

# Memorial to Samuel P. Welles

## 1909–1997

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Samuel P. Welles died at his son's home in San Mateo, California, on August 6, 1997. He is survived by three children, Paul, John, and Ruth Anne. He retired in 1974 from his position as principal museum scientist in the Museum of Paleontology and part-time lecturer in the Department of Paleontology at the University of California at Berkeley after 44 years of service.

Sam Welles was born in Gloucester, Massachusetts, on November 9, 1909, son of Paul Irving Welles and Annie Louise Kraus. His parents moved to Berkeley in 1911. At the University of California he first studied engineering, but graduated in 1930 with degrees in history and political science. In the midst of the Depression, he took a position as preparator in the Museum of Paleontology where he worked especially with Charles Camp in the Permian and Triassic of Arizona and New Mexico.



He earned his doctorate in paleontology in 1940 with a dissertation on Cretaceous plesiosaurs and was appointed part-time lecturer in the Department of Paleontology in addition to his position in the museum. He taught the introductory vertebrate paleontology course for several years, and at times gave general paleontology lectures .

During World War II Sam was in charge of radio instruction in the war training program of the Department of Electrical Engineering at the university; in 1946 he returned to full time with the museum. He actively aided Camp in compiling the *Bibliography of Fossil Vertebrates* during the 1940s and 1950s, and collaborated with him on the study of various Triassic reptiles.

In 1948 he attended the International Geological Congress in London, and collected Devonian fishes on the excursion to the Welsh Borderlands and Scotland.

With Charles Camp in 1938, Sam discovered a rich deposit of labyrinthodont amphibians and fishes in the Early Triassic Moenkopi Formation near Meteor Crater, Arizona. He undertook the study of the amphibians. Other fossiliferous deposits in the Moenkopi were found near Holbrook and Cameron, Arizona, and these faunas became the basis for Sam's 50 next years of research. While working in the Cameron area he also discovered the first essentially complete dinosaur skeleton from the Early Jurassic of the southwestern United States, which he later named *Dilophosaurus*. Lively reconstructions of this dinosaur by Michael Crichton and Steven Spielberg have brought *Dilophosaurus* fame in addition to its scientific importance.

Sam searched for Triassic fossils in Mexico in 1956, returned to Meteor Crater in 1958, and did further work in the Moenkopi in 1966. He devoted much of the 1960s to describing his extensive collections, especially finishing studies of various labyrinthodont families.

He also studied marine reptiles, beginning with the description of the long-necked plesiosaur *Hydrotherosaurus alexandrae*, from the Upper Cretaceous of the San Joaquin Valley in California, which he named for Annie Alexander, longtime benefactor of the university's Museum of Paleontology.

During the 1950s he assisted Camp in excavating large ichthyosaurs (whale-like marine reptiles) from Triassic rocks near Berlin, Nevada. This site became Nevada's Ichthyosaur State Park. In 1982 and 1983 Sam took students to this site to stabilize the in situ skeletons and install a diagram of the exposed specimens. He was honored by the State of Nevada for his efforts in developing and protecting this locality.

Other studies of aquatic reptiles included mosasaurs from the Cretaceous of Wyoming and the Panoche Hills in California, plesiosaurs from Colombia, Texas, and Montana. He spent 1969–1970 in New Zealand working on plesiosaurs and other marine reptiles.

Retirement from the museum in 1974 in no way diminished his activity. During the 1970s he investigated the anatomy of dinosaurs and its bearing on their classification. In 1977 he restudied the “Kayenta” or Tuba City dinosaur *Dilophosaurus*. This project took him to England and Germany for comparisons with various European fossils.

During the 1980s he continued studies of fossil amphibians and reptiles, describing a long-snouted labyrinthodont from the Moenkopi, a plesiosaur from the Sierra Nevada, and various observations on dinosaur anatomy and classification. He guided a party from the museum to the Triassic Chinle beds in the Petrified Forest and St. Johns areas of Arizona in 1989, making new collections from localities worked by Charles Camp in the 1920s.

Sam was a skilled field collector who discovered many important specimens. His publications provide careful, detailed descriptions of this material, repeatedly rechecked for accuracy. He was always helpful to graduate students, and collaborated with several on his own research. Welles continued active research in the museum until shortly before his death. He always was looking forward to the next specimen to be studied and another problem to be solved.

He was elected a Fellow of the Geological Society of America in 1948, was president of the Society of Vertebrate Paleontology in 1962, and became an honorary member of that society in 1990.

He married Harriet Giles on December 4, 1931. They had three children. During the 1930s Harriet frequently accompanied him in the field. She died in January 1963. Later, he married Doris O. Hampton, and together, they provided the UC Museum of Paleontology with a generous endowment for research and scholarships.

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