

Memorial to Clyde Wahrhaftig

1919–1994

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Clyde Wahrhaftig was born in Fresno, California, on December 1, 1919. He died on April 6, 1994, of heart failure.

Reared in Fresno in a pioneer California family who had started many of the orchards in the Sacramento Valley, he was introduced to Berkeley at an early age on family vacations when his mother attended classes at the University of California, and he felt always that this was his true home. Strawberry Creek and the hills in back of the UC campus were his playground. Later, when he joined the staff at the UC Department of Geology and Geophysics in 1960, he taught field classes in those beloved hills.

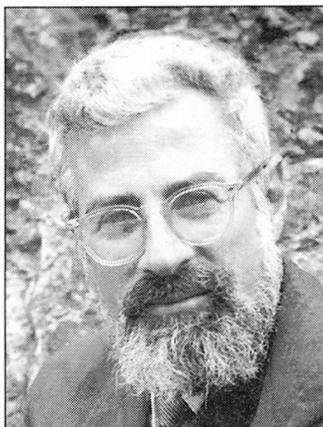
Clyde received a bachelor's degree in geology from the California Institute of Technology in 1941, and a Ph.D. in geology from Harvard University in 1953. He worked full-time for the U.S. Geological Survey from 1941 until 1960, when he joined the UC Berkeley faculty, part-time from 1960 until he retired from UC Berkeley in 1982, and again full-time until his death in 1994.

Most of his professional work with the Survey was in Alaska, much of it concerned with coal deposits; but at various times he studied many aspects of Alaskan geology in areas ranging from the Brooks Range to the north to the Kuskokwim Mountains and the Alaska Range to the south. Some of these studies remained unfinished at the time of his death. One of them, a paper on the Nenana gravels, which recorded late Cenozoic orogeny in the Alaska Range, was of particular importance to him, and he wrote and rewrote it several times, nearly finishing it, but hoping to improve it to the very end.

Wahrhaftig was small and wiry, with a huge reserve of physical stamina, which made him a great cross-country runner at Cal Tech, and a tireless hiker in his profession during most of the rest of his life until the middle 1980s, when his heart began to trouble him and he had to slow down.

His summers were spent doing field work, mainly in Alaska with the Survey, but often in the Sierra Nevada after he joined the faculty at Berkeley. His studies in both areas led to seminal papers; one of them, "Stepped Topography of the Southern Sierra Nevada," won him the coveted Kirk Bryan Award of the Geological Society of America in 1965. His earlier 1959 paper, "Rock Glaciers in the Alaska Range," written with his great friend Allan Cox, inspired a plethora of papers worldwide on this subject, and much interest in them continues to the present day.

No one who knew Clyde well would ever describe him as being anything else but a Renaissance man. He loved history, literature, philosophy, classical music, art, and both the physical and life sciences. He played the recorder and the piano with great feeling and understanding, and was constantly practicing piano pieces of his favorite composer, Mozart. Although he knew and loved the works of Bach, Beethoven, Schubert, and Brahms and had the rare ability to whistle or hum major themes from their works if called upon to do so, Mozart was



his passion, and he needed only to hear a few notes from a Mozart composition to identify it. He brought to bear on both his vocation and his avocations a keen mind in all respects, a probing intellect that often caught his associates as well as his students off guard, and an indefatigable drive. He gained a reputation early on as a hard-driving task master who scared away students and often colleagues. Time mellowed him and softened his hard edges, and he became increasingly popular and inspirational with his students, although he remained a terrible lecturer in his classes. He simply would not or could not follow his beautifully organized lectures, which he duplicated and handed out to his students, so that they could follow what he intended to talk about even after he got lost in his rambling anecdotes about related or unrelated subjects. Carefully developed in each lecture were observations and thoughts on critical problems developed in the lecture, whether they were on geomorphology, geology, or geophysics, and often they were at odds with the conventional wisdom of the time. Thus, on the basis of his work on step topography, he came to an interpretation of the geomorphology of Yosemite National Park that was entirely different from the highly regarded work of Matthes.

His questions to candidates on Ph.D. orals were legend. There was no way to prepare for them by memorizing equations, formulae, or dates, as they were different for each candidate and were carefully designed to prove the latter's ability to think logically. That was all he demanded of a candidate even if his answers were sometimes factually incorrect. Empathetic with the student's often chaotic state of mind during an oral examination, Wahrhaftig would lead him step by step to the logical answer to his question in a masterful display of the Socratic method.

There was no dichotomy between the way Clyde lived and what he stood for politically. He lived simply and frugally and supported Socialist candidates.

Recognizing the severity of the threat of overpopulation to survival of the human race, and the rapidity of the destruction of our environment by overpopulation, Clyde joined every cause to help ameliorate this situation. To set a personal example, he eschewed the use of automobiles and airplanes for travel, taking public bus and train transportation near home, and ship and train transportation for more remote journeys whenever he could. In his field work in both Alaska and the Sierra Nevada, he used pack animals, usually walking with them rather than riding. Only when his destinations were too remote and time constraints a major concern did he use planes and helicopters. He took much good-humored flak from his friends about not having a car or driving, especially when he insisted that he neither could drive nor even learn to drive. But he did much more than take this passive role.

Beginning in the 1960s he took an active role in applying geological science to environmental problems, focusing on the destructive effects of human activities on natural processes. His studies comparing the rates of erosion in cutover and untouched forests in 1970 led to a revision of the State Forest Practices Act. The following year he was made a member of the Council of the Geological Society of America, and there appointed chairman of the new Committee on Environment and Public Policy. In 1975 he was appointed to the California Board of Forestry. For the first time he was in a position to formulate forest-practices legislation, which, needless to say, did not make him popular with certain people in the timber industry. However, some responsible people in the industry, namely those members of the Western Pine Trees Association, thought his effect was good, and his work influenced a number of important people in other states.

Although throughout his career he had resisted taking on administrative duties of any kind, within both the Survey and the UC Department of Geology and Geophysics, in 1975 he yielded to pressure from close friends and accepted the chair and directorship of the environmental sciences major at Berkeley, an interdepartmental undergraduate major in the College of Letters and Sciences. He held this position with universal approval and distinction until his retirement from UC Berkeley in 1982. This is one of the most popular interdisciplinary courses on the UC campus today.

In the late 1960s Wahrhaftig recognized the need to get minority and, in particular, black students interested in geology. There had not been a single American-born black student who graduated in geology from Berkeley during Wahrhaftig's tenure. To this end, he gave time to an extracurricular educational program for minority students at Hunters Point in San Francisco and took groups of the students on geological excursions around the city, using public transportation. He focused on giving some of the more promising of these students much precious time, helping them with their difficult subjects such as math, physics, and chemistry. He talked with their parents and obtained permission to take them to his geology summer camps in the White Mountains of eastern California, where he trained them in the rudiments of geology and geologic mapping. None ever went on in geology, a blow to his hopes, but Clyde was pleased that, in major part because of his help, they did go to college. Undaunted and basically encouraged by this experience, Clyde accepted the chair of the Geological Society of America's new Committee on Minorities and Women in the Geosciences.

Another problem, the plight of women in the earth sciences, raised its head in a humorous way for Wahrhaftig during his years at Berkeley. He had not faced his slightly misogynistic feelings about women until four of them enrolled in one of his geology summer camps. Shower water at the camp was solar heated, but there was only one set of showers, and that was for the men. A second one was quickly set up for the women, but no provision to heat the water was made. Learning this, the irate women protested to him, telling him that this was sexual discrimination; however, there was a simple solution: they would shower with the men! Horrified by the thought, but recognizing his gaffe, he quickly acquired another solar heater. From that day onward, Wahrhaftig became a strong supporter of women in the earth sciences, and encouraged many women to go on to graduate studies, and to teaching at major universities.

He gave time to other community projects, serving on the technical advisory committee on the Bolinas Lagoon for the Marin County Recreational Department, which led to the establishment of a bird sanctuary there; on the San Francisco Mayor's Twin Peaks [park] Committee; on the study committee for the Golden Gate National Recreation Area; and on the Bay Area Trail Council, which promoted the establishment of many hiking trails throughout the Bay Area, leading finally to a trail around the entire San Francisco Bay.

In his work preparing written testimony about the local geology for commissions and ballot measures, as well as for various governmental agencies, and in relating geologic phenomena to environmental issues, Clyde became acutely aware of the need to use simple nontechnical English, and in this he became very competent.

After leading numerous field trips, for which he always prepared brief field guides, he decided to reach out to a larger public audience by preparing detailed and illustrated field guides to some of the more geologically interesting areas around the Bay Area that are easily accessible by public transportation. Of the three most popular of these guides, "A Streetcar to Subduction," published and reprinted by the American Geophysical Union, has been a best-seller. Hardly less popular have been "A Walker's Guide to the Geology of San Francisco" and "The Hayward Fault in Hayward and Fremont, via BART." He also contributed to field guides for GSA, IGC, Friends of the Pleistocene, and many others.

The enormous effort that Clyde put into these and other projects left little time for socializing with friends. One indulgence of his, however, was to attend all Mozart operas performed at the San Francisco Opera House, and another was to have a large party once a year for his friends at his home in San Francisco.

What did this extraordinary geologist do on his vacations? In 1955 he began mapping the Tower Peak 15-minute quadrangle in the northeast part of Yosemite National Park. Two weeks or more each summer from that time until his heart failed him, he studied and mapped by plane table the geology in this area. Fortunately, he was able to complete the mapping before his heart

weakened. The field maps he prepared of the four 7.5-minute quadrangles composing the Tower Peak Quadrangle are without question incomparable masterpieces of geologic skill. Many field notebooks accompany these maps, but it appears that Wahrhaftig was never able to start a manuscript for this supreme labor of love. Perhaps this was inevitable. Clyde was not a perfectionist who could never complete a project, but he set very high standards for himself, and after his health failed and his inspiration decreased somewhat, it is likely that he postponed the completion of this huge task for the time that would never come.

The following is from a memorial written for the University of California by some of Clyde Wahrhaftig's closest friends.

Like his labors on the Tower Peak Quadrangle and on the Nenana Gravels paper, Wahrhaftig's love for his friends and students, for the mountains and science, for the Survey and the University, his care for social justice and the environment, for music, art and literature—all of these loves were deep, humble and enduring. His caring touched the lives of many colleagues, students, friends, and relatives, by whom he is sorely missed as a wise, compassionate, and cherished friend.

Acknowledgment

For help on this memorial, I thank Mark Christensen and Doris Sloan, close friends of Clyde Wahrhaftig.