Directives for Radically Redirecting NSF

The following excerpts are from a section subtitled "The Future of the NSF" in the report (103-137) of the Senate Appropriations Committee on the bill (HR 2491) to fund the Departments of Veterans Affairs and Housing and Urban Development and independent agencies. The report was prepared at the direction of Senator Barbara Mikulski of Maryland, who heads the appropriations subcommittee that oversees NSF, and was adopted by the full committee, led by Senator Robert Byrd of West Virginia.

"The committee believes that the National Science Foundation is at a crossroads in its future. Either the foundation will evolve as envisioned by the Commission on the Future of the NSF . . . or it will drift in a direction that moves it further and further from broad national interests in science and technology. In short, the foundation can be at the heart of helping to shape the Administration's science and technology policy in pursuit of specific national goals or it can diminish into becoming nothing more than a national endowment for science. . . .

"The . . . commission raised the committee's hopes that the foundation and the nation's scientific community had made the strategic turn that is needed to engage our country's basic research enterprise to focus more clearly on the transfer of knowledge and technology for broader national goals and objectives. During the Presidential transition, with the departure of the director, the foundation and the Science Board have given mixed signals whether the bold vision forward to which the . . . commission sought to pull science will continue. Even the National Academy report, 'Science, Technology and the Federal Government: National Goals for a New Era,' seems to suggest that performance milestones, greater accountability and an ability to provide a strategic focus on basic research must occur if science is to be a full partner in helping the US regain its competitive edge. . . .

"It is time for the foundation to move beyond rhetorical statements about the value of strategic research or the importance of using science for the transfer of knowledge and technology. That, in the committee's view, is a fact of life and political reality. Instead, it is now the time for the foundation to move to identify that which is specific, immediate and realizable in pursuit of this broader mission. The agency must spell out how much of its mission should clearly be strategic and applied in nature, and then implement those parameters through the budget process. . . . This must be done directorate by directorate. If NSF and its constituent members choose not to do this, future Federal R&D budgets should instead be allocated more generously to agencies such as the National Institute of Standards and Technology, NASA, the national energy labs or the National Institutes of Health, all of whom seem poised to pursue critical technologies with entrepreneurial vigor and enthusiasm.

"Such a transition, as painful and as difficult as it might prove for some in the scientific community, is as necessary and vital for the future of the nation as was Vannevar Bush's revolutionary vision for this community more than 40 years ago. Rather than seeing this challenge as a threat to the status quo, the academic research community should see it as perhaps the last, best chance to seize the opportunity to be an integral part of the solution to the scientific and technological problems our country and its economy now confront. . . .

"Therefore, the committee directs the foundation to revise its strategic plan, for submission by the time the President's fiscal 1995 budget is submitted to the Congress, in the following manner:

▷ To specify with particularity in each NSF program directorate and in each initiative that is part of the FCCSET interagency process, annual, quantifiable performance milestones. These milestones should include a vigorous evaluation component that guarantees that programs which begin can be terminated if they lose their effectiveness or are displaced by higher-priority initiatives. . . .

▷ To outline the balance between strategic research objectives and other more generic research. . . . Not less than 60% of the agency's annual . . . research activities should be strategic in nature. The foundation should make clear how it specifically defines each area so as not to shroud curiosity-driven activities under the rubric of strategic activities. . . . In addition, the NSF and the Science Board should outline a plan for increasing the scientific community's understanding of the vital need for this balance. . . .

▷ To review the status and funding of all existing NSF-supported research centers to determine what level of industry involvement is viable, and then to establish private-sector participation thresholds for each category of NSF centers. . . .

▷ To evaluate the structure, composition and role of the National Science Board, including future mandatory industrial memberships. . . .

▷ Finally, to outline clear and detailed working relationships with other Federal agencies like NIST, NIH, NASA, EPA, the [Pentagon's] Advanced Research Projects Agency and the Departments of Education and Energy. These plans . . . should articulate clear role differentiation and collaboration on strategic research and education activities, with multiyear goals and outcomes."

letters to Mikulski and other Congressional leaders urging them to reconsider the Senate report. "The report attempts to make fundamental changes to the roles and missions of NSF, which are statutorily mandated by the NSF Act of 1950," he wrote. Brown noted that the report misinterprets the findings of the NSF commission, which, he added, had concluded that "it would not be in the nation's long-term interest to convert the only Federal agency responsible for the health of basic research into an applied, near-term research agency." Brown further argued that "actual changes in NSF's mission statement should result from the normal authorization process and not through appropriations report language that is neither voted upon nor debated." —IRWIN GOODWIN

SENATE RESCUES SSC, BUT FINAL ACT AWAITS CONFERENCE

By the time you read this, the Perils of Pauline drama about funds for the Superconducting Super Collider in fiscal 1994 will have reached its denouement. That cliffhanger seems to be replayed in Congress year after year. This time, on the morning of 30 September, the final day of fiscal 1993, after a vociferous five-hour session on the Senate floor before a virtually empty chamber the night before, senators continued their debate and then voted 57 to 42 to allocate the full $640 million requested by the Clinton Administration to carry on building the world's largest and most expensive scientific instrument.

But because the House had voted 280 to 150 in June to cancel the project (PHYSICS TODAY, August, page 43), the final scene was to be played at a House–Senate conference this month. That committee is likely to allow the project to go forward, since by custom it is made up of lawmakers from the House and Senate energy appropriations committees, which include some of the collider's most ardent supporters.

This year, however, opponents in the House are determined that the drama will have a different ending. They remember that the curtain fell last year on a conference committee that ignored the House vote of 232 to 181 against the project and approved the full $550 million granted by the Senate—an allocation that was later trimmed to $517 million to meet the overall budget reduction for the Energy Department. After last

month's Senate vote in favor of the SSC, 120 House members signed a letter to Speaker Thomas S. Foley, urging him to appoint several foes of the project to membership on the conference committee this time.

Before the Senate voted, the leading opponent in that chamber, Dale L. Bumpers, an Arkansas Democrat, was fairly certain his side would fail again. Notwithstanding, he was unprepared for a maneuver that even surprised the collider's protagonists. Bumpers had been given the opportunity to introduce the first amendment to the Energy and Water Development Appropriations bill, which funds the SSC. But he was more than a half-hour late coming to the Senate floor. In Bumpers's absence, the bill's floor manager, J. Bennett Johnston, the Louisiana Democrat who heads the Senate appropriations subcommittee with jurisdiction over energy programs, allowed Hank Brown, a Colorado Republican and Vietnam War veteran serving his first term, to offer an amendment. Brown proposed that any funds allocated to the SSC should not be spent until Energy Secretary Hazel O'Leary certifies that she will enforce the specific recommendations made by the department's Review Committee on Baseline Validation of SSC costs and by the Government Accounting Office's review of the project's management. Though Johnston hadn't expected Brown's amendment, he supported it, he said, because O'Leary had assured him that "she is going to do just that." For his part, though, Johnston preferred providing a 90-day grace period while O'Leary carries out her corrective actions, thereby allowing scientists, staff and contractors to be paid in the interim. Brown's amendment, as modified by Johnston, passed without dissent by voice vote in a nearly empty Senate and had the effect of derailing Bumpers's amendment off its track.

—IRWIN GOODWIN

WASHINGTON INS & OUTS

NASA GETS NEW CHIEF SCIENTIST; DOE LOSES A NUCLEAR VETERAN

Ever since **Lennard Fisk** left NASA last July, the space agency has been without a chief scientist—a situation many in the space science community viewed with indifference or hostility, given the way the organization's feisty administrator, Daniel S. Goldin, had jettisoned some of its unique research and analysis activities. Within weeks, though, Goldin decided he wanted a chief scientist after all—principally to diffuse the anger his decisions had generated in the academic community and also to bolster the morale of scientists within NASA. Skeptics feared a crony would be plucked from NASA's own ranks who would not argue with Goldin's views. But when Goldin revealed on 10 September that he had selected a new chief scientist, the community was enthused by his choice: **France Anne-Dominic Cordova,** a high-energy astrophysicist and head of the astronomy and astrophysics department at Pennsylvania State University.

Cordova's scientific credentials make her a prominent representative of the space research community. "She is certainly qualified for the job," says C. R. O'Dell, a space physicist at Rice University and a former NASA project manager. "She brings ability, energy and connections to the position. Another characteristic is her active, assertive style. She won't be confined to a back room. She'll bring some fresh air to the upper reaches of NASA." Andrea Dupree of the Smithsonian Astrophysical Observatory also emphasizes Cordova's ability to "articulate her position forcefully." And Dupree adds: "More often than not her position is balanced. There's no question that she is on top of her field. Equally important in her new position is that she has her eye on the right kind of problems."

Goldin and others must have thought so too. Once Goldin and White House officials, including President Clinton's science adviser, John H. Gibbons, approved of Cordova, it was Edward Freiman, director of the Scripps Institution of Oceanography, who actually proposed the job to her by phone. This was followed promptly by a call from Goldin and, a few days later, a visit to his office.

Cordova's scientific work covers a wide range of subjects: observational and experimental astrophysics, multispectral research on x-ray and gamma-ray sources, ultraviolet spectroscopy of nearby binary stars, thermal emissions from neutron stars, and spaceborne instrumentation—for starters. "Her contributions to research are simply staggering," says Dupree.

When she joins NASA in mid-October, Cordova will continue to be associated with Penn State. She will be on extended leave from the university, which means that she will not be a government employee and that NASA will reimburse Penn State for her salary. She also intends to continue as thesis adviser to her graduate students and to supervise a few postdocs.

In addition, Cordova will continue as one of the American Astronomical Society's three vice presidents, a position she was elected to this year (PHYSICS TODAY, June, page 80). While she is not a Washington insider, she is certainly a member of the astronomical establishment. She served on the board of the Associated Universities for Research, which directs Kitt Peak, Cerro Tololo and the Hubble Space Telescope Institute, among other places. She was a member of NASA's Space Science and Applications Advisory Committee until it was disbanded by Goldin last year, and she was on astronomy or space science advisory groups at the National Science Foundation and the National Research Council.

As chief scientist, Cordova will be the administrator's senior scientific adviser. She also will be the principal link to Goldin for the national and international science communities, according to the agency's news announcement, "to ensure that NASA programs are universally regarded as scientifically and technologically well founded and appropriate for their intended applications." The announcement further states, "One of her critical duties will be to coordinate an integrated strategic plan for all the scientific disciplines across NASA."

The statement neglects to mention that in addition she will need to sort out her own relationships and those of Goldin with the three associate administrators whose responsibilities once came under the aegis of a single