

Memorial to Julian Ducker Sears 1891–1970

W. H. BRADLEY

U. S. Geological Survey (Retired)



The career of Julian Sears is inextricably woven into the fabric and operations of the U. S. Geological Survey, which, since its founding in 1879, has had a geologist as its Director. Early in his career, Sears was selected by then Director George Otis Smith to work with him as the Administrative Geologist, succeeding Philip Sidney Smith in a position in the Director's Office, which was essentially that of the Assistant Director. In the 29 years Sears occupied a key position in the Director's Office, he frequently, and for lengthy intervals, served as Acting Director. The characteristics that fitted him so well for this role were his rigorous integrity, critical judgement, and meticulous attention to detail. Moreover, he was articulate and had an inborn dignity and graciousness. These characteristics reflected admirable qualities of his father, a Baltimore physician, and his mother, who was a charming and cultivated woman.

J. D., as his friends all knew him, was born in Baltimore, Maryland, June 3, 1891. He received his A.B. degree from The Johns Hopkins University in 1913 and his Ph.D. from the same university in 1919. He began his Survey career as a field assistant during the summers of 1915 and 1916. After that he worked for about a year as a geologist with the Sinclair Oil Company in Costa Rica. In 1919 he became a full-time member of the Geological Survey and served until 1961 when he reached the mandatory retirement age of 70. Also in 1919, he married Elizabeth T. Lamdin of Baltimore. They had two sons, William B., who now works for the U. S. Geological Survey in Washington, D. C., and Richard S., a geologist with the Phillips Petroleum Company, presently headquartered in Alexandria, Egypt.

J. D. was, in the best sense of the word, a scientist-administrator. He brought to every decision, or recommendation, the knowledge and feel of the technical man in the field. The scientists and engineers, who comprised the technical staff of the Geological Survey, had wholesome respect for his knowledge, judgment, and integrity. J. D.'s intimate knowledge of Survey operations, history, and tradition coupled with many years of experience in government operations made his guidance invaluable and no Survey Director could have had a more selfless and conscientious deputy. He set, and maintained, standards of ethics and performance for the Bureau and for its members in their service to the public that few, if any, government agencies can match. He knew that the Survey's early leaders had provided just such a proud charter and he made it his earnest business to see that no whit of that integrity should

be lost as the organization and the government changed to meet changing national conditions.

The desires of J. D. to relinquish administrative work and to return to full-time geologic work were fulfilled in 1953. In the following years many of the younger members of the Survey's geologic staff benefitted from his sage advice in methods of field work and the preparation of their reports.

To all of us who knew him well, J. D.'s memory was a "seven days wonder." He took pride in this memory because it derived from stern self discipline. To be sure he had been born with a fine mind but any unfulfilled recall was a challenge to him. If necessary, he would flagellate his mind, on and off, for days until the elusive item was recaptured. This power to recall was obviously of great value to him (and his colleagues).

For all of J. D.'s involvement in administrative matters he never lost his intense interest in geology and his love of field work. Although his earliest papers had to do with manganese deposits in Costa Rica and Panama, his principal contributions are in systematic geologic mapping in various parts of the Rocky Mountain region and in the more philosophical studies that grew out of those mapping projects. In fact, of his longer reports, four are strictly economic reports dealing with the geology of either coal resources or oil and gas possibilities, four are topical papers that deal with either geomorphology or the geologic processes that led to regional features found in sedimentary formations, and one (Geology of Comb Ridge and vicinity north of San Juan River in Utah) describes the systematic areal geology of a little-known part of the country.

J. D.'s economic geology reports need little comment. Each is focused sharply on the discussion of pertinent facts relating to the resource that would be useful to those interested in its development. But they are also designed for determining the mineral value of public lands. All of these economic geology reports are written in J. D.'s characteristic terse style. Each subject is treated adequately but there are no wasted words, no superfluous details.

Two of Sears' important contributions to geology are his two geomorphologic papers: *Relations of the Brown's Park formation and the Bishop conglomerate and their role in the origin of Green and Yampa Rivers*, 1924; and *Yampa Canyon in the Uinta Mountains, Colorado*, 1962. Although these papers were published 38 years apart, they have much in common. This is largely because they deal with parts of the same geomorphic problem; namely, to explain why the two major rivers, the Green and the Yampa, of the eastern end of the Uinta Mountains are so incongruent with the topography and with the structure and lithology of the bed rocks. These large rivers run alternately across various soft formations in open country and then plunge into deep canyons cut in hard rock. Moreover, this apparently perverse habit is accentuated in several places where they cut through the high parts of isolated small mountains, which it would seem they could much more easily have flowed around. This is the sort of puzzle that greatly intrigued J. D.

These two papers are significant contributions to our knowledge of geomorphology. In them, Sears wove together the influences of lithology and structure, with the processes of erosion and deposition, with the deliberate purpose of building up a closely knit statement of the history of the events that gave rise to the incongruent drainage patterns. These papers are worth the serious attention of students partly because they are models of deductive reasoning and the evaluation of geologic evidence, but mostly because they force home the fact that geology is a historical science—a fact that geologists seem more and more to forget.

J. D.'s long interest in the lateral facies changes in various sedimentary rock formations, particularly in the Upper Cretaceous formations of the Rocky Mountain region from Montana to New Mexico, is brought to fruition in an important paper he wrote jointly with C. B. Hunt and T. A. Hendricks (*Transgressive and regressive Cretaceous deposits in southern San Juan Basin, New Mexico*). This paper is important because it adds significantly to our understanding of the changes in environment that lead to facies changes and because it corrects a deal of loose thinking on the subject, which is widely scattered in the literature. The philosophical concepts expressed in the paper have general applicability.

J. D. was given the Interior Department's Distinguished Service Award in 1961. He was a Fellow of The Geological Society of America, a member of Phi Beta Kappa, and a member of the Society of the Cincinnati. It is fitting that he be remembered not only as an exceptionally competent and efficient field geologist, but as a scientist-administrator dedicated to the principle that a federal bureau and its scientists and engineers must always be of optimum service to the people of this nation and produce consistently the highest quality information for their use.

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