



NEWS

and VIEWS

NOBEL PRIZES IN PHYSICS AND CHEMISTRY

YUKAWA AND GIAUQUE HONORED

This year's recipient of the Nobel Prize in physics, Hideki Yukawa of Kyoto University in Japan, has been thus distinguished by the Royal Swedish Academy of Science for having postulated, in 1935, the theoretical necessity in atomic structure for an elementary particle intermediate in mass between the electron and the proton. Two obliging California Institute of Technology researchers, Carl Anderson and Seth Neddermeyer, discovered evidence for such a particle in cloud chamber photographs some two years later while investigating cosmic rays. It was subsequently established that this particle has a mass of the same order as that suggested by Yukawa, and there has been very general agreement that the similarity is more than mere coincidence. The implications of Yukawa's theory have done much to stimulate and to vitalize basic nuclear research.

The name meson was given to the particle as being descriptive of its mass relationship to other particles, and although it has been known variously around the world as the mesotron, the mesoton, the barytron, and the heavy electron, the name meson has been internationally approved. A short-lived movement to call it the yukon, in honor of Yukawa, reportedly was abandoned because of the prior rights to the name held by an Alaskan river.

Dr. Yukawa was invited in 1948 to come to the Institute for Advanced Study at Princeton. On leave of absence from Kyoto University, he remained at the Institute for a year before taking his present post, a visiting professorship in theoretical physics at Columbia University.

The 1949 award for chemistry is to be received by William F. Giaque, professor of physical chemistry at the University of California at Berkeley, for his contributions in the field of thermodynamics, especially concerning relations between substances at extremely low temperatures. He received the 1936 Chandler Medal of Columbia and the Franklin Institute's Elliott Cresson Medal for 1937 in recognition of his salt demagnetization method of producing temperatures approaching absolute zero. In 1929 he was a corecipient (with H. L. Johnstone) of the Pacific division prize of the American Association for the Advancement of Science.

Presentation of the Nobel Prizes, which are worth 156,289 kroner each (about \$30,000), will be made in Stockholm on December 10.

OPTICAL SOCIETY MEETS

HARRISON, MEGGERS HONORED

Is it proper to expect that the contributed papers presented at a meeting of a scientific society give a fair indication of the various specific fields of current research interest, while the invited papers and symposia indicate technical fields of importance, at least in the opinion of the program committee? If so, the thirty-fourth annual

meeting of the Optical Society of America, which was held in Buffalo, New York on October 27-29, gave evidence that fields of current research activity in optics include color, physiological optics, spectrum analysis, spectrochemistry, infrared instrumentation, studies of fluorescent phenomena, applications of optics in biophysics, and such new physical optics tools as infrared polarizers and interference filters with eighty percent peak transmission. A symposium of five invited papers on various phases of microscopy indicated that this historical field continues to be of interest and importance to optical workers. L. V. Foster of the Bausch & Lomb Optical Company gave an excellent survey of the development of optical microscopes to their present high standard of excellence. Peter Gray of the biology department of the University of Pittsburgh let loose a spirited but good-humored blast at the microscope manufacturers for a number of alleged sins of omission and commission. Happily, it can be reported that in many cases solutions to the problems he emphasized are already in hand, if not actually on sale! H. Osterberg of the American Optical Company's Scientific Instrument Division presented a scholarly paper on microscope imagery and its interpretation. John R. Loofbourof of the Massachusetts Institute of Technology described the new field of microspectroscopy which is now in a state of such rapid development, and is expected to be of major importance in biophysics and biochemistry and in the microanalysis of very small specimens. L. Marton of the National Bureau of Standards gave an exhaustive comparison of the optical and electron microscopes. Among the contributed papers of allied interest was one by Elkan R. Blout of the Polaroid Corporation, who reported on work now underway on the determination of infrared spectra of very small amounts of material. This is accomplished by combining the achromatic reflecting microscope objective designed by David Grey with a Perkin-Elmer infrared spectrometer. Another paper reported pioneer work in color phase contrast microscopy using the methods of Zernike, and taking advantage of the great sensitivity of the human eye in hue discrimination.

Other invited papers included a brilliant account of the similarities and differences between the human eye and the camera by George Wald of the biological laboratories of Harvard University, and a crisp description by A. C. S. van Heel of the Technical University of Delft, Holland of simple methods for making extremely high precision measurements. By using such humble equipment as single and double slits or metal sieves and a five-power magnifier, straight lines and angles can easily be established, the latter to an accuracy of better than one-tenth second of arc.

W. A. Baum and L. Dunkelman of the Naval Research Laboratory reported on the ultraviolet characteristics of the high-pressure xenon arc, a new light source which gives a maximum radiance exceeding that of the carbon arc positive crater by a factor running from 23 at 2500 Angstroms to 6 at 3500 Angstroms, and has a very smooth ultraviolet continuum which is interrupted by only a few weak lines. A contribution from John Strong of the Johns

Hopkins University laboratory emphasized that the carbon arc offers a highly satisfactory source for infrared spectroscopy since it exhibits a considerable brightness increase over the Globar and can be held constant in emission to about two percent. R. E. Hopkins and Brian O'Brien of the University of Rochester reported the successful use of optical elements made of artificial sapphire in a special photographic objective of large aperture.

At the annual dinner of the Society the Frederic Ives Medal was presented to Dean George R. Harrison of the Massachusetts Institute of Technology. In the speech of the evening Dean Harrison reviewed the highlights of his thirty years in experimental spectroscopy. His audience was made well aware of the strong thread of continuity that stretches from his early work at Stanford University to his recent development of the new, high resolving power, echelle grating, and was shown the first spectrograms taken with an echelle grating, which was crossed with a conventional quartz spectrograph. At the close of this meeting the presidential chair was relinquished by Rudolf Kingslake of the Eastman Kodak Company to W. F. Meggers of the National Bureau of Standards.

—Stanley S. Ballard

ONE SCIENTIFIC WORLD

INTERNATIONAL LABORATORIES PROPOSED

Specific recommendations to Unesco for establishing international research laboratories have been made both by the National Research Council's Committee on Unesco and by a committee of experts in various scientific fields, which met at Unesco House in Paris last August. The laboratories would be under the United Nations. Both bodies have suggested strongly that an international computation center be founded, and the NRC committee has issued a report containing excerpts from a subcommittee's more detailed memorandum on the subject.

This proposes specifically that an international computing center (the authors prefer calling it an international mathematical and statistical consulting center) be considered as a serious international enterprise, and suggests further that it be located in a university city of one of the smaller countries of Europe, naming Switzerland, Denmark, Holland, or Belgium as possibilities. To make it clearly international, the writers believe the center should not be located in America, nor should it be in one of the larger countries of Europe.

It is probable, the report continues, that several existing international organizations now concerned with statistical problems would take an active interest in the proposed center because it would provide hitherto unavailable opportunities for European scientists who have no effective computing laboratory in continental Europe to which they may turn.

SCIENCE FELLOWSHIPS

OFFERED BY ROCKEFELLER FOUNDATION AND RCA

The National Research Council has announced that national research fellowships in the natural sciences will be continued in 1950. The awards are supported by the Rockefeller Foundation to promote fundamental research

in mathematics, astronomy, physics, chemistry, geology, geophysics, biophysics, biochemistry, and other fields in the natural sciences. Citizenship in either the United States or Canada is required, and the fellowships are generally awarded only to persons under 35 years of age who have completed work for the doctorate prior to assuming the fellowship. Applications should be filed on or before January 1, 1950.

The National Research Council has also announced that applications are being accepted for RCA predoctoral fellowships in electronics for 1950. These must be filed on or before January 10, 1950. The fellowships, supported by the Radio Corporation of America, are designed to give special graduate training and experience in research to graduate students who have demonstrated marked ability in electronics, either as a branch of electrical or radio engineering, or in that field of physics which treats the behavior of electrons in conductance phenomena.

Candidates must be citizens of the United States and must have training in electronics equivalent to that represented by one year beyond the bachelor's degree in a university of recognized merit in the field. The awards will be made at a regular meeting of the RCA Fellowship Board of the NRC next March.

Further information concerning both the Rockefeller Foundation fellowships and the RCA predoctoral fellowships in electronics may be obtained from the Fellowship Office, National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D. C.

OFFERED BY GENERAL ELECTRIC

Applications for General Electric Company fellowships for the 1950-51 academic year are now being accepted and must be filed before January 1, 1950 according to a GE announcement. The fellowships will be awarded to graduates of colleges, universities, and technical schools in the United States who need financial assistance, and who have shown that they could, with advantage, undertake or continue research work in educational institutions either in this country or abroad. Awards to an annual maximum of \$1,500 for each fellowship will be made, the amount depending upon the needs of the student. Application forms have been distributed to deans and department heads; they may also be obtained from A. D. Marshall, Secretary, General Electric Educational Fund, Schenectady, N. Y.

COURSES

ATOMIC ENERGY EDUCATION

The Argonne National Laboratory, in cooperation with the Chicago public schools and the Museum of Science and Industry, is presenting a nuclear energy institute for Chicago teachers and school administrators. The Institute held its first meeting on October 15, and will continue to meet each Saturday until April 15, 1950.

TRACER COURSES ANNOUNCED

The special training division of the Oak Ridge Institute of Nuclear Studies announces that three additional basic courses in the techniques of using radioisotopes as tracers