has been appointed senior scientific representative in Australia by NASA.

Harvey Mudd College has honored two former physics faculty members, the late **Duane E. Roller** and **Ray Lee Edwards,** who retired last year, by the establishment of two new scholarships.

Waldo H. Kliever, Kliever Development Laboratories, has been made a fellow of the Instrument Society of America for his work in aircraft instrumentation and automation.

Richard A. Blue, formerly at Ohio State University, **Donald E. Ellis,** from the Massachusetts Institute of Technology, **Ralph C. Isler,** from Columbia Radiation Laboratory, and **Joseph S. Rosenshein,** of MIT and the University of Rome, have been named assistant professors of physics at the University of Florida; **James K. Gleim** of the US Naval Observatory and National Aeronautics and Space Administration and **Frederick R. West** of NASA Ames research center have joined the Florida faculty as assistant professors of astronomy.

Richard J. Anderson, a recent PhD at the University of Oklahoma, and **Charles B. Richardson, Jr** formerly at the University of Washington, have joined the physics staff at the University of Arkansas. **O. R. Plummer** has been appointed assistant professor of theoretical physics there.

David F. Bleil, associate technical director and head for research at the Naval Ordinance Laboratory, has been cited with the Navy's highest honor for civilians, the Navy distinguished civilian service award, in recognition of his many contributions to the field of naval ordnance.

Robert Jastrow, director of the Goddard institute for space studies, and **Dean E. Wooldridge,** co-founder of the firm that became Thompson-Ramo-Wooldridge, have been named fellows of the American Institute of Aeronautics and Astronautics.

Charles H. Holbrow, formerly of the University of Pennsylvania, has joined the staff of PHYSICS TODAY as associate editor.

Arthur Y. Sakakura, formerly of the University of Colorado, and **Jerrold J. Burnett,** formerly of the University of Oklahoma, have joined the physics department of the Colorado School of Mines as assistant professors. **John V. Kline** has been promoted to professor and **Robert W. McAllister** has been promoted to associate professor.

Eugene Rabinowitch, editor of the *Bulletin of the Atomic Scientists,* has been selected as the 1966 winner of the international Kalinga Prize for the popularization of science. The prize of \$2800 is awarded annually by an international jury.

Stuart J. Golin, formerly assistant professor of physics and metallurgy at the University of Illinois, has become assistant professor of physics at the University of Pittsburgh. Visitors at Pittsburgh this year include **Johan J. DeSwart,** professor in theoretical physics at Katholieke University, Nijmegen, Holland, and **Wolfgang Kundt,** Universitaetdozent at the University of Hamburg, Germany.

Frank W. Patten has been granted leave of absence from the Naval Research Laboratory to be a visiting lecturer at Dartmouth College.

Spectroscopy Society Award Given to Ralph A. Sawyer

The chairman of the board of the American Institute of Physics, Ralph A. Sawyer, has received the 1966 annual medal award of the New York section of the Society of Applied Spectroscopy. The gold medal, awarded for outstanding achievements in spectroscopy, was presented to Sawyer for his accomplishments in the advancement of applied spectroscopy.

SAWYER

ANALOG MONOLOGUE

On Means for Modelling, Measuring, Manipulating, & Much Else

Volume 1, No. 4

A SHORTER PATH TO PRACTICAL ELECTRONIC MEASUREMENTS

One requirement is common to all scientific research . . . threads through all development engineering . . . marks every empirical exercise — *the need to measure.* Our interest in this arises from the fact that electronic circuits (often with transducers) are generally the most practical means for measuring and recording parameters. Moreover, an increasing number of practical and economical electronic measuring circuits employ Operational Amplifiers — our specialty in analog computing devices since before 1946, and as a circuit component since their introduction as such in 1952.

During the past twenty years, we have been privileged to work closely with specialists in many disciplines, helping them to design and build literally thousands of different kinds of circuits — instruments, signal "conditioners", and data "processors" and others ad infinitum. We have learned that our "opposite numbers" in Chemistry, Metallurgy, Aerodynamics, Hydraulics, Mathematics, Stress Analysis, Physics, Thermodynamics, etc., are generally enthusiastic about what Analog Operational circuits *can do*, but almost totally disinterested in *how* they can be made to do it . . . and that is pretty much as it should be. To each his own.

We have observed that a major deterrent to more widespread use of the powerful Analog Way (of sensitive, accurate measurement and data processing) has been the time, effort, and considerable skill required to convert the circuit diagram into a complete, functioning instrument. Now we have found a way to speed and simplify that process. We call it the *Universal Operational Module* (U.O.M.): One such module, the Q3-A1P, is shown here.

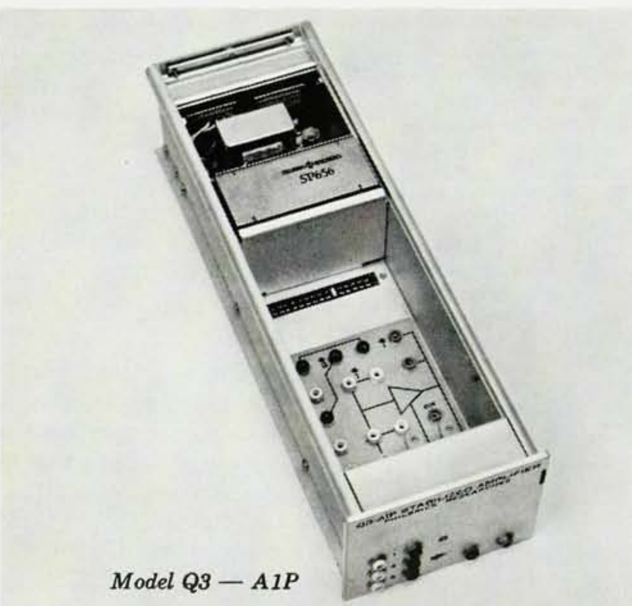

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TABLE 1

Q3-A1P	Compact, self-powered, chopper-stabilized amplifier complete with patch panel and accessory socket.
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Sawyer, who retired in 1964 from his posts as dean of the graduate school and vice president for research at Michigan, now divides his time between his activities at the American Institute of Physics and the National Bureau of Standards where he is chairman of the National Academy of Sciences advisory committees to the Bureau.

Optical Society Awards Wald 1966 Ives Medal

George Wald, professor of biology at Harvard University, was awarded the 1966 Frederic Ives medal of the Optical Society of America. Wald is an authority on the biochemistry of vision and was the first to identify vitamin A in the retina of the eye. The award was made in recognition of the extent to which these and other studies have, in the words of the Ives Medal citation, "contributed uniquely to our knowledge of vision."

Gordon Receives Gold Medal for Ionospheric Studies

The Balth van der Pol gold medal has been awarded to William E. Gordon, dean of engineering and science at Rice University, at the general assembly of the International Scientific Radio Union in Munich. The award was in recognition of Gordon's studies of the ionosphere and development of related electronic equipment. He also played a principal role in the conception and design of the Arecibo Ionospheric Observatory.

William F. Meggers Dies; Was World-Famous Spectroscopist

The dean of American spectroscopists and the world's leading contributor to the elucidation of atomic energy levels, William F. Meggers, died on 19 Nov. at his home in Washington, D.C., after a period of hospitalization for a heart attack. He was 78.

Meggers joined the National Bureau of Standards in 1914 as a laboratory assistant to the late Keivin Burns, and had been chief of the spectroscopy section of the Bureau from 1920 until his retirement in 1958. This last event had little effect on his scientific activity, however, and at the time of his death he was working to complete his analyses of the very complex spectra of the elements thulium, ytterbium and hafnium.

Meggers puzzled out the external electronic structures of many more atoms and ions than any other scientist, and was in great degree responsible for the establishment of spectroscopy as a satisfactory tool for chemical analysis. He devoted more than 50 years to

MEGGERS

correcting deficiencies in spectroscopic data, and described and interpreted the spectra of more than half the known elements in many stages of ionization. He was the first to unravel spectral structures as complex as those of the rare-earth elements.

Meggers' outstanding characteristic, apart from the meticulous care with which he attacked scientific problems, was his persistence in measuring and searching for clues in the complex maze of atomic data that so absorbed him. For more than half a century he spent a majority of his days patiently sitting at a comparator, measuring the wavelengths of atomic spectrum lines, estimating and recording their intensities in his neat legible script, and later at home, far into the night working out relationships among their frequencies from which he could deduce the quantum numbers of the energy states from which they originated. Slowly and systematically he dissected the great mounds of information he accumulated, knowing that in them must be buried the choice jewels of information he sought. His pace in everything was deliberate, and his work almost never needed revision.

Meggers was born in Wisconsin in 1888. His family's circumstances pre-