the western states, but also in Egypt and Mongolia and in his trip around the world.

At the time of his death he was the author of 940 articles, papers, books, monographs, etc., listed in his bibliography. It is obviously impossible to refer in detail to this astonishing output; but it seems very safe to state that among his most important contributions to science were the following:

(1) His initial studies on the origin of the corpus callosum of the mammalian brain;

(2) His memoir on the Mesozoic Mammals;

(3) His numerous contributions to the study of the evolution of mammalian molar teeth to and beyond the tritubercular type;

(4) His many important papers and monographs on the fossil rhinoceroses, titanotheres, horses and proboscideans;

(5) His great text-book on "The Age of Mammals."

With regard to the theory of evolution, his outstanding principles or laws, as he called them, include the following:

(1) The law of *continental and local adaptive radiation;*

(2) The law of *homoplasy* or parallel but independent evolution in related lines of descent;

(3) The law of *tetraplasy,* whereby evolution results not from the operation of single causes, but as the resultant of forces from four principal directions (external environment, internal environment, heredity, selection).

(4) The law of *alloiometry,* or adaptive modification of dimensions of the skull, feet or other parts, arising independently in different lines of descent.

(5) The law of *rectigradation,* or *aristogenesis; i.e.,* the gradual appearance during long ages of new structural units of adaptive value, predetermined in the germ plasm and in their initial stages independent of natural selection;

(6) The law of *polyphyly; i.e.,* the normal occurrence of many related lines of descent, derived eventually from a common stock, but coexisting throughout great periods of time.

Professor Osborn's contributions to science were recognized by his election as foreign member of the Royal Society of London, as honorary fellow of a long series of other distinguished societies in Great Britain, France, Belgium, Holland, Germany, Russia, Sweden, Italy and other countries of Europe; also of China, Persia, Argentina, Mexico, Cuba. In this country he was an active member of the National Academy of Sciences, of the American Philosophical Society for Promoting Useful Knowledge, the American Academy of Arts and Sciences, the New York Academy of Sciences and many others. He was president of the New York Academy of Sciences in 1898–99, and president of the American Association for the Advancement of Science in 1928. For many years he was chairman of the executive committee and later (1909–1924) the very active president of the New York Zoological Society. He was the recipient of many medals awarded in recognition of his scientific labors, including the Darwin Medal of the Royal Society of London, the Wollaston Medal of the Geological Society of London, the *Prix* Albert Gaudry, awarded by the Geological Society of France, the medal of the Pasteur Institute of Paris and many others.

In 1899 Professor Osborn became closely associated with President Jesup in the administration of the museum, and upon the death of Mr. Jesup in 1908 he was elected president of the Board of Trustees. From that day until his retirement to the position of honorary president in 1933, he carried a vast burden upon his strong shoulders. During this period, and thanks in large part to his able leadership, many buildings were added in response to ever-growing pressure of collections and exhibits. Undoubtedly not even he could have accomplished all this if he had not budgeted his time so effectively and concentrated so intently upon one thing at a time.

On the personal side, Professor Osborn was sincere, benign, urbane, without guile, very loyal in friendship and highly appreciative of loyalty in others, extremely helpful, especially to his students and assistants. He consistently respected the right of his colleagues and assistants to differ with him in the interpretation of scientific problems.

He loved young people and delighted in furthering their education along broad and thorough lines. His wife, Lucretia Perry Osborn, until her death in 1930, was at all times a most able and enthusiastic partner. His children and grandchildren survive to cherish his memory.

WILLIAM K. GREGORY

AMERICAN MUSEUM OF NATURAL HISTORY

SCIENTIFIC EVENTS

SUMMER WORK OF THE DIVISION OF GEOLOGICAL SCIENCES AT HARVARD UNIVERSITY

FORTY members and students of the Division of Geological Sciences at Harvard University were engaged in field work and half a dozen remained in Cambridge to do laboratory and office work. Studies were carried on in many states and countries, including Australia, Africa, Mexico, Chile, Argentina, Peru, Europe, New Mexico, Colorado, Montana, Texas, Min-

nesota, South Dakota, New Hampshire and Virginia. The largest groups worked in New Mexico, Montana and New Hampshire.

Five field parties, under the general supervision of Professor Kirk Bryan, carried on researches in New Mexico and Colorado, particular emphasis being given to the physiography. Professor Bryan spent the month of August visiting these field parties in New Mexico. In July he was at Fort Collins, Colo., investigating the geology of the archeological site now being excavated by F. H. H. Roberts, Jr., under the auspices of the Smithsonian Institution. In June he was in Minnesota studying the geological setting of the so-called "Minnesota Man" and also of a skeleton found at West Union, Minn., by Father Henry M. Retzek, A.M., '31.

Four field parties were in Montana. The study of the geology of the Highwood Mountains, which has been carried on as a Shaler Memorial Investigation under the supervision of Professor E. S. Larsen, Jr., was completed. William F. Jenks, working under the direction of Professor Russell Gibson, completed a two-year study of the geology of the Trout Creek area along the Montana-Idaho boundary.

Five field parties, under the supervision of Professor Marland Billings, '23, were at work in New Hampshire, giving special emphasis to the bed-rock geology.

Claude C. Albritton, Jr., A.M., '34, holder of the Woodworth fellowship, completed a detailed study of the Malone Mountains in Trans-Pecos Texas; Professor Billings visited him for two weeks. Lincoln R. Thiesmeyer, A.M., '33, Austin teaching fellow in geology, spent his second field season in northwestern Fauquier County, Va., and was visited by Professor Larsen for a week. Wallace de Laguna, 2 Grad., studied the ore deposits and general geology of an area at the southeastern end of the Wind River Range, Wyo.

The economic geologists were very busy. Professor L. C. Graton went first to Peru on consulting work, and then made a shorter visit to Braden, Chile. Professor D. H. McLaughlin returned from a half-year leave, in the course of which he visited many mining districts in Australia, Africa, Mexico and the United States.

Professor Charles Palache and Harry Berman, A.M., '35, made short trips to collect minerals at Amelia, Va., and the talc mines of Chester, Vt. The new x-ray laboratory for the study of the atomic structure of minerals was completed and in operation all summer.

Professor D. S. Whittlesey first went to Mexico, where he lectured, as a member of the faculty of the Seminar of the Committee on Cultural Relations with Latin America, on the "Geography of Mexico." He is now on a trip through Chile and Argentina, and will soon visit the west coast of Africa and the southwestern Hahara region. He is studying human geography. Harold S. Kemp, instructor in geography, spent the summer in the countries bordering on the Baltic and North Seas gathering material for a forthcoming book on the human geography of Europe.

Professors Daly, Raymond, Gibson and Larsen, although they did not do any extensive field work, were engaged in laboratory work and preparation of reports and books. Professor Mather served as director of the Summer School. Dr. L. Don Leet was at the seismograph station in Harvard, Mass., through the summer, writing a text-book on the principles of seismology and making a special study of dynamite blasts in the vicinity of Harvard.

THE GEORGE F. BAKER FELLOWSHIPS AT CORNELL UNIVERSITY

As an outgrowth of the benefaction of the late George F. Baker to the department of chemistry at Cornell University, the creation of one or more Baker Research Fellowships, with tenure of a year or possibly longer, has been authorized by the Board of Trustees. According to Dr. Jacob Papish, head of the department, the holders of these new fellowships "shall be young men of the calibre of national research fellows, capable of carrying on independent investigations of high quality."

Dr. F. H. Spedding, formerly national research fellow and the winner of the Langmuir Prize in 1933, is the first appointee. His investigations are dealing with the correlation between the absorption spectra of solids and of solutions and their physical and chemical properties. Dr. Spedding received the degree of B.S. in chemistry from the University of Michigan in 1925, and the master's degree in 1926; his doctorate was obtained at the University of California, under Dr. G. N. Lewis, in 1929. During 1930–32 he held a national research fellowship, and in 1933 he was awarded the Langmuir prize. During the past year he studied in Europe under a Guggenheim fellowship.

The funds for the new fellowships will come from the Baker lectureship in chemistry, which was founded at Cornell University by Mr. Baker in 1925 with an endowment of $250,000. The lectureship is filled in successively by men eminent in chemistry or in some related branch of science who are invited by the department of chemistry to lecture, each for one or two semesters, on some topic or topics within the lecturer's own special field of investigation. The present holder is Dr. R. A. Gortner, professor of agricultural biochemistry at the University of Minnesota.

Among Mr. Baker's other benefactions to Cornell is