

## we hear that

ment of Science. Breton will be the third fellow supported by the Optical Society since 1976. The fellowship was established to provide for greater interaction between the legislative and scientific communities by allowing scientists and engineers to spend a year working on the staffs of US Congressmen or one of the congressional committees.

An experimental psychologist, Breton specializes in the psychophysics of color vision. He received his bachelor's degree from Amherst College and his doctorate from the University of Chicago. Breton was a postdoctoral fellow at Columbia University for two years before joining the Optics Section of the National Research



BRETON

Council of Canada. He has performed research in temporal response characteristics of chromatic mechanisms, saccadic eye movements, visual quantum counting and color matching. Currently, he is working on a model for chromatic brightness perception.

**Daniel C. Drucker** of the College of Engineering in the University of Illinois (Urbana) has been awarded the Gustave Trassenster Medal for 1979 from the University of Liege, Belgium. Drucker is cited for his work on the theory of plasticity.

**Gerhard Ertl**, professor of physical chemistry at the University of Munich, has been awarded the E.W. Müller Lecture-ship for 1979 by the Laboratory for Surface Studies at the University of Wisconsin-Milwaukee.

**Jean Teillac** was reelected president and **Paul Levaux** vice-president of the CERN Council for 1979. **Günther Lehr** was elected vice-president in succession to **A. C. Pappas**.

**Thomas F. George** has been given the 1979 Marlow Medal of the Faraday Division of the Chemical Society. The medal is

awarded to scientists under 33 years old who have done outstanding work in physical chemistry and chemical physics.

**Henry Kressel** has been appointed staff

vice-president, Solid State Technology, RCA Laboratories. Kressel will be responsible for RCA's integrated circuit research at Princeton, N.J. and for the RCA Solid State Technology Center, Somerville, N.J.

## obituaries

### Donald E. Kirkpatrick

Donald E. Kirkpatrick, for many years chairman of the physics department at Queens College of the City University of New York, died on 8 February after a long illness. He had almost reached his seventy-fifth birthday.

Kirkpatrick was born in Swepsonville, North Carolina, located just a few miles from Duke University where he received his bachelor's degree in 1927 and his master's degree in 1928. He earned his PhD at New York University in 1934 and continued teaching there until 1937 when the newly established Queens College opened. He was the first chairman of the new physics department and served in that capacity at intervals for many years. Before his retirement in 1972 he was instrumental in starting graduate work in physics at Queens College when the city colleges united into the present City University of New York.

The present Placement Service of the American Institute of Physics owes much to the efforts of Kirkpatrick, who in 1946, with the cooperation of Director Henry A. Barton and Wallace Waterfall, revived George H. Burnham's project, which had been interrupted by the war.

During the war years, from 1942 to 1945, Kirkpatrick served as Senior Physicist at the Oceanographic Institute at Woods Hole, Massachusetts, where, with two of his colleagues, Edward M. Thorndike and Alexander P. Marion, he engaged in research involving underwater signalling and photography.

During the years immediately following the war, when Civil Defense became a matter of national concern, Mayor Robert Wagner named a committee of scientists to advise on radiation dangers in New York City and Kirkpatrick was chosen as a member of that committee. He helped to select the instruments necessary to detect and monitor harmful radiation and instructed local groups in their use.

Kirkpatrick's contribution to Queens College touched practically every facet of college life from teaching and administration to the mechanical aspects of running an educational institution. He served for two years as Dean of Administration. His devotion to general college matters was recognized by a presidential citation in the spring of 1968.

Underlying Kirkpatrick's many activities at Queens College was a deep

concern for the development of both intellect and character in students. On his retirement his colleagues honored him by setting up the Donald E. Kirkpatrick Award to be given annually to an outstanding graduating senior.

HUGO N. SWENSON  
Professor Emeritus  
Queens College

### Dennis Gabor

Dennis Gabor, the inventor of holography, died 9 February in London at the age of 78. He was born in Budapest, Hungary and received his education at the Technical University, Budapest, the Technische Hochschule in Charlottenburg, Germany, where he received the degree Dr Ing in 1927, and the University of London. He was a research engineer at Siemens and Halske in Berlin (1927-33) and at Thomson-Houston in Rugby (1933-48). He then joined the staff at Imperial College, London, where he became Professor of Applied Electron Physics until his retirement in 1967.

In 1947, while concerned with improving the resolution of the electron microscope, Gabor made the invention that later brought him fame and the Nobel Prize. He conceived a technique for recording the wave field scattered by the electron-illuminated object, then recreating from this record a replica of the wave field, complete in amplitude and phase, but with light waves instead of the original electron waves. All of the electron-wave aberrations, resulting from the imperfections of electron lenses, would carry over to the light waves, and could be compensated by the well-known techniques of the lens designer. To this process Gabor gave the quite descriptive name "wavefront reconstruction," and the record he called a "hologram," from the Greek *holos*, meaning "whole."

Gabor's solution to the electron-wave problem was a bold and imaginative one, although, as it turned out, not very successful. Nevertheless, when carried out entirely with light waves, holography became an immensely successful process, giving rise to three-dimensional imagery that has captivated scientists and non-scientists alike, to powerful optical computing techniques, to rather surprising forms of interferometry, and to many other significant optical processes.

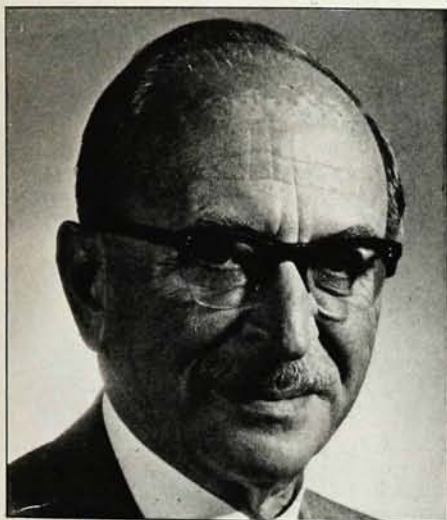
In its early years, however, even purely



optical holography was not entirely successful, although in the course of time new advances in holography and in supporting technology eventually resulted in perfection of the process, Gabor's recognition rose with the fortunes of his process and in 1971 he was awarded a Nobel Prize.

Gabor's other significant accomplishments were in the areas of electron physics and communication theory. Also, he had written a number of books, including *The Electron Microscope* (1945), *Inventing the Future* (1963) and *Beyond the Age of Waste* (1977). As these titles indicate, Gabor in later life turned his attention increasingly toward the broader problems of society.

Although I had been involved with holographic research since 1955, it was not



until 1965 that I finally had the opportunity of meeting Gabor. He impressed me as a man of considerable intellect, whose knowledge spanned many diverse areas, technical and nontechnical. I also found him to be a kindly and thoughtful man, who always listened with enthusiasm to those who discussed their research problems with him.

After his retirement from Imperial College he continued his consulting work at CBS Laboratories (Stamford, Connecticut), headed by his longtime friend, Peter Goldmark. He appeared as an invited speaker at scientific meetings worldwide, although this activity gradually decreased throughout the 1970's due to advancing age and failing health. Gabor's principal legacy, holography, continues as an active research area, with advances being made every year.

EMMETT N. LEITH  
The University of Michigan  
Ann Arbor, Michigan

## Yusuke Hagihara

Yusuke Hagihara died 29 January in the 82nd year of his life, thus ending the career of the leading Japanese astronomer of this century. Born in Osaka, 28 March 1897, he graduated from the University of

Tokyo in 1921 with a major in astronomy. He was early recognized as a most promising scholar, and in 1923 he was sent by his government to study in Cambridge, England, under Sir Arthur Eddington and Henry F. Baker. Before returning home, he visited observatories in Paris, Göttingen and the US. In 1928 he returned to the US to study under Garrett D. Birkhoff at Harvard. At Tokyo he received his doctorate in 1930 and in 1935 was appointed professor of astronomy. He lectured not only on topics in classical astronomy but also in the rapidly expanding field of astrophysics. In 1944 he became a member of the Imperial Academy of Japan, and in 1946 he was appointed director of the Tokyo Astronomical Observatory at Mitaka.

He received numerous other awards and honors, but he won his place in the hearts of astronomers in a way that is not recorded by formal accolades. Early in 1949, Raymond Walters, then president of the University of Cincinnati, was commissioned as an adviser to General Douglas MacArthur on the reorganization of Japanese universities. When I learned that he was going to Tokyo for an extended period, I asked Walters to visit Hagihara at Mitaka, and to assay the circumstances of the Japanese astronomers and what accomplishments we might expect from them. Though Walters was not a physical scientist he returned with a glowing report of his delight in meeting Hagihara, and the high regard in which he held him as a cultured gentleman. He also reported, however, that he found Hagihara delivering lectures on celestial mechanics to his students in a room without chairs; they had to stand during the entire time of the lecture. Some were so poor that instead of shoes they had only burlap sacks wrapped around their feet. Out of these deplorable postwar conditions, Hagihara led his students, who are now the present generation of Japanese astronomers. He showed himself to be a leader *par excellence*.

At heart Hagihara was a Newtonian celestial mechanic. He set for himself a task whose equal has seldom been accomplished in the history of science. After a lifetime of study, he undertook to prepare a comprehensive compendium on dynamical astronomy and stability in celestial mechanics. The result is a monumental, five-volume opus, *Celestial Mechanics*, published between 1970 and 1976. It is an astute, authoritative exposition of every aspect of the subject and a cornerstone for every student who may ever wish to consider any part of it. It is an accomplishment that can be described only in extravagant superlatives. His inspiration to the generation that succeeds him will be as certain as his high attainments during his life.

PAUL HERGET  
Cincinnati Observatory □

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