
R_x for Ailing Academic Research

By JANET RALOFF

Colleges and universities not only train new researchers but also perform more than 60 percent of the basic research that fuels new technology. For these reasons, asserts David Packard, board chairman of the Hewlett-Packard Co., "it is no overstatement to say that [the declining health of U.S. university research] is one of the most serious challenges confronting the United States, and probably *the* most serious challenge confronting American industry."

Together with Yale University physicist D. Allan Bromley, Packard heads a White House Science Council panel that has just surveyed the health of the U.S. university-research community. Results of that two-year review, published last week, are not encouraging. With the way academic research has been managed and financed, the report says, "universities today simply cannot respond to society's expectations for them or discharge their national responsibilities in research and education." Unless "decisive action" is taken, Bromley says, "for the first time in our national history the higher-education enterprise that we pass on to our children and grandchildren will be less healthy, less able to respond to national needs . . . than the enterprise that we ourselves inherited."

The decisive action called for by the White House panel includes substantially increasing federal support of university research, instituting major reforms in the way that research is administered, and publicly financing the undergraduate education of the top 1 percent of all U.S. students majoring in mathematics, science and engineering.

At a press briefing to unveil the recommendations, Acting White House Science Adviser John P. McTague announced that the President would soon be sending a letter to Packard supporting the panel's general recommendations. McTague read portions of a statement President Reagan had made the day before, which highlighted some of the same points noted by the panel.

Heading the list of problems that the panel found threatening the quality of academic research are: obsolete research equipment, aging facilities, a shortage of faculty in many critical fields, burdensome accounting procedures that may today consume a third of a principal researcher's time, research-contract administration that discourages innovation, and declining university enrollments in science, math and engineering.

To counter these, the panel recommends:

- developing a 10-year "catch-up" fund to spend at least an *additional* \$10 billion on upgrading academic research facilities. Half the money would come from the federal government as part of a "50/50 matching grant" program with the receiving institution, and decisions on how much to spend and where would have to pass a peer review.

- reducing the depreciation schedule for facilities (from 50 years to 20 years) and equipment (from 15 years to 5 to 10 years) to match industry's projected

"Perhaps more than at any time in the past, our nation now realizes the indispensable role that science, engineering and technology play in assuring this country's economic competitiveness, national security and prosperity. Because of the pervasiveness of science and technology and the rise of foreign competition in technology-based industries, we understand the need to increase our investment in basic research and to identify, attract and nurture the new talent that will maintain America's future leadership in these fields."

— President Ronald Reagan
May 14, 1986

amortization lifetimes for these categories of investment. The speedier reimbursement that universities would get for these expenditures "would more than offset the loss that the universities would suffer because of the limitation [we are recommending] on their administrative reimbursements," Bromley said.

- establishing a 25 percent tax credit for industrial support of university research and equipment. "We have learned of not infrequent instances where industrially donated instrumentation and equipment has gathered dust because the recipient university simply could not afford to maintain and service it," Bromley told a House task force on science policy last week. The tax credit would give industry a strong incentive to provide that type of support, he said.

- encouraging peer review groups to

focus more on the track record of a researcher and less on the predictability of success implied by a research proposal. "Many highly competent scientists have been discouraged from moving to possibly more productive and challenging fields by the knowledge that if they remain in their established ones they are reasonably assured of a steady flow of federal support; while if they attempt to move, they may face a much more uncertain future with new peer reviewers," the study reports.

- lengthening the duration of typical research awards. Short awards, according to the panel, require that researchers spend too much of their time documenting activities for funding proposals or renewals.

- offering investigators up to 10 percent of their grant or contract support for "fully discretionary" use, and permitting any unused funds to be carried into the next fiscal year's budget.

- reversing declining science, math and engineering enrollments by offering federally funded, full undergraduate scholarships — usable at any institution the student chooses — for the top 1 percent of those majoring in these fields.

Though the exact price tag for the panel's prescriptive cure is still unknown, Bromley says that the nation's science base cannot be restored and maintained "unless, over the next 10 years, we have substantially more than a doubling of federal support [for university research]." The White House panel is also hoping to encourage industry and state and local governments to invest more liberally in academic research.

While most educators are pleased with the report's assessment and recommendations, Patricia Sullivan of the American Association of State Colleges and Universities, based in Washington, D.C., says it doesn't go far enough in addressing the problems of the smaller, four-year-only institutions where little research is actually conducted. If the White House panel truly cares about motivating more students to pursue careers in research and about training them better, she says, it should have focused more on the special problems affecting these institutions: obsolete or nonexistent teaching equipment, declining access to laboratory work in their introductory science and engineering classes, uninspired texts and too few trained educators in science, math and engineering disciplines. To date, Sullivan says, only the National Science Board (SN: 4/19/86, p. 249) has paid these much attention. □