

The Task Force suggested priorities among the various technological opportunities for investment in R&D in energy. Highest priority was given to basic research, which, the report states, is cheap compared to other aspects of research and development and which provides knowledge that "undergirds all advances in energy technology." The report suggests that "the progress of basic research should be limited by scientific and technical barriers rather than financial ones," and that "scientifically sound research in unconventional as well as conventional fields of energy R&D must be pursued at a vigorous pace." Other areas of research that were included among those of highest priority are materials research, solar energy, geothermal energy, nuclear breeders, coal and controlled fusion.

While describing the recommendations of the report, McCormack also noted that "although we must set our research and development efforts in many directions, priorities must be established, and conservation of our resources and protection of our natural environment must be primary among them."

Now that the work of the Task Force on Energy is ended, energy efforts within the House Science and Astronautics Committee will go forward under a newly created Energy Subcommittee chaired by Congressman McCormack.

Nader

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cism of the scientific pecking order, which sets up ideas of prestige employment that hinder the development of public-service scientific roles.

A self-funding mechanism of some kind will probably be necessary at first. Initially it could take the form of a charge levied on all members of a professional society. Here again it is up to these organizations to take the initiative. Individuals do not have the necessary resources.

Nader explained that a scientist working in this area can perform several important functions. He can get the right information to the public at the right time and in a form the media will feel compelled to report. He can also testify before courts, agencies, Congress and other bodies entrusted with administrative and judgmental powers. In regard to this function Nader brought up the difficulty of finding people who are qualified to be expert witnesses because most qualified individuals are economically dependent on employers with interests in the cases under investigation. Finally, the public-service scientist can provide

a display before the public of the fact that there is an untapped engineering and scientific capability to solve many widespread problems.

On this last point Nader spoke of the abuse of technology by corporate powers, who are motivated largely by profit motives. "This . . . lowering of the sites of technological and scientific feasibility," he said, "is the single greatest detractor to the mobilization of public support for the government and more competitive R&D to solve many of these technically sourced abuses and injustices." It took a long time to get the idea across to the public, Nader remarked, that it is not a law of nature that people must die in automobile crashes.

Solar energy and nuclear power provide two more examples of abuse of technological capability, according to Nader. The corporate powers that control fossil fuels either fought or neglected optional means of producing energy that could not also be controlled. Thus, there has been no large-scale development of solar energy. Likewise the production of nuclear

energy is in a less desirable state of development than it might otherwise be because the public was "lulled" into surrendering its critical scrutiny by assurances that all the technical problems would be solved. In the last few years a mere handful of scientists have been able to force the Atomic Energy Commission to admit to certain problems and risks in the present status of nuclear-energy production. Public scrutiny could have assured either that solutions to the problems be found sooner or that alternative sources of energy, solar power for example, be sought and developed at full pace. "The illumination of these kinds of technological and scientific options," Nader said, "has got to come from a free or liberated scientific and engineering profession."

"If there is one point to sum up in one sentence," Nader concluded, "it's that beneath all aspirations and all changes must be a commitment to solve the problem of deployment of scientific manpower into new careers that rest . . . on the conscience of the scientist and not the organizational dictates of the employer." —JG

Stever sees change in funding priorities

While the current Administration is showing its backing of physics and R&D in general through an increase in R&D expenditures, physics funding will continue to be limited by interest in social problems not directly related to physics, according to H. Guyford Stever, the new presidential science adviser and director of the National Science Foundation who spoke at the Washington meeting of the American Physical Society in late April.

Stever noted that there has been a change in the climate for science today and that science must now work with other factors in society and vie for funds in what has become a tight money situation. "Our science programs," Stever said, "are now operating in a climate of opinion that, while recognizing their importance, no longer exalts them hopefully as the sole means of achieving our goals. As a result of all this, the science community on the whole faces the challenge—and it is no less than that—of doing good science with less federal support in some areas than it has had in the past."

Some of the new areas that will be focused on are, according to Stever, environmental and resource problems, work on guiding the growth of population, land use, urbanization, transportation, production and, in general, improvement of the quality of life. While work in these areas will support science, Stever said, "we must recognize, however, that many elements of the problems we face today require re-

search in areas outside the physical sciences and physical technology. As a result, there has been, and will continue to be, a degree of reallocation of resources among the fields of science." Stever did note that energy is one area in which physics will continue to play an important role.

Harvey Brooks, Dean of Engineering and Applied Physics at Harvard and past chairman of the National Academy of Sciences Committee on Science and Public Policy, commented on the text of Stever's speech for *PHYSICS TODAY*. Brooks said that in his opinion, the two key phrases of the speech were "... the best talent and the ripest fields will receive the most support, and that certain programs will have to carry on with less support until overall conditions improve . . . or until they are able to gain new support by way of hard-won scientific accomplishment that receives public recognition," and "... very few of the presently salient 'problems of society' stand in any comparable state of maturity as regards the involvement of physical science" [italics Brooks's].

Brooks said that in his view, "this adds up to physics being the lowest priority of all the basic disciplines." He noted that "there may be considerable support for sciences derivative from physics, but declining relative support for what most physicists would regard as the 'intellectual core' or 'cutting edge' of the discipline of physics as such." Brooks also said that the phrase italicized above is the most ominous one

because it suggests that public visibility or glamour will be the main criterion influencing public support and it is an invitation to physicists to "oversell" their discipline in order to maintain public support.

Brooks said that he thought that Stever's description of the political environment of physics is realistic. "I regret it," Brooks said, "but I am coming to the conclusion that until the Russians or the Japanese produce a sensational breakthrough involving physics which makes the US look foolish, nothing much can be done. In the past two decades, US physics has often produced relatively out of proportion to the support it has received, at least in many subfields. How long this can continue remains to be seen." —SMH

Appeal for spectroscopy laboratory in Allahabad

In February the Spectroscopy Laboratory at the University of Allahabad in India was destroyed by fire. The laboratory, created by the well-known astrophysicist M. N. Saha, was one of the best equipped physics-research labs in that country. The loss is estimated at about \$500 000.

An appeal is being made to physicists, astrophysicists, heads of laboratories and industries to contribute to the reconstruction of this facility. Support may take the form of financial aid, gifts of scientific equipment or scientific books.

For further information or to make contributions, contact the Head of the Dept. of Physics, Allahabad University, Allahabad, India, with a copy of the forwarding letter to the International Centre for Theoretical Physics, P. O. B. 586, 34100 Trieste, Italy.

NRC surveys science and engineering PhD's

At the request of the National Science Foundation the National Research Council is conducting a survey of a representative sample of 60 000 doctoral scientists and engineers in the US. The survey includes individuals in the physical, social and life sciences, mathematics and engineering. The results of the survey will give the Council information to help guide the development of national scientific policies.

Because such critical issues as the utilization and supply of doctoral scientists and engineers, the support of graduate education and the support of research and development and post-doctoral activities could be affected by the results of this survey, the Council

urges all who receive questionnaires to complete and return them. As soon as the results have been analyzed, statistical summaries will be made available.

Self-help groups teach job-hunting skills

A no-fee, voluntary self-help organization that helps unemployed scientists and engineers find jobs has set up branches in cities across the US. The program, called VEST (for "Volunteer Engineers, Scientists and Technicians"), is aided by a grant from the US Department of Labor to the American Institute of Aeronautics and Astronautics.

New VEST members attend workshops to acquire skills in locating positions, writing letters and resumes, and being interviewed. The member can then become active in VEST by contributing his time to help run the VEST program while he helps others find jobs and is himself helped.

There are about thirty VEST chapters across the country. Raymond W. Sears, APS Placement Consultant, will send the address of the local chapters to physicists requesting this information. He can be reached at AIP, 335 E. 45th St., New York, N.Y. 10017.

Dow Chemical offers venture capital

Physicists who have started their own businesses in high-technology fields and who need financial help to develop and expand their operations have a new source for funds. The Dow Chemical Investment and Finance Corp, a subsidiary of Dow Chemical, is a venture capital firm that is willing to help young technologically oriented businesses not only with money, but with scientific and management support. We recently spoke with DCIFC's president, Herbert E. Engelmeyer, about his firm's policies on working with technologically intensive companies that are just starting out.

DCIFC is interested in providing venture capital and other support to businesses in high-technology fields that are already set up and that will probably begin to produce profits within three to five years. Engelmeyer said that while his firm is seeking good ideas for products and services, a company has to be developed to a certain point before Dow will consider backing it. The companies should be already organized and have a committed management team with a good business plan and a clearly identified product.

Engelmeyer said that Dow is uniquely qualified to back technologically oriented companies because DCIFC has at its disposal the resources of the whole Dow Chemical R&D team if it becomes necessary, to help in evaluation of proposed businesses and to aid in the development of those companies that are backed. Unlike many venture capital inverters, DCIFC has a staff that can discuss the scientific merit of the proposed plan. Other groups working at Dow Chemical, such as managerial and financial experts can also be used to the advantage of a young company. Engelmeyer said, "We're able to put a lot more than just cash on the line, and very often it's that 'lot more' that makes the difference between success and failure." He pointed out, however, that DCIFC is not interested in taking over any of the companies it backs by replacing the management, and is only interested in the profits that could result from success of the business.

DCIFC has a minimum investment level in a company of \$250 000 and is prepared to go up to several million, although the firm is more likely to go in with a consortium of investors if a large amount of money is involved. So far Engelmeyer's firm has invested in 18 projects, five last year, and has spent a total of about \$8 million.

Some of the companies that DCIFC has backed are Monolithic Memories, which makes semiconductor computer memories; International Plasma Corp., which makes equipment for producing plasmas for various applications; Electrogas dynamics, which makes electrostatic spray equipment for paints and crop dusting, and Waters Associates, a manufacturer of liquid chromatography equipment.

It is a difficult job to get venture capital funding, Engelmeyer told us—about 1% of the companies that seek venture capital eventually get it and only about 10% of those are very successful, but Engelmeyer hopes that DCIFC's statistics will be more favorable. Engelmeyer can be reached at DCIFC, 2020 Dow Center, P. O. Box 1684, Midland, Michigan 48640. —SMH

in brief

The 1974 Scintillation and Semiconductor Counter Symposium (SSCS) will be held concurrently with the Nuclear Science Symposium (NSS) on 11-13 December in Washington, D. C. Hereafter the eastern meetings of the NSS will be held in conjunction with the SSCS in every even-numbered year. The western NSS meetings will continue to be held in odd-numbered years.