MEMORIAL OF FRANK CHARLES SCHRADER

WALDEMAR T. SCHALLER, U. S. Geological Survey, Washington, D. C.

Widely known throughout the west as the prospector's friend, Frank Charles Schrader passed away in April, 1944. He was ever ready to help the individual miner and prospector in identifying his various rocks and minerals and to supply him with publications that would help in his search for metals and ores.

Born in Sterling, Illinois, on October 6, 1860, he received the degrees of Bachelor of Science and Master of Science from the University of Kansas and Bachelor of Arts and Master of Arts from Harvard. Before joining the U.S. Geological Survey in 1896, he served as entomologist in Kansas (1889-1891), on the State Board of Agriculture, Massachusetts (1893-1894), and taught geology for a year at Harvard (1895-1896). He was one of the first Federal geologists to make explorations in Alaska, reporting on the Copper River district, the Cape Nome gold region, and other areas. Later, he reported on the mineral resources of Kansas, New Mexico, Colorado, Arizona, Idaho, Nevada, and other western states, publishing many papers on ore and mineral deposits in these States. In 1917 he assisted in the revision of an earlier bulletin of the Survey on "Useful Minerals of the United States." During the First World War he examined and reported on many mineral deposits in the East and became the Mineral Resources specialist on antimony. His interest lay largely in the West, however, and he soon returned there for field work, particularly in Nevada.

He examined and reported on many mining properties and was chief witness in important mining cases in the Federal courts.

A keen mineralogist, he always brought back from the field any minerals that seemed unusual or worthy of further study, and gladly contributed both material and his time to others. The writer has benefited greatly by Schrader's generous contribution of material and by informal discussions of problems with him. He was always pleased to be of help to others and gratified that, indirectly perhaps, he had contributed to the work of others.

He was a member of many scientific societies: American Association for the Advancement of Science, Society of Economic Gelogists, American Institute of Mining and Metallurgical Engineers, Mining and Metallurgical Society, American Forest Association, Geological Society of Washington, Washington Academy of Sciences, Washington Petrologists Club, and a Fellow of the Geological Society of America and Mineralogical Society of America.

MEMORIAL OF FRANK C. SCHRADER



Frank Charles Schrader 1860–1944 Long a bachelor, he married Kathrine Batwell in 1919. In 1932 he was retired from active service on account of age but for five more years he continued to turn out geological reports.

BIBLIOGRAPHY

JOSEPH J. FAHEY, U. S. Geological Survey, Washington, D. C.

The geology of the Woonsocket basin (Abst.): Science, n.s., 3, 142-143 (1896).

- (With others) Maps and descriptions of routes of exploration in Alaska in 1898: U. S. Geol. Survey, Special publication, 138 pp. (1899).
- [Reconnaissance in the Copper River district, Alaska (Abst.)] Science, n.s., 9, 551–552 (1899).
- (and Brooks, A. H.) Preliminary report on the Cape Nome gold region, Alaska: U. S. Geol. Survey, Special publication, 56 pp. (1900). (Abst.) Mines and Minerals, 20, 534–537 (1900).

A reconnaissance of a part of Prince William Sound and the Copper River district, Alaska, in 1898: U. S. Geol. Survey, Ann. Rept., 20, pt. 7, 341-423 (1900).

- Preliminary report on a reconnaissance along the Chandlar and Koyukuk rivers, Alaska, in 1899: U. S. Geol. Survey, Ann. Rept., 21, pt. 2, 441-486 (1900).
- The Cape Nome gold district [Alaska]: Nat. Geog. Mag., 11, 15-23 (1900).

(and Spencer, A. C.) The geology and mineral resources of a portion of the Copper River district, Alaska: U. S. Geol. Survey, Special publication, 94 pp. (1901).

(and Brooks, A. H.) Some notes on the Nome gold region of Alaska: Am. I. M. Eng., Tr., 30, 236-247 (1901).

Geological section of the Rocky Mountains in northern Alaska: Geol. Soc. Am., Bull. 13, 233-252 (1902). (Abst.) Science, n.s. 15, 665-666 (1902).

(with Mendenhall, W. C.) The mineral resources of the Mount Wrangell district, Alaska: U. S. Geol. Survey, Prof. Paper 15, 71 pp. (1903).

(with Mendenhall, W. C.) Copper deposits of the Mount Wrangell region, Alaska: U. S. Geol. Survey, Bull. 213, 141-148 (1903).

A reconnaissance in northern Alaska: U. S. Geol. Survey, Prof. Paper 20, 139 pp. (1904).

- (and Haworth, E.) Oil and gas of the Independence quadrangle, Kansas: U. S. Geol. Survey, Bull. 260, 446-458 (1905).
- (and Haworth, E.) Clay industries of the Independence quadrangle, Kansas: U. S. Geol. Survey, Bull. 260, 546-549 (1905).

(with Haworth, E.) Portland-cement resources of the Independence quadrangle, Kansas: U. S. Geol. Survey, Bull. 260, 506-509 (1905).

The Durango-Gallup coal field of Colorado and New Mexico: U. S. Geol. Survey, Bull. 285, 241–258 (1906).

(and Haworth, E.) Economic geology of the Independence quadrangle, Kansas: U. S. Geol. Survey, Bull. 296, 74 pp. (1906).

Copper deposits of the Zuni Mountains, N. Mexico. (Abst.) Science, n.s., 23, 916 (1906).

- Description of the Independence quadrangle, Kansas: U. S. Geol. Survey, Folio 159, 7 pp. (1908).
- The mineral deposits of the Cerbat Range, Black Mountains, and Grand Wash Cliffs, Mohave Co., Arizona: U. S. Geol. Survey, Bull. 340, 53-83 (1908). (Abst.) Science, n.s., 27, 957-958 (1908).
- Mineral deposits of the Cerbat Range, Black Mountains, and Grand Wash Cliffs, Mohave Co., Arizona: U. S. Geol. Survey, Bull. 397, 226 pp. (1909).

- An occurrence of monazite in northern Idaho: U. S. Geol. Survey, Bull. 430, 184–190 (1910).
- (and Hill, J. M.) Some occurrences of molybdenite in the Santa Rita and Patagonia Mountains, Arizona: U. S. Geol. Survey, Bull. 430, 154-163 (1910).
- Gold-bearing ground moraine in northwestern Montana: U. S. Geol. Survey, Bull. 470, 62-74 (1911).
- A reconnaissance of the Jarbidge, Contact, and Elk Mountain mining districts, Elko Co., Nevada: U. S. Geol. Survey, Bull. 497, 162 pp. (1912). (Abst.) Wash. Ac. Sc., J. 2, 439-440 (1912).
- Notes on the Antelope district, Nevada: U. S. Geol. Survey, Bull. 530, 87-98 (1913).
- Alunite in Patagonia, Arizona, and Bovard, Nevada: Econ. Geol., 8, 752-767 (1913).
- Alunite in granite porphyry near Patagonia, Arizona: U. S. Geol. Survey, Bull. 540, 347– 350 (1914).
- Alunite in Bovard, Nevada: U. S. Geol. Survey, Bull., 540, 351-356 (1914).
- Gold placers on Wind and Bighorn rivers, Wyoming: U. S. Geol. Survey, Bull. 580, 127–145 (1914).
- The Rochester mining district, Nevada: U. S. Geol. Survey, Bull. 580, 325-372 (1914).
- Mineral deposits of the Santa Rita and Patagonia mountains, Arizona, with contributions by Hill, James M., U. S. Geol. Survey, Bull. 582, 373 pp. (1915). (Abst.) Wash. Ac. Sc., J., 5, 519-521 (1915).
- Some features of the ore deposits in the Santa Rita and Patagonia mountains, Arizona: (Abst.) Wash. Ac. Sc., J., 5, 252-253 (1915).
- A sulphide-bearing monzonite from Arizona: (Abst.) Wash. Ac. Sc., J., 5, 485 (1915).
- Geology and ore deposits of Mohave Co., Arizona (with discussion by Sperr, J. Dana, Platts, John B., and Anderson, John Carter): Am. I. M. Eng., Bull. 119, 1935–1967 (1916); (discussion) 123, 379–384; 124, 456–460 (1917); Tr. 56, 195–236 (1917).
- The ore deposits of Mohave Co., Arizona: M. Sc. Press, 113, 733-737 (1916).
- Ore deposits of the Rochester district, Nevada: (Abst.) Wash. Ac. Sc., J., 6, 518-519 (1916).
- (and Stone, R. W., and Sanford, S.) Useful minerals of the United States (a revision of Bulletin 585): U. S. Geol. Survey, Bull. 624, 412 pp. (1917).
- The geologic distribution and genesis of the metals in the Santa Rita-Patagonia mountains, Arizona: *Econ. Geol.*, **12**, 237-269 (1917).
- Quicksilver deposits of the Phoenix Mountains, Arizona: U. S. Geol. Survey, Bull. 690, 95-109 (1918).
- (with Stose, G. W.) Manganese deposits of east Tennessee: Tenn. Geol. Survey, Res. Tenn., 8, 153-207; 228-324 (1918).

Pyrite at the Haile mine, Kershaw, South Carolina, with a note on pyritization at the Brewer mine, near Jefferson: U. S. Geol. Survey, Bull. 725, 331-345 (1921).

- Antinomy in 1919: U. S. Geol. Survey, Mineral Resources, 1919, pt. 1, 287-311 (1921).
- Antimony in 1920: U. S. Geol. Survey, Mineral Resources, 1920, pt. 1, 73-84 (1921).
- Antimony in 1921: U. S. Geol. Survey, Mineral Resources, 1921, pt. 1, 121-128 (1922).
- The Jarbridge mining district, Nevada, with a note on the Charleston district: U. S. Geol. Survey, Bull. 741, 86 pp. (1923).
- Antimony in 1922: U. S. Geol. Survey, Mineral Resources, 1922, pt. 1, 97-105 (1923).
- Molybdenite in the Rocky Bar district, Idaho: U. S. Geol. Survey, Bull. 750, 87-99 (1924).
- Antimony in 1923: U. S. Geol. Survey, Mineral Resources, 1923, pt. 1, 277-293 (1925).
- Antimony in 1924: U. S. Bur. Mines, Mineral Resources, 1924, pt. 1, 105-118 (1926).
- (and Ross, Clyde P.) Antimony and quicksilver deposits in the Yellow Pine district, Idaho: U. S. Geol. Survey, Bull. 780, 137-164 (1926).

Antimony deposits: (Abst.) Wash. Ac. Sc., J., 20, 436-438 (1930).

Notes on ore deposits at Cave Valley, Patterson district, Lincoln Co., Nevada: Nev. Univ. Bull., 25, (no. 3), 16 pp. (1931).

Spruce Mountain district, Elko Co., and Cherry Creek, Egan Canyon district, White Pine Co., Nevada: Nev. Univ. Bull. 25, (no. 7), 39 pp. (1931).

Epithermal antimony deposits: Ore deposits of the western states (Lindgren volume), Am. Inst. Min. Met. Eng., 658-665 (1933).

The McCoy mining district and gold veins in Horse Canyon, Lander Co., Nevada: U. S. Geol. Survey, Circular 10, 13 pp. (1934).

The Contact mining district, Nevada: U. S. Geol. Survey, Bull. 847-A, 1-41 (1935).

152