WILLIAM BULLOCK CLARKE

DR. WILLIAM BULLOCK CLARKE, professor of geology in the Johns Hopkins University, eminent for his contributions to geology, died suddenly from apoplexy on July 27, at his summer home at North Haven, Maine.

Wm. Bullock Clarke was born at Brattleboro, Vermont, December 15, 1860. His parents were Barna A. and Helen (Bullock) Clark. Among his early ancestors were Thomas Clark, who came to Plymouth, Mass., in the ship *Ann* in 1623 and who was several times elected deputy to the general court of Plymouth Colony; Richard Bullock who came to Salem, Mass., in 1643; John Howland, a member of council, assistant to the governor, and several times deputy to the general court of Plymouth Colony, who came to Plymouth in the *Mayflower* in 1620; John Tilly who likewise came in the *Mayflower;* and John Gorham, captain of Massachusetts troops in King Philip's War. Among later ancestors were William Bullock, colonel of Massachusetts troops in the French and Indian War, and Daniel Stewart, a minuteman at the battle of Lexington in 1775.

Clark studied under private tutors and at the Brattleboro high school, from which he graduated in 1879. He entered Amherst College in the autumn of 1880 and graduated with the degree of A.B. in 1884. He immediately went to Germany and from 1884 to 1887 pursued geological studies at the University of Munich from which he received the degree of Doctor of Philosophy in 1887. Subsequently he studied at Berlin and London, spending much time in the field with members of the geological surveys of Prussia and Great Britain.

Before leaving Munich Dr. Clark was offered and accepted the position of instructor in the Johns Hopkins University. He was instructor from 1887 to 1889, associate from 1889 to 1892, associate professor from 1892 to 1894, and professor of geology and head of the department since 1894. He has been for a long time a member of the academic council —the governing body of the university—and always took a very active interest in its affairs, acting as one of the committee of administration while the university was without a president.

In 1888 he was also appointed an assistant geologist on the U. S. Geological Survey and detailed for work on the Cretaceous and Tertiary formations of the Atlantic Coastal Plain. At the same time he was requested to prepare the correlation bulletin on the Eocene, one of a series of reports which were presented to the International Geological Congress in Washington in 1891. Professor Clark spent the summer of 1889 in a study of the Eocene deposits of the far west while the remaining period was occupied in the investigation of the Eocene formations of the Atlantic border. He was advanced to geologist on the staff of the U. S. Geological Survey in 1894 and held this position until 1907, since which time he has acted as cooperating geologist.

Professor Clark organized the Maryland State Weather Service in 1892 of which he was appointed the director. He has held the position continuously to the present time. In 1896 he organized the Maryland Geological Survey and has been state geologist since the establishment of that bureau. The Geological Survey was enlarged in scope in 1898 by the addition of a highway division which was instructed to investigate and report on the conditions of the roads of the state and the best means for their improvement and Professor Clarke and his associates through their publications and addresses aroused much interest in the subject throughout the state. In 1904 the duties of the highway division were much increased by the appropriation of $200,000 annually to be met by a similar amount from the counties for the building of state aid roads by the survey. A sum exceeding $200,000 was also subsequently appropriated for the building of state aid roads by the survey, at the expense of the state alone, of a highway connecting Baltimore and Washington. The duties of the highway division were transferred in 1910 to a newly organized State Roads Commission, of which Professor Clarke was made a member and which position he held until 1914. Nearly $2,000,000 had been

expended, however, by the State Geological Survey in the supervision and building of roads up to the date of the transfer.

Under an Act of the Legislature passed in 1900 Professor Clarke was appointed commissioner for Maryland by the governor to represent the state in the resurvey of the Maryland-Pennsylvania boundary, commonly known as the Mason and Dixon line. This survey was completed four years later and an elaborate report prepared. In 1906 he was made a member of the Maryland State Board of Forestry and elected as its executive officer, which position he held at the time of his death. The governor appointed him in 1908 a member of the State Conservation Commission.

Professor Clarke organized and directed the preparation of the official state exhibits of Maryland mineral resources at the Buffalo, Charleston, St. Louis, Jamestown, and San Francisco expositions in 1901, 1902, 1904, 1907, and 1915. These exhibits attracted much attention at the time and received a large number of conspicuous awards. These exhibits have been permanently installed as a state mineral exhibit at the state house in Annapolis.

When President Roosevelt invited the governors of the states to a conference on conservation at the White House in May, 1908, it was arranged that each governor should appoint three advisers to accompany him. Professor Clark was one of the Maryland advisers and took part in the conference.

After the great Baltimore fire in 1904 the mayor of the city appointed Professor Clarke a member of an emergency committee to prepare plans for the rehabilitation of the burnt district and for several months he served as vice-chairman of the important subcommittee on streets, parks, and docks whose plans resulted in the great changes subsequently carried out. The following year he was appointed by the mayor a member of a committee to devise a plan for a sewerage system for the city which has resulted in the building of the present modern system of sewers. Again in 1909 the mayor also appointed him a member of a committee for devising a plan for the development of a civic center for Baltimore.

Since 1901 Professor Clark has been president of the Henry Watson Children's Aid Society of Baltimore and was a delegate to the White House Conference called by President Roosevelt in February, 1909, to consider the subject of the dependent child. He was also a member of the executive committee of the State Tuberculosis Association and a vice-president and chairman of the executive committee of the federated charities of Baltimore.

Numerous scientific societies have elected him to membership, among them the National Academy of Science, of which he was chairman of the Geological Section, the American Philosophical Society, the Philadelphia Academy of Natural Sciences, the American Academy of Arts and Sciences, the Deutsche Geologische Gesellschaft, the Washington Academy of Science, Paleontologische Gesellschaft, and the American Association for the Advancement of Science. He was councillor and treasurer of the Geological Society of America at the time of his death. In 1904 he was elected a foreign correspondent of the Geological Society of London. He was also president of the Association of State Geologists. Amherst conferred on him the degree of LL.D. in 1908. He had numerous offers from other institutions, perhaps the most important being the professorship and head of the department of geology at Harvard University, but all of these were refused, and his devotion to Hopkins and the ideals for which it stood was unswerving.

At the time of the International Geological Congress in St. Petersburg in 1897 Professor Clarke was an official delegate from the United States and spent several months in an extended trip through Russia and its provinces. In 1906 he spent the summer on an expedition to central Alaska, visiting the region to the north of Prince William Sound. He traveled extensively in western America and Mexico, reaching distant portions of the western Sierra Madre district.

With the outbreak of the war Professor Clarke became actively interested in problems of defense and economic preparedness. He was appointed a member of the National Research Council and was chairman of the subcommittee on road materials and a member of the committee on camp sites and water supplies. He was also chairman of the committee on highways and natural resources of the Maryland Council of Defense.

Professor Clarke made numerous contributions to geological literature, his work being confined largely to the Cretaceous and Tertiary formations of the Atlantic Coastal Plain and the Carboniferous deposits of the central Appalachian region. Professor Clarke's chief paleontological interest was centered in the Echinoidea, to the elucidation of which group he published several monographs. One of his monuments will be the series of reports of the Maryland Geological Survey, which set a new standard for state publications both as to subject-matter and book-making. The systematic reports in which he was most interested will be of perennial service to science.

He was a member of numerous clubs including the University, Maryland, of which he was a vice-president, Baltimore Country, Johns Hopkins, and City Clubs of Baltimore and the Cosmos Club of Washington.

He was married October 12, 1892, to Ellen Clarke Strong, daughter of the late Edward A. Strong, of Boston, and had four children, Edward Strong, Helen, who was recently married to Captain H. Findlay French, Atherton and Marion, all of whom survive him.

Professor Clarke's administrative ability and professional attainments are largely responsible for the extensive development of Maryland's mineral resources and his loss will be severely felt in all quarters. He was always keenly interested in the educational value of the work of the various state bureaus which he directed and had just finished writing a geography of Maryland for school teachers. At the time of his death he was engaged in writing a report on the underground waters of the state and another on the coals.

SCIENTIFIC EVENTS

THE ASIATIC ZOOLOGICAL EXPEDITION OF THE AMERICAN MUSEUM OF NATURAL HISTORY

Dr. Henry Fairfield Osborn, president of the museum, has received news from Mr. Roy C. Andrews, who is in charge of the expedition. The principal work of the expedition was done in remote regions of the province of Yunnan, China, where no white man had ever been seen before the explorer and his party entered that region. Mr. Andrews is accompanied by Mrs. Andrews, who is the official photographer of the expedition. The party, since it has been in Yunnan, has ridden 2,000 miles on horseback and made camps in 107 different localities varying from 1,700 to 15,000 feet above the level of the sea. Mr. Andrews says in his report, which is dated at Hui-Yao, May 23, 1917:

The active field work of the expedition ceases to-morrow, exactly one year since it began by our first trip up the Min River from Foochow—a trip which was interrupted rather seriously by the rebellion, but which gave us some very interesting experiences. We have as results the following: 2,100 mammals, 800 birds, 200 reptiles, 75 skeletons of mammals, 8,000 feet of motion-picture film, 150 Paget natural color photographs, 300 black and white negatives. Our attention to the subject of mammals has, I believe, yielded the largest collection ever taken out of China by a single expedition. We visited first the northern alpine country along the Thibetan frontier where we were seldom below an altitude of 9,000 feet and collected as high as 15,000 feet. The mountains among which we were working were tremendous, reaching as high as 18,000 feet. In this region we were frequently with natives who had never seen a white person. The northern trip occupied some four months and we then started on a long journey southward to the Burma border where we collected in regions only 1,700 feet above sea level, where, of course, we found a totally different fauna. Thus the collection covers a wide range of climate as well as actual distance. Our large mammals include seven gorals (*Nemorhacdus*) from the Thibetan region and four serows (*Nemorhacdus*)—all complete with accessory material for group mounting. On the Burma frontier we collected twenty-five gorals—a perfectly splendid series, all from one mountain and of all possible ages from just born, young to very old males and females.