

Memorial to Fred Oscar Jones

1912-1983

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Fred O. Jones, internationally known pioneer in engineering geology, died in his sleep March 8, 1983, at Queen Valley, Apache Junction, Arizona, about three weeks before his 71st birthday.

Jones was born in Harper County, Kansas, on March 26, 1912, to Oscar and Amelia Jones. Soon afterwards the family moved to Peyton, Colorado, where his father pursued his trade as a blacksmith. With changing times, blacksmithing was gradually replaced by mechanical work and a service station. Fred went to elementary and high school in Peyton and helped his father in "the shop" after school and on weekends. Upon graduation from high school, Fred went to Colorado College, where for four years he survived largely on peanut butter and jelly sandwiches.

During the school months he was a laboratory instructor, and during the summers he worked as a survey crew member for the Rosemont Dam and pipeline water supply project near Colorado Springs. At Colorado College he was elected to the honorary scientific society Delta Epsilon. In 1933 he was graduated with an A.B. degree in geology and engineering. That same year he married Mina Blauer.

Jobs were scarce in 1933, so Jones helped his father in "the shop" when he was not prospecting for gold in other parts of Colorado. In 1935 he started his professional career when he joined the Sinclair Oil Company at Sinclair, Wyoming, where he served as plant and field engineer and developed his life-long interest in petroleum geology. In 1940 he joined the U.S. Bureau of Reclamation to work on the early construction phases of the Columbia River Basin Project. He soon became project geologist and assumed increasing responsibility for the many and varied geologic problems. He was in charge of foundation investigations for dams, reservoirs, power plants, tunnels, siphons, and canals throughout the project area and was responsible for finding nearby sources of suitable aggregate for the concrete used in the many structures. He also started a study of the numerous landslide and slope-stability problems both above and below Grand Coulee Dam.

In 1947 Jones accepted the position of chief geologist with the National Hydroelectric Bureau of the National Resources Commission of China. His work took him to dams and dam sites throughout the Yangtze River basin, from the Tibetan Highland to Chungking and through the gorges of the Yangtze to the Ichang, where a 900-foot-high dam was planned. The collapse of the nationalist regime in the summer of 1947 abruptly terminated his project, and he was forced to leave the country hastily because of the ensuing civil disruption. He salvaged what he could of his belongings in the form of quality Chinese rugs that he somehow arranged to have sent to him.

After returning to the United States, he served briefly as district geologist for the Bureau of Reclamation in Nebraska. In 1948 he joined the Engineering Geology Branch of the U.S. Geological Survey; moved to Spokane, Washington; took charge of the

branch's activities in the Pacific Northwest; and resumed his studies on landslide and slope-stability problems along the upper 200 miles of the Columbia River in the United States. Through his research he developed empirical formulas for estimating where landslides might occur and how much land they might affect. Concurrently with this work, he served from 1948 to 1950 as a consultant to the Ministry of Hydraulics of Mexico for exploration methods and equipment and for foundation studies and design of the President Aleman Dam. In 1955 he resigned from the Survey and started an engineering geology consulting practice in Spokane.

As a consultant Jones worked on a great variety of geologic and engineering problems and continued to do many dam-site and ground-stability studies. He made an evaluation of the mineral resources of the Coeur d'Alene Indian Reservation for the tribe; in a separate study he evaluated sodium sulfate deposits for the U.S. Department of Justice. He served as an expert witness in many legal actions; one, in which he testified for the plaintiff, was eventually won by the plaintiff before the U.S. Supreme Court because of superior expert witness testimony. He undertook water-supply investigations for many towns, cities, agencies, and companies in Washington, Idaho, and Oregon, and a study on quality of ground-water for the Kootenai County Health District, Idaho. In Saskatchewan, Jones helped solve the difficulty that U.S. Borax and Chemical Corporation was having in sinking a shaft through rocks that contained abundant water under considerable hydrostatic pressure. Other assignments included seepage and foundation studies at dams in Washington and Oregon, and one foundation treatment at Minax Dam, Odegi Mines, Nigeria. Jones investigated the failure of water tunnels that caused floods and landslides in Washington and at the Mimino Dam, Lihue Plantation, Kauai, Hawaii. He undertook dam-site, reservoir, and shoreline stabilization investigations at Arrow Lakes for the British Columbia Hydro and Power Authority. In 1965 geologic and foundation investigations for the Terror Lake Hydroelectric Project took him to Kodiak Island, Alaska, where he named an unnamed lake for his deceased daughter, Leanne. Other Alaskan work included the Cooper Lake Hydroelectric Project, Kanai Peninsula, for the Central Alaska Power Association and the Chugach Electric Association. His foundation studies included large hydroelectric projects, individual buildings, and unusual structures such as ferry landings and navigation locks.

Jones handled the worldwide introduction of AM 9 Chemical Grout for Cyanamid International, New York. His expertise in grouting served him well in work on the Columbia River Rocky Reach Dam and in his successful emergency grouting of a flooding Titan I intercontinental ballistic missile silo at Moses Lake, Washington. For this accomplishment and for the work at other missile sites, the U.S. Army Corps of Engineers awarded him a Certificate of Achievement.

In 1959 and 1960 the National Energy Authority of Thailand, through the United Nations, retained Jones to investigate selected dam sites and conduct other engineering geologic investigations in Thailand. In 1965 and 1966 he was retained by Douglas United Nuclear, Inc., Spokane, Washington, to investigate the tectonic and seismic history of the Atomic Energy Commission's Hanford Works north of Richland, Washington. In their report, Jones and Robert J. Deacon were the first to point out difficult seismic and radioactive waste disposal problems urgently needing solution that are still major concerns at Hanford.

Unusually heavy rains in Brazil in 1966 and 1967 produced devastating floods and landslides in Rio de Janeiro and vicinity that resulted in great loss of life and property and severely damaged Rio's electric, water, and sanitation systems. Under the auspices of US/AID Brazil, Jones undertook landslide and slope stabilization studies to help

minimize such future catastrophies, and he helped Rio de Janeiro's Sanitation Department design an interceptor tunnel through the city.

In 1972 Jones was retained by Ebasco Services Incorporated, New York, as head foundation engineer for the Kaban Dam on the upper reaches of the Euphrates River in north-central Turkey. Foundation treatment was difficult because the dam was on cavernous limestone that contained abundant water under dangerously high hydrostatic pressure. At last report, neither the dam nor the reservoir was leaking. After 19 months in Turkey, he became very ill, and even after his return to the United States he never fully recovered. In 1974 he joined the Spokane office of Shannon & Wilson, Inc., geotechnical consultants, as a staff consultant. In this capacity he undertook foundation investigations for coal-fired and nuclear electricity generating plants. Later he returned to private practice, which he preferred, and undertook varied assignments; one of them was as friend of the federal court in a water-rights dispute on the Colville Indian Reservation. In 1980 he retired and moved to Arizona.

Jones is listed in *Who's Who in Engineering*, *Who's Who in the West*, and *American Men of Science*. He was a Fellow of the Geological Society of America, a member of the American Society of Civil Engineers, the Association of Engineering Geologists, and the Northwest Scientific Association, and he was registered and certified to practice in the states of California and Idaho. Jones's career coincided with the development of engineering geology and recognition of it as a necessary part of major construction projects. He was a pragmatic man whose work contributed to the development of engineering geology concepts and applications.

Fred did many things well. He raised beautiful roses, cooked unexcelled steaks on an outdoor grill, and the family Easter breakfasts are remembered by several generations of friends. He was an accomplished fisherman, an average but honest golfer, and he excelled at photography and bird hunting. The illustrations in his reports testify to his photographic abilities; his report on Brazilian landslides has many examples. He also prepared a book on the history, geology, and other features of Kauai fully illustrated in color. He could not find a publisher, however, because a similar book had recently been published by the Sierra Club. Fred took his bird hunting seriously; although he hunted pheasant also, his true love was duck and goose hunting. In the fall he sought out favored hunting areas, built blinds, dug pits, prepared decoys, and made doubly certain that all was in order. His preparations paid off. On one memorable occasion one of our hunting partners exclaimed, "For a time this morning it was raining geese!" Hunts with Fred and our dogs are cherished memories. He shared his game with his friends, and his duck dinners (mallards, of course, and usually all greenheads) will long be remembered, especially the Little Eve dinners (December 23, the Norwegian traditional day for decorating the Christmas tree).

Fred and Mina Jones had a daughter Leanne and a son Larry, both of whom met premature deaths. Leanne in 1960 and Larry in 1968. Leanne graduated from Washington State University and later worked for the Red Cross in Japan before she married Gilbert William Martin. Larry graduated in geology from the University of Washington and was awarded a scholarship for graduate study at Johns Hopkins University. Fred and Mina carried on after the tragic loss of their children, and then, following a long illness, Mina died in early 1969. Some time later Fred Jones married his long-time friend Dorothea Kendrick, R.N., then head of the In-Service Education Department at Penrose Hospital, Colorado Springs, Colorado, with whom he subsequently had many years of happiness. He is survived by his beloved wife, Dorothea, at 1211 Edison Street, 3A, Brush, Colorado 80723; his brother, Reverend Richard A. Jones; his stepdaughter,

Vivian Llewellyn; his stepson, David Kendrick; his granddaughter, Stephanie Martin; and seven stepgrandchildren.

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