

Memorial to Henry Welty Coulter, Jr.

1920–1996

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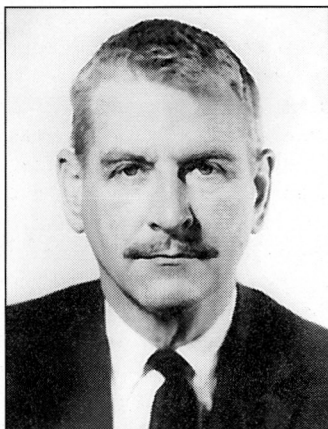
With the death of Henry Welty Coulter, Jr., this Society has lost an esteemed member, his family has lost a beloved husband, father, uncle, and cousin, and so many of us have lost a valued colleague and treasured friend. Words cannot express the void that his death has left in our lives; this was no ordinary man. Our collective loss was perhaps best expressed by his friend, author and alpinist Andrew Kaufman, who wrote following Hank's death: "I would have gone to the ends of the earth with him; you could not have asked for a better companion in good times and bad."

Henry (Hank) Coulter, distinguished scientist and science administrator, died of interstitial lung disease on February 12, 1996, in Lebanon, New Hampshire. Hank was born in Greensburg, Pennsylvania, and lived most of his life in Washington, D.C., where he served as a member of the U.S. Geological Survey until his retirement in 1980. In 1993 the family relocated to Hanover, New Hampshire, scene of his undergraduate days at Dartmouth College.

Hank graduated from Dartmouth in 1947 and was a teaching fellow in geology at Dartmouth during the period 1946–1947. An accomplished mountain climber before entering college, he was elected to the American Alpine Club when he was barely 20 years old for his, and his long-time climbing partner Jack Durrance's, pioneering ascents in the Grand Tetons. After a tour in the U.S. Navy as an Aviation Engineering Officer in the South Pacific, Hank returned to his geologic studies, which included a thesis investigation in the Wasatch Range in southeastern Idaho; whether his selection of a thesis area was driven by the geology or the climbing opportunities remains a mystery. He received his doctorate in geology from Yale University in 1954, the same year that he took part in the Pennsylvania Museum expedition to Afghanistan under the leadership of Carlton Coon. This was obviously a highlight of Hank's early adventures, and he enjoyed telling about the trip to Kabul and beyond.

Hank's full-time career with the U.S. Geological Survey began in 1953. His first Survey assignment was with the Alaska Terrain and Permafrost Section of the Military Geology Branch, where the focus was on a study of volcanic activity and its potential impact on bases and villages in the Alaska Peninsula and Cook Inlet region. For about ten years, he continued his studies of the topography and geology of Alaska as they related to military and engineering activities. These studies covered all of what was then the Territory of Alaska and included a variety of special geologic disciplines such as geomorphology, glaciology, volcanology, and various engineering-related subjects associated with recognized natural hazards. The knowledge gained and his first-hand field experience served him well in the solution of problems he faced in his administrative career.

As the urgency to collect and interpret geological information to meet military needs diminished, Hank concentrated his Alaskan field studies on general geologic mapping in the Valdez quadrangle, a rugged mountainous region with very few roads. Hank traversed much of the area on foot, frequently alone. Fortunately, this prepared him for the next major event in his



illustrious career. In March 1964, the Good Friday earthquake destroyed the city of Valdez and damaged large areas of southern Alaska. Hank Coulter studied the earthquake and tidal effects in the Valdez area carefully and systematically, and recommended that the city be rebuilt on a site several miles from the old location but on a more stable geologic foundation. His recommendations were accepted, and the city of Valdez stands today on the site that he selected.

Even before he had completed his Alaskan work, Hank sandwiched in several investigations of the geology of the greater Washington, D.C., area, quite a change from mapping in mountainous terranes. Although it was a formal project, this work received little support and recognition from fellow geologists. However, it not only kept him home, but brought him into a much closer working relationship with the executive echelon of the Survey, where his innate talent for technical leadership began to be appreciated. This talent was especially well displayed at a critical time in the accelerating growth of the nation's nuclear reactor industry, which was, for at least a brief period, viewed as a panacea for dealing with our impending energy crisis.

Until about the mid-1960s, background geologic investigations required for the approval of any reactor site could be generously described as pedestrian. With the growing perception of the enormous devastation that might accompany a reactor meltdown, it quickly became clear that the site selection procedures must address a host of regional geologic concerns, including cutting-edge scientific issues related to the potential for large-magnitude seismic events and possible fault rupture of the containment vessel and its umbilicals. It was into this exploding adversarial environment that the Survey thrust Hank Coulter. His technical perception, coupled with his contagious charm and wit, proved to be attributes that diminished, if they did not actually eliminate, the acrimony that grew up around many of the more contentious reactor sites. In 1968 the largest oil field in North America was discovered near Prudhoe Bay in northern Alaska. The development, production, and transportation to market of the hot crude oil over 800 miles of permanently frozen, ice-rich, and largely public land posed a very challenging engineering and environmental problem. Hank Coulter served as advisor to the Secretary of the Interior on all matters related to the Trans-Alaska Pipeline System. He and his Survey colleagues were prime contributors to the massive environmental impact statement on the proposed system and to the final design and construction of it. The southern terminus of the pipeline and shipping point for the crude oil is the city of Valdez, the city that was moved and rebuilt on the recommendation of Hank Coulter and his colleagues.

Hank's recognized success in dealing with these hot-button issues, including hot-oil pipelines, reactor sites, failing reservoirs, and other environmentally sensitive problems, led to the recognition by some, including Director Vince McKelvey, that Hank's abilities deserved to be more fully exploited. Thus, in 1973 he was appointed to the position of Assistant Director for Environmental Conservation in the USGS. Hank almost immediately became the lightning rod and focal point for some of the most controversial and environmentally sensitive issues of the day, many of them in Alaska.

In 1976 Congress renamed and transferred the former Naval Petroleum Reserve No. 4 to the Department of Interior and mandated special management and resource studies, including continuation of the petroleum exploration program begun by the U.S. Navy. The exploration program and some of the special studies were assigned to the Survey and, like many controversial issues, the major responsibility fell to Hank Coulter. He created and staffed an Office of National Petroleum Reserve in Alaska that planned and supervised the contract for a very extensive geological, geophysical, and drilling exploration program to determine as definitively as possible the petroleum potential of the reserve, embracing 37,000 square miles. The program continued through 1982, and although minor deposits of gas were discovered, the information gathered suggested a low potential for major oil deposits in most of the reserve. The vast collection of technical information, including subsurface data and samples, was released to the public

by the Survey, and the reserve was subsequently opened to leasing and exploration by private interests. To date there has been very little private exploration of the reserve, which seemed to confirm the low potential defined by the federal program. However, recent discoveries adjacent to the reserve have renewed the interest of private companies. The data collected, preserved, and publicly released under Hank's leadership provide invaluable information on which to base further land-use decisions and possible future oil exploration in the reserve.

Although heavily loaded with administrative and managerial duties, Hank continued to publish papers on Alaskan geology, the 1964 Alaskan earthquake, the geological and geophysical aspects of nuclear plant sites, and the geology of the National Capitol area, on which he was a recognized expert. His bibliography includes 42 published papers, some of which had limited distribution because of security requirements but have since been made publicly available. For his numerous technical and managerial contributions, Hank was selected for the Department of the Interior's highest honors, the Meritorious and Distinguished Service Awards.

Truly a man for all seasons, Hank enjoyed the remote and wide-open spaces, but he also enjoyed the urban and political life of Washington. He was an excellent host and raconteur and a connoisseur of fine wines, liquors, and excellent foods. He was always ready to help when anyone sought his advice. Just his presence seemed to bring assurance and reality to the situation and raised one's hopes and spirit. His judgments and opinions were respected and admired and, more often than not, the final word on many issues. He was a great storyteller, and there was nearly always a chuckle in even his most solemn pronouncements. Again, his friend Andrew Kauffman said in his memorial to Hank, written for the American Alpine Club, that Hank had a "proclivity to view all human events with a grain of amusement" and that "Hank was alive with laughter." As a manager, Hank brought out the best in his associates and spurred them on to surpass themselves. As in his climbing pursuits he reached a peak in his professional career, but in the judgment of many of his close associates, he retired much too soon. Although frequently consulted after his retirement, he resisted getting too deeply involved in controversial issues, choosing instead to spend time with his family and his renewed love with the wide-open spaces of Idaho.

In addition to being a Fellow of the Geological Society of America, he was a member of the Association of Engineering Geologists, Seismological Society of America, American Association for the Advancement of Science, Sigma Xi Society, and Cosmos Club of Washington, D.C.

Hank is survived by his wife of 39 years, Elizabeth Coulter; four children: Elena Spence of Wilton, Connecticut, Margaret Coulter of Guild, New Hampshire, Richard Coulter of Hanover, New Hampshire, and John Coulter of Washington, D.C.; a sister, Stella Durrance of Denver, Colorado; and two grandchildren.

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