

ACADEMY ANNUAL MEETING: BUSH PRAISES US SCIENCE AND PRESS MAINLY PROVOKES

As an overture to President Bush's speech at the National Academy of Sciences annual meeting on 23 April, the Marine Band, resplendent in crimson and braided jackets, blared Sousa marches for nearly 20 minutes. It was the fifth time in the 127-year history of the academy that a President addressed its massed members. The other Presidents were Calvin Coolidge, at the opening of the academy building in 1924; John F. Kennedy, at the 1961 annual meeting and again in 1963, attired in his Harvard robe at the academy's centennial, and Jimmy Carter, at the 1979 meeting, helping to dedicate the bronze statue of Einstein in a leafy grove along Constitution Avenue.

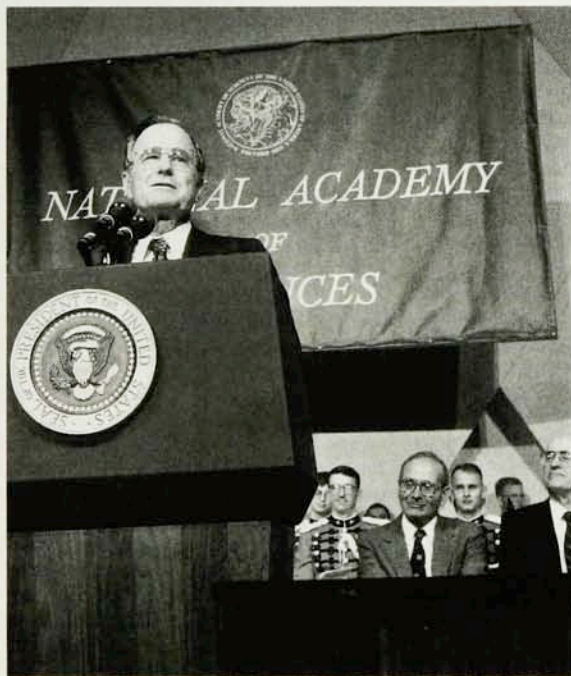
In his talk, Bush hit most of the right notes—at least for two-thirds of his 18-minute address. If Bush mainly praised his audience, Frank Press, the academy president, provoked them the next day to consider some disturbing matters and concluded with a proposal for how Japan might contribute to US basic research.

Right at the start, Bush rhapsodized on science as "mankind's most exalted mission and the mind's manifest destiny." He identified several leitmotifs of science and engineering in his Administration, some in place, others still to come. Examples:

▷ Increasing "cross-fertilization" between government and the private sector through the President's Council of Advisers on Science and Technology (see *PHYSICS TODAY*, March, page 49);

▷ Improving international competitiveness of US industries by "permanent extension of the research and experimentation tax credit," by lowering the cost of capital and by "clearing away regulatory burdens so that industry can make the kinds of investments the future demands";

▷ "Investing in the future" by raising budgets for the research agencies and for science, mathematics and engineering education through the de-



President Bush describes his R&D program at the 127th annual meeting of the National Academy of Sciences, attended by some 500 members. Seated in front row at Bush's left are Frank Press, the academy's president, and James D. Ebert, its vice president. Behind them are members of the Marine Band, which performed before Bush spoke.

partments of Education and Energy as well as the National Science Foundation and NASA and by providing new incentives for students through the National Science Foundation's science scholars program and the student and teacher participation programs at Department of Energy national laboratories;

▷ Advancing basic research, "the historic wellspring of this nation's well-being." Basic research was a major theme: "The backbone of American science is its brilliant array of individual investigators. . . . One of the best things government can do to support the magnificent creativity and energy of the American technical community is to locate individual scientists with talent and furnish them with adequate resources and state-of-the-art instrumentation. . . . Today I want to call on Congress: Put our money where our future is. Put an increased

National Science Foundation back on track"—by doubling its budget in the next five years.

As a coda, the President added a flourish for Space Station Freedom, human genome mapping, the Superconducting Super Collider and the Hubble space telescope. But judging by the audience's silent reaction to the list of "megaprojects," it seemed that the President's hymn to science had suddenly become discordant.

After the President departed, with the Marine Band in tow, his science adviser, D. Allan Bromley, director of the Office of Science and Technology Policy, remained behind to answer the critics. Many of the comments and questions were undisguised arguments with the Administration's big budget items that were said to siphon funds from individual investigators and their graduate students and post-docs.

For instance, Thomas Gold, a Cornell astronomer, observed that projects requiring humans to take part in space ventures, either as passengers on a space station or as explorers of the planet Mars, appeared wrong-headed to him. Gold argued that unmanned spacecraft and intelligent robots could do the job more cheaply and at less risk. His remarks were received with prolonged applause from academy members.

A final question came from George Olah, a University of Southern California chemist, who complained about NSF's practice of creating university centers for science and technology, engineering research and supercomputer networks during an era of fiscal stringency in which Congress had reduced and rearranged the agency's budget requests. The statement was followed by more applause.

If Bromley was discomforted by the accusatory voices in the auditorium, he did not show his unease. He acknowledged that funding of small science had been virtually static in the past four or five years, once inflation was figured into research grants, and that the space station and science and technology centers had been devised to meet a variety of objectives that still divide and anger some scientific communities.

The list of new members that the academy announced the next day included Bromley, who had been blackballed for nearly 20 years. To many, his election was long overdue.

In his presidential speech, Press addressed three distinct topics, starting with a litany of problems that place American research universities "under severe stress." His talk, titled "Do the Right Thing," raised some disturbing questions—often well beyond the academy's capabilities to handle.

Universities under stress

"A generation of faculty will retire in the '90s and the replacement pool will be too small in many key fields," said Press. "Universities are being criticized by governors for supposed financial profligacy, attacked by parents and students for uncontrolled escalation of tuition and investigated by the Department of Justice for collusion in tuition fixing. Washington officials and faculty members complain about rising indirect costs. Some members of Congress decry alleged conflicts of interest of faculty involved in commercial applications. They condemn the easy access of competing foreign firms to our government-supported academic research. Some state legislators view the tenure system as an

ACADEMY DEPLORES ANTI-SEMITISM IN SOVIET UNION

The only resolution passed by members of the National Academy of Sciences attending the 127th annual meeting on 23 April urged Soviet leaders to combat any and all provocation and persecution of Jewish scientists as well as other Jewish citizens by extremist groups. The motion for the resolution came after discussion of reports of a revival of the ancient scourge of anti-Semitism in the Soviet Union (PHYSICS TODAY, March, page 52). The resolution, which passed unanimously, declares:

"As scientists, the members of the National Academy of Sciences of the USA are deeply concerned with the progress of science and the welfare of scientists in all nations. It is from this perspective that we have become greatly troubled by the information emanating from the USSR that scientists who are Jews, and Jewish citizens in general, are the victims of harassment or worse. We are mindful of the events which ultimately led to the Holocaust in World War II and believe that all thinking people must be repelled by the recent reports that individuals are being mistreated solely because of their religious beliefs or ethnic origins.

"The world has responded very positively to the Soviet government's new policy of *glasnost* and *perestroika*. Anti-Semitic attacks of the sort that have been reported will certainly undermine this policy at a critical period in the history of the Soviet Union and jeopardize international support. We urge that the responsible authorities condemn these practices of anti-Semitism and persecution, and use all legally available measures to prevent their further occurrence."

anachronism that protects a few incompetent faculty. The commitment of faculty to undergraduate teaching is questioned. The list of complaints goes on."

Press insisted that "the rising chorus of criticism should not be dismissed." He called for more and better undergraduate science programs that pass on the excitement of discovery that comes from taking part in research projects. Using the Socratic method, Press asked an array of questions to stimulate discussions: If discoveries and developments bypass a university department so that it no longer has relevance in modern science, should a new faculty be recruited or should the department be abolished? Should a department in the natural or social sciences specialize in subfields or attempt to be all things to all people by teaching virtually everything? If a neighboring university covers a field extremely well, is it necessary to duplicate it, and should students be allowed to take courses and do research at a nearby department known for its scientific excellence?

To improve the performance of the scientific enterprise, Press made the following recommendations:

▷ "We should acknowledge that we are the best supported scientific community in the world and make our case for additional funds a compelling one. We have to state clearly what increases at the margin will do, not only for science, but also for the country.

▷ "Within fields, we should reach consensus and list priorities for the substance and the infrastructure. I have in mind such things as establishing priorities in subfields that offer unusual opportunities, ordering a list of specific projects and recommending a priority distribution of resources across a list of needs that might include support for young scientists, equipment or facilities.

▷ "The 'pork-barrel' route to secure funds for a specific project begins with a university scientist or president soliciting a member of Congress. We have to convince our colleagues that the political route to funding that bypasses evaluation undermines a system of review of grants that is responsible for the leadership position enjoyed by American science."

Press also took the opportunity to chide scientists who sign petitions or speak out on subjects when they have little or no knowledge of the matter but believe they have a visceral or moral duty to take a stand. "I think we expend some of our capital of credibility we have earned as scientists when we take a position claiming expertise on a subject we haven't analyzed to a greater extent than any other educated citizen," Press said. "I for one wouldn't sign a petition on global climatic change without an understanding of the scientific basis for climate prediction and its uncertainty, or a knowledge of paleoclimates or of ecology, and without examining the costs and feasibility of some of the proposed solutions."

Press saved his most controversial remarks for last. He cited a "negative balance of trade in training" in 1988 that enabled some 24 000 Japanese to study science and engineering at US undergraduate and graduate colleges and universities—ten times the number of Americans who go to Japan for such education. Even if many Japanese students pay their own tuition, Press observed, this doesn't cover the full cost. This gap is made up by

Federal research grants, state education funds and private endowments. Because most of the knowledge and know-how go home to benefit Japan, Press suggested that Japanese industries with subsidiaries in the US could correct the imbalance by anteing up as much as \$100 million per year for facilities and equipment at American universities.

Such a program would enable Japan to do the right thing by US

science and education, Press said. The idea is a trial balloon that Press is not sure will get off the ground. But it has merit if Japanese industry wants to win friends and influence Americans in academe. Press proposes to sound out his scheme among fellow members of the US-Japan Commission for the Next Century, a think-tank of corporate executives, economists and leading bankers.

—IRWIN GOODWIN

BUSH ADMINISTRATION DASHES HOPES FOR US REJOINING UNESCO—FOR NOW

Ever since the US pulled out of UNESCO at the end of 1984, the agency's future has been a tale of two cities—Washington and Paris. Once the Reagan Administration decided to break away from the United Nations Educational, Scientific and Cultural Organization, the State Department assigned a team of observers to the agency's headquarters in Paris to maintain a vigil on the agency's programs and practices, which the US insisted were both mismanaged and politicized. Increasingly, since the election of Federico Mayor Zaragoza, an amiable and urbane Spanish biochemist, as UNESCO's new director general in 1987, dozens of prestigious American organizations, among them the United Nations Association of the US, the National Education Association, the National Academy of Sciences and The American Physical Society, have been pressuring Washington to rejoin. The organizations reason that Mayor has made many changes from the bad old ways and has other reforms on the way (see *PHYSICS TODAY*, February, page 111). Apparently ignoring the appeals, Secretary of State James A. Baker III declared on 17 April that "the time is not yet ripe to reopen the question of renewing US membership in UNESCO."

Baker's statement appeared in his introduction to the very first review of UNESCO's activities since the US decided to leave the agency—an action that included refusing to pay its 25% share of UNESCO's annual expenditures. The State Department was required by Congress to issue the report under its 1990 budget authorization (P.L. 101-246), passed paradoxically while UNESCO's 25th General Conference was going on in Paris last October and November. In preparing the report, State Department observers examined the so-called Third Medium-Term Plan, covering the years

1990-95 and the biennial budget for 1990-91, held steady at \$398 million for the biennium. The General Conference endorsed both the plan and the budget, rejecting a request from UNESCO's Secretariat for a 2.5% budget increase. Despite Mayor's insistence that UNESCO can "do less, but in greater depth," the organization is in severe financial straits. That's one reason why Mayor wants to embrace the US and Britain. But both governments are still wary of returning to UNESCO's fold.

The State Department report says scarcely anything about the competence of UNESCO's professional staff, nor does it evaluate any of the current or proposed scientific and cultural activities, concentrating instead on managerial and political issues. In such matters, it finds UNESCO critically wanting.

Mix of data and diatribe

The report, in fact, is a curious mixture of data and diatribe. Rejoining now, it says, would be tantamount to accepting "promises of change in lieu of real reform." The report admits at one point that US withdrawal, followed immediately by the departure of the United Kingdom and Singapore, spurred some reforms—principally the election of Mayor, thereby ending the 13-year reign of Amadou-Mahtar M'Bow, former education minister in Senegal (*PHYSICS TODAY*, January 1988, page 52). Even so, the report claims the reputation of Mayor as a "well-intentioned but poor administrator" when he was M'Bow's deputy in the early 1980s "haunts him to this day."

The report's chief author is John R. Bolton, a Yale-educated lawyer who is Assistant Secretary of State for International Organization Affairs. A former Assistant Attorney General at the Justice Department, Bolton is labelled by sources in the Administra-

tion and in Congress as representing the views of the Heritage Foundation and of Senator Jesse Helms, a North Carolina Republican, both sharply critical of US participation in UNESCO and the United Nations.

Bolton's message is undiplomatically obvious: Mayor ought to be called to account for UNESCO's managerial mess. The report claims Mayor's administration is "characterized more by continuity than by change." Only a handful of senior officials have been reassigned, says the report, "leaving the M'Bow Secretariat basically intact. . . ."

Two independent panels, known by the names of their chairmen, Knut Hammarhjöld of Sweden and Peter S. Wilenski of Australia, both appointed by Mayor, recently agreed that UNESCO faced a leadership crisis. The Wilenski study concluded that "there is a grave danger that the contributions which UNESCO could make in our rapidly developing and changing world will be lost unless critical reforms to the Secretariat are instituted as a matter of urgency." On 2 February, the day the Wilenski report was released, Mayor told US officials in Paris that he was taking measures to reduce the secretariat by 30%, amounting to about 700 jobs. In fact, says the State Department's report, Mayor later distributed three "Green Notes" on restructuring his Secretariat, but instead of using the occasion to trim the staff, he announced he was creating 33 new positions—most at the highest grade levels and none by open recruitment.

Bolton considers UNESCO operations wasteful and ineffective because about 72% of its officials and staff work at the Paris headquarters, while the rest can be said to function in the field. (By contrast, the UN World Health Organization keeps 70% of its personnel abroad, and the UN High Commission for Refugees supports