from such qualities as weakness of character. Paradoxically, insanity is also regarded as incurable—so, it is seen as nonbiological but immutable.

John S. Bartolomeo, head of a market research firm, reported that a recent CBS–*New York Times* poll showed that only 1% of the respondents thought mental illness was a major health problem. However the NIMH has concluded, from a national study completed 2 years ago, that 20% will have a diagnosable mental disorder over their lifetimes. Although there are no well-developed scales to measure attitudes toward mental illness, stigma, which underwent a decline in the 1960's, has not declined significantly since 1970, said Bartolomeo.

The extent of public ignorance about major mental illness is evidenced in a recent survey by Otto Wahl, a psychologist at George Mason University. In a study to be published in the *Journal of Community Psychiatry*, Wahl surveyed over 500 people in the Washington, D.C., area, including community groups, college students, and police trainees, on what they knew about schizophrenia (which afflicts 1% of the population). It turned out that their general perceptions were at least 30 years out of date, conforming with the classic Freudian description of neurosis. "Psychosis" was an unfamiliar concept, and only half were aware that hallucinations accompany the disease. Sixty-five percent believed the disease involved multiple personalities. Respondents generally subscribed to a Freudian view of etiology—that is, that the illness is caused by traumatic childhood events—and believed individual psychotherapy was the most common treatment. But they also believed the disorder was incurable.

George Gerbner of the Annenberg School of Communications at the University of Pennsylvania says the media are even more backward than the public in its conceptions of mental illness, and generally portray the mentally ill as homicidal maniacs. He says the main public perception is still derived from the Hitchcock thriller *Psycho*. Mentally ill people are seen as dangerous, unpredictable, and irrational and most people believe "you can't tell a crazy until they go beserk," says Gerbner. He also says there is no differentiation among mental illnesses in the public mind. "There are two categories: crazy or normal."

Urban dwellers are becoming increasingly aware of mental illness as the ranks of the homeless mentally ill continue to swell. But it seems that sophisticated and long-term public education efforts will be necessary to make inroads on ancient and deep-rooted prejudices. ■ CONSTANCE HOLDEN

Packard Report Makes a Plea for Universities

The study, by a panel of the White House Science Council, urges greater investment in academic research, more flexible funding, and less micromanagement of grantees

A long-awaited report by the White House Science Council on the state of health of the nation's universities was finally unveiled on 15 May at a round of press briefings and congressional hearings.* Its message, that the universities are in need of a sustained infusion of new money and that the terms of the govenment–university partnership need to be reconsidered, drew a sympathetic response on Capitol Hill.

But, at a time of severe constraints on the federal budget, the proposed remedies may be difficult to sell. It is also not clear who will do the selling because the report was requested by the director of the Office of Science and Technology Policy (OSTP), but no permanent OSTP director has been nominated to replace George A. Keyworth, II, who left almost 5 months ago.

The report, prepared by a panel chaired by David Packard, co-founder and chairman of the board of Hewlett-Packard, and D. Allan Bromley of Yale University, is little changed from a draft that was presented to the White House Science Council in January (*Science*, 31 January 1986, p. 447). It states, "One conclusion is clear: our universities today simply cannot respond to society's expectations of them or discharge their national responsibilities in research and education without substantially increased support."

In particular, the study pointed to the deteriorating equipment in many university laboratories and the red tape associated with federal support of academic science as cause for special concern.

Pointing out that in 1984, only $8 billion of the nearly $100 billion in total national research and development was performed in the universities, the report urges the federal government to make "substantially greater investments in our centers of learning in the 1990's than in the 1970's." However, acknowledging that " the source of funding in these times of fiscal stringency is not obvious," it suggests that "Reallocation of R&D appropriations appears to be the most probable source."

Says Bromley, "Simply put, unless we take decisive action now, 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, and less worthy of the great traditions of American education than the enterprise we ourselves inherited."

Among the panel's chief recommendations are the following:

■ A program should be established in the National Science Foundation to provide $5 billion in federal funds for university facilities over the next 10 years. The federal funds should be matched by at least an equal sum from non-federal sources, and proposals submitted to NSF should be peer reviewed.

■ A new initiative to provide bright undergraduates with substantial scholarship support should be launched. The report recommends that 1% of the most able undergraduate students in mathematics, engineering, and the natural sciences be given 4-year scholarships of $15,000 per year, which could be held at whatever institution they choose. The panel says that the estimated $120-million cost of the program is "perhaps the single wisest investment that we, as a nation, could make."

■ In order to cut some of the bureaucracy and make funding more flexible, the average duration of grants should be increased to at least 3, and preferably, 5 years. In addition, investigators should be free to use up to 10% of their grants on a discretionary basis and "federal agencies, except in the cases of

A Renewed Partnership, Office of Science and Technology Policy, Executive Office of the President, Washington, DC 20506.

younger investigators, should place substantially more emphasis on the research history of the investigator and less on the proposed research project in making awards."

■ In perhaps its most controversial recommendation, the panel urges that a cap be placed on the amount that universities can charge the government for administration associated with federal research grants. It recommends that administrative costs be fixed at a uniform percentage of the direct costs of undertaking the research. This recommendation has already been taken up by the Office of Management and Budget in a proposal that has caused howls of indignation from university administrators (*Science*, 7 March, p. 1059). Far from being gratified by the the speed with which its proposal was adopted, the panel is chagrined at this turn of events. Its report also recommends that the rules governing payment of other indirect costs, such as depreciation of buildings and equipment, be changed in a way likely to increase payments for those items. Needless to say, OMB did not implement that part of the recommendation, although the panel expressly warns that "significant damage to the research enterprise" could result from selective implementation of its indirect cost recommendations.

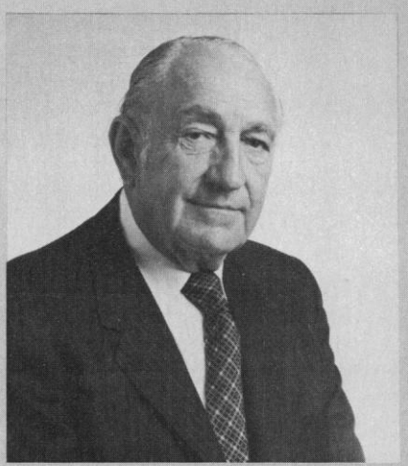
The report, which has been more than 2 years in the making, has gone to President Reagan. Panel members say they hope soon to receive a supportive statement from him accepting the study. However, one key congressional staff aide says, "it will be interesting to see whether OSTP can do much with the recommendations in the current fiscal climate." ■ COLIN NORMAN

David Packard: Reduce the Micromanagement

David Packard, co-founder and chairman of the Board of Hewlett-Packard, chaired the White House Science Council's panel on the health of the universities. In a wide-ranging interview with *Science*, he offered some thoughts on the report and on other issues in science policy. Some exerpts follow:

Q. Your report is coming out at a time of severe fiscal constraints in the federal government. Why should the universities be listened to more than some of the other claimants on the federal budget?

A. To solve the problems facing the universities is really going to take some more money. We recognize the pressures are pretty tight on the budget now, and that may well mean that all of our recommendations cannot be implemented immediately. But on the other hand, quite a few of the things in our report are directed at how we can use the money that is available more efficiently. Those areas have to do with reducing the amount of micromanagement that comes from the organizations in the government that deal with the universities. That includes the Department of Defense, the Department of Energy, and all the others. Particularly in the case of the Department of Energy, they have gone to serious excesses in their supervision.



David Packard

Q. The report says that it is probably unrealistic to expect a big infusion of new money into the universities, and that a reallocation of funds is probably called for. Where should the funds come from?

A. One of the areas where reallocation would be the easiest to do is simply make it easier for the Defense Department to contract with universities for research. Right now, if somebody at the Defense Department wants to contract with a university, they have to go to considerable trouble to do it; it is easier to contract with a federal laboratory or with industry. That is one place where the funding could be changed very easily, and I think in many cases they could get better research done at the universities than they are getting at the other places. That is true at other agencies as well. We are saying in effect that there is a lot of money that is going into research in the federal budget, and we think there are some ways that more of that could and should go to the universities.

Q. One of the things concerning many people in the academic community is that several very big research projects may soon require funding, particularly the superconducting super collider. The fear is that these projects will take money away from "small science."

A. Well, you have hit one of my favorite subjects. I think with all due respect to the scientists—and some very important things have been discovered by these big science programs—they have been done at the expense of research that would be more useful to both the strength of the economy and our defense capability. I think that big science should be funded on an international basis. There is always the prestige factor and there are always people in the business who would like to have America come out first with a new particle or whatever, but I don't see that as being any realistic contribution to the [university problems] we are talking about. So I think there could be a reallocation within the whole discipline of science that could be more useful for both the economy and for the defense effort.

Q. The SSC's construction cost is about $6 billion. A lot of what you are talking about in the report could be funded with a small fraction of that—

A. Yes, that's right. A small fraction of that would go a long way. You could double your research in materials for a small fraction of one project.

Q. Your recommendations call for new federal management initiatives. Yet we have now gone 5 months without a director of the Office of Science and Technology Policy—

A. It's an absolute disgrace.

Q. —and if there is a new adviser appointed, he will be in office for only 2 years.

A. That's one of the problems. It takes a little while for anybody on the outside to come in and get calibrated to understand what goes on. It is a very complex environment. It may be possible to get someone who has been here before to come back, but I think it's going to be very difficult to get someone else.