AIP AND SOCIETY ACTIVITIES

High-school physics to get help

A precollege physics program to increase enrollment and strengthen teaching has been launched by the American Institute of Physics with partial financial support by the Sloan Foundation. The pilot project will use New Jersey and Delaware secondary schools as a sample area in which to clarify physics teaching goals and introduce new apparatus and curricula.

Directing the new program is Philip Youngner, who is on leave from his post as professor and chairman of the Physics Department at St. Cloud State College in Minnesota. An advisory committee of teachers, administrators, and scientists, headed by Dr. John Shive of Bell Telephone Laboratories, has been organized to assist Dr. Youngner.

AIP and other statistics show that fractional enrollment in physics for secondary schools has been declining. In 1958, physics enrollment was 26.4 percent of the public school twelfth-grade enrollment; by 1962 this figure had dropped to 22.2 percent. More recent statistics, though not yet complete, indicate that this decline is continuing. Other studies show that two thirds of some 17 000 secondary-school physics teachers have had fewer than the usual minor of eighteen college physics semester hours, and about 91 percent of physics teachers are part-time instructors of the subject. Adding to these difficulties is an inadequate production of new teachers. While the need is for an annual rate of some 3000, there are only about 500 certified by the states each year; of these only an estimated two thirds actually enter teaching.

For many years AIP and its member societies have been active in precollege physics with such projects as the Visiting Scientist and Regional Counselor programs and by publication of booklets to familiarize students with career opportunities in physics, particularly high-school teaching.

In August of last year a precollege physics office was established at the Institute. Dr. Victor Young, its director, interviewed high-school physics departments throughout the country and made an intensive survey of the situation. His recommendations and other AIP studies resulted in the Governing Board's decision to set up a pilot project that would concentrate on improving physics teaching in a small geographic area. It was also proposed that the project gather data on problems from other parts of the US, with a view to expanding those areas of the pilot project that prove successful. A conference to discuss the overall aims of the program was held last June in New Brunswick, N.J.

As one of its principle activities, the new program will hold about ten regional conferences to discuss aims of the high-school physics course. These gatherings will be limited to 25–30 participants, mostly high-school and college teachers and representatives from state education departments.

"We want the teacher to clarify in his own mind what his goal is," says Dr. Youngner, the project director. "If the teacher wants to prepare students to get into some prestigious college physics department, naturally his course content should be rigorous. But if he does this, he will scare away many otherwise able students who are not particularly oriented toward physics. On the other hand, if he teaches physics as a general education course, he will have greater enrollment but his course will be less rigorous. What is happening today is that many high-school teachers are confusing these two aims and often make the course too hard for the nonphysics student and not rigorous enough for the student who wants to major in physics. Of course if the school is large enough, we should have two kinds of physics courses, one for the science major and the other for general education. When the school is small, however, it is my belief that the physics course should be directed toward the nonphysics students. It should be aimed at introducing the students to physics as part of the scientific age in which they live, but the course must not be watered down."

Philip G. Younger, director of AIP's precollege physics program

Teachers who have attended one of the project's regional conferences and who are interested in changing their physics courses will need additional help. Dr. Youngner has proposed setting up a consultant service of local academic physicists who would assist the teacher in his efforts. Another group of specialists will help introduce new apparatus and curricula from such groups as the Physical Science Study Committee and Harvard Project Physics to teachers unfamiliar with these developments. Other physicists, recruited from local industry and colleges, will provide assistance on a continuing basis to instructors who encounter difficulties in teaching new material.

Local publicity, to gain community support for changes made in high-school physics courses, will be handled through a speakers' bureau, and a monthly newsletter will report on program activities to all who teach high-school physics in New Jersey and Delaware.

Dr. Youngner will also conduct a seminar at Rutgers University for in-service teachers during the fall term. This seminar will carry three credits in the Graduate School of Education and will cover specific problems in

physics teaching as well as comparative studies of various course materials. Additional seminar courses at three or four other centers have been proposed for the spring semester.

"Our project is still fluid," says Dr. Youngner. "We are going to test out our proposals in the field, and we hope to find the best means of increasing high-school physics enrollments and revitalizing physics teaching, not only in New Jersey and Delaware but in other states as well."

Astronomical Society Officers

At the annual business session held during its summer meeting in Ann Arbor, Mich., the American Astronomical Society elected Bengt G. Strömgren of the Institute for Advanced Study to the office of president-elect, and Albert E. Whitford, director of the Lick Observatory, as second vice president. Dr. Whitford joins Richard Tousey of the Naval Observatory (first vice president), whose term expires in 1966.

Dr. Strömgren is a native of Göteborg, Sweden, who was educated, and eventually served as professor, at Copenhagen University. His early research was in the theoretical astrophysics of stellar interiors, stellar atmospheres, and interstellar matter. Following investigations by Sir Arthur Eddington, he showed that the amounts of hydrogen and helium in stellar interiors greatly exceeded those of heavier elements. He also did work on the solar atmosphere that led to a determination of its abundances of hydrogen and metals and on the relative abundances and ionization of hydrogen and metals in interstellar space. In recent years, Dr. Strömgren has been engaged in spectral classification through photoelectric narrow-band photometry, and on a program to determine the ages of large numbers of stars through the combination of theoretical calculations of effects of stellar evolution on stellar spectra and results of narrow-band photometry. Dr. Strömgren has been professor at the Institute for Advanced Study since 1957. From 1948 to 1952, he served as general secretary of the International Astronomical Union and on the executive committee of the International Council of Scientific Unions.

Dr. Whitford was born in Wisconsin and received his PhD from the University of Wisconsin in 1932. After two postdoctoral years at Caltech and Mount Wilson, he returned to Wisconsin's Mount Washburn Observatory, becoming its director in 1948. He spent the war years at the Massachusetts Institute of Technology Radiation Laboratory. Dr. Whitford's research has been concerned with the photoelectric photometry of stars and galaxies over a wide spectral range, partly to establish accurate standards of color and magnitude, and partly to evaluate the law of reddening by interstellar dust. Since assuming the directorship at Lick in 1958, he has given his attention to instrumental problems. He is a member of the National Academy of Sciences, and chaired the Academy's Panel on Astronomical Facilities, which recently issued the report *Ground-Based Astronomy: A Ten-Year Program*.

Other officers elected at the August meeting include three new councilors: Helmut A. Abt of Kitt Peak National Observatory, Helen S. Hogg of David Dunlap Observatory, Canada, and Thomas A. Matthews of Owens Valley Radio Observatory.

The membership also elected Daniel M. Popper of the University of California at Los Angeles as member of the US National Committee of the International Astronomical Union, and Lawrence W. Fredrick of Leander McCormick Observatory as member of the Division of Physical Sciences of the National Academy of Sciences—National Research Council.

Continuing in office are President Leo Goldberg, Secretary G. C. McVittie, Treasurer Frank K. Edmondson, and Executive Officer Paul M. Routly.

Optical Society

Van Zandt Williams will take office on January 1, 1966, as the new president of the Optical Society of America, and John A. Sanderson will serve as the Society's new president-elect. Names of new society officers were announced during the OSA's 50th annual meeting held recently in Philadelphia.

Dr. Williams, director of the American Institute of Physics, has had extensive experience as both scientist and administrator in optical research and instrumentation. Awarded his PhD in physics from Princeton University in 1941, he worked in the field of infrared spectroscopy at Stamford (Conn.) Research Laboratories and later joined Perkin-Elmer Corporation as director of instrument development and sales. At Perkin-Elmer he also served as executive vice president and in other executive capacities. A fellow of the Optical Society, Dr. Williams has served on its board of directors and headed an OSA program concerned with optics education.

John A. Sanderson has been chosen president-elect of the Optical Society for the coming year. Dr. Sanderson has been affiliated with the Naval Research Laboratory in Washington, D.C., for 30 years, during which time he has been largely concerned with optical problems of military interest. His early research was a photoelastic investigation of stresses in ship structures, and later he studied molecular structure of aviation fuels by infrared spectroscopic means. During World War II, Dr. Sanderson's work included near-infrared image-converter tubes, infrared detection of targets, infrared radiance of the outdoor scene, and optics of infrared-reflecting paints. After the war he participated in optical experiments at the Crossroads Bikini bomb tests, and in 1949 was appointed superintendent of the NRL Optics Division. This past August, Dr. Sanderson was named NRL acting associate director of research for program planning. A fellow of both the OSA and the American Physical Society, he also serves on the AIP Governing Board.

Mary E. Warga will continue as executive secretary of the OSA at the Society offices in Washington, D.C.; A. I. Mahan of the Applied Physics Laboratory will continue as treasurer; and David L. MacAdam of Eastman Kodak and John Howard of the Air Force Cambridge Research Laboratories will serve as editors of the *Journal of the Optical Society of American* and *Applied Optics*, re-