

Memorial to Samuel Howell Knight 1892–1975

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“A teacher affects eternity; he can never tell where his influence stops.”
(The Education of Henry Adams)



Dr. Samuel Howell Knight died in Laramie, Wyoming, on February 1, 1975, at the age of eighty-two. He is survived by his wife, Edwina Hall Knight; a son, Wilbur H. Knight, an independent oil consultant in Jackson, Mississippi; a daughter, Eleanor (Mrs. W. R. Keefer), a geologist with the U.S. Geological Survey, Denver, Colorado; three grandsons and one great-granddaughter.

Doc Knight, as he was known affectionately by several generations of students, was no ordinary teacher. His life was dedicated to excellence in teaching, and as professor of geology at the University of Wyoming for over fifty years, he taught with enthusiasm and made the subject exciting for thousands of young men and women (recently estimated to be at least 13,000). Nor was his influence confined to the students enrolled

in his classes. He was a visiting lecturer at many communities around the state and twice was Distinguished Lecturer for the American Association of Petroleum Geologists on tours throughout the United States. To the day of his retirement, and despite an ever-increasing load of other departmental and university responsibilities, he insisted on teaching the first year course himself, always changing and updating his lectures so that they never became stagnant. He believed that the way to catch a student's interest in a subject was by giving him the best possible instruction. His history of geology course was at one time required of all majors. It was a delightful requirement because it gave students an opportunity to know Doc himself as no other course could. Purporting to present the ideas of the early Greek and Roman cosmologists and progressing through those of the medieval philosophers and scientists to modern times, it revealed the depth of Sam Knight's personal philosophy as well. These intimate glimpses into his very creative thinking and understanding of life became an enriching experience for all who were privileged to share in it. He gave generously of himself in a continuing interest and concern for his students—a relationship lacking in many of today's classrooms. Hundreds of his students, building on the enthusiasm, encouragement, and values Doc gave them, went on to major in geology at the University of Wyoming and many other institutions. Today they are scattered around the world, working on every continent.

His rare talent for sketching in three dimensions on the blackboard as he lectured was a most effective teaching tool, and it captured the interest and delight of audiences everywhere. With colored chalk he portrayed rivers and oceans depositing sediments which became folded and faulted; volcanoes erupted, mountains appeared and were eroded in a continual succession of geologic events that made the whole story comprehensible and fascinating to students and laymen alike.

Doc is perhaps best known among geologists at other institutions for his Summer Science Camp, now named for him, in the Medicine Bow Mountains, west of Laramie. One of the earliest geology camps in the country, it was launched in the summer of 1923 after Doc had consulted with his mentors at Columbia University, Professors C. B. Berkey and J. F. Kemp, both of whom taught at the camp during some of its earlier years. Commencing with a few tents, the camp grew to its present size of one large lodge, two large laboratory buildings, and numerous dormitory cabins and other facilities all of log construction. The planning and design of the buildings as well as most of the log work, other carpentry, plumbing, and electrical wiring were performed by Doc with the help of students at virtually no direct cost to the university. As the camp grew in physical size, so did its enrollment to include students, both men and women, from colleges and universities throughout the country. In addition to providing a varied background in field methods as applied to many different kinds of geologic problems and settings, the camp also offered instruction in botany and zoology.

The town of Laramie was twenty-five years old, and Wyoming had just become a state, when Sam Knight was born July 31, 1892, one of four children of Emma Howell and Wilbur Clinton Knight. His parents had met while students at the University of Nebraska and had moved west when his father took a position as mining engineer at the Florence mine at Keystone, west of Laramie. Wilbur Knight was appointed Assistant Territorial Geologist, and later, State Geologist of Wyoming. In 1893 he accepted the position of Professor of Mining and Geology at the fledgling University of Wyoming. During the next ten years he wrote prodigiously on a wide variety of subjects—artesian water, oil and gas, and mining—and published the first geologic map of Wyoming. He was also a skilled and enthusiastic photographer. There is no doubt that his interests exerted an early influence over his family before his untimely death in 1903. Two of his three sons embraced geology, one the teacher and research scientist, the other a petroleum geologist. Emma Howell Knight was a well-educated, wise woman who encouraged her daughter and sons to develop broad interests and to receive a college education. She became county superintendent of schools and later, from 1911 to 1921, dean of women at the university, gaining such respect and affection from students and faculty alike that a dormitory was named for her.

As a youth, Sam spent several summers travelling by wagon around the state, collecting fossils with Professor William C. Reed, curator of the university's geological museum. Other summers he worked as a ranch hand in the Laramie Valley. He attended schools in Laramie and, upon graduating from the University of Wyoming in 1913, enrolled in graduate school at Columbia University. A student of A. W. Grabau and D. W. Johnson, he completed residence requirements for the Ph.D. degree by 1916, and that same year he returned to Laramie as assistant professor of geology and curator of the museum. In December 1916 he married Edwina Hall whom he had met while a student in New York. In 1917 he was promoted to full professor and head of the geology department. When the United States entered World War I, he was asked by Professor Johnson to serve in military intelligence in Europe. Their work constituted some of the earliest attempts to apply geology to terrain analyses in warfare.

Upon his return, he launched in earnest the career which was to last more than five decades and to bring distinction, not only to himself and his family, but to his university and state as well. With enrollment increasing in his ever-popular geology courses, his one-man department granted its first master's degree in 1926. A second professor was added in 1928, and a third in 1931. The post-World War II college boom necessitated the hiring of four additional professors, and the first Ph.D. granted on the Wyoming

campus was in geology, in 1953. Today graduate enrollment in the department ranges from fifty to ninety students with a faculty of twenty.

Since the time he spent summers collecting paleontological specimens with Professor Reed, Doc had been concerned that much of the best vertebrate fossil material originating in Wyoming had been shipped out of state and was in museums in many parts of the world, with none being exhibited in the state itself. Consequently, he devoted a great part of his time and effort to enlarging the university collections for teaching material and in constructing museum space for displaying it. What began as a small basement storage space in the early science building was expanded by Doc himself, as both designer and carpenter, into a two-story hall in the 1940s. It then emerged in 1955 into the handsome museum wing of the greatly enlarged geology building (also designed by Doc) which bears his name today. With the hiring of a distinguished paleontologist as professor of vertebrate paleontology and curator of the museum, it is now considered to be one of the best small scientific museums in the country. The focal point in the center of the main floor, and reaching as high as the second floor balcony, is a skeleton of a 75-foot-long *Brontosaurus*, restored and mounted single-handedly by Doc.

A later project, completed after his retirement and requiring more than 3,000 man-hours of labor and further self-schooling in metalwork, was the construction of a life-size model in copper of *Tyrannosaurus rex*, as he described it: "the greatest engine of destruction ever devised by nature." It stands outside the front door of the museum and, weathered to a fine reptilian green, has become a Laramie landmark.

On the developing and expanding campus, Doc was far more than just a professor of geology. His judgment was sought in many administrative matters, and through the years he was a willing committee member for a great variety of university groups. He organized the first alumni homecoming activities, and as president of the alumni association in the 1920s, helped raise funds for the first football stadium, which he designed and built with student help. At various times he served as president of the honorary societies, Sigma Xi, Phi Beta Kappa, and Phi Kappa Phi, and as acting dean of the graduate school.

In 1933 he was appointed State Geologist by Governor Leslie A. Miller, and with the aid of state-appropriated funds he was able to give many graduate students their first jobs researching geologic problems around the state. Although intensely interested and supportive of research, his own scientific investigations were substantially hampered by his busy teaching schedule and extracurricular activities. Nevertheless, the list of publications and abstracts following this article will give some indication of the breadth of his interests. In the 1920s he performed ingenious laboratory experiments simulating wind-blown sand, and his Ph.D. thesis, in which he diagrammed and coined the term "festoon cross-lamination" in describing the depositional environments of the Paleozoic Fountain and Casper formations in the Laramie Basin, became a classic in the field of sedimentation. Later work included joint research into the distribution of seleniferous rocks and soils with Professor O. A. Beath, a University of Wyoming chemist who had pioneered work on the toxic effects of selenium in plants on livestock. While collecting fossil vertebrates from the Cretaceous and Tertiary rocks of southeastern Wyoming, he became intrigued by the sedimentation processes responsible for the distinctive characteristics of each formation. Ultimately, he deciphered the entire depositional history of the area and was one of the first to conclude that the Laramide orogeny was not a single event, but a series of episodes spanning a period from late Cretaceous through early Tertiary time.

When retirement from classroom duties released him for research, he embarked on a definitive study of the Precambrian stromatolites of the Medicine Bow Mountains, with

the assistance of his grandson David Knight Keefer (who is now following the family tradition in geology). To understand the internal structure of the algae, Doc cut some of the material into cubes, then spent long hours grinding by hand 4-inch slides of all faces, reassembling them with a light in the center—a unique and effective technique to show them in three dimensions. The article on this study and a booklet he coauthored on the origin and history of Independence Rock in central Wyoming, requested by the Wyoming Bicentennial Commission, were published shortly before his death. An able photographer himself, he spent many weeks labeling and cataloguing hundreds of his father's rare negatives and his own photographs, many of historic value since they document the early years of both the town and university.

Painting and sketching remained perhaps his favorite hobby throughout his life, and he painted many small landscapes in addition to the numerous diagrams used to illustrate scientific articles. Covering the end walls of the museum are two of his large murals depicting landscapes with animal and plant life of Wyoming in Mesozoic and Cenozoic times. A request by the American Association of Petroleum Geologists resulted in his painting an early cable-tool drilling rig on the Wyoming plains which now hangs in the headquarters building in Tulsa.

On one occasion, when he was past seventy, he became dissatisfied with the dearth of portraits of many famous geologists. So, after extensive research, he made beautifully executed pencil portraits of about thirty of those men whom he judged worthy of attention.

At the time of his death, he had essentially completed for publication a folio of his beautiful three-dimensional block diagrams, with text, showing the environments and life in southeastern Wyoming as they evolved through geologic time from Precambrian to Holocene. Included in this is his study of the development of the unusual drainage patterns in the area which have never before been adequately described. Now at last the impressive blackboard sketches that students were sorry to see erased will be available in permanent form.

During his lifetime Dr. Knight was accorded many honors. In addition to being invited to serve on two separate national tours as Distinguished Lecturer of the American Association of Petroleum Geologists, he was awarded an honorary membership in the organization. He was a Fellow of the Geological Society of America and helped to organize the Rocky Mountain Section, serving two terms as its chairman. He became an honorary life member of the Wyoming Geological Association and received the University of Wyoming Alumni Award for individual achievement. He received Omicron Delta Kappa's award as outstanding faculty member, and he was the first professor to be invited to participate in a special university lecture series which took him to communities all around the state. *Time* magazine recognized his contribution to geology in its July 12, 1963, issue. Perhaps the honor that pleased him most was an honorary Doctor of Laws degree bestowed by his alma mater, but the naming of the Science Camp and later of the geology building for him were also honors that touched him very deeply. On each occasion, former students came from great distances to congratulate him, and letters of affectionate tribute poured in from alumni everywhere. A Samuel Howell Knight Scholarship Fund to aid students attending Science Camp was established by loyal alumni at the time of his retirement in 1966, and a separate memorial fund has been instituted at the university following his death.

Doc was an intensely human individual, fighting for what he thought was right, but rarely speaking harshly about anything or anyone, seldom showing anger, always conducting himself and his work with honor and dignity. To some he gave the impression of the confident extrovert, displaying a delightful sense of humor, to others the gentle and

sensitive philosopher, and to all he demonstrated an inner strength that helped him overcome most of the obstacles he encountered in his life. He remained mentally alert and actively working on his folio until two months before his death.

It is not easy to pay proper tribute to this remarkable man who is remembered by so many for a host of different, wonderful reasons. He opened our eyes to the world around us and left his imprint on our minds. Who can tell where his influence will stop?

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