

age was 38. Seventy-nine PhD's were hired, with an average age of 30. Except in postdoctoral-type jobs, the younger physicist did not displace an older physicist in any direct fashion, Grodzins says. In one lab, for example, new physicists were hired for a large project where there was a long-term commitment; at the same time, because of a decrease in the lab's overall budget, it essentially closed down an entire program in a completely different subfield of physics. Of the 100 who left, 45 left the country, left physics, were unemployed or their status was unknown. (Most of the latter were unemployed when they left the labs.)

What of the future? For the next few years, Grodzins says, there will continue to be a severe imbalance between the training and aspirations of

the students and the opportunities that will exist. In 1970 about 23% of the new PhD's specialized in particle physics and 20% in nuclear physics. Neither field has grown significantly in the past few years, but because of the new particle accelerators throughout the US, it will be difficult to stem their flow: The number of graduate students now in the pipeline for particle physics will sustain the output for several years. But at least 75% of them will have to find jobs outside the field.

Grodzins believes that during the 1970's physics faculties will probably need no more than 300-500 new PhD's per year. Forty percent of the PhD's are on faculties. If the other kinds of jobs grow at the same rate, only 800-1200 new PhD's per year will be needed. Taking attrition into account, the need

will be no greater than 1400 PhD's per year, he estimates.

What can we do? For the near future Grodzins feels we must find new opportunities for physicists, such as jobs in hospitals, as science advisers to secondary-school systems, in junior colleges, and working on societal needs. Grodzins says we ought to reduce the self-interest pressures that sustain the flow of students into graduate school. One temporary solution is to reduce the number of graduate assistantships, putting the money saved into postdoctorate positions. (The latest version of this scheme is known as the "Arden House Proposal.") Standards for the PhD should be tightened, and the PhD program should not train the physicist only for the kind of career for which few opportunities exist. —GBL

Budget office seeks guidance on science problems

The Office of Management and Budget has a strong disposition to support science and technology, according to William D. Carey, formerly assistant director of the old Bureau of the Budget, now the OMB. (Carey is now senior staff consultant at Arthur D. Little Inc). Speaking to a seminar on science and public policy held at the National Academy of Sciences 22-24 February, and sponsored by the Council for the Advancement of Science Writing, Carey, who was with the BOB for 26 years, said that the OMB regards itself as a friend of science, despite the contrary opinion of many scientists. Over the years BOB repeatedly asked the scientific community for guidance on scientific priorities, he said, but to no avail. OMB is still looking for such criteria of choice.

The OMB view of NSF has changed, he said, and NSF is being led closer to hard problems in the market place, with the emphasis on applied research. In the past, he noted, there was a revulsion towards tainting the NSF with any applied research.

Last year there were oft-repeated rumors that the Office of Science and Technology had been shut out of the final stages of the budget preparation. Carey confirmed the truth of the rumor. In the old days the director's review in the BOB would be attended by many interested parties. Then this open meeting became a closed one, and OST did not participate. Now OST and OMB have become friends again.

At the same meeting Congressman Edward Boland (D-Mass.) pointed out that the Subcommittee on Independent Offices and Housing and Urban Development (Appropriations), whose chairmanship he just assumed, is responsible for considering the NSF budget. After the House Science and As-

tronautics Committee has authorized a budget, it is Boland's subcommittee that recommends the appropriation. Their recommendation is never for more money than has been authorized, frequently for less. Boland said that in his judgment the NSF budget will increase substantially. He noted that because of the Mansfield amendment there is a tendency to shift mission-agency research to NSF.

Presidential Science Adviser Edward E. David Jr, in his remarks to the meet-

ing, said that he feels the most serious problem facing the nation "is the increasing alienation of people in our society from rational ways of thought." He said that society is losing the courage to experiment. As an example, he insisted that we must "build those experimental supersonic vehicles which will lead us to understand whether or not supersonic travel is feasible. Make no mistake, a limitation on experimentation in whatever cause is the beginning of a wider suppression." GBL

CERN II begins at last with support from ten nations

After considerable behind-the-scenes maneuvering, CERN will at last get its 300-GeV accelerator. At a Council meeting on 19 February three nations (Netherlands, Norway and Sweden) that had held back from a final decision declared their approval; so now ten countries will be participating. The total cost of the eight-year construction program will be 1150 million Swiss francs (at 1970 prices), and the 1971 budget will be 29.3 million Swiss francs.

CERN expects to start immediately recruiting heads of design and construction groups so that site work can

begin this summer. Research is scheduled to begin in 1976. The 300-GeV laboratory, to be known as "CERN II," has John B. Adams as Director General. Willibald Jentschke is Director General of CERN I. When the new accelerator is completed the programs of both laboratories will be united under the direction of a single Director General.

The cost of the program is to be shared as follows: Austria 2.01%, Belgium 3.88%, France 20.48%, Federal Republic of Germany 23.96%, Italy 13.27%, Netherlands 4.56%, Norway 1.57%, Sweden 4.72%, Switzerland 3.30%, United Kingdom 22.25%.

KMS Industries will do classified fusion research

The Atomic Energy Commission has given permission to KMS Industries, Inc to conduct research at its own expense on a controlled-fusion idea, but will require that the work be classified because of its potential weapons applications. This appears to be the first time a private firm has been allowed by

AEC to work on a device that is potentially explosive. The idea would use a high-power short-pulse laser to irradiate pellets of thermonuclear material, heating them to thermonuclear temperatures very rapidly, and possibly lead to a controlled release of thermonuclear energy.