

awarded the Franklin Medal. He is a member of the National Academy of Sciences and a fellow of the APS.

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AAPT Committee Studies Physics in Engineering

The Committee on Physics in Engineering Education was reactivated in April 1968 by Stanley S. Ballard, who was then president of the American Association of Physics Teachers. Although dormant since 1959, the AAPT committee was revived because of recent developments in the American Society for Engineering Education.

Reuben E. Alley Jr, committee chairman and professor in the electrical engineering department at the US Naval Academy, says that an ASEE survey report "clearly implies that physicists may be asked to restrict their offerings for engineering students to topics such as sound, optics, and modern physics."

This survey report appeared in the February 1968 issue of the *Journal of Engineering Education*. It concludes that of the responding 120 physics departments and 100 engineering departments teaching fundamental mechanics "the majority . . . are tending toward either a coordinated program in which the student takes engineering fundamentals and statics before taking a physics course or toward the more pro-

gressive program in which the student takes no physics courses until he receives fundamentals, statics, dynamics and strength of materials from the engineering departments."

The report also states that some electrical engineering departments are watching these trends and "are considering the possibility of teaching basic electricity to their students before allowing them to take a physics course." Another article in the November issue reports that all introductory-physics courses were eliminated from the new

AIP Study Examines Physics Work Complex

To what sort of work does a physicist move when he leaves academic training to take a job? What does the employer expect from him and offer in return? What do employers think of the academic training physicists bring from the universities? Susanne D. Ellis of the American Institute of Physics Education and Manpower Division has studied these and related subjects during the past two years, and AIP has recently released the report of her findings. It deals with such matters as funding, personnel policies, mobility (place to place and subject to subject), specialization of physicists and engineers, obsolescence. It ends with recommendations made by employers to the universities.

The study is based on interviews with 161 scientific supervisors, generally starting with vice presidents for research and research directors, at 40 organizations. The organizations included government, nonprofit and industrial ones. With the advice of the AIP manpower advisory committee the sample was selected to be representative of 1223 industrial organizations employing physicists in the 50 states of the US. Arnold A. Strassenburg, director of the AIP Education and Manpower Division, supervised what is labeled the "Work Complex Study."

The report explains that objectives and methods of the study changed between the time it was first conceived in 1966 and its actual conduct, beginning with National Science Foundation funding in 1967. The study began with declining physics enrollments and a threatening shortage of physicists. By the time it was funded, enrollments had stopped declining and cutbacks in federal funds had increased the pool of available scientific manpower.

One table in the report lists the 50 states and, for each one, the number

engineering curriculum at the University of Iowa.

The AAPT committee is studying the proposed fragmentation or elimination of the introductory course and is soliciting comments from physics teachers about their problems and successes in working with engineering departments. The committee is particularly interested in the quantity and type of physics, who teaches and determines course content, the type of communication between physics and engineering, the effort to improve high-school physics.

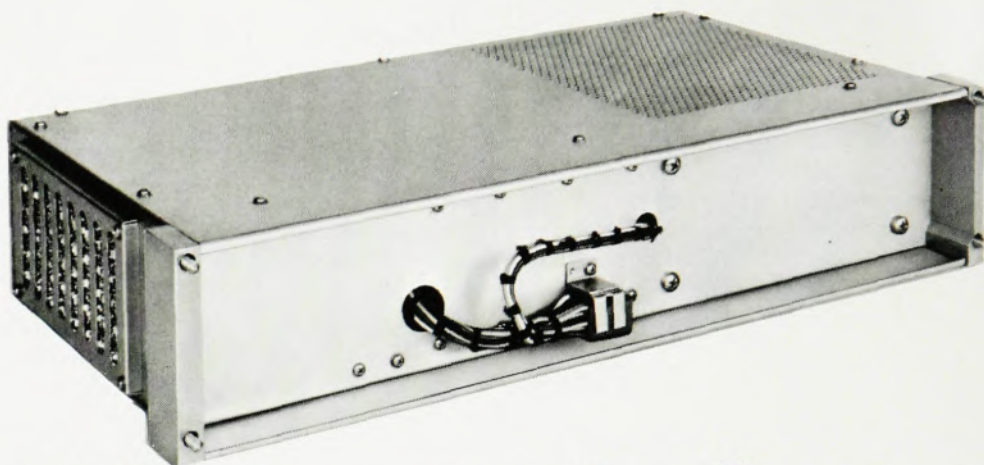
of industrial employees who are physicists, physical scientists, engineers, other professionals, technicians and other laboratory staff. Another table shows how many industrial laboratories in each state employ how many physicists. For example more than 300 physicists are employed at two laboratories in California and one in New Jersey; Wyoming has only one laboratory employing any physicists, and that laboratory has only one physicist.

Mrs Ellis finds that most advancement possibilities in large technically oriented organizations are now organized with a double ladder so that after his first few years a scientist has a choice. He can become an administrator and advance on one side or remain primarily a scientist and follow the other. The report indicates the titles, responsibilities, education and experience expected at various levels of both ladders. It also details hiring practices: contacts, interviews, offers and acceptances. Personal contacts lead to most PhD hirings, says the report, whereas the personnel department is usually directly involved in acquisition of lower-level personnel.

Geography affects employment policies. For example, California has solved many problems of support personnel with its junior-college program, whereas New York is only beginning to follow the same course. In Texas temporary shortages that occur with funding changes are often met by the loan of support personnel from one company to another. Denver and Boulder, Colo., form a region that is growing rapidly because it is a desirable place to live; consequently salaries there do not have to be as large as elsewhere to attract needed personnel.

Among her general findings Mrs Ellis reports that engineers are re-

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placing physicists in many jobs because physicists are overspecialized and prefer to remain so. Meanwhile different companies are exploring different ways to avoid obsolescence in specialized technical and scientific personnel. Employers have many suggestions for universities. Principal among them is the recommendation that the physicist gain a broad education and become aware of practical problems that need solution.

Copies of the report (AIP Pub. No. R 224) are available from Back Numbers Section, AIP.

McElroy Reorganizes NSF, Which Will Have 4 Assistant Directors

Director William D. McElroy has reorganized the National Science Foundation to meet the requirement of the NSF Act of 1968. All existing activities will be apportioned among four assistant directors, who will be responsible for the general areas of institutional programs, education, research and national and international programs. McElroy has named acting directors to serve until President Nixon makes the four appointments. He also announced that Louis Levin will perform the functions of deputy director temporarily.

AIP Survey Will Study Jobs Held by Recent Physics PhD's

The American Institute of Physics Education and Manpower Division is surveying recent physics PhD's to determine how closely present employment matches job goals. A questionnaire, prompted by the recent concern about the physics job situation, is being sent to those physicists whose response to the graduate-student survey (PHYSICS TODAY, March 1969, page 53) indicated that they expected a PhD in the years 1967-69.

Susanne Ellis and Arnold Strassenburg who are conducting the survey, have chosen their questions with an eye to results from previous employment studies. Many respondents to previous surveys, for example, held temporary jobs, and AIP now expects to determine whether these jobs were accepted by choice or necessity.

Those physicists surveyed will be asked to detail their education, military service, present employment and job offers. Among specific facts re-

quested are ratio of job offers to applications, relation of present job to training, and number of positions held since PhD was received. The questionnaire was mailed in December.

U. of Penna. Compiles Catalog Of Extragalactic Variables

Photocopies of individual cards from a card catalog of optically variable galaxies and quasars are available from the catalog compiler, Benjamin S. P. Shen at the University of Pennsylvania. Observational data and references are listed for each of about 50 objects; the number is readily increasing. Shen asks authors to provide him with copies of relevant new publications. Details are available from the Department of Astronomy, University of Pennsylvania, Philadelphia, Pa. 19104.

Union Carbide, AEC Support Negro Technical Education

The Atomic Energy Commission is extending its cooperative education program at AEC facilities to six predominantly Negro colleges in Washington and the South. Each school will nominate six students, who will begin work the summer that they graduate from high school and then spend alternate quarters at school and at work. The jobs are provided by Union Carbide's Nuclear Division at the Oak Ridge National Laboratory, Oak Ridge Gaseous Diffusion Plant, and the Y-12 Plant at Oak Ridge.

International Group Aims at Long-Term Weather Forecasts

A committee of the National Research Council proposes US participation in the Global Atmospheric Research Program, a ten-year international effort to improve long-range (more than four- or five-day) weather forecasts. The report recommends large-scale and regional atmospheric studies, a Pacific test of a global weather-observing system and, to improve numerical models of the atmosphere, experiments on energy exchange between the atmosphere and its surroundings, such as the ocean.

X-Ray Emitting Electronic Tubes Ordered Off Market

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