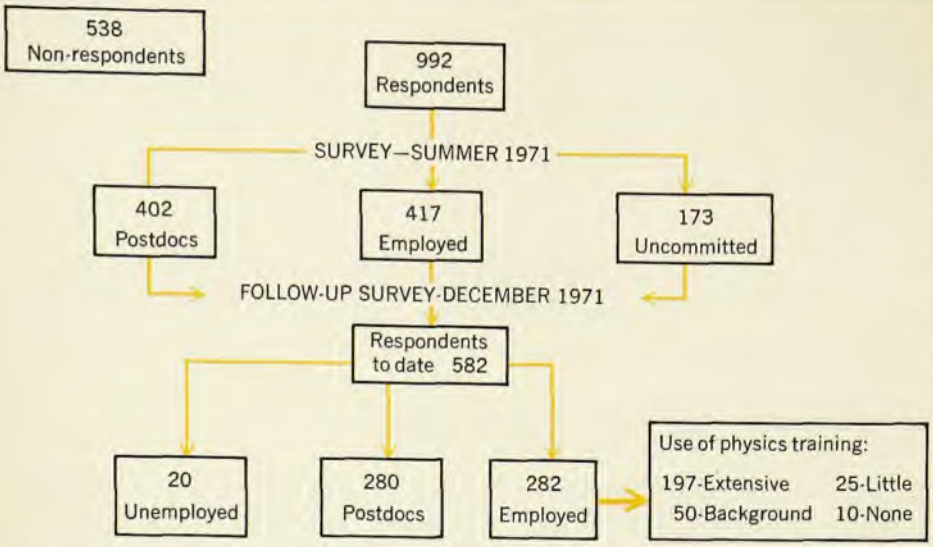

Survey of new PhD's granted in 1970–71. 1530 new physics PhD's were surveyed by AIP.

employed; similarly in 1965, only 14% of the graduates became high-school teachers, whereas in 1971, 24% followed this path of employment.

Twenty-nine percent (or 954) of the graduates surveyed indicated their desire to find employment after graduation. Of these students, 330 had already accepted employment by June, 150 were continuing in jobs that they had had either part or full time while attending school and 465 (or 49%) had not yet found employment. This 49% marked an unemployment high for physics majors at the time of graduation. Comparable fractions for one and two years earlier were 20% and 23% respectively. The uncommitted students were contacted again in December, and 364 of them answered. Of these people, 253 had found employment, although only 32 of them reported an extensive use of their physics training. Thirty-two of the December respondents had gone to graduate school (not necessarily in physics), 14 were in military service and 65 were still unemployed.

One way in which graduate students are avoiding the unemployment lines is by staying in graduate school longer. Eight percent of the 1970–71 PhD physics graduates had taken eight years or more to complete their degree; this percentage contrasted with last year's 4%. Furthermore, more PhD's are seeking "postdoc" appointments. When the 1970–71 PhD's were surveyed this past summer, 402 of the 992 respondents had accepted postdoctoral appointments. This is about 40% of the respondents and contrasts strongly with the 26% of last year's PhD's who had accepted postdocs. Of the remaining PhD respondents, 417 had accepted employment, and 173 remained uncommitted. All of these newly graduated PhD's, regardless of commitment, were contacted by AIP again in December, and to date 582 of them have responded. Of these people, 280 were engaged as postdocs, 282 were employed and only 20 were still unemployed. However, of those physicists who had obtained employment, only 197 were using physics extensively. This number marks a decline from the number of physicists who have been able to use physics extensively in past years. But it is also notable that complete unemployment does not seem to have increased.

"The main change in the 1970–71 graduates," said Ellis, "is their change in attitude. More physicists are realizing that there is a way to apply physics training without directly working in physics. The 1969 graduates were shocked at the employment situation, but the 1971 graduates knew about the job market, and they prepared for it." —MW

Cornell receives funds to improve its Astron

Cornell University recently received a grant from a group of utility companies for work on controlled fusion. According to Peter L. Auer, director of the Laboratory of Plasma Studies of the Cornell College of Engineering, Cornell has been granted $550 000 by the Empire State Atomic Development Associates Inc, a consortium of seven New York State investor-owned utility companies, for work on the Astron plasma-containment device.

The grant will allow the construction of a beam source of higher power than the one currently used to generate the relativistic electron beam that is the basis of the Astron concept. Auer said that the new beam will be capable of producing 5-MeV electrons, compared with the 1-MeV capacity of the present source. Nicholas Christofilos of Lawrence Livermore Laboratory originated the Astron concept. At that laboratory a $10-million Astron installation, which uses 6-MeV electrons, was completed last July.

The Astron magnetic bottle is based on the generation of a magnetic well by injecting a flow of relativistic electrons into a coil to form a magnetic bottle. If the electron beam is strong enough the field will reverse, forming a magnetic well that, it is expected, will hold a plasma long enough for fusion to take place. Hans A. Fleischmann, principal investigator on the Cornell Astron, and his coworkers reported they obtained field reversal last June with a confinement time of a few hundred nanoseconds. The researchers hope that the higher-energy beam will increase confinement time. The Livermore Astron has achieved confinement times of many milliseconds with no field reversal as yet. Experiments to stack several electron pulses—a requirement to achieve field reversal—started last summer. SMH

Environmental program

continued from page 101

which supports the laboratory, and from such organizations as the NSF and the then-fledgling Environmental Protection Agency. On the return trip, at the suggestion of the AEC, they visited Argonne and Oak Ridge National Laboratories, both of which had strong existing programs. "The laboratories gave us extremely helpful guidance in determining the direction our program might profitably take," says Sessler.

In December, McMillan signed a directive establishing the LBL Environmental Research Office and naming Hollander and Sessler coordinators.

To a degree, the program is still formative. Of the dozens of early proposals, 14 have been funded, are in formal review or are in the final stages of preparation. The first major project to receive funding (by the NSF), a survey of instrumentation for environmental quality monitoring, is typical of the scope of many of the proposals. Eighteen LBL investigators under the direction of Electronics Engineering Department head Dick A. Mack, in consultation with scientists on the campus and elsewhere, have begun a three-year review (of which the first year has been funded) of instruments and techniques currently in use as well as of those developed for other purposes but with potential environmental application. Results will consist of a description of operating characteristics of available instruments, of critical comparisons among instruments, and of recommendations for development of new instrumentation and for study of promising methodology. The information will be compiled in loose-leaf handbooks and may also be available through