

North American resident who has made an outstanding contribution to the science of rheology or has performed meritorious service to the society.

White is recognized for his researches in rheology, which have focused on the relationship of structure



WHITE

development to polymer processing. He contributed extensively to the understanding of polymer flow phenomena through his development of tensor constitutive equations relating stress and deformation history, his introduction and application of dimensionless groups to solve flow problems, and his development of a new method of representing biaxial orientation in polymers.

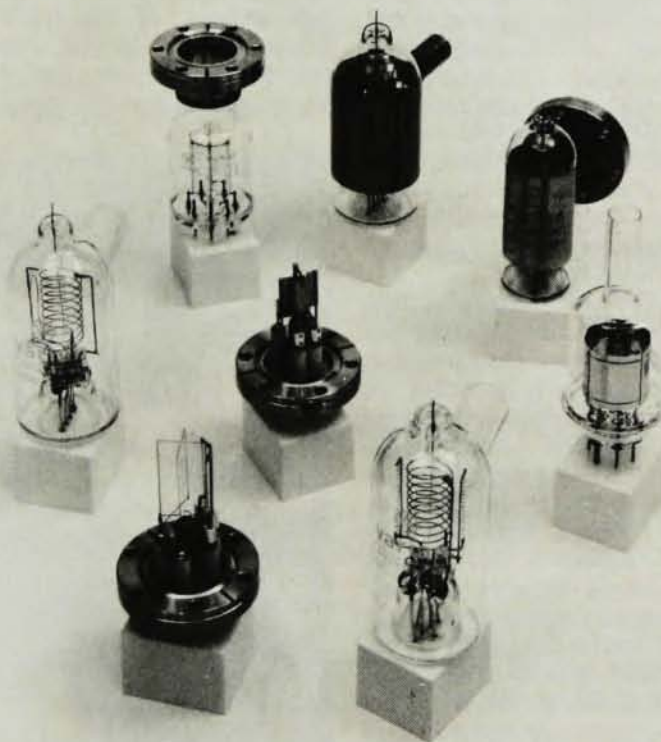
White received his BS from the Polytechnic Institute of Brooklyn in 1959 and his PhD in chemical engineering from the University of Delaware in 1965. After working with Uniroyal Inc., he joined the University of Tennessee in Knoxville in 1967, where he is currently in charge of the Polymer Engineering Program of the Department of Chemical, Metallurgical and Polymer Engineering, a program he was instrumental in creating.

## in brief

The first Von Braun Fellowship in Space Physics has been awarded by the University of Alabama (Huntsville) to **A. Gordon Emslie**, currently a research associate at the Stanford Institute for Plasma Research, where he has been studying solar flares.

**Paul Kramer** has been promoted from physics department chairman to dean of academic services at SUNY, Farmingdale. **Lloyd Makarowitz** is the new

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chairman of the Farmingdale physics department.

**George W. Preston** has been appointed director of the Mount Wilson and Las Campanas Observatories in Pasadena, California. Preston has been serving

as acting director since the breakup of the Hale Observatories in July 1980. The Hale Observatories had encompassed the Carnegie Institution's facilities at Mount Wilson (California) and Las Campanas (Chile) as well as the Caltech facilities at Palomar and Big Bear (California).

## obituaries

### Harvey Fletcher

Harvey Fletcher, born in 1884 at Provo, Utah, had a long and distinguished career as a scientist and engineer. He was a trail-blazing investigator of the nature of speech and hearing and a worldwide benefactor of humanity, including those with vocal and auditory tract deficiencies. He made contributions to movies, music and stereophonic reproduction of sound. He was also a skilled teacher, the first president of the Acoustical Society of America and a president of the APS.

Uncle Harvey, as he was affectionately known, particularly during his later years at Bell Telephone Laboratories, received his early training at Brigham Young Academy. He graduated from BYU in 1907. After teaching full time at BYU during the academic year 1907-08, he left for the University of Chicago, where he participated with Robert A. Millikan in the famous oil drop experiment. Initially, Millikan had attempted to use tiny atomized water droplets in a reversible electrical field as a means of determining the charge on the electron. Fletcher bases his approach on the use of atomized oil after discussing the need for a nonvolatile mist with Millikan and Beggeman. Within a day he had a preliminary setup that gave a fairly reasonable value of  $e$ . Millikan became very much excited when he looked through the telescope into the test chamber and saw the beautiful sight of the droplets jumping around. Even Charles Steinmetz from the General Electric Company, who previously didn't believe there were such things as electrons, said "I never would have believed it. I never would have believed it."

Fletcher graduated in the spring of 1911 from the University of Chicago, receiving the first PhD *summa cum laude* degree awarded by the physics department. That summer he returned to Provo, where he was appointed chairman of the BYU physics department. His skill as a teacher is indicated by the stature later achieved by such students as Carl F. Eyring, Wayne B. Hales, Vern O. Knudsen, Milton Marshall, Joseph Nichols, A.

Ray Olpin and Dilworth Walker.

In 1916 he accepted a long-standing invitation from Frank B. Jewett, head of research at Western Electric in New York City, where, at the time, most of the research of the American Telephone and Telegraph Company was conducted. He was appointed director of acoustical research in 1925, when



**Harvey Fletcher** (seated) with Mark B. Gardner in the anechoic chamber at Bell Labs.

the Bell Telephone Laboratories were organized to take over the research and development responsibilities of the Bell System. Later he became director of physical research at the Laboratories. While there, he was responsible for the development of early Western Electric hearing aids—a pioneering effort that subsequently blossomed to give comfort and increased capacity to hundreds of thousands all over the world. He supervised the development of the clinical

2A audiometer and of a survey method of testing hearing that had wide acceptance in the schools throughout the nation. He and his group of highly skilled scientists and assistants were also first to demonstrate stereophonic sound transmission (1933) and stereophonic recording (1939)—with the assistance of Leopold Stowkowski. During his Bell System career he published some 40 papers in addition to two books: *Speech and Hearing* (1929) and *Speech and Hearing in Communication*. In addition, he coauthored or authored three other books: *Modern Communication* (1932), *Science and Your Faith in God* (1958) and *The Good Life* (1963). Upon his retirement from Bell Laboratories, he taught for two years at the Columbia University Engineering School, following which he returned once again to his native Provo and Brigham Young University.

MARK B. GARDNER  
Spanish Fork, Utah

### Alexander E. Douglas

One of the most distinguished Canadian physicists, Alexander Edgar Douglas, died on 26 July at the age of 65. Born on a Saskatchewan farm, he was educated at the University of Saskatchewan, where he obtained his BA and MA degrees. He interrupted his studies to do defense research at the National Research Council of Canada during the last war. After the war he completed his PhD at Pennsylvania State University under David Rank. After that he and I worked together in establishing a spectroscopy laboratory that in a few years' time gained an international reputation. Douglas' contribution to the organization and to the output of this laboratory was pre-eminent. His critical advice was sought by everyone in the laboratory and by many outside it as well. His ability to spot a weak point in an argument was uncanny.

Douglas' own output of original research in molecular spectroscopy was prodigious. It is difficult to find an important molecule (diatomic or triatomic) for which Douglas did not make a significant contribution to the understanding of its energy levels and its spectrum. It was he who first observed the spectra of  $B_2$ ,  $Si_2$ ,  $CH^+$ ,  $SiH^+$ ,  $NF$ ,  $PF$ ,  $BN$ ,  $CN^+$ , and it was he who first identified the 4050 group of lines observed in comets as being due to the  $C_3$  molecule. Using an elegant method that he developed, he was the first to study the Zeeman effect in polyatomic molecules. Douglas was an extremely skillful experimenter who could work with "string and sealing wax" but who also was very familiar with modern techniques of data collection.