

Memorial to Phillip Leonidas Merritt

1906–1981

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Phillip L. Merritt, geologist and administrator, well known for his wartime procurement of uranium for the first atom bombs and his later direction of the Atomic Energy Commission's exploration effort, died at age 75 in Salt Lake City, November 14, 1981.

Merritt was born February 8, 1906, in Duluth, Minnesota, the son of Alva and Ruth Merritt, and the grandson of Leonidas Merritt, leader of the "Seven Iron Men"—the four Merritt brothers and three nephews—who discovered and opened up the famous Mesabi iron range. At the University of Minnesota, from which he was graduated in geology in 1928, Phil's inherited bent toward prospecting was advanced by exposure to a remarkable faculty of pragmatists—headed by W. H. Emmons—whose enthusiasm for ore

deposits, albeit at times oddly manifest, was nevertheless animated and contagious.

From Minnesota's cloisters, Phil ventured forth into the African bush, where for two years he sought copper for Rhodesian Selection Trust, as a member of the exploration team directed by Anton Gray and comprised largely of other Minnesota men. In late 1929 he returned to the States in time to enroll as a doctoral candidate at Columbia University. There, Prof. C. P. Berkey, who maintained a close tie with Prof. Frank Grout of Minnesota, directed Phil's thesis work on the "Seine-Coutchiching Problem," which Grout had suggested. In 1930 Phil was awarded a master's degree, and for the academic year 1932–33, he was awarded the James Furman Kemp Fellowship. By 1934, when the doctorate was awarded, the depression had closed most gateways to jobs, so that an opening at \$200 per month with the Colombian Department of Mines was eagerly seized upon by the new Ph.D. For the next two years, Phil was headquartered in Bogota but was engaged on a variety of geological projects ranging from dam construction to mineral and oil explorations. Some of these projects called for reports for publication, and to this period in Colombia most of Phil's published papers can be assigned.

Returning to the States in 1936, Phil commenced a six-year employment with American Cyanamid Co. in the Stamford, Connecticut, laboratory as a geologist-mineralogist and ore dressing engineer, researching, among other things, the sink-float process. In 1942, after fourteen years of field and laboratory work, he embarked on the career that was to engage him for most of his later life: the search for and development of sources of uranium.

This new career began in the fall of 1942 when Phil met Col. James C. Marshall, brother-in-law of Phil's wife-to-be. Marshall was an officer of the U.S. Army Corps of Engineers' Manhattan Engineer District, the organization, under the leadership of Gen. Leslie R. Groves, entrusted with the awesome nuclear military project initiated that August. For the project, there was, of course, a crucial need for uranium, and it was logical to engage an experienced geologist to find it. Marshall offered the position to Phil, who promptly enrolled as an army captain assigned to the Manhattan project. From

1942 through 1946 he traveled from his New York station, generally in civilian clothes and in greatest secrecy, to wherever uranium-bearing ores or concentrates might be obtained: to Canada's Eldorado mine at Great Bear Lake, to the famous Shinkolobwe mine in the Belgian Congo, and to the vanadium mines of the Colorado Plateau. Known domestic reserves of uranium ores were almost negligible; expediency was the word. One of Phil's first assignments was to escort, personally and clandestinely, from a Staten Island warehouse to Eldorado's Canadian refinery—one of the few then existing in the world—a boxcar load of barrels of critically important uranium concentrates that Edgar Sengier, Manager of Union Minière's Congo operations, had dispatched, with remarkable prescience, to New York from Europe, just prior to Hitler's invasion of Belgium. Sengier later told Phil that he had done so with the thought "America just might need it."

Largely through Phil's persuasions and negotiations, the known sources, which previously had produced only small amounts of uranium for scientific and industrial uses, had yielded by 1946 some 9.1 kilotonnes (10,000 short tons) for the atomic bomb project. For his prodigious efforts, Major Merritt received in 1946 the army's Legion of Merit Award, and a decade later the University of Minnesota's Outstanding Achievement Award.

In 1947 the newly created Atomic Energy Commission (AEC), a civilian agency centered in Washington, inherited the activities of the Manhattan District. After a brief lull at the end of the war, the military demands for uranium soared once again. Now a civilian employe of the new agency, Phil continued procurement negotiations with foreign producers and initiated laboratory research, under Prof. A. M. Gaudin at the Massachusetts Institute of Technology, on the recovery of co-product uranium from South African gold ores. The discovery of uranium in the Rand conglomerates had widened the targets of search to other conglomerates, such as those of Blind River, Ontario. Together these formations after 1952 became very important sources of uranium.

But the new AEC Raw Materials Division in Washington, ably directed by John Gustafson and later by Jesse Johnson, soon took over liaison, procurement, and most research, while Phil as assistant director remained with a sizable staff in New York. He inherited the responsibility for finding the uranium. In 1947 there were no known domestic orebodies of over 150,000 tons of uranium ore, and the known ones were of relatively low grade. To overcome this domestic deficiency, Phil launched and directed from 1947 through 1954 an exploration program that was unprecedented in concept and scope and has not been rivaled since by government or industry. It entailed a worldwide search; it enlisted the interest and help of the people, the prospectors, and the mining companies; it funded cooperative work by the U.S. Geological Survey and the U.S. Bureau of Mines and geological studies focused on uranium by consultants, professors, and students. At its peak in 1956, it employed nearly a thousand earth scientists and engineers, operated several field offices, and had an annual budget of \$15 million. The goals of the program were to develop and disseminate information on uranium minerals and ore deposits; to demonstrate by geology, geophysics, and physical exploration such as drilling that these deposits existed in size and tenor worthy of a miner's interest; and, above all, to encourage and help private industry to undertake the mining of these deposits. Prospectors and companies responded magnificently. By 1954 the great multimillion-ton deposits of Utah, New Mexico, and Wyoming had been discovered; the goals had been largely reached.

In late 1954, as a consolidation effort, the exploration office was transferred to Washington, but Phil who had an affection for New York but none for the Washington bureaucracy chose to remain in the business capital as a consultant with E. J. Longyear Company. At that time some of the major mining companies were undertaking large

uranium mining projects in the West, and on some of these projects Longyear had important consulting roles, concerned mainly with the assessments of ore reserves and the economics of mining. Phil embraced these assignments with enthusiasm. By 1961 this work was completed, and Phil joined one of Longyear's clients, Hidden Splendor Mining Company—soon to become Atlas Minerals Company—as vice-president of exploration. During the next five years, while Atlas's attempts to diversify into minerals other than uranium ores were unsuccessful, its position as a producer of yellowcake from its mines and mill was enhanced.

When, in 1966, Atlas Minerals moved its offices from Salt Lake City to Denver, Phil chose once again to remain emplaced—this time in Salt Lake which he and his wife had come to enjoy and which was to remain his home for the remainder of his days. He found a pleasant niche as consultant to several electric utilities interested in uranium supplies for their nuclear reactors. This work, which he continued until shortly before his death, enabled him to be intimately involved in uranium matters, especially in the peaceful applications to which he was intensely devoted. He was truly an authority in the field that had taken up so much of his professional life.

Phil's publications are few, but his speeches made during his AEC days and later—to laymen and professionals, from coast to coast in the United States and Canada—are notable disquisitions and exhortations on his favorite subject and are still interesting to read. His papers are deposited in the Western History Research Center, The University of Wyoming, Laramie.

Besides his ability as a geologist, which was at once apparent to anyone accompanying him in the field, Phil had a keen business sense, a deep political conservatism, and, withal, a forthright integrity, a selflessness, and an abiding loyalty to his friends, many of whom he helped through dark days.

In 1946 Phil married a lovely New York lady, Beatrice Wolff, who survives him in Salt Lake City. Bea's love and devotion supported him through arduous times, most beautifully through his courageous two-year fight against the malignancy that finally overcame him. In recent years Phil and Bea had enjoyed summer vacations at Stonybrook, Long Island, in a little place near the sea and not far from the great city where his reputation as "Mr. Uranium" was made. Phil is survived also by his sister, Mrs. Frank Tenney of Duluth, and by nieces and a nephew.

Phil was a member of the Geological Society of America, the Society of Economic Geologists, The Society of Mining Engineers, the Mining & Metallurgical Society of America, the Mining Club of New York, and the Columbia University Club.

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