

1899 he had lived quietly in Cleveland with his family. He died on May 11, 1903.

Mr Neff was one of the original Fellows of this Society. He was seldom able to attend its meetings and was probably unknown to the great majority of its members; but the Society was very dear to him, and his pride in its growth and vigor was great. He was not a professional geologist, and such active part as he took in geologic work was from the standpoint of applied geology; but he had an acute interest in the general subject, read widely, and was ever ready to do what he could for the advancement of the science.

My own acquaintance with Mr Neff dates only from 1893. In passing the Historical Society building I used frequently to go in and enjoy a few minutes' chat with him. His favorite occupation, stated in his own words, was "tramping over the country." He wanted to find out about things. He liked to find them out himself, but it was the things that interested him, not who found them out. During my talks with him I never once heard him refer to his own exploits. His discoveries were always at the service of any one who could use them. His interest in geology was in its progress. That was the important matter—not to whom the progress was due. It was a pleasure to him to feel that he had done something for the advancement of geology; but he fully appreciated that in the advancement of knowledge the single individual counts for little.

There is little bibliography. From a man of his nature and pursuit that was to be expected. He did not feel himself a geologist, but simply one interested in geology. The results of his geological work were freely made over to others to use. The single short paper communicated to this Society and published in its Bulletin\* is, so far as I can discover, his sole contribution to geology published over his own signature. It in no way measures the indebtedness of geology to him.

*MEMOIR OF WILBUR CLINTON KNIGHT †*

BY ERWIN H. BARBOUR

Though others might render the service better, it seems fitting, nevertheless, that tribute be paid to the memory of Doctor Wilbur Clinton Knight by a contemporary living near his early home, associated with his Alma Mater, and with his work for advanced degrees. In his college days, as well as in his maturer years, he was a man of peculiar rectitude. Being possessed of strong personality and great strength of

\* The Sylvania sand in Cuyahoga county, Ohio. Bull. Geol. Soc. Am., vol. 1, pp. 32-34.

† As Professor Barbour was called away from the meeting this memoir was not read, but it is inserted here in its proper place.



*Wilbur C. Knight*



character, balanced by a fine physique and a clear mind, he was pre-eminently the man for the place he held in the state of Wyoming. Though an indefatigable worker and leading a strenuously active life from boyhood, he never became so engrossed in his own affairs as to wholly forget his public and social obligations. To a large degree he was a self-made man, yet without a tinge of arrogance or self conceit. He was born December 13, 1858, at Rochelle, Illinois, from which place his parents, Mr and Mrs David A. Knight, moved to a farm at Blue Springs, Nebraska, some 30 miles south of Lincoln, where they still live.

Thus his boyhood days savored of the arduous struggle of frontier life on a farm, which may have been none the worse for him, since his fearlessness, physique, fixity of purpose, and scientific bent may have been engendered by it. His scientific tastes and tendencies were made known to his parents by the nature of his pastime and by his choice of reading matter, and to his instructors in the University of Nebraska by his chosen courses of study. Though an excellent botanical student and particularly devoted to chemistry and assaying, his special aptitude was for geology and mineralogy. While still an undergraduate student young Knight, during the protracted absences of his instructors in geology, voluntarily organized classes, prescribed courses of readings, and planned and carried out laboratory work and field excursions, thus early evincing his ability to plan and execute, which later in life made him so invaluable to the state of Wyoming. Though an ardent student, full of college spirit, and a scholar of excellent standing, he did not neglect those obligations which lie outside of the curriculum and go so far toward making men versatile, broad, and liberal.

As an undergraduate student he took an active part in the literary, debating, and social societies. Being musically inclined, he organized the University band, in which he played. This organization flourished and still survives him as the present Cadet band, numbering some fifty pieces, now under military discipline and under the directorship of a competent bandmaster. Though subordinated to other work, his music was never wholly abandoned.

In 1886 he was graduated from the University of Nebraska with the degree of Bachelor of Science. The same year he was appointed assistant territorial geologist of Wyoming. Surrounded as he was in a frontier mining region by many unscrupulous men and by fraudulent practices, a test was made of the man in the outset, and his character proved to be inflexible, as every mining camp in the state of Wyoming and beyond will attest. Some of his encounters for honesty and uprightness during his early experiences were of a fairly tragic order, but he avoided even the appearance of irregularity.

In 1887 he established himself as an assayer at Cheyenne. From 1888 to 1893 he was superintendent of mines in Colorado and Wyoming. During these years he had pursued courses of study leading to the degree of Master of Arts, conferred by the University of Nebraska in 1893. He served as state geologist from 1898 to 1899, and was professor of geology in the University of Wyoming, at Laramie, to the time of his death. Having been granted a leave of absence for the two years past, he was serving as an oil expert for the Belgo-American Oil Company.

After traveling and studying abroad, and after following a course of special instruction in the University of Chicago, he spent several years in continuous graduate work in the University of Nebraska, and received the degree of Doctor of Philosophy June 7, 1901.

In spite of hard work, he preserved his youth and managed to find moments for the continuance of student sports on the golf link, or athletic field, or in riding, or in shooting and trout fishing. Those of us who have accompanied him on excursions in Wyoming must remember with admiration his quickness and accuracy with the gun and his skill with the rod. It was a particular pleasure to him to conduct parties of students or citizens on excursions to interesting points throughout the state, whether for the purposes of scientific exploration or in the pursuit of pleasure, recreation, and rest. His largest undertaking of this kind was the Fossil Field Scientific Expedition of 1899, when some three hundred colleges and scientific societies were invited to send delegates to join him for a summer's collecting trip in the famous fossil fields of Wyoming.

Out of deference to this ambitious undertaking, the Union Pacific Railroad company, through Mr A. Darlow, rendered most courteous aid by offering complimentary transportation over this line for the entire company. Doctor Knight furnished camp equipments, teams, cooks, guides, and provisions for a party of about 100, comprising representatives from every part of the United States, as well as from Canada, England, Scotland, and Germany. The result of this expedition, conceived of, organized, and successfully conducted by Doctor Knight, was the closer relation of widely separated naturalists and investigators, their familiarity with classic collecting grounds and field methods, and the discovery of many new facts which have been or are to be published. His plan in this connection, as confided to a few friends, was the organization of annual expeditions to be conducted at small cost and open to all students and teachers the world over desirous of rest and study. Could these plans have been carried to fruition on lines as broad and liberal as those of which he conceived, there is no doubt of the resulting educational value.

Having charge of the geological expeditions sent out annually by the University of Wyoming, he had greatly systematized the work of collect-

ing, had purchased land, had built permanent camps, and had competent helpers in the field, making collections which were destined to become famous and of great instructional value. Though actively engaged in the chemical side of geological work, his sympathy was for biologic investigations, and it was his intention, as plainly expressed, to gradually restrict his efforts to paleontology, more particularly vertebrate paleontology. To this end he had already filled the museum of the University of Wyoming with rich vertebrate collections, especially Oligocene mammals and Jurassic Dinosaurs.

He had amassed a great collection of valuable material, much of which is new and yet to be figured and described, but his knowledge of facts and conditions concerning the economic resources of the state was of particular significance to the commonwealth, for there was no spot which he had not visited. Those outside of the state, as well as those living in it, can not but deeply regret that so much is lost to science by a man at the very prime of his life. After an illness of about one week, resulting from peritonitis with complications, Doctor Knight died at his home, in Laramie, Wyoming, July 28, 1903, at the age of forty-four years. In 1889 he was married to Miss Emma Howell, a student whom he had known in the University of Nebraska, and those of us who knew him intimately in his own home understand the perfection of his domestic relations. He leaves a widow, one daughter, and three sons. He was honored by election to a number of learned and fraternal societies, being a member of the National Geographic Society, American Institute of Mining Engineers, a Fellow in the Geological Society of America, a member of the scientific fraternity Sigma Xi, an honored Mason, and a member of the Congregational church. For the past few years he had been connected more or less intimately with the work of the United States geological and hydrographic survey. He was a man of action, and only those favored with intimate acquaintance are fully aware of the vigor, as well as the conscientiousness, of his work and the magnitude and scope of his plans for the future.

It is seldom, indeed, that the influence of any one scientist touches every one in his state so intimately that the commonwealth mourns his loss as the state of Wyoming mourns the loss of Doctor Knight, its unimpeachable geologist.

Of his many virtues the one which left its mark throughout all that vast region was his absolute integrity.

His list of papers and scientific contributions, though long, was but introductory. He had but begun to publish, and, as his intimates well know, the next few years were to have been unusually fruitful of results.

The loss which geology sustains is all the greater because such a mass

of facts not yet transcribed to paper, but confided, instead, to an unerring memory, are beyond recovery.

## BIBLIOGRAPHY

- Geology of the Wyoming experiment farms, and notes on the mineral resources of the state. *Bulletin* no. 14, Wyoming Experiment Station, University of Wyoming, October, 1893.
- The Coal mines of Wyoming. *Mining Industry*, 1894.
- Coal and Coal Measures of Wyoming. *Sixteenth Annual Report U. S. Geol. Survey*, part iv, 1894.
- A new Jurassic Plesiosaur from Wyoming. *Science*, October 4, 1895.
- The mining industry of Wyoming. *Mining Industry* (Denver), June, 1896.
- The petroleum of the Salt Creek oil field, its technology and geology. *Bulletin* no. I, Petroleum series, School of Mines, University of Wyoming, June, 1896.
- The Salt Creek oil field. *Engineering and Mining Journal*, January, 1896.
- The petroleum fields of Wyoming. *Mineral Industry*, 1896.
- The petroleum industry of Wyoming. *American Manufacturer and Iron World*, May 29, 1896.
- The petroleum oil fields of the Shoshone anticlinal, geology of the Popo Agie, Lander, and Shoshone oil fields. *Bulletin* no. II, Petroleum series, School of Mines, University of Wyoming, January, 1897.
- The Wyoming natural soda deposits. *Mineral Industry*, 1897.
- The origin of the soda deposits of Wyoming. *Mining Industry* (Denver), November, 1898.
- Prehistoric quartzite quarries of eastern central Wyoming. *Science*, March 4, 1898.
- Some new Jurassic vertebrates from Wyoming. *Am. Jour. Sci.*, vol. v, 1898, first and second papers.
- Description of bentonite, a new variety of clay. *Engineering and Mining Journal*, lxiii and lxvi.
- The geology of the oil fields of Crook and Uinta counties. *Bulletin* no. III, Petroleum series, School of Mines, University of Wyoming, November, 1899.
- The Nebraska Permian. *Journal of Geology*, vol. 7, no. 4, pp. 335-374, 1899.
- Some new data for converting geological time into years. *Science*, October 4, 1899.
- The Permian of Nebraska. *Journal of Geology*, May-June, 1899.
- The Nebraska Permian. Thesis for the master's degree, published in part in the *Journal of Geology*, vol. 7, no. 4, pp. 335-374, 1899.
- Jurassic rocks of southeastern Wyoming. *Bull. Geol. Soc. Am.*, vol. xi, 1900.
- The present outlook of the coal industry in Wyoming. *Wyoming Industrial Journal*, June, 1900.
- Some new Jurassic vertebrates from Wyoming. Third paper. *Am. Jour. Sci.*, August, 1900.
- A preliminary report of the artesian basins of Wyoming. *Bulletin* no. 45, Wyoming Experiment Station, University of Wyoming, June, 1900.
- The fossil field expedition of 1899. *National Geographic Magazine*, December, 1900. Thesis in three parts for the doctor's degree:
- (1) Preliminary report on the artesian basins of Wyoming. *Bulletin* no. 45, Wyoming Experiment Station, 1900, pp. 107-251, 15 sections, 14 plates, 1 map.
  - (2) The Dutton, Rattlesnake, Arago, Oil Mountain, and Powder River oil fields. *Bulletin* no. 4 of the Geological Survey of Wyoming, 1901, pp. 1-57, 3 plates.

- (3) The Sweetwater mining district. *Bulletin* no. 5 of the Geological Survey of Wyoming, 1901, pp. 1-35, 1 map.
- Potassium nitrate in Wyoming. *Science*, January 25, 1901.
- Geology of Bates Hole. *Bull. Geol. Soc. Am.*, vol. xii, 1901.
- The Sweetwater mining district. *Special Bulletin*, School of Mines, University of Wyoming.
- Geology of the oil fields of the Natrona country excepting Salt creek. *Bulletin* no. IV, Petroleum series, School of Mines, University of Wyoming.
- The Laramie Plains red beds and their age. *Journal of Geology*, vol. x, no. 4, 1902.
- Alkali lakes and deposits. *Bulletin* no. 49, Alkali series, iv, Wyoming Experiment Station, University of Wyoming.
- The coal fields of southern Uinta county. *Bull. Geol. Soc. Am.*, vol. xiii.
- The petroleum industry of Wyoming. Twenty-second Annual Report of the Director of the Geological Survey.
- Wyoming copper development. *Mineral Industry*, 1901.
- Wyoming gold outlook. *Mineral Industry*, 1902.
- The Newcastle oil field. *Bulletin* no. 5, Petroleum series, School of Mines, University of Wyoming.
- Discovery of platinum in Wyoming. *Engineering and Mining Journal*, vol. lxii, p. 845.
- Petroleum fields of Wyoming. *Ib.*, vol. lxii, pp. 358 and 628.
- Wyoming oil. *Petroleum Review*, London.
- Rare metals in the ore from the Rambler mine, Wyoming. *Engineering and Mining Journal*, vol. lxiii, no. 2.
- Epsom salts deposits of Wyoming. *Ib.*, February 14, 1903.
- Petroleum fields of Wyoming. *Ib.*, May 24, 1902.
- Mining in Wyoming in 1902. *Ib.*, January 3, 1903.
- The birds of Wyoming. *Bulletin* no. 55, Wyoming Experiment Station, University of Wyoming.
- The geology of the Leucite hills of Wyoming. (In collaboration with Doctor J. F. Kemp.) *Bull. Geol. Soc. Am.*, vol. xv, 1903.
- Fossil elephants in Wyoming. *Science*, 1903.
- Notes on *Baptanadon marshi*, n. s. *Am. Jour. Sci.*, July, 1903.
- The Bonanza, Cottonwood, and Douglas oil fields. *Bulletin* no. VI, Petroleum series, School of Mines, University of Wyoming, July, 1903.

Following the reading of the memoirs several announcements were made concerning administrative details and appointed events of the meeting, after which the President declared the scientific program in order.

The first paper presented was the following :

GEOGRAPHY AND GEOLOGY OF WESTERN MEXICO

BY OLIVER C. FARRINGTON

[Abstract]

This paper describes a journey from Durango westward to Ventanas across the plateau of the western Sierra Madre. The plateau exhibits a comparatively un-