the circumstance that he had neither a budget nor direct control over students' work. In 1931, also, he participated in the organization of the American Institute of Physics, and thereafter he contributed greatly to its management, as a member of the executive committee of the governing board and of several other committees. Finally, in the same year he participated in the founding of the American Association of Physics Teachers, of which he remained a member of the executive committee and served several years as vice-president (1935, 1936), president (1937, 1938) or associate editor of the *Journal*.

In spite of these new responsibilities he continued to be active in the American Association of University Professors, of which he was vice-president in 1932 and 1933; serving on various committees, he took the leading part as chairman of a committee which studied the effects of the depression on higher education. As dean of the graduate school he was also brought actively into the work of the Association of American Universities; besides membership on several committees, he acted as chairman of one on foreign student problems which did a great deal to improve the lot of foreign students in America. In 1938 he was chosen to be the first personal permanent secretary of the association. And, finally, he continued until 1937 to share in the work of the National Research Council, of which he became a member in 1923; he was chairman of the division of physical sciences from 1930 to 1935 and on the fellowship board from 1930 to 1937.

During later years Richtmyer's teaching was restricted to an occasional graduate course and a senior course of his own devising. The subject-matter of the latter he published in 1928 as a book, "Introduction to Modern Physics," in which he surveyed from the experimental standpoint the advances of the present century. In this book, as on the lecture platform, he showed himself a master of clear and forceful exposition. He was often invited to lecture on scientific or educational topics; during the last two years he gave at least 15 lectures on his experiences as a physicist accompanying the National Geographic Society-U. S. Navy expedition to the South Pacific to observe the solar eclipse of 1937.

Richtmyer was a member of many scientific societies. In Sigma Xi he headed a committee on revision of the constitution, and from 1924 to 1926 he was president. He also took a warm interest in the Cosmopolitan Club of Ithaca, doing a great deal to establish this club on a sound basis. He seemed to feel surest that here he had, beyond all possibility of dispute, accomplished something to benefit mankind. It was characteristic of him in general that he was always willing to lend a helping hand to others; there are many, within the university and without, who feel a deep personal sense of gratitude toward him for such assistance. This trait and his graciousness as friend and host won him many friends, both on and off the campus. His closest friends speak of his frankness, sincerity and modesty. His going leaves many with a sense of irreparable loss.

He is survived by his widow, Bernice Davis Richtmyer, and three children: Robert D., now instructor in physics at Stanford University, Sarah (Mrs. Mann) and Lawson E.

EARLE H. KENNARD

CORNELL UNIVERSITY

WILLIAM HENRY BROWN

WHEN an active and productive man, experienced and successful in research, in teaching, in the preparation of important texts and in administration, altogether too rare an association of talents, suddenly and unexpectedly dies at the relatively young age of fifty-five years, not only his colleagues and associates keenly feel his loss but science itself suffers. This statement applies preeminently to Dr. William Henry Brown of the department of botany, Johns Hopkins University, whose death occurred in Baltimore on the morning of November 9, 1939.

Dr. Brown's active and productive career centered in the Philippines, for with the exception of one short vacation trip to the United States in 1925, he resided there continuously for twenty-seven years, a very long term of tropical service. Yet his investigations and his publications have given him a distinctly wide and favorable clientele not only in the Philippines and in the United States, but in all parts of the world where botany is an established and recognized field of instruction and research.

Dr. Brown was born in Richmond, Va., on October 6, 1884, receiving his bachelor's degree from Richmond College in 1906. In the fall of 1906 he entered Johns Hopkins University, taking advanced work in botany under the late Dr. Duncan S. Johnson. In 1909, after Dr. Burton E. Livingston joined the Johns Hopkins staff, he became more and more interested in plant physiology, and in this year accompanied the latter as research assistant to the Desert Laboratory of the Carnegie Institution, Tucson, Ariz. As an interim appointment he also served as scientific assistant in 1908 at the United States Fisheries Laboratory at Beaufort, N. C. While a graduate student at Johns Hopkins University he served as graduate assistant in botany, was appointed a fellow in 1909, and, after receiving his Ph.D. degree in 1910, was appointed a Bruce fellow, a post-Ph.D. fellowship for studies planned to be carried on at the Desert Laboratory. In the fall of that year, however, he resigned the Bruce fellowship to accept an instructorship in plant physiology at Michigan State College. These brief data suffice to cover his formative years, but in whatever field he worked, technical publications resulted.

At about this time it was decided to initiate work in plant physiology in the Bureau of Science at Manila, and the undersigned made a survey of available candidates, the result being the selection of Dr. Brown for appointment in the Philippine service. It was in Manila, in a decidedly stimulating, even although a tropical environment, that Dr. Brown established himself as a productive scientist, for his work there added distinctly to the prestige of the small group of individuals on whose shoulders fell the responsibility of developing and maintaining the scientific work fostered and supported by the Philippine Government.

It soon became apparent that Dr. Brown's interests were by no means confined to plant physiology, and gradually he entered the field of ecology, the result being the publication in 1919 of his monographic "Vegetation of Philippine Mountains," based on a long, arduous and critical series of field studies in the primary forests of Mount Maquiling. He retained his Bureau of Science appointment from 1911 to 1923, but in this period acted as associate (later professor) of botany, in the University of the Philippines from 1919 to 1924, and as chief of the Division of Investigations in the Philippine Bureau of Forestry from 1919 to 1920.

His teaching experience led him into the text-book field, for he soon found that there were no properly balanced botanical text-books available for instruction in the subject for students resident in the tropics. Most texts had previously been prepared by individuals familiar from long residence with the vegetation of the temperate zone, but with little or no tropical experience. The result of Dr. Brown's efforts here was his very excellent "Textbook of General Botany," published in 1925, a text characterized by its balance, remarkable for its excellent illustrations and for its adaptability to the actual teaching of the subject in any climate. Ten years later this was followed by his equally excellent and authoritative "Plant Kingdom."

With an active and inquiring mind, fully at home in several diverse fields of botanical science, including plant physiology, ecology, morphology and economic botany, for in the latter field Dr. Brown was also a productive worker, his actual botanical output was limited for the next nine years, from 1924 to 1933, for in the former year he was selected to succeed the undersigned in the distinctly exacting position as director of the Bureau of Science in Manila. Here he proved himself as an administrator, his work involving the general supervision of an enormously wide range of subject-matter as well as the editorship of the *Philippine Journal of Science*. In this position Dr. Brown's period of service was longer than that of any of his three predecessors, except that of the first incumbent, Dr. Paul C. Freer.

Retirement from administrative work and from the Philippine service in 1933 gave Dr. Brown the opportunity of devoting practically full time to the advancement of research in the field that now claimed his attention, that of general morphology, with special reference to the significance of the floral nectaries as indicators of broad relationships of the major groups of plants. He elected to remain in Manila after his retirement from the government service, where he had access to a wealth of fresh material essential to the proper prosecution of his special studies. As the work developed he commenced to feel the need of access to other than tropical types, and in the latter part of 1936 correspondence was initiated between himself and the late Dr. Duncan S. Johnson, tentative plans being then made for him to locate in or near Baltimore or Washington, where he could have access to ample herbarium and library facilities. At the time of Dr. Johnson's death in February, 1937, laboratory space had been made available to Dr. Brown in Johns Hopkins University. It was then learned that Dr. Brown was about ready to transfer his botanical activities from the Philippines to the United States, whereupon he was offered a lectureship in botany at Johns Hopkins University. He took up his residence in Baltimore in February, 1938, having charge of the botanical laboratory and of the botanical garden at the university.

Here in addition to his teaching duties he concentrated on his studies of the significance of the floral nectaries, having in mind the ultimate production of a major work, planned to cover all possible groups (families) of flowering plants. His untimely death leaves this culminating task incomplete, although it is hoped that ways and means may be devised to continue the work.

Dr. Brown's botanical interests were unusually wide, and he fortunately had exceptional opportunities available to him through a very long period of service in a tropical environment. Taking advantage of these opportunities, his published results were uniformly excellent, no matter in what field he worked. He was a member of numerous organizations, including the American Ecological, Meteorological and Botanical Societies, a fellow of the American Association for the Advancement of Science and a member of Phi Beta Kappa. He married Mary Angus Blythe in Manila, on June 3, 1927, who with two sons survive him. His loss is a serious one to America and to world botany.

E. D. MERRILL

RECENT DEATHS AND MEMORIALS

DR. CHARLES SKEELE PALMER, consulting chemical engineer, inventor of a gasoline-cracking process that separated mineral oil into gasoline, fuel oil and gas, previously professor of chemistry at the Univer-