

to the atomic energy field to justify presuming that the candidate may be considered a potential employee of the AEC or one of its contractors.

Arrangements have been completed with Associated Universities, Inc. of New York City for the northeast and with the Oak Ridge Institute of Nuclear Studies for the southeast to administer the program in these regions. Negotiations were reported under way with the Argonne National Laboratory and the University of California to handle administrative and financial matters connected with the program in the midwest and the west respectively. Supervision of the academic program in the two regions will be under the Midwest AEC Fellowship Board, established by Argonne's Board of Governors, and by the Western AEC Fellowship Board, to be established by the University of California.

Although the final selection of fellows will be the responsibility of the regional organizations, it is expected, according to the AEC announcement, that the NRC will be requested to assist in the selection of fellows to the extent of assessing the scientific qualifications of applicants. Fellows will be required to have either a full security clearance or "fellowship approval" as provided in the Appropriations Act. Both are granted by the AEC and are determined after FBI investigation of the candidate.

The AEC has also announced that it is sponsoring a graduate level fellowship program to give training in radiological physics to qualified applicants. The program, to be administered by the Oak Ridge Institute of Nuclear Studies, will be conducted at the University of Rochester in cooperation with the Brookhaven National Laboratory, and at the Oak Ridge laboratory and Vanderbilt University. Security clearance is also required in the case of these fellowships.

STRESS PHENOMENA

HIGH-POLYMER DIVISION HOLDS UNIFYING SYMPOSIUM

The seventh meeting of the Division of High-Polymer Physics of the American Physical Society was held on February 2-4 at the Polytechnic Institute of Brooklyn and Columbia University. The division, organized in 1944 as the second one authorized by the APS Council, now numbers about two hundred seventy members and thirty-five associates. A symposium on stress phenomena from the respective viewpoints of solid state and high-polymer physics was a feature of the New York program, which, in all, consisted of twenty-seven papers. A number of high-polymer papers were also presented in a special session on the general program of the Society.

The opinion has been growing among a school of high-polymer physicists, especially those working on the elastic, dynamic, and plastic properties, that the two fields of polymer and solid state physics are developing divergently, though they are based on the same fundamental physical concepts and principles and pertain respectively to phenomena which, in many cases, are at least macroscopically similar. There are arising two systems of terminology for analogous, if not identical, phenomena and concepts, to the unnecessary detriment of the unity and simplification of physics. Thus, with the object of initiating

steps toward clarification of the real similarities and differences between the two fields, the program committee, headed by W. L. Davidson, planned the afore-mentioned symposium. It is hoped also that a movement along the lines suggested by the symposium will provide for the interchange of ideas, so that useful concepts more completely developed in one field will find fruitful application in the other. It appeared highly appropriate that these efforts toward the retention of the unity of physics should be under the auspices of a division of the Physical Society.

The symposium, held on the Columbia campus, was opened by Frederick Seitz, who presented a paper on the mechanism of flow in single crystals. After a brief description of the observed, gross behavior of crystalline matter, he outlined the modern theories of the deformation mechanism at the atomic level. These theories have an explicit dependence on crystal structure. Arthur Tobolsky followed with a paper on the corresponding topic in polymer physics: the static and dynamic viscosities of amorphous polymers. Because the glasses occupy a position midway between the crystalline solids and high polymers in the classification of matter, are believed to form discrete aggregates, and indeed have been called "inorganic polymers," it was thought profitable to include them in the symposium. Accordingly the third speaker on the program was W. A. Weyl who discussed the rheological properties of glass. In several instances he was able to point out the similarities between the theoretical interpretation of glass behavior and those of crystalline solids or polymers.

The second half of the symposium opened with a discussion of current developments on internal friction in metallic solids by Clarence Zener. The concluding paper was presented by Herbert Leaderman, on the subject of the structure and physical properties of crystalline polymers. Maurice Huggins, who had accepted the unenviable task of synthesizing the different viewpoints presented in the five symposium papers, did a praiseworthy job. The highlight of his comments was perhaps the observation that the deformation processes, whether in metallic solids, glasses, or high polymers, were controlled by energy relationships, and that activation energy figured largely in determining the character of the processes. Unfortunately, a change in the program schedule eliminated the planned opportunity for general discussion, which, it was hoped, would have further advanced the purposes of the symposium.

The regular division program, presented in sessions held at Brooklyn, covered the field of high polymers quite broadly. With respect to the polymers generally regarded as plastics were papers on flow, fracturing, crazing, plasticization, orientation, transition phenomena, equation of state, and a newly identified electrical effect. Research reported on rubbers included crystallization, temperature influences on creep, recover and relaxation, and polymerization with ultrasonic vibration. Textiles were represented by papers on the mechanical properties of wool fibers, an x-ray study of nylon during loading, and an XRD specimen mount for fibers. There were a number

of papers on the behavior of high-polymer solutions. In a class by itself was a paper on the stress-strain behavior of collagen tendons. No doubt the most recondite papers on the program were the two on the random-walk theory of the long-chain molecule.

During the business session held February 2 announcement of the results of the election of division officers for 1950 was made, as follows: chairman, W. L. Davidson; vice chairman, J. Burton Nichols; secretary, W. James Lyons; treasurer, J. W. Liska. Other members of the executive committee are: Paul Doty, Hubert M. James, and R. B. Stambaugh. Adopted during the session was an amendment to the by-laws designating Physics Today as the journal for official announcements of the division.

—W. James Lyons

AT STANFORD

APS MEETING REPORTED

The Stanford meeting of the American Physical Society last December 29 and 30 had somewhat greater interest and attendance than was originally expected for a west coast meeting at that time of year. The program consisted of seventy contributed and six invited papers, and the attendance was close to two hundred. Most of those contributing and attending came from the Pacific Coast—California, Oregon, and Washington—although several came from the mountain states and the middle west, and a few from the east. A wide variety of subjects was represented, including reports on infrared spectra, x-rays, nuclear induction, nuclear reactions, particle accelerators, corona studies, artificial mesons, and cosmic radiation.

The program was arranged with two parallel sessions, mainly of contributed papers, on Thursday afternoon, and three parallel sessions of contributed papers on Friday morning. The short distances between meeting rooms, and the pleasantness (even in December) of the open air arcades that characterize Stanford architecture, made for more extended coverage of contributed papers than is usually the case, as well as for informal discussion in between. Nature cooperated by steadily increasing the temperature during the two days of the meeting, until nearly all of the visitors from southern California shed their topcoats. Thursday morning and Friday afternoon were each devoted to single sessions, mainly of invited papers. The first of these dealt with upper air research, and provided an excellent summary of the present state of knowledge in this very interesting branch of physics. The Friday afternoon session in the Little Theatre was very well attended, and was felt by many to be a fitting climax to the meeting. It consisted of three unusually interesting papers on varied topics: the Stanford microwave laboratory (Chodorow), an experimental determination of the energy level displacement in singly ionized helium (Skinner), and a theory of the origin of cosmic rays and geomagnetism (Teller).

Of particular interest to this reviewer were the papers on cosmic radiation by Forster and by Brode, Fretter, and collaborators, and the theoretical analysis of high energy scattering data by Christian and Noyes. The former group dealt with the presence of very heavy mesons in

the atmosphere and the balance between positive and negative charges of penetrating particles. The latter group demonstrated a significant difference between neutron-proton and proton-proton interactions, the latter requiring a strong and rather singular tensor interaction effective in triplet states.

The meeting will long be remembered by Stanford physicists as one of their very pleasant and all-too-rare opportunities to show their colleagues from elsewhere at first hand the activities of the physics department and the microwave laboratory. Judging by many favorable comments on the occasion, they feel justified in hoping that the meeting was equally enjoyable for the visitors.

—L. I. Schiff

BURNED

PRINCETON CYCLOTRON DESTROYED

Princeton University's 18 million volt cyclotron was virtually destroyed by fire during the early morning hours of February 22. Although the precise cause could not be determined, the heavy oil used to cool the copper generating coils that provided the instrument's electrical field somehow was ignited. An estimated 800 gallons of oil was contained in tanks above and below the orbit in which accelerated particles were made to travel.

The cyclotron was not in operation at the time of the fire, a fact that was determined upon examining temperature records from the cyclotron room, although it had been in use until about an hour before the oil fire began. The three-foot concrete radiation shield lining the room served beyond its original call of duty by confining the fire to the single room in the basement of the Palmer Physical Laboratory, thus preventing the flames from spreading further.

Built in 1936, the Princeton cyclotron was among the first to be constructed. It has since undergone various and extensive modifications, and has been used recently under the joint sponsorship of the University and the Office of Naval Research. The magnet and other heavy metal parts may be salvaged, but otherwise the instrument has been reported a total loss.

SOCIETY ACTIVITIES

U. S. COMMITTEE JOINS INTERNATIONAL UNION

The U. S. National Committee on Theoretical and Applied Mechanics, recently organized by seven national scientific and engineering societies, has been admitted by unanimous consent as an adhering body to the International Union of Theoretical and Applied Mechanics, according to a communication from J. M. Burgers, secretary of the Union with headquarters in Delft, Holland.

Member organizations of the U. S. Committee are the Society for Experimental Stress Analysis, the American Society of Civil Engineers, the American Institute of Chemical Engineers, the Fluid Dynamics section of the American Physical Society, the Institute for Aeronautical Sciences, the American Mathematical Society, and the American Society of Mechanical Engineers, which is providing the secretariat.

It is the stated object of the committee to promote