of the mathematics is truly prodigious. Not many persons in the world are able to write such a book, and it is my opinion that there are still fewer economists in the world who are able to read it.

It may turn out that the biologist can be of more use to the economist than the mathematician. I have a friend who is interested in correlating sunspot activity with prices of the stock market. He seemed surprised when I asked why these things should have anything to do with each other. "It's quite simple," he said, "you see, during periods of high sunspot activity people are more optimistic in their outlook than usual, and hence are inclined to take more chances."

OBITUARY

FLORENCE BASCOM

1862–1945

THE first and probably the foremost American woman geologist, Dr. Florence Bascom, died on June 18th in Williamstown, Massachusetts. She was a fellow and former vice-president of the Geological Society of America, professor emeritus of Bryn Mawr College and a retired member of the Petrological Section of the U. S. Geological Survey.

Miss Bascom was born in Williamstown in 1862, the daughter of the late John and Emma Curtiss Bascom. Her father was professor of philosophy in Williams College, and her early years were typical of the New England of her time. A strict but intellectual family life in a New England college town may have, in large measure, served to develop the integrity of thought and intellectual honesty which were notably characteristic of her in later life.

Her father later became president of Wisconsin University. Florence Bascom entered that university, graduating in 1882. Up to that time her interests had not been notably scientific. She was a brilliant student, mastering many subjects, with a keen interest in all fields of knowledge. She continued to study at the University of Wisconsin, taking an M.A. in 1884. By that time she had definitely turned to geology, especially the almost unknown field of petrography. In the eighteen eighties the microscopic study of minerals and rocks was in its infancy. Most of the pioneer work in this line was done in Germany, and the original German papers were the only descriptive literature. Those of us who are old enough to have begun our study of petrography before Rosenbusch's text-book had been translated can testify as to the difficulty of mastering the optical properties of minerals from a German description. In her case there was not even a text-book. That she did master the subject and decide to make it her specialty is an indication of her courage and of that determination which found nothing too difficult.

When Johns Hopkins University opened its Graduate School to women, Miss Bascom entered and continued her petrological studies under the late George H. Williams. Her thesis was on certain formations in the South Mountain in Maryland. These formations had previously been regarded as sediments, but her study of them under the microscope proved them to be altered volcanics. She named them "Aporhyolites," the prefix "apo" long remaining in general use for igneous rocks altered by recrystallization. Miss Bascom received her Ph.D. from Johns Hopkins in 1893. She was the first woman to receive that degree from Johns Hopkins.

For the next two years she was instructor and associate professor of geology at Ohio State University. In 1895 she went to Bryn Mawr College, and there founded the Department of Geology. It is probable that her prestige as a research scientist was responsible for this opportunity. Bryn Mawr has, from its beginning, put a high value on productive scholarship, and Miss Bascom was of great promise in that direction. There was no intention of establishing a new important scientific department. Geology was thought to be a subject that would have no wide appeal to women, and the college lacked both funds and space. Dalton Hall, the science building, had recently been completed and its three main floors were already fully occupied by the established departments of physics, chemistry and biology. A fourth floor was used for storage by these three departments. It was on this fourth floor that a small office was boarded off for Miss Bascom, and a slightly larger room for combined lecture room and laboratory. This classroom was arranged for twelve students, and that was the size that one elementary class was expected to remain.

While Miss Bascom fully agreed with the tradition of the college in regard to research, her ideas were quite different as to the importance of geology in a college. She felt that geology was the most important of the sciences, to some extent including the others, and that it was really the culmination of all science. Probably no one will ever know all the difficulties that she encountered, but little by little she achieved her purpose of making her department one of the best in the country. In 1899 she was teaching petrography, having acquired one really good petrographic microscope and an admirable collection of thin sections of minerals and rocks. In 1906 she became full professor, and had an associate who relieved her of

paleontology and stratigraphy. Throughout her thirty-three years of teaching she remained on the fourth floor of Dalton Hall, geology slowly encroaching upon the storage space of the other departments. By the time Bryn Mawr built a new science building and geology moved to adequate quarters, Miss Bascom had retired.

As a teacher Miss Bascom put the maximum of material into her courses, and she required the maximum of effort on the part of her students. Geology is a dramatic subject, and it is easy to make it so exciting that large classes result. This was not Miss Bascom's way. She had so much respect for her subject and for real scholarship that she put into her teaching that earnestness of purpose that was always characteristic of her. The result was that her elementary class was always small, never numbering more than about thirty, but her advanced classes grew. Soon graduate students were coming to her from all parts of this country and from foreign countries as well, and her students went out to all parts of the world.

In 1896 Miss Bascom was appointed assistant on the U. S. Geological Survey. She later became geologist and was assigned that section of the Piedmont that lies in Maryland, Pennsylvania and part of New Jersey. For many years she spent her summers mapping the schists and gneisses of this area, studying thin sections of the rocks in such time as she had in the winter. It is an area of great complexity which her careful study has done much to clarify. After her retirement from teaching she carried on work on the area assigned, working first at Bryn Mawr and later in Washington. It is characteristic of her that when the universal stage became an adjunct of the petrographic microscope she mastered its use and restudied many of her slides. The results of her study of this area are comprised in her part of the U. S. Geological Survey Folios, Philadelphia (1909); Trenton (1909); Elkton-Wilmington (1920); and in two Bulletins, Quakerstown-Doylestown (1931); and Honeybrook-Phoenixville (1938).

In addition to her major work, Miss Bascom wrote numerous short papers, some of them in the field of geomorphology. She was greatly interested in gravels and collected them from many places. Her interest lay in studying thin sections and in trying to trace by this means the source of the gravel. Only one joint paper resulted from this line of study. In that she traced the source of the Pensauken gravel to the quartz nodules of the Kittatinny limestone. The senior author of the paper on the Pensauken gravel was Marius R. Campbell. The paper appeared in the *American Journal of Science* in 1933. Her entire bibliography comprises about forty titles.

She was the first woman to be elected fellow of the Geological Society of America. In 1924 she became a councilor and in 1930 vice-president of that society, the only woman who has ever held these offices. She was an editor of *The American Geologist;* a member of the National Academy, of the National Research Council, of the Geophysical Union and of many other scientific societies.

Miss Bascom was the last of a brilliant family; no near relatives survive her. She will be mourned by former students in many parts of the world who will miss her ever ready counsel and advice.

IDA H. OGILVIE

RECENT DEATHS

DR. EDWARD WILBER BERRY, since 1917 professor of paleontology at the Johns Hopkins University, dean from 1929 to 1942, died on September 20 at the age of seventy years.

DR. FREDERIC KING BUTTERS, professor of botany at the University of Minnesota, died on August 1 at the age of sixty-seven years.

DR. WILLIAM A. GROAT, until his retirement two years ago professor of clinical pathology at Syracuse University, for forty years connected with the College of Medicine, died on September 9. He was sixty-eight years old.

DR. HERMAN M. PARTRIDGE, assistant professor of chemistry and director of broadcasts at New York University, died on September 16 at the age of forty-two years.

DR. HAMILTON BRADSHAW, assistant director, retired, of the department of chemistry of E. I. du Pont de Nemours and Company, died on September 6 at the age of sixty-three years.

DR. CHARLES SPEARMAN, professor emeritus of psychology of the University of London, died on September 17 at the age of eighty-two years.

SCIENTIFIC EVENTS

PUBLIC LANDS CONTAINING RADIOACTIVE MINERALS

PRESIDENT TRUMAN'S order prohibiting the sale of all public lands containing radioactive minerals, reads:

By virtue of the authority vested in me as President of the United States, it is hereby ordered as follows:

(1) Subject to valid existing rights, all public lands of the United States, including Alaska, which contain