sprayed. However, when plants are exposed to volatile growth regulators or aerosols, stomata probably play a more important role.

Often 2,4-D enters the leaf with great rapidity. On warm, sunny days young broadleaf plants sprayed with this compound may exhibit epinasty and stem curvature within one hour after treatment.

It was originally believed that there might be a high degree of compound-crop specificity. This was found to be true to a limited extent. In general, the compounds were more toxic to broadleaf plants than to grasses. One group of compounds, however—the carbamic acid derivatives and, in particular, isopropylphenylcarbamate—was more toxic to cereals than to broadleaf plants. This confirms the results of British investigators (*1*). Among the broadleaf plants only one instance of compound-crop specificity was noted. The compound, 2,4,5-trichlorophenoxyacetic acid, and its derivatives were highly inhibitory to Irish potatoes, while all the other phenoxyacetic acids and derivatives tested on this crop had little effect.

Reference

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Obituary

John Campbell Merriam

1869-1945

Dr. John Campbell Merriam, distinguished paleontologist, died in Oakland, California, on 30 October 1945. He had just passed his seventy-sixth birthday. Since his retirement from the presidency of the Carnegie Institution of Washington, which office he held for 18 years, Dr. Merriam had continued his writing and scientific study on the Pacific Coast, spending much of his time at the California Institute of Technology. In 1943 he became consultant and lecturer at the University of Oregon, where he was associated with the Departments of Geology and Anthropology. These were his last scientific interests before his health failed.

Born in Hopkinson, Iowa, Merriam received his early education at home and in the schools of that state. It was here that he saw his first fossils—the Paleozoic invertebrates he collected not far from his father's home. After taking a bachelor's degree at Lenox College, Iowa, he came to the University of California to study geology under Joseph Le Conte and botany under E. L. Greene. During this period he was an assistant in mineralogy. As was customary in those days, Merriam went to Munich for advanced study, receiving his doctorate at the University under Karl von Zittel. His dissertation related to mosasaurs from the Kansas chalk. On his return to the University of California in 1894 he taught and conducted research in invertebrate paleontology.

However, vertebrate paleontology claimed his major interest, and there followed published accounts by him and by his students on cave explorations and early man in California, Triassic ichthyosaurs and thalattosaurs, and on the geology of the John Day basin. He later enlisted the aid of Miss Annie M. Alexander in his research, and the generous response of this fine and steadfast patroness of paleontology and zoology was an important factor in permitting him to achieve success. Even before completion of the work on fossil reptiles his interest turned more strongly toward fossil mammals and early human history. Among his many papers, those which relate to western Tertiary faunas, correlation studies, and to the deposits and faunas of Rancho La Brea may be cited as among his most significant contributions. They were published for the most part in his productive period of research at the University from about 1900 to 1919. These were the years when a number of students came under his influence, and many men receiving instruction from him were subsequently to find responsible posts in science and industry.

During this time he became increasingly active in the affairs of the University and of the community. He was particularly interested in promoting research and in furthering the publication of original investigations. In 1912 President Benjamin Ide Wheeler appointed him chairman of a newly formed Department of Paleontology. At the time of World War I he saw the urgency of a national defense program. He became chairman of the Research Committee, California State Council of Defense, which office he held from 1917 to 1920. In 1919 he was chairman of the National Research Council. Later, in 1920, he became dean of the faculties at the University.

Although considered a candidate for the presidency of the University of California during the period which followed the retirement of Dr. Wheeler, Merriam accepted the presidency of the Carnegie Insti-

tution of Washington. It was his belief that, rather than continue his career as paleontologist, he should serve science broadly and more effectively by becoming head of a great research foundation.

During the next 18 years he was occupied with the innumerable tasks which face an executive of a large organization. This period of service is perhaps most noteworthy because of a certain centralization of the activities of the Carnegie Institution of Washington, although he enlarged the group of research associates who were affiliated with other institutions of learning. He gave stimulus to publication of scientific results and to a dissemination of knowledge gained by eminent scholars of the Institution staff through popular articles, lectures, and demonstrations. He was responsible for the establishment of a Seismological Laboratory and a program of seismological research on the Pacific Coast as a cooperative plan of the Institution and the California Institute of Technology. He was also much interested in the program of archaeological research in southern Mexico and Guatemala. Later, the investigation included studies of early man in America and Asia. Paleontology and paleobotany likewise received added support.

All his activities were by no means confined to the Carnegie Institution of Washington. Dr. Merriam continued for a time as regent of the Smithsonian Institution. He fostered the unique educational features of some of our National Parks. He was president of the executive committee of the Pan-American Institute of Geography and History from 1935 to 1938. He carried over from his university days his association with the Save-the-Redwoods League and for 24 years continued as its president until his retirement from that office in 1944. These were the years when he brought to publication most of the articles and essays of a more general and philosophical nature. His broad interest in the human values derived from education and research led to the publication of his book, *The living past*. On his retirement in 1938, the Carnegie Institution reprinted all his papers and addresses and published likewise an appreciation volume entitled: *Cooperation in research by staff members and research associates*.

Articles of general scope and his second book, *The garment of God*, were published after his retirement. He continued to concern himself with the National Parks of the West and with the State Parks of Oregon. Largely through his activity, the group known as the John Day Associates was established with the purpose of conserving the famous fossil beds of the John Day basin and of developing public interest in the geological story so clearly told by the rocks and fossils of the region.

Some paleontologists never weary, even in old age, in their devotion to the study of fossils. In the later period of his life, however, Merriam never again applied himself to this kind of research, being content to let others carry on. His eminence in science was recognized, and acknowledged in the usual way. Honorary degrees were awarded him by many universities. He was a member of the Society of Vertebrate Paleontology, president of the Paleontological Society in 1910, president of the Geological Society of America in 1919, president of the American Society of Naturalists in 1936, and a member of the National Academy of Sciences, Academia Nacional de Ciencias Antonio Alzate de Mexico, and Sociedad de Geografía e Historia de Guatemala. A gold medal was awarded him by the American Institute, New York.

Thus, Merriam's interests were not only in paleontology. During his lifetime he was also educator, conservationist, administrator, and philosopher. By nature not genial, but rather grave and distant, he nevertheless left the impress of his thought on students and on men and women in many walks of life. By them he will be long remembered.

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