gress on July 13. This report contained suggestions of a plan for establishing uniformity in the coinage and weights and measures of the United States.

The Patent Office was virtually founded by Washington and at the time of its creation, Jefferson was Secretary of State. He became *ex officio* the Keeper of the Records of the Patents and was the most active examining member of the board and therefore its first administrator. The scientific foresight which he exercised at this time must be considered the cornerstone of our Patent System and laws. In 1806 President Jefferson made a recommendation for a Coast Survey to Congress, which took favorable action on February 10, 1807, and authorized the President to cause a survey to be made of the coasts of the United States, including islands, shoals and all other physical features deemed proper for completing an accurate chart of every part of the coast. To-day a continuation of this project is known as the U. S. Coast and Geodetic Survey. During Jefferson's second term much agitation was given to the question of establishing a first meridian within the United States. This was to be similar to the zero longitude at Greenwich, England. Jefferson's thorough knowledge of astronomy and mathematics together with the complementary subject of navigation enabled him to give much encouragement to members of Congress who wished to establish this standard longitude. These discussions led finally to the establishment of the Naval Observatory and Hydrographic Office.

Jefferson, like many of his contemporary men of science, was unusually active in noting the daily climatic changes. His observations were made with high-grade thermometers, barometers and his weather vane, laying the foundation of the U. S. Weather Bureau long before it was actually organized. His own manuscripts of those observations are still extant.

The one great passion of Jefferson for pure science is revealed in his study of paleontology. Jefferson is correctly known as the Father of American paleontology. When Jefferson went to Philadelphia to be inaugurated Vice-President, he carried with him a collection of fossil bones, together with a paper containing the results of his study which was later published in the *Transactions* of the American Philosophical Society. Jefferson apparently never took up the evolution question of his study of "antiquities" but confined himself to the acquisition of bones and the straightforward description of species. He felt that the time was not right for theories.

At his home in Monticello in Charlottesville, there are many evidences of his inventions and devices for labor-saving. The most ingenious is the weather-vane on the roof of the porch, which is connected by a rod running through to a compass on the ceiling. The compass has a pointer which shows the direction of the wind according to the position of the vane and nearby is an outside clock over the door giving the time. This same clock has a second face which is visible in the main entrance hall. It has a unique contrivance for winding which is done once a week. The arrangement is called a "fox and geese ladder." There are weights on both ends of the cable which is extended to both sides of the room. On the right wall there are marks at definite regular intervals giving the days of the week. When the clock is wound up the weights indicate Monday and by Saturday the weights have reached the floor. There is also a double-glass door between the entrance hall and another room, which can be opened or closed with one hand, thus automatically opening or closing the other half.

As a mathematician Jefferson was proficient in the use of logarithms and the study of geometry. This he was able to use in his architectural designing. Jefferson also had a keen appreciation of the advanced study of mechanics and optics which was evident in his various comments concerning Newton's "Principia."

To continue our understanding of Jefferson's encyclopedic mind he discussed in his letters the practice of medicine and vaccination as well as the practical and theoretical understanding of agriculture. He did not allow any subject to be neglected. He recognized and appreciated the difficult aspect of each study and emphasized, whenever possible, its application to technique and life. His relation to men in all walks of life, particularly to men of science, is vividly reflected in his voluminous correspondence. Jefferson's position in science was recognized and honored by his being elected president of the American Philosophical Society for five consecutive terms.

Jefferson's fine library bears testimony of his great interest in and his desire to maintain constant touch with the progress of science and technology. All his varied scientific pursuits, as evidenced by both his correspondence and his library, convey some idea of the greatness of Jefferson as a man of science and his love for the tranquil pursuit of nature's laws. Politics was a duty to perform; science was his real joy of life.

OBITUARY

CHARLES SCHUCHERT
1858–1942

PROFESSOR CHARLES SCHUCHERT, distinguished student of Earth's history, noted paleontologist and foremost paleogeographer of our times, died in New Haven, Connecticut, on November 20, 1942, at the age of eighty-four years. To the end of his days he continued his active research with a vigor and eagerness

that amazed and inspired his younger colleagues. After his eightieth birthday he completed and published two great volumes, and left a third in typescript at his death.

Professor Schuchert was born in Cincinnati, Ohio, on July 3, 1858, and grew up among the fossiliferous hills that have nurtured so many American paleontologists. His father was a manufacturer of furniture, and Charles spent his youth growing up with the business which he seemed destined to inherit. He was twenty-six years of age when the scientific instinct became too strong and he forsook the business world to become a paleontologist.

At that time he was poorly equipped for a scientific career, his formal education being limited to the sixth grade in grammar school plus a year in business college and courses in mechanical drawing in night school. But the spark of genius was there, driving him to seek his own education with eagerness and singleness of purpose. At first his reading was limited to the literature on fossil brachiopods, but gradually his interests widened, and in later years the breadth and extent of his reading were phenomenal. During the early years of his self-education, moreover, he was assistant in turn to E. O. Ulrich, James Hall, N. H. Winchell, Charles E. Beecher and C. D. Walcott. Thus he had almost twenty years of apprenticeship to great leaders of American paleontology, for the last ten of which he was assistant curator of invertebrate fossils at the U. S. National Museum. In 1904 he was called to Yale as professor of historical geology and curator of the geological collections in Peabody Museum, a post in which he earned honors and renown for himself and brought great distinction to Yale.

The range of Professor Schuchert's contributions to geology was wide, and his influence on our science will persist long after his passing. He was drawn first to paleontology through the hobby of collecting fossils in the hills about Cincinnati. From childhood he found in them an irresistible fascination, and while still engaged in the furniture business he had built up a notable cabinet of fossil brachiopods and was spending his evenings poring over such technical literature as he could find, learning to identify and classify his collections. Apprenticeship to Ulrich, and later to Hall, gave him more leisure for study and free access to great collections and fine libraries, and he set to work with amazing energy to learn all that could be known about the Brachiopoda. He had a penchant for system and orderliness that was reflected in his first large work, now a classic, entitled, "A Synopsis of American Fossil Brachiopoda, Including Bibliography and Synonymy." This work (1897) was followed shortly by the chapter on Brachiopoda for the well-known Zittel-Eastman "Textbook of Paleontology" (1900). The taxonomic scheme which he then collated from the literature included many original contributions and, with subsequent emendations by Schuchert, has remained the working scheme of all American students for now almost half a century. Two other notable volumes on this group indicate that his interest in the brachiopods persisted to the end of his life. The first of these, written with C. M. LeVene in 1929, is a catalogue of all the brachiopod genera and genotypes, and the second, published with G. Arthur Cooper in 1932, is a profound systematic revision of the genera of two important suborders, the Orthoidea and Pentameroidea. For a generation Schuchert has been the dean of American students of the Brachiopoda.

His interest in historical geology began in the study of stratigraphy, particularly of the Silurian and Devonian formations about Albany, while he was with Hall. It broadened and deepened immensely after he came to Yale and led to the publication, in 1915, of his well-known "Textbook of Historical Geology," which has since gone through four editions and has served in the training of countless students of the subject.

Professor Schuchert's most enduring fame will probably lie in the field of paleogeography. This was a new and little-explored field when he came to Yale and began teaching stratigraphy. He soon discovered that maps showing the distribution of ancient seas and lands greatly facilitated the interpretation of the stratigraphic record, and so he set about gathering data to build up such a set of maps for North America. In 1910, after nearly five years of research, he published his first results, "Paleogeography of North America," a volume with fifty maps and supporting text. This work was scarcely off the press before he was at work revising the maps and increasing their number so that each would represent a smaller unit of time and would show, in greater detail than previous maps had ever done, the outlines of the ancient lands and seas. For the rest of his life rarely a week passed that he did not modify some of these maps as he devoured the voluminous stratigraphic literature seeking new data. These working maps were the basis for those used in the several editions of his "Historical Geology" and so widely copied or adapted by others. His last great work, "The Historical Geology of North America," was prepared as a supporting text giving the basis for his final set of paleogeographic maps. The first of three large volumes of this work was published in 1935, the second in 1943, and the third was complete in typescript when he died, and, along with the maps, will be published posthumously. As the foremost exponent of paleogeography, he has left a distinct impress on the geologic literature of our times.

To his many graduate students Professor Schuchert was a foster-father and a friend, stimulating, encouraging and inspiring, both by his spoken word and by living example. He had learned the hard way, and he instilled in others a respect for hard work and a devotion to high ideals.

He was a member of many learned societies and the recipient of the highest honors his science could bestow. He was a member of the American Philosophical Society, of the National Academy of Sciences and of the Academy of Natural Sciences of Philadelphia; a fellow of the Geological Society of America and of the Paleontological Society; honorary member of the American Association of Petroleum Geologists; and a member or fellow of more than a dozen foreign societies. In 1929 he received the Hayden Gold Medal of the Academy of Natural Sciences at Philadelphia, and in 1934 he was awarded the Thompson Gold Medal of the National Academy of Sciences and the Penrose Gold Medal of the Geological Society of America. But perhaps the crowning achievement for one whom early adversity had denied so much as a high-school education, was to receive honorary degrees from New York University and Yale and Harvard.

CARL O. DUNBAR

RECENT DEATHS

ARTHUR LIVINGSTONE KIMBALL, research physicist and consulting engineer for the General Electric Company, Schenectady, N. Y., died on March 20 at the age of fifty-seven years.

DR. TRACY ELLIOT HAZEN, associate professor of botany, retired, at Barnard College, Columbia University, died on March 16 in his sixty-ninth year.

CHRISTIAN H. STOELTING, president of C. H. Stoelting and Company, Chicago, a former president of the Scientific Apparatus Makers of America, died on March 18 at the age of seventy-eight years.

THE death in his sixty-sixth year is announced on March 22 of Dr. Harry Louis Dember, visiting professor of physics at Rutgers University, formerly professor of physics and dean of the department of mathematics and physics at the Polytechnicum at Dresden.

THE *Journal* of the American Medical Association reports that special memorial services were held recently in Amasa Stone Chapel of Western Reserve University, Cleveland, for Dr. George W. Crile, who died on January 7. The speakers included Brigadier General Fred W. Rankin, Lexington, Ky., M.C., U. S. Army, president of the American Medical Association; Dr. Irvin Abell, Louisville, Ky., president of the American College of Surgeons; Dr. William E. Wickenden, president of the Case School of Applied Science and a director of the Cleveland Clinic Foundation, of which Dr. Crile was a co-founder, and Dr. Winfred G. Leutner, president of Western Reserve University.

SCIENTIFIC EVENTS

A NEW SEISMOGRAPH IN MEXICO

THE Mexican Ambassador to the United States of America announces that the State Government of Puebla, Mexico, headed by Dr. Gonzalo Bautista, has acquired an excellent Benioff vertical-component seismograph, to be installed at the National Astrophysical Observatory at Tonantzintla, State of Puebla. This instrument is now *en route* to Mexico.

The purchase of this modern seismograph was made from the National Research Council of Washington, D. C., through Dr. Harlow Shapley, director of the Harvard College Observatory, who made the necessary arrangements, in which the State Government of Puebla was represented by the Mexican Embassy in Washington.

The new seismograph is identical with the one installed in the Harvard Seismological Station; it is of the latest model available and is a valuable addition to scientific investigation in Mexico, since in the future the slightest microseisms will be recorded with absolute precision from Tonantzintla.

The close collaboration between the investigators of both countries is further strengthened by this purchase, and constitutes new evidence of the friendly ties uniting the peoples and the Governments of Mexico and the United States of America.

THE REPUBLICATION OF TECHNICAL BOOKS OF AXIS ORIGIN[1]

LEO T. CROWLEY, Alien Property Custodian, announced on March 24 that four hundred titles of individual technical books and sets of books of Axis origin are available for republication in furtherance of the war effort. Their titles were suggested by leading American scientists and librarians. Included among the titles are volumes on aviation, medicine, gas warfare, oceanography, physics, chemistry and other technical subjects.

Copyright interests in these works will be vested in the custodian for the purpose of having them republished as an aid to scientific research allied with the war effort. The custodian will seek reproduction and distribution of such works through normal pub-

[1] Statement received from the Office of War Information.