gave such a good account of himself that he was continued as an assistant until 1890, when he was appointed to the position of assistant geologist on the Survey. In 1901 he was advanced to geologist and in 1928 to senior geologist, a position which he held until his retirement in 1929.

During his forty-three years of continuous service with the U. S. Geological Survey, Leverett's achievements in the field of glacial studies gained for him world-wide recognition as one of the leading authorities on Pleistocene glaciation. He was an indefatigable investigator and never ceased to take a wholehearted and genuine interest in the problems connected with that field of science.

Leverett spent the year 1908 in Europe, where he became personally acquainted with many of the leading glacialists on the continent. His numerous excursions into the glaciated tracts abroad gave him an opportunity to draw comparisons between the glacial deposits of Europe and those of North America which, through a long period of years, he had covered so thoroughly on foot or by means of horse and buggy.

Frank Leverett was twice married. His first wife was Frances E. Gibson, whom he married in 1887. In 1895, several years after her death, he was married to Dorothy C., daughter of Russell and Dorothea (Schmidt) Park, who survives him. There were no children by either marriage.

For a period of twenty years, from 1909 to 1929, Leverett served as a special lecturer in glacial geology on the staff of the University of Michigan. He was a skilful and resourceful teacher, greatly beloved by his students. He drew freely upon his great wealth of knowledge gained from personal experience and was able to make the subject of glaciation a most attractive study. He took great interest in his students, old and young alike, and never grew tired explaining over and over again perplexing problems that to him were nothing more than simple principles, so well did he know them. Following his retirement from active service with the U. S. Geological Survey, the University of Michigan conferred upon him the honorary degree of doctor of science in 1930.

Leverett was elected a fellow of the Geological Society of America in 1891, the year after its founding. In 1910 he served as the second president of the Michigan Academy of Science, Arts and Letters and subsequently contributed many valuable papers during his long membership in that organization. He was honored with election to membership in the American Philosophical Society in 1924. He was a fellow of the American Association for the Advancement of Science and served as its vice-president during 1928. In 1939 he was elected to membership in the National Academy of Sciences. He was a member also of the Science Academies of Iowa, Wisconsin and Washington (D. C.), the Forestry Association, the Geophysical Union, and served as a corresponding member of the National Geographic Society. He held memberships in the honorary fraternities of Phi Kappa Phi and Sigma Xi.

Frank Leverett was a prolific writer. His bibliography lists some 170 titles in the form of reports, water supply papers, bulletins, monographs, professional papers and miscellaneous papers published in the period between 1889 and 1943. The greater part of these pertain to problems in Pleistocene geology and water resources. Outstanding as a classic is his Monograph 53 (with Frank B. Taylor), "The Pleistocene of Indiana and Michigan and the History of the Great Lakes," published by the U. S. Geological Survey in 1916.

Leverett spent a lifetime doing a big job well. His critical interpretations of natural phenomena and his masterful portrayal in writing of his observations marked him as a truly great scientist. He learned his facts first hand and spared no effort in making certain that he understood the meaning of the features he observed before he translated them into his published writings. He considered his work in the field of glacial geology as merely an open door to a vast multitude of problems that should engage the efforts of glacialists for generations to come.

Leverett's private study in his home in Ann Arbor was an open classroom to an almost endless procession of geologists who sought his expert advice and counsel. He seemed to have a peculiar personal concern for the younger geologists and would spend hours assisting them with their problems. He took special delight in recounting the highlights of his personal travels and experiences.

A great scientist, a masterful teacher, but in all a modest man of remarkable wisdom, Frank Leverett will be remembered by all who knew him for his great love of glacial geology. His works will stand as an enduring monument to a lifetime of purposeful achievement.

STANARD G. BERGQUIST
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DEATHS AND MEMORIALS

JESSE PAWLING, from 1925 to 1935 associate astronomer at the U. S. Naval Observatory in Washington, D. C., died on April 11 at the age of seventy-eight years. Mr. Pawling graduated from Cornell University in 1893 and after several years of graduate work in other universities and teaching physics in Philadelphia, he went to the Naval Observatory in 1905, where for thirty years he worked on positional astronomy.

WILLIAM TITUS HORNE, professor of plant pathol-

ogy at the University of California, plant pathologist at the Citrus Experiment Station at Riverside, died on April 12 at the age of sixty-seven years.

DR. JOHN L. ROSE, for the past fifteen years an instructor in physics at New York University and supervisor of the laboratory of physics, who recently joined the War Research Division of Columbia University, died on April 13 at the age of forty-seven years.

DR. ARTHUR ERNEST JOLLIFFE, until his retirement with the title emeritus in 1936 professor of mathematics at King's College, London, died on March 17 at the age of seventy-three years.

THE Board of Governors of the Institute of Medicine of Chicago has accepted the custody of a memorial fund collected by friends and associates of Sergius Arquin, who died while an intern at Cook County Hospital. The income from the fund is to be used as a prize for investigative work or as a contribution toward the cost of publication or illustration of such work or for related assistance in clinical research carried on by an intern or resident in Cook County Hospital or other local hospitals. Applications should be addressed to the Secretary of the Institute of Medicine of Chicago, 86 East Randolph Street, Chicago 1.

A PLAQUE will be unveiled on May 24 to the memory of Samuel F. B. Morse on the day when he sent the first telegram from Washington to Baltimore one hundred years before. The plaque will be unveiled near the old Supreme Court room with a re-enactment of the scene in 1844 when Morse sent the first telegram over an experimental line to Baltimore. The original instrument is being loaned by Cornell University.

SCIENTIFIC EVENTS

THE SOVIET WORLD ATLAS

The Scottish Geographical Magazine writes as follows in regard to the World Atlas of the U.S.S.R.:

In the judgment of competent authorities this is the finest atlas which has ever been published. It is to be published in three parts: Part I is already issued, but Parts II and III, which were to have been issued in 1940, have been held up owing to the war.

The scholarship is thorough and the reproduction outstanding. The plates are beautifully printed by offset presses, and many of them use fifteen or twenty colors. The paper is rag stock and there is a special binding which makes it possible to remove individual maps. Editorial work cost five million roubles, while publication cost twenty million roubles more.

Volume I deals with the world as a whole and the Soviet Union as a whole. Some of the outstanding plates are the world maps of soils, natural vegetation, trade, national ownership of railways, population and mineral resources. There is a new climatic region map specially revised by Koeppen. A wealth of material also throws light on the resources of the Soviet Union. Many maps are double and triple page size.

Since the atlas is in Russian its use has naturally been very limited, but the Department of Geology and Geography of Syracuse University, New York, has come to the rescue and, with the assistance of two of their staff especially, have translated into English all the titles and legends of Volume I. These are now available in a litho-printed book of 100 pages. Place names are not generally translated, but they are not considered essential, as the atlas deals largely with economic, cultural and physical aspects. No knowledge of Russian is needed to use the translation volume, as the appropriate symbol is shown opposite each item in the legend.

Volume II and Volume III, not yet published, deal, respectively, with the Soviet Union in detail and with foreign countries.

THE MAP OF JAPAN OF THE NATIONAL GEOGRAPHIC SOCIETY

THE National Geographic Society has issued a map of Japan and adjacent regions. The exact mileage to Tokyo from the recently won island bases appearing on the edges of this map can be accurately measured. It is published as a ten-color supplement to the April issue of *The National Geographic Magazine* and is the most comprehensive general chart of Japan, eastern China, Manchuria and eastern Soviet Russia so far produced.

The map has been computed with Tokyo as its center. The exact spot is the central railway station, about which cluster the Imperial Palace, the Central Post Office and the Marunouchi Building, one of the city's largest office structures.

There are five large-scale insets—close-ups of industrial and strategic areas. These include the Tokyo-Yokohama-Yokosuka Navy Base region; the Nagoya manufacturing center; the tri-cities of Osaka, Kyoto and Kobe; the Shimonoseki area, where Honshu and Kyushu are joined by a railroad tunnel at the western end of the Inland Sea, Japan's Mediterranean, and the naval centers of Sasebo and Nagasaki. A sixth inset shows the entire Marshall Islands group, including American-held Kwajalein, Eniwetok, Wotho and Majuro atolls.

Railroads and roads are shown, recent dismantling due to the war is noted, and projected construction indicated. The usual table of geographic equivalents translates foreign-spelled geographic names into Eng-