

# Memorial to Joseph F. Poland

## 1908–1991

A. IVAN JOHNSON

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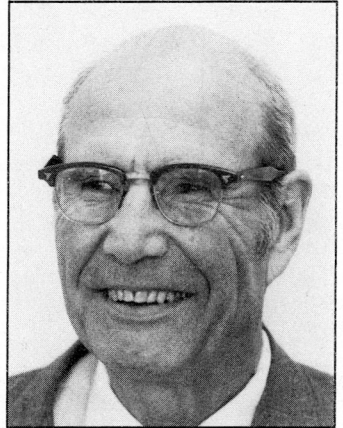
On June 4, 1991, Joseph Fairfield Poland died in a Sacramento, California, hospital at the age of 83 after a long fight with Parkinson's disease. A recognized expert on land subsidence and a retiree from the U.S. Geological Survey's Water Resources Division, his death occurred only two weeks after the end of the Fourth International Symposium on Land Subsidence, held in Houston, Texas. Because he was known as "Mr. Land Subsidence," it was appropriate that the proceedings of that symposium had been dedicated to him.

Born in Boston, Joseph Poland earned a bachelor's degree in geology from Harvard University in 1929. He was resident geologist for Tropical Oil Company in Colombia from 1929–1931. After returning to the United States, he earned his master's degree in geology from Stanford University in 1935 while teaching ground-water hydrology and consulting on ground-water and geophysical problems in California and the southwestern United States from 1931–1939.

Poland began his distinguished USGS career with the ground water division in Long Beach in 1940 as assistant geologist on geologic, hydrologic, and geochemical studies in California. He transferred to Sacramento in 1949 as district geologist to supervise statewide hydrogeology investigations and related research programs. His leadership during that assignment led to the delineation of the major aquifer systems of California and their storage capacity, which proved to be so essential to development of the famous California Water Plan.

From 1956 to his retirement in 1974, Joe served as research geologist (later research hydrologist) in charge of a multimillion-dollar state-federal cooperative research program on land subsidence and a federal research program on mechanics of aquifer systems. He was called in as an expert on land subsidence in many parts of the United States and internationally for organizations such as the UN, UNESCO, FAO, and World Bank. His research led to the saving of millions of dollars in irrigation, aqueduct, and freeway construction costs in relation to potential subsidence problems, through redesign of such construction. He was responsible for determining the reason for the subsidence problems in Venice, Italy, and was known by Italians as the "savior" or "healer" of the city. Following his retirement in 1974, he continued working as a rehired annuitant until 1984.

Through Poland's professional dedication and keen thirst for knowledge, he published many important scientific papers and reports on geohydrology, land subsidence, and mechanics of aquifers. His scientific achievements were recognized by honors received from a number of societies and institutions. He was number seven in engineering geologist certification and number 22 as a California registered geologist. He was a founding member and honorary member of the Association of Engineering Geologists and recipient of their Clair P. Holdredge Award (1970) for a paper that was judged to be an outstanding contribution to the profession of engineering geology. In 1947, the Geological Society of America elevated Joe to the rank of Fellow and then in 1972 awarded him the Hydrology Division's O.E. Meinzer Award.



Joe was honored again by GSA at its 1980 Annual Meeting in Atlanta, Georgia, where they sponsored the Joseph F. Poland Symposium on Land Subsidence as well as an honorary banquet. It was at this banquet that he was informed that Stanford University would be presenting a doctor's degree to him at their 1981 graduation. He had completed his doctoral studies and oral exams but lacked a written dissertation for his doctorate because he left the university to join the USGS. Through efforts of his co-workers in submitting 40 years of his research for the thesis, Stanford decided to award the doctorate.

The AWRA Honorary Member Award was given to Poland in 1985, and AGU honored him with the Fellow award in 1987. The ASCE in 1980 dedicated a special compilation of papers on subsidence in his honor. He served as chairman of a five-person UNESCO working group on land subsidence, which organized a Subsidence Workshop in Mexico City in 1979 and produced the "UNESCO Guidebook on Study of Land Subsidence Due to Ground-Water Withdrawal" in 1984. The International Association of Hydrological Sciences dedicated the proceedings of the Third International Symposium on Land Subsidence as well as the Fourth Symposium to Joe in 1986 and 1991, respectively.

By personal example, Joseph Poland provided noteworthy leadership and stimulated the flow of ideas and production of scientific contributions of co-workers. He always gave more of himself than he expected of others. He particularly motivated the younger geologists and engineers with whom he worked during his 40-year career with the USGS, and he has been highly revered by such colleagues not only as an outstanding scientist but as a gentleman and friend.

Joe Poland is survived by his wife of 55 years, Eleanor Tompkins Poland of Sacramento; daughters Jane Trammell of Morgan Hill, Santa Clara County, Gay Knight of Glen Ellen, Sonoma County, and Sara Lovett of Santa Fe, New Mexico; sons Joseph, of Placerville, and Stephen, of Albuquerque, New Mexico; a sister, Muriel Poland of Washington, D.C.; and six grandchildren.

The family requests that any remembrances be made to the National Parkinson's Foundation, Bob Hope Road, 1501 NW 9th Avenue, Miami, Florida 33136-1494.

### SELECTED BIBLIOGRAPHY OF J. F. POLAND

- 1937 (with Tolman, C. F.) Percolation, ground-water turbulent flow, and permeability, *in* Tolman, C. F., *Ground water*: New York, McGraw-Hill Book Company, p. 190-222.
- 1956 (and Davis, G. H.) Subsidence of the land surface in the Tulare-Wasco (Delano) and Los Banos-Kettleman City area, San Joaquin Valley, California: *American Geophysical Union Transactions*, v. 37, no. 3, p. 287-296.
- (and Piper, A. M., and others) Ground-water geology of the coastal zone, Long Beach-Santa Ana area, California: U.S. Geological Survey Water-Supply Paper 1109, 162 p.
- 1959 (and others) Geology, hydrology, and chemical character of the ground waters in the Torrance-Santa Monica area, California: U.S. Geological Survey Water-Supply Paper 1461, 425 p.
- 1961 The coefficient of storage in a region of major subsidence caused by compaction of an aquifer system: U.S. Geological Survey Professional Paper 424-B.
- 1969 (and Davis, G. H.) Land subsidence due to withdrawal of fluids: *Geological Society of America Reviews in Engineering Geology* 2, p. 187-269.
- Status of present knowledge and needs for additional research on compaction of aquifer systems: *Land Subsidence Symposium Proceedings*, International Association of Scientific Hydrology Publication No. 88.

- 1970 (and Mostertman, L. J.) Reconnaissance investigation of subsidence of Venice and suggested steps toward its control: U.S. Geological Survey Open-File Report.
- 1975 (and others) Land subsidence in the San Joaquin Valley, California, as of 1972: U.S. Geological Survey Professional Paper 437-H, 78 p.
- (with Bull, W. B.) Land subsidence due to ground-water withdrawal in the Los Banos–Kettleman City area, California, Part 3. Interrelations of water-level change, change in aquifer-system thickness, and subsidence: U.S. Geological Survey Professional Paper 437-G, 62p.
- (and Lofgren, B. E., Ireland, R. L., and Pugh, R. G.) Land subsidence in the San Joaquin Valley, California, as of 1972: U.S. Geological Survey Professional Paper 437-H, 78 p.
- 1977 Land subsidence and artesian head recovery, Santa Clara Valley, California: 1976 Land Subsidence Symposium Proceedings, International Association of Hydrological Sciences Publication No. 121, p. 124–132.