

K. Greenland, O. S. Heavens, H. Kuhn, and S. Tolansky from England, P. Van Alphen and B. Blaisse from Holland, M. Ballerini from Italy, M. Schaetti from Switzerland, B. Billings, J. Strong, N. Scott, and A. Turner from the United States. Twenty-five people contributed papers.

Although few scientists are actually studying these thin layers, there are many people who use the optical properties of these films. The nonreflection coating which is becoming standard equipment on binoculars and camera lenses, the silver interference filters, and the aluminized mirrors of astronomical telescopes and of spectrographs are all examples of the application of the optical properties of thin films.

At the conference it was possible to see where thin films are likely to become more useful to scientists. Part of this increased usefulness will arise from new devices which utilize thin films. Part will arise from methods which have been devised for making films more permanent.

For the spectroscopists, a method was discussed which would make it possible to get still higher resolution than is obtained with standard interference spectroscopes. This was accomplished successfully by using two Fabry-Perrot etalons in series. In another paper this same idea was applied to interference filters. The simple interference filter consists of a thin film of transparent material which is between two semi-transparent layers of silver. Light reflected from one side of the filter interferes with light reflected from the other side. In the new filter discussed at the conference, two filters could be considered as coalesced into one. There are two dielectric layers each between a layer of silver with one layer of silver common to both. The filter gave a narrower passband and higher peak transmission than the common filter.

Professor Tolansky of England described an application which should be particularly interesting to those studying piezoelectricity. He photographed the fringe pattern formed on an oscillating quartz plate in a Fabry-Perrot interferometer. The fringe pattern made a series of loops and nodes from which one could deduce the manner in which the crystal was vibrating.

A series of slides of various telescope mirrors which he had aluminized were shown by Professor Strong of the United States. The slides were arranged in chronological order, beginning with some small mirrors and ending with the Mount Palomar two hundred-inch. Professor Strong was present in at least one photograph of each mirror and one could see that as the mirrors got larger Professor Strong's hair became grayer.

Professor Rouard of France discussed the reflectivity of thin metal films. When light goes through a plate of glass there is reflection from both sides of the plate. A thin metal coat of the proper thickness will reduce the reflection at the back side of a glass plate to zero. Professor Rouard gave an unusual demonstration of this phenomenon. The metal coating was wedge shaped. Where the filter was of the correct thickness to reduce the reflection, it appeared black.

In the form of thin films, matter in general no longer possesses its bulk properties. The properties of a film of

any given material can be made to cover a wide range of values simply by changing some of the conditions under which the film is prepared. Another series of papers was concerned with the measurement of the index of refraction and thickness of thin films. The polarimetric method seems to be one of the most powerful. In this technique, polarized light is reflected from the sample and a measurement made of its phase and intensity change. Film thicknesses as low as ten angstroms can be measured.

The collected papers presented at this symposium are being published by the French Centre National de la Recherche Scientifique. Professor Rouard of Marseille is collecting the manuscripts and arranging for the publication.

The choice of Marseille as a conference center was a particularly happy one. The weather was magnificent and the Marseille group organized several trips which provided relaxation from the strain of the sessions. One whole day was taken for a visit to the observatory of Saint Michel. Those who attended the conference were particularly impressed with the overwhelming hospitality of the Marseille scientists. The banquets and dinners were culinary masterpieces. In conclusion, the American team is happy to report that the bathing suits reported in *Life* (January, 1949) can actually be seen walking on the beach in Marseille.

—Bruce H. Billings

PHOTOGRAPHY IN SCIENCE

CLOSING DATE SOON

Entries for the 1949 international photography-in-science salon, conducted by the Scientific Monthly and the Smithsonian Institution and open to scientists everywhere, will be received by the editor of the Scientific Monthly until September 14, 1949.

AMERICAN GEOLOGICAL INSTITUTE

EXECUTIVE DIRECTOR NAMED

David M. Delo, formerly of the Army logistic division's research and development group, has been named the first executive director of the American Geological Institute.

The American Geological Institute is a new organization, established in November, 1948, to represent the geology profession. A union of eleven geological societies whose members total more than ten thousand professional geologists, its headquarters will be in the National Research Council building in Washington and the activities of the Institute will be carried on in conjunction with those of the Division of Geology and Geography, NRC, of which Dr. Delo is executive secretary.

The initial member organizations are: The American Association of Petroleum Geologists, the American Geophysical Union, the American Institute of Mining and Metallurgical Engineers, the Geological Society of America, the Mineralogical Society of America, the Paleontological Society, the Seismological Society of America, the Society of Economic Geologists, the Society of Economic Paleontologists and Mineralogists, the Society of Exploration Geophysicists, and the Society of

Vertebrate Paleontology.

The Institute is organized as an instrument of the National Research Council, in this way uniting geologists with all other American scientists who are seeking solutions to problems which can best be attacked through group or united action. It will be concerned initially with the nonresearch activities of the geological profession, and will supplement the work of the Division of Geology and Geography of the National Research Council, which is chiefly concerned with the coordination of research in geology and geography and its interrelationships with allied sciences.

Officers of the Institute are A. I. Levorsen, dean of mineral sciences, Stanford University, president; W. B. Heroy, Beers and Heroy, Dallas, Texas, vice president; and Earl Ingerson, U. S. Geological Survey, Washington, D. C., secretary-treasurer.

SOCIETY ACTIVITIES

WISCONSIN AAPT

The annual meeting of the Wisconsin section of the American Association of Physics Teachers was held at Lawrence College in Appleton, Wisconsin May 6 and 7. A recent communication from the Wisconsin section announces the election of the following officers for the coming year: E. H. Schrieber, president; V. P. Batha, vice president; W. P. Clark, secretary-treasurer; and R. R. Palmer, regional representative. According to present plans, the next annual meeting will be held at Carroll College, Waukesha, Wisconsin, on or about May 6, 1950.

SIGMA PI SIGMA

A recent compilation of membership data shows that the sixty-seven chapters of Sigma Pi Sigma in the academic year 1948-49 received one thousand two hundred and thirty-four new members, including the four hundred and four charter members of fourteen chapters installed during the year. There were eleven hundred and forty-three additional active members received previously in the chapters so that the total active chapter membership included twenty-three hundred and seventy-seven persons. Since its founding in 1921 the Society has received about seven thousand seven hundred persons into membership in recognition of high scholarship and interest in physics.

A national Sigma Pi Sigma convention is being planned for the latter part of the next Christmas vacation period. The host chapter will be selected from one of the institutions in Indiana or Kentucky.

ROBERT D. CONRAD

Robert D. Conrad, assistant director of the Brookhaven National Laboratory, died at New York's Memorial Hospital on July 26 after an extended illness. A retired Navy Captain, he had been associated with the Laboratory during the past two years, where he helped organize the medical department. Previously he had been director of the planning division of the Navy Office of Research and Development and had received the Legion

of Merit. He was a consultant to the Sloane-Kettering Institute for Cancer Research at the Memorial Hospital.

HYMAN H. GOLDSMITH

Hyman H. Goldsmith, chief of the information and publications division at the Brookhaven National Laboratory, died August 7 from injuries suffered in a swimming accident while vacationing in Vermont. He was forty-two years old. Dr. Goldsmith joined the Manhattan District in 1943 as coordinator of information for the metallurgical laboratory at the University of Chicago. He was a member of the editorial panel concerned with preparing the National Nuclear Energy Series, an editor of *The Bulletin of the Atomic Scientists*, and a member of the editorial board of *Nucleonics*. He was a fellow of the American Physical Society.

PERLEY G. NUTTING

Perley G. Nutting, retired optical physicist, died August 8 in Washington, D. C. at the age of seventy-six. A graduate of Stanford and Cornell Universities, he joined the Bureau of Standards in 1903. He later became assistant director of research for Eastman Kodak Company at Rochester and director of research for the Westinghouse Electric Company at Pittsburgh. In 1928 he joined the U. S. Geological Survey as a geophysicist. Dr. Nutting was a member of the American Physical Society and in 1917 served as president of the Optical Society of America.

ROLAND G. D. RICHARDSON

Roland G. D. Richardson, mathematician and dean emeritus of the Brown University graduate school, died July 17 at the age of seventy-one. He was chairman of the department of mathematics from 1915 until his retirement in 1948. Dr. Richardson continued his work in mathematics and was secretary of the International Congress of Mathematicians. He was a fellow of the American Academy of Arts and Sciences, an officer of the American Mathematical Society, and held several positions with the American Association of Universities.

W. N. STOCKER

W. N. Stocker, Oxford mathematician and physicist and the oldest of the British university's dons, died August 2 at his home in Brasenose College, Oxford. He was ninety-eight years of age at the time of his death and had been at Oxford since he entered as a student eighty years ago.

ARCHIE G. WORTHING

Archie G. Worthing, University of Pittsburgh professor of physics, died July 30 at the age of sixty-eight. Dr. Worthing, best known for his high temperature measurements, was the author of two physics textbooks and co-authored the book "Properties of Tungsten." He was a fellow of the American Physical Society, past president of the Optical Society of America, past president of the American Association of Physics Teachers, and a member of the governing board of the American Institute of Physics. He was also a member of Sigma Pi Sigma, Sigma Xi, and the Phi Beta Kappa Society.