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. Giauque, 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. Loofbourow 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