IN MEMORIAM

DARRELL STEPHEN HUGHES
(1904-1970)

Professor Darrell Stephen Hughes, of the Department of Physics, died September 10, 1970, after a short illness. The last year of his life was greatly saddened by the loss of Mrs. Hughes (née Leah Belle Smith), who died suddenly on October 1, 1969, while on a visit to Nairobi, Kenya, Africa. They were married June 30, 1936, in California, and are survived by two children, James Frank Hughes and Cordelia Brooks (Mrs. Dunning Bright).

Professor Hughes was born June 3, 1904, in Linton, Indiana. He attended high school in Providence, Kentucky, from 1918 - 1922 and was graduated in June, 1922. The University of Kentucky was the next stage in his educational career, where he was elected a member of Phi Beta Kappa and received the BA in 1926, and the MA in 1928. Darrell then attended the University of Chicago, where he received the Ph. D. in Physics in 1931, having worked under the supervision of Professor Carl Eckart. The late Professor M. Y. Colby of our department received his Ph. D. from the University of Chicago and they used to tell many interesting stories of their lives at Chicago.

Dr. Hughes was appointed to a National Research Fellowship in 1931, which enabled him to do postdoctoral work for the next two years at the California Institute of Technology. At this time, he met Haakon Evjen, with whom he worked for several years. When the National Research Fellowship ended in 1933, all employment opportunities were limited. Dr. Hughes was an Instructor in Physics at Washington University, St. Louis, from 1933 to 1934, and then a

Research Scientist, Kettlemen North Dome Association, Los Angeles, 1934 - 35, where he did research on petroleum production.

In 1935, Darrell's friend, Haakon Evjen, who was at that time employed by Shell Oil Company in Houston, helped him get a job with Shell. His first assignment was Party Chief on a Gravity crew in Kansas. Geophysics was one of the few industries in the Southwest that was thriving in the 30's, and Darrell used to tell that there were so many geophysical crews in Kansas that some surveyors used polka dot cloth to identify their surveying stakes.

Later Dr. Hughes was promoted to Supervisor of Seismic and Gravimetric Field Operations and was located in the Houston office. Dr. Evjen was located in the Shell Research Laboratory and together they made significant contributions to the interpretation of gravity maps and developed a new technique of electrical exploration. During the last two years of Hughes' work with Shell Oil Company (1943 - 1945) he supervised the operation of their Geophysical Research Laboratory.

At the Board of Regents meeting on November 13, 1945, the appointment of Dr. Hughes to Professor of Physics and Consultant in Geophysics was approved. The latter title was in connection with the University Lands Geology Division. He came to Austin and began his duties in the Spring Semester 1946. This was a critical time for the Department of Physics. The need for physicists in the military research programs had virtually stripped the department of staff and the enrollment was burgeoning because of the returning veterans. Professor Hughes participated enthusiastically in the planning of new courses and in the updating of old courses. He also instituted a program of experimental research in the properties of

solids at high pressures. Measurements were made not only on metals but also on rock samples, the composition of which made the results relevant to the interpretation of seismic wave velocities in the earth. Professor Hughes sought and obtained supporting grants from petroleum companies, the American Chemical Society's Petroleum Research Fund, and the Federal government for this work. Numerous excellent Ph. D. dissertations resulted from this program. A Japanese geophysicist, Dr. Teruo Nishitake, took a leave of absence from Kyoto University to work for two years with Dr. Hughes, and earlier a French geophysicist, Christian Maurette, came to Austin to work with him. Later during the program the equipment was modified so that elastic properties could be measured as a function of temperature as well as of pressure.

In addition to many invited papers on this work, Professor Hughes served as a Visiting Professor at the Centro de Investigacion de Estudios Avanzados del Instituto Politecnico Nacional, Mexico City, Mexico, June 5 - August 10, 1964. In 1953 he became a consultant to the Los Alamos National Laboratory in New Mexico, a position that continued until his death. During 1957 - 1958 he took a research leave to work full time at Los Alamos. The research he did there was continuation and extension of his work on the equation of state of various materials at elevated pressures and temperatures. This work required very sophisticated techniques of recording data since the elevated pressures and temperatures were achieved by using large quantities of high explosives. Thus the equipment was completely destroyed as soon as the experiment was completed, and there was no chance to check a reading.

Soon after the Computation Center was established on The University of Texas campus Professor Hughes became one of its strongest supporters. He quickly became one of the most knowledgeable users of the automatic computer among the members of the scientific community on campus, and he served on the Computer Advisory Committee for many years. Later on, in 1965, while serving as a consultant to this committee, he played a major role in the selection of the Control Data 6600 computer over its many competitors. This selection process sapped the full energy of the Computer Advisory Committee for a period of more than a year, and Dr. Hughes aided a minority of the members of the committee in convincing the majority to reverse themselves. This decision has long since proved to have been the correct one. The fact that The University of Texas has possibly the best equipped university computer center in the world is a tribute to Dr. Hughes' involvement in its development.

He was a member of the American Physical Society, a Fellow of the American Geological Society, and a member of the American Geophysical Society, the Society of Exploration Geophysicists, Society of Industrial and Applied Mathematicians, the Association for Computing Machinery, and the American Association of Physics Teachers.

Professor Hughes had a vivid and dynamic personality; he was short in stature but very strong physically and not easily tired. His most striking characteristic was his seemingly encyclopedic knowledge of a very wide range of subjects. He was not averse to using a little gamesmanship to extend his show of knowledge beyond

the genuine limits. When caught up in an (admittedly rare) error of fact, he would change the subject without admitting the error. However, he showed greater respect for those people who would stand firm in their opinions than for those who avoided conflict. Unfortunately, he sometimes lost his patience and failed to show sufficient tact in dealing with other people. An ill-conceived question usually produced an explosive reply. Despite these qualities, Professor Hughes had a great interest in students and served very successfully for several years as Faculty Sponsor for Sigma Pi Sigma, the Physics Honor Society. He usually established very close personal relationships with his graduate students and the resulting friendships lasted long after the students received their degrees.

Professor Hughes enjoyed boating and deep-sea fishing very much. One of his favorite photographs of his later years was a picture of himself standing beside a large swordfish that he had caught near Mazatlán on the western coast of Mexico.

Stephen H. Spurr

Stephen H. Spurr
President of the University of Texas at Austin

Forest G. Hill

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Secretary of the General Faculty

This Resolution was prepared by a Special Committee consisting of Professors R. T. Gregory, C. W. Horton, Sr., Chairman, A. E. Lockenvitz and A. W. Nolle.