as "mischievous..." (Rolf M. Zinkernagel, Editorial, 14 Nov., p. 1207) and "pseudoscientific and reactionary" (H. Olson, Letters, 9 Jan.,