

PHYSICS IN GOVERNMENT

Budgetary restraints

The extent of federal support for many physics programs in fiscal 1967 depends on the outcome of President Johnson's current peace offensive for Vietnam. Already the pressure of an expected \$60 billion defense budget has forced the National Aeronautics and Space Administration to cancel further work on its Advanced Orbiting Solar Observatory and to defer for another two years its Voyager mission to Mars. (Voyager had already been delayed two years by cuts in this year's budget.) The Apollo lunar landing project, however, will continue on schedule.

At the time of the AOSO cancellation, NASA was developing a prototype of the 1250-pound solar observatory and had scheduled its first flight for 1969. While putting off until 1973 the first unmanned Voyager journey to Mars, NASA has set up three new Mariner flights to Venus and to Mars. These flights will include a 1967 Venus flyby, to be closer than the 21 600-mile Mariner II approach, and two Mars probes in 1969. Presumably any lessening of military demands on the federal budget will enable NASA to reinstate the AOSO project and restore the original schedule for Voyager. Both projects are of highest priority for the scientific community.

NASA was not the only agency to feel the effects of budgetary cutbacks. Sources in the capital reported that budget requests for the National Institutes of Health for fiscal 1967 were being reduced by about 30 per cent; that all new research and training grants were frozen pending a decision on the new budget; and that no funds will be available for construction of health research facilities. It seems reasonable to expect that analogous programs in the National Science Foundation or the Atomic Energy Commission would also suffer restraint, but no definite decisions will be made until after the President offers his budget to the Congress on 25 Jan. Meanwhile, AEC is proceeding on the assumption that, once it selects a site, it will get the

\$7.5 million it needs for architectural engineering studies of the 200-BeV accelerator. Should these funds be denied, Congress could authorize use of other AEC funds, or AEC could request a supplemental appropriation later on.

Criticism directed at the federal government because of the reported cutbacks has come from many quarters including economists, labor leaders and scientists themselves. At its recent Berkeley, Calif., meeting, the council of the American Association for the Advancement of Science issued a statement saying it was "deeply disturbed" by the impending restrictions. Science "may be badly damaged in a society which gives an increasing share of its resources to military purposes." In the first of two resolutions, the council commended recent efforts to end the Vietnam conflict, which, according to the council, "imposes a heavy burden on the continued vigor of scientific research." The second resolution provided for a committee to examine decreased federal support for science and assess the consequences.

Operating the 200-BeV

Although competition, political and otherwise, for the 200-BeV-accelerator site will continue until the last moment, the nation's scientists seem determined to operate the machine for the benefit of the entire physics community. The Universities Research Association Inc. (URAI), established last summer by 34 university presidents, has offered its services to the government as "contracting agency for the construction and operation" of the new accelerator. Despite URAI's independent character, several government science officials (Frederick Seitz, Donald Hornig and Glenn Seaborg) were instrumental in its formation; and the National Academy of Sciences enjoys especially close ties with it.

Frederick Seitz will serve as vice president of URAI until its 1966 annual meeting in April; G. Donald Meid, NAS business manager, will be treasurer and comptroller; and Leon-

ard L. Bacon, NAS special assistant to Seitz, will serve as URAI's secretary. The president of the organization until the April meeting is J. C. Warner, recently retired president of Carnegie Institute of Technology.

The wisdom of the concept of private university management coupled with government funds has been amply demonstrated by the experience of Associated Universities Inc. and other groups. Apparently it is this experience that the new group, URAI, wishes to draw upon in running the 200-BeV accelerator. The nine universities that form Associated Universities (which operates Brookhaven National Laboratory and the National Radio Astronomy Observatory) are among the 34 that seek to operate the new machine; and Brookhaven's director, Maurice Goldhaber, is among the trustees. Although none of the smaller institutions are represented in the URAI group, access to the new accelerator is expected to follow along the same lines as at Brookhaven, which makes its facilities "freely available to all qualified scientists." (A recent man-hour estimate supplied to *PHYSICS TODAY* by Brookhaven shows that 35 per cent of the lab's time in high-energy physics is accounted for by representatives from the nine operating universities, 35 per cent by scientists from all other institutions, and 30 per cent by Brookhaven staff members).

Recently URAI announced the election of Henry D. Smyth of Princeton University as chairman of its board of trustees, and Robert F. Bacher of California Institute of Technology as vice chairman. Serving on the board-of-trustees executive committee, aside from Smyth and Bacher, are Leon Madansky (committee chairman), Edwin L. Goldwasser, J. C. Warner, George S. Schairer, and R. D. Strathmeyer.

States plan to aid education

While federal agencies soar toward a \$4.1 billion yearly budget for education, the states are responding cautiously with their own Compact for Education "to promote state initiative in the development of educational systems. . . ."

Originated by former governor Terry Sanford from a suggestion made

by James B. Conant in *Shaping Educational Policy*, the compact will strive for better coöperation between the educational community on one hand and governors and state legislatures on the other. It will also provide a clearinghouse for educational data, develop proposals for adequate financing of education and make recommendations to federal agencies; but it will have no authority to make policy.

A steering committee that met in New York in December adopted a six-month budget of \$147 000 and started to search for a \$40 000-a-year executive director. Although the compact was adopted by educational and political

leaders from every state, and most states have already extended their unofficial approval, it will not become effective until at least ten states ratify it. The Carnegie Corporation of New York and the Danforth Foundation of St. Louis are supporting the compact until state contributions are available.

Despite widespread criticism of the states for abdicating their educational responsibilities, many educators and public officials fear collaboration between politicians and the schools. Elvis Stahr, president of Indiana University, believes that the compact's constitution might not withstand political influence. He said at the December meet-

ing that he did not think governors and legislators should formulate education policy. Criticism from another quarter has come from the National Association of State Universities and Land Grant Colleges, which questioned the need for the compact and stated that it would not adequately represent higher education. Nevertheless, the compact's modest beginnings are not expected to threaten any organization, and if it can contribute in any way toward greater state involvement in higher education and development of nationwide standards of graduate degrees, it will have more than justified its existence.

J. Herbert Hollomon discusses federal support of science

Few men in government are more persistent than J. Herbert Hollomon in urging that science serve the basic needs of the society that supports it. Appointed assistant secretary of commerce for science and technology by President Kennedy in 1962, Hollomon has consistently endeavored to use the resources of government to advance American technology. The recently enacted State Technical Services Act, which Hollomon conceived and supported through the Congress, will enable thousands of small businesses and industrial plants across the country to keep abreast of technological innovations.

But basic science at this time, and physics in particular, can scarcely afford to have federal support diverted to technology. We interviewed Hollomon and asked him if he thought it would be necessary to shift emphasis away from basic science and toward the application of technology to national problems, such as transportation and air pollution.

We have basic science bias

"I think it is extremely important to continue our support of basic physics, chemistry and, particularly, biophysics and biochemistry," Hollomon replied. "But I also believe we are biased toward thinking that science related to, say, the stimulation of transportation systems, is somehow not good science. Now, in a sense this kind

of science is not as fundamental as nuclear physics, but it is nevertheless first-rate science.

"Basic is basic to the beholder, and applied is applied. For instance, we support some work in the National Bureau of Standards in plasma physics. This work is basic research. The reason we support it, however, is because we believe that plasma physics will contribute in some direct or indirect way to the measurement capability of the country. Now, does this make it basic or applied? The answer depends on who looks at it. I think it's much more important to look at research in terms of either the institution that does it or the institution that supports it, and not in terms of how basic it is. I really don't know what 'basic research' means, and I don't think anybody else knows. I can define it any way I want, and I can give you all sorts of figures on research activity that will be affected by slight changes in the definition of 'basic research'.

"Some intellectual activity that is important to understand the world in which we live is not concerned with nuclear physics or solid-state physics. It is concerned with other important problems, and it needs to grow at a more substantial rate that it has grown in the past. Now, since our R and D budget will continue to grow, I think the real question is what the rate of growth will be—not whether any part of the budget will be cut back."



HOLLOMON

Do you think we have an effective decision-making process for the allocation of federal funds?

"To answer the question of effectiveness we have to answer another question—does the process operate? It *does* operate, but I feel there is something lacking in our system. As long as we have a rapid, indefinite rate of growth, no one really worries about allocation very much because the pie is growing—and as the pie grows, pieces of the pie grow along with it.

"The problem of allocation comes, however, when there are more things to do, or more interests, or more ideas or significant fields to work in than we can afford. I think that time is coming. Our system of allocation operates very well for the established fields, the fields for which there are scientific leaders. But it seems to me that mainly because of the project-grant system and