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# Memorial of Alfred Oswald Woodford 1890–1990

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Alfred Oswald Woodford, or Woody, as we all knew him, a centenarian and geology great, a legend in his own time, passed away in his sleep at the Pilgrim Place Health Services Center in Claremont, California, on June 29, 1990. Woody put Pomona College geology on the map nationally, yes, even internationally, because of both his teaching and scholarly work.

Woodford was born in the neighboring town of Upland. His father was one of the first general managers of the California Fruit Growers Exchange, later to become Sunkist. His mother's family (Harwood) and his father were early supporters of Pomona College; his great uncle, the Reverend James Harwood, was a cofounder of Pomona College three years before Woody's birth, and his mother's brother, Frank, was Chairman of the Board of Trustees of Pomona for 12 years.

Woody's family moved to Claremont in 1907, where he attended the Pomona College Preparatory School, concentrating in Greek and Latin. Matriculating at Pomona College, he was initially a classics major, but under the influence of his chemistry professor, James Lyman, who emphasized the historical approach to science, he changed his major to that subject. He graduated from Pomona in 1913 after having been elected to Phi Beta Kappa. Following a brief period of work in the family's citrus business, he joined the Pomona College Chemistry Department in 1915; his special interests were agricultural chemistry and soil science. Realizing the need for additional expertise in these areas, Woody entered the graduate program in soil science at the University of California, Berkeley. As a result, between 1915 and 1919, Woody divided his time between teaching and graduate work. For more background he took a course in optical mineralogy from Professor E. Fred Davis, and the impact of this course, as well as courses from the likes of Lawson, Louderback, and Merriam prompted him to change to a geology concentration. In his own words later (1956): "We are geologists because we love beautiful mineral specimens or fine fossils or magnificent mountains. I myself turned from soil science to petrography so that I could spend my life looking at interference colors. . . ."

An early interest in mineralogy was stimulated by his 1918 participation with a team of Berkeley graduate students (under Louderback's direction and sponsored by the Bureau of Mines) examining mineral prospects, particularly chrome and Mn, in the Franciscan Coast Ranges near Berkeley.

Woodford taught his first geology class at Pomona in 1919, his father paying for the necessary equipment. In 1922 he completed his doctorate and established a Department of Geology at Pomona. For most of the next 30 years he was a one-man department and consequently was called on to teach a wide range of subjects beyond petrography.

His accomplishments were legion. His research started off in high gear with the publication of his monumental Ph.D. dissertation, in which he provocatively concluded that Catalina Island is the only remnant of a once much greater landmass that supplied Franciscan debris for the enigmatic San Onofre Breccia (Miocene). I prepared for graduate work by using what was recommended as the best introductory text at the time, *Principles of Geology* by Gilluly, Waters, and Woodford. The book went through four editions, and I do not think it has ever been matched in terms of coverage, rigor, and emphasis on principles rather than facts. Later (1965), Woody published *Historical Geology,* which likewise is an intellectual gem, well appreciated by students and professionals alike. These two texts brought a good deal of recognition to Woodford and Pomona College geology. Following his work on the San Onofre, Woodford developed an avid interest in the spectacular mineral associations of the classic contact-metamorphic complex at Commercial Quarry, Crest-

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more, California, and his research on that locality involved several published papers, including a description of a new mineral, treanorite (1940). All told, Woody published four papers in the *American Mineralogist.* Another target of Woody and his students was the tectonics and stratigraphy of southern California and the Los Angeles Basin in particular; this focus is represented in part by their considerable contributions to the well-known Bulletin 170 of the California Division of Mines and Geology, entitled *Geology of Southern California,* published in connection with the 1954 meeting of the Geological Society of America in Los Angeles. In addition, he published many well-received papers on such diverse topics as submarine canyons, strike-slip faulting, and the history and philosophy of geology. Largely unsung was an incredible editorial effort that made possible the 1981 publication of U.S. Geological Survey Professional Paper 420-D, *Geology of the Northern Santa Ana Mountains, California*; three of the four coauthors were former Woodford students.

Woody also worked part time for the U.S. Geological Survey, spending much of that period supervising the California Fuels Program. Another tremendous contribution to Pomona College was his building of a collection of rare books (much of the cost coming out of his own pocket), now housed in the Woodford Room of the Seeley-Mudd Science Library at Pomona. This fine collection may be the best of its kind on the West Coast.

Despite these glowing achievements, what Woody did best was to develop geologists—what can be a better measure of a teacher? I know of no geology teacher who has turned out more highly qualified professionals. From around 1920 to 1940, Pomona College was at the top of the list in the production (per thousand graduates) of geologists listed in what was then called *American Men of Science.* Despite the number of excellent students turned out later by Woody, the 1920s saw the most impressive graduates, including Charles A. Anderson, 1924 (recently deceased), former Chief Geologist, U.S. Geological Survey; Rollin P. Eckis, 1927, former Vice Chairman of the Board, ARCO; Mason L. Hill, 1926, former International Exploration Manager, ARCO; Roger R. Revelle, 1929, former Director, Scripps Institute of Oceanography, for whom Revelle College at UC San Diego is named; and R. Dana Russell, 1927, former Director, Marathon Oil Company's Research Laboratory.

Uniformly, his students idolized him. What made Woody so great a teacher? These attributes are well summed up by the late chemistry professor R. Nelson Smith on presenting Woodford for an honorary degree from Pomona in 1971, "His great enthusiasm for his work, his insistence on keen field observations coupled with his sound laboratory analyses . . . and above all his overriding personal interest in students. . . ."

Woodford officially retired in 1955 but maintained an office and continued with full, productive days as before. He stayed in close contact with Pomona students, including several in his research. For example, considerable emphasis during this period was placed on the difficult problem of determination of sources of the Poway-type clasts in the early Tertiary conglomerates of the northern Peninsular Ranges. In addition, he served for many years as Science Editor for Freeman Publishing Company.

He received many honors, including the National Association of Geology Teachers' highest prize for excellence in teaching, the Neil A. Miner Award; Presidency of that organization; Vice-Presidency of the Geological Society of America; and an Honorary Degree of Doctor of Science from his alma mater. In 1980, Rollin (1927) and Caroline Eckis established in his honor the annual Woodford-Eckis Lectureship at Pomona College. The recent (1989) Pacific Section SEPM symposium and volume *Conglomerates in Basin Analysis* was dedicated to Woody in recognition of his work on the San Onofre Breccia and the Poway-type clasts referred to above.

He met his wife, the former Gwendolyn Green, through his sisters, and they enjoyed a long and happy marriage. This sweet woman was a big factor in Woody's success. He even recruited her into undertaking a very well-received translation of the French text *Stratigraphic Geology* by Gignoux. But Woody was not all geology; he was a supporter of Pomona athletics, and we could not engage him in any geological activities on Tuesday evenings—those were bridge nights. He suffered from a severe circulatory problem in 1941; the late Pomona College President Lyon wrote him a personal note in 1955 wishing him good health so that he could enjoy his retirement.

I can end this tribute in no better fashion than to follow the lead of D. L. Stout (1989) and quote Le Conte's estimation (1903) of great teachers: "The nearer they are approached, the greater they grow—they are themselves greater than all their visible results. These are the great teachers; their spirit and enthusiasm are contagious; their personality is magnetic. They not only think intensely, but they are the cause of thought in others. . . ."

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[1] A copy of the complete bibliography of A.O. Woodford may be ordered as Document AM-91-484 from the Business Office, Mineralogical Society of America, 1130 Seventeenth Street NW, Suite 330, Washington, DC 20036, U.S.A. Please remit $5.00 in advance for the microfiche.

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