

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."