

# Memorial to William G. Pierce

## 1904–1994

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William G. Pierce, a highly respected U.S. Geological Survey geologist whose scientific contributions spanned more than 65 years, died January 31, 1994, at age 89.

Bill Pierce was recognized internationally as an authority on detachment faults and on the geology of northwestern Wyoming. He masterfully documented and interpreted the low-angle Heart Mountain fault, demonstrating that hundreds of cubic miles of Paleozoic rock had slid rapidly over distances of tens of miles into the Big Horn Basin during Eocene time. As a Survey geologist and administrator in an active career of 47 years, Pierce also made major contributions answering to the nation's need for sound geologic information about fuel resources, the occurrence of critical minerals, and the constraints on potential disposal of radioactive wastes in sedimentary basins.

His keen perception of geologic relations and his scientific craftsmanship are reflected in the approximately 90 published reports and maps that he wrote or coauthored. He was a longtime Fellow of the Geological Society of America and a member of numerous other national and local scientific societies.

Colleagues of Bill Pierce remember him as a hard-working, friendly, and caring person. He embodied the Western pioneer's ethic of absolute integrity, quiet determination, and optimism. Although he seemed reserved, his door was always open to younger geologists who needed advice or encouragement.

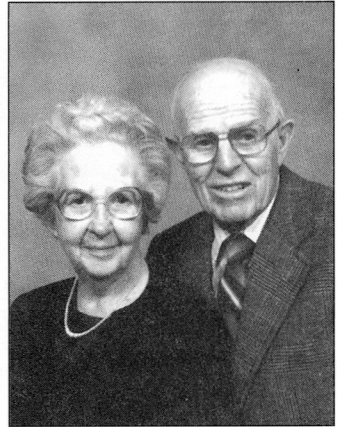
Pierce was born in Gettysburg, South Dakota, on September 24, 1904. He received his Bachelor of Science degree in geology and chemistry from the University of South Dakota in 1927. He left the Dakota flatlands for Princeton University, where he received both a Master of Arts degree (1929) and a Ph.D. (1931) in geology.

Bill Pierce began his Survey career as a summer field assistant in 1927 and 1928. In 1929 he assumed full-time duty as chief of a geologic mapping project in Montana's Rosebud coal field. Other fuels-related projects in Montana, eastern Colorado, and southwestern Kansas followed.

His competence firmly established by these initial projects, Pierce was assigned to work on the complex geology of northwestern Wyoming in 1935. His observations established him as an authority on the structure and stratigraphy of the Big Horn Basin. The maps and publications that resulted were major contributions to oil and gas investigations in Wyoming. An inquisitive love affair with the Heart Mountain fault began at this time.

During World War II, Bill Pierce's geologic mapping expertise was enlisted in the Survey's efforts to appraise manganese resources in California and in the southeastern United States.

Over the next two decades, Pierce was selected by the Survey to lead many difficult administrative and special assignments. He served as Geologic Division coordinator for studies of the



Missouri River basin during 1946 and 1947. From 1947 to 1953, he supervised Fuels Branch investigations in the Rocky Mountain and Pacific Coast regions. He also directed an appraisal of lignite deposits in Greece during 1949 that delineated major new reserves for the Athens area.

In 1955 Pierce moved to California as one of the founding members of the Survey's newly established Menlo Park research center. From 1957 to 1963, he managed the Geologic Division program that analyzed the suitability of the nation's large sedimentary basins for the disposal of radioactive wastes. He also was the major contributor to a definitive investigation of salt deposits in the United States.

In addition to his regular assignments during these decades, Pierce continued his field research on the Heart Mountain fault in the rugged terrain between Yellowstone National Park and the Big Horn Basin. In 1957, he published his classic paper documenting the detachment nature of this uniquely preserved low-angle fault.

He received a grant from the National Science Foundation in 1963 to study possible detachment faults in the Apennines of Italy and the Jura Mountains of Switzerland.

In 1965, Bill Pierce was presented with the Department of the Interior's highest award, the Distinguished Service Award, for his insights on the Heart Mountain fault and for his remarkable geological and administrative contributions.

He spent part of 1974 and 1975 in Taiwan studying detachment faulting and advising on the organization of a National Geological Survey for the Republic of China.

The Wyoming Geological Association Guidebook in 1975 was dedicated to Pierce in recognition of his outstanding contributions to the geology of Wyoming, the Rocky Mountain Cordillera, and many foreign countries.

Bill Pierce formally retired from the Survey in 1974 after a career spanning 47 years. Retirement was merely an opportunity to refine the story of the Heart Mountain fault and to test hypotheses of its origin. When some of his concepts were challenged by those who provided merely theoretical explanations for the fault's origin, Pierce countered with insights drawn from decades of meticulous field observations. He continued to work routinely at his Survey office as a scientist emeritus. Even as he passed away, an important technical paper that he coauthored with two Polish geologists concerning geologic constraints on movement along the fault was being printed by the University of Wyoming.

He is survived by his widow, May Bell, and by three children: William, a professor of electrical engineering at the University of Louisville, Kentucky; Kenneth, a research geologist for the U.S. Geological Survey in Denver, Colorado; and Diane Phillips, a minister with Foothills Congregational Church in Los Altos, California. He also leaves eight grandchildren. His family continues to carry on his legacy of intellectual inquiry and public service.

Contributions in his memory may be made to the Bill Pierce-Heart Mountain Fund, Colorado Scientific Society, P.O. Box 150495, Lakewood, CO 80215-0495. This fund, established by his family, will support continued research on the Heart Mountain fault.

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In addition, Pierce was the author (1965–1982) of nine U.S. Geological Survey 15' geologic quadrangle maps showing the areas in which the Heart Mountain fault occurs: GQ-477, GQ-478, GQ-542, GQ-755, GQ-778, GQ-817, GQ-935, GQ-1564, and I-816.