

Memorial to Chester Ray Longwell 1887-1975

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Chester Ray Longwell, a Fellow of the Geological Society of America since 1923 and president in 1949, died peacefully at his home in Palo Alto, California, on December 15, 1975. He was 88 years old.

Chester Longwell, son of John Kilgore Longwell and Julia (Megown) Longwell, was born on the family farm near Spalding, Missouri, a few miles southwest of Hannibal on the Mississippi River. Longwell took quiet pride in his Scottish background and his boyhood in Mark Twain country. It was not entirely fortuitous that his home in Palo Alto was on Mark Twain Street.

Longwell attended high school in Quincy, Illinois, across the Mississippi and not far north of Hannibal. His formal education was interrupted for seven years following graduation from high school in 1904. He worked at odd jobs in Quincy for about a year, after which he migrated westward, spending three years in the far west. His jobs ranged from tutoring children of ranchers in California to working in a gold mine in the Okanogan valley of Washington. In 1908, Longwell returned to Missouri to help his parents run a new farm to which they had moved in Marion County, Missouri. At the same time, he taught in a nearby one-room school and also took correspondence courses in surveying and mechanical engineering. In 1911 he enrolled at the University of Missouri at Columbia to study engineering. A course taught by E. B. Branson so stimulated Longwell that he switched his major interest to geology. While at the university, Longwell was a member of the debating team and was elected to Phi Beta Kappa. He received an A.B. degree, with honors, in 1915. He enrolled in the graduate school and received an A.M. in geology in 1916. For his thesis, he conducted a geologic study of part of the Missouri Ozarks. It must have been a source of great satisfaction for Chester Longwell to have been invited back to Missouri University in 1940 to give the commencement address and receive an honorary LL.D. degree. It was a sweltering day, made more unbearable by the traditional heavy gown. Longwell's humor could not be repressed: he began his address by commenting that he felt like a "burnt offering."

Longwell enrolled at Yale University as a graduate student in 1916. After only a year, however, he entered officer training and was awarded the rank of captain in the Field Artillery. He served two years, the last few months overseas in France. On his return, he resumed his graduate work and studied the area of the Muddy Mountains in southern Nevada for his doctoral thesis. He completed the field research in 1919 and received his Ph.D. degree in 1920.

One of the inducements that had attracted Longwell to Yale was the presence of Joseph Barrell, an outstanding scholar in Longwell's chosen field, structural geology. In 1919, however, Barrell died at the untimely age of 50. To replace him, the Yale faculty selected Longwell, obviously recognizing his great potential even at that early date. Long-

well attained the rank of professor in 1929 and later served as chairman of the geology department for eight years, 1938–1946.

Longwell's career at Yale spanned 36 years. During this time he participated in the training of many young men who were later to become eminent geologists. His students admired and respected him, and many kept in close contact long after leaving Yale. Chester was particularly remembered for his droll wit; he never missed an opportunity in class to illustrate a point by an apt quotation from Mark Twain or by a pertinent pun. It must be admitted, however, that not all of Chester's puns met with universal acclaim. Upon retirement in 1956, Longwell moved to California with his family. One of the inducements was undoubtedly to be closer to Nevada, where he was to continue his investigations for almost two decades.

Longwell's research in Nevada over a period of 55 years was largely supported by the U.S. Geological Survey of which Longwell was a part-time member. His doctoral study in the Muddy Mountains region was a pioneer effort in this desolate part of Nevada. His continuing studies resulted in scores of publications that terminated in 1974 with an important article on the Las Vegas shear zone. His investigations were not merely extensions of earlier mapping or superficial improvements in interpretation of previously investigated localities. On the contrary, he refined, through thoughtful analysis of the geologic phenomena he encountered, principles of stratigraphy and structure now widely applicable in the Basin and Range province and elsewhere. He subdivided the Cenozoic deposits of southern Nevada and identified unconformities within them. This enabled him to isolate different episodes of deformation and to arrange these in relative order. He was the first to demonstrate the presence of low-angle thrust faults in the Paleozoic and Mesozoic rocks of the region, and his recognition of the great thickness of these rocks in the Great Basin supported the thesis of geosynclinal accumulation.

In 1934, Longwell received a grant from the Geological Society of America to study and record the geology of that portion of the canyon of the Colorado River that was to be inundated by the waters of Lake Mead behind Boulder Dam. His lengthy report, published by the Society in 1936, remains the only reliable detailed report of the submerged geology. Longwell also mapped the floor of Lake Mojave behind Davis Dam before it was flooded.

In recognition of Chester Longwell's many contributions to Nevada geology, the Geological Society of America held a symposium in his honor at its Cordilleran Section meeting in Las Vegas in 1974. A plaque, prepared in his honor, is displayed in the Geology Department at Stanford University.

In spite of his emphasis on Nevada geology, Chester Longwell's geologic interests were varied. His publications cover such diverse subjects as the origin of mountains; the origin of Meteor Crater, Arizona; the structure of the Triassic rocks of southern Connecticut; a geologic guidebook to central Connecticut and Massachusetts (with E. S. Dana); deformation in the Hudson Valley; a cooperative report on the rock formations of the Colorado Plateau; a discussion of the failure of the St. Francis Dam in southern California; the structure of continental borders; a classification of faults; the age of the Colorado River; isostasy; and continental drift.

Professor Longwell was a prolific writer; his bibliography totals well over 100 items and includes the long-popular texts on physical geology written first in collaboration with Louis Pirsson and later with Adolf Knopf, Richard Flint, and John Sanders. Longwell also collaborated with William Agar and Richard Flint on *Geology from Original Sources*, a popular reference book. His writings continued almost to the time of his death.

Chester Longwell was elected to the National Academy of Sciences in 1935 and

served as chairman of its Division of Geology and Geography from 1937 to 1940. He was also chairman of the Tectonics Committee of this division, and it was in this latter capacity that he urged and organized support for the outstanding tectonic map of the United States prepared under the able supervision of Phillip King of the U.S. Geological Survey. Among his other activities, Longwell served as editor of the American Journal of Science from 1948 to his retirement from Yale in 1956.

Chester Longwell's 20-year association with the Geology Department at Stanford University proved rewarding to faculty and students alike. Longwell was often called on to give lectures in areas of his expertise to student and peer groups and was especially pleased to have students seek his advice on individual geologic problems. He gave freely of his time, and his presence will be sorely missed.

In addition to the National Academy of Sciences, Longwell was a member of the American Association of Petroleum Geologists, the Seismological Society, the Philosophical Society, the American Academy of Arts and Sciences, the American Geophysical Union, the American Association for the Advancement of Science, and Sigma Xi.

Chester Longwell is survived by his wife, Irene Moffat Longwell; a brother, John Harwood Longwell; his children, Mari Walker, Flora Davis, and Ray Longwell; and by five grandchildren.

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