Memorial to Colin Hayter Crickmay 1899–1988

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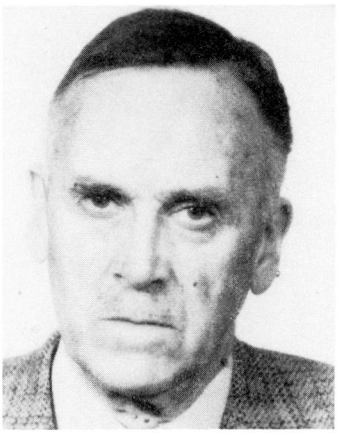

Colin Hayter Crickmay, eminent geologist, paleontologist, biostratigrapher, and geomorphologist, passed away in Calgary on August 2, 1988, at the age of 89. He is survived by his wife Mary and three sons, two daughters, and a sister. Another sister and three brothers, including Geoffrey, a petroleum geologist, predeceased him.

Crickmay was born and raised in Vancouver, British Columbia. Following eight months of military service in 1918, he attended the University of British Columbia, graduating with a B.A. in biology in 1922. He then commenced postgraduate studies at Yale, but in 1923, he transferred to Stanford University, where he was awarded the Ph.D. degree in 1925. Professor Charles R. Stelck, University of Alberta, a Stanford doctoral graduate in geology, recalls: "A quarter of a century later, he was still legendary in Stanford halls as the only geology student that had answered all the questions correctly, no matter what field, at his university-level Ph.D. orals."

During his college days, Crickmay pursued summer field work with the Geological Survey of Canada. In 1919 he assisted S. J. Schofield in the Coast Mountains of British Columbia behind the Britannia Mine, and the following summer he worked with G. Hanson using pack horses in the rough and hazardous terrain of the British Columbia–Alaska boundary near Stewart, British Columbia. He whetted his appetite for Jurassic paleontology and stratigraphy in 1921 by assisting F. H. McLearn in the Queen Charlotte Islands. In 1922, he joint M. Y. Williams in a reconnaissance survey, canoeing down the Fort Nelson and Liard Rivers to Fort Simpson, then down the Mackenzie River to Norman Wells, and mapping in the Franklin Mountains between Fort Wrigley and the Great Bear River in the Northwest Territories.

While at Stanford between 1923 and 1925, he spent the first summer with E. J. Whittaker's field party in southeastern Alberta, and in 1924 was assigned to the Harrison Hot Springs area of British Columbia; the latter work contributed to his doctoral research. In 1925 he joined W. S. Dyer's field survey in the southern Alberta Plains where he made an important contribution to the faunal zonation of the Upper Cretaceous Bearpaw Formation.

In 1926, Crickmay began his teaching career as an assistant professor in the brand-new geology department at the University of California at Los Angeles. In 1927, he married one of his keen students of geology, Mary Matthews. During the 4½ years at UCLA, he sought field work with the Geological Survey of Canada, but to no avail. His alternative was to conduct independent miscellaneous Mesozoic and Cenozoic stratigraphic and paleontologic studies in northern California, Oregon, Washington, and British Columbia. A series of papers was published on the findings.

Crickmay transferred to the University of Illinois in 1930, and in 1931 his stature in world scientific circles increased quickly with the publication of his classic volume, *Jurassic History of North America: Its Bearing on the Development of Continental Structure* as Proceedings of the

American Philosophical Society. Despite this recognized contribution to continental geology, however, the work permit of Crickmay, a Canadian, was not renewed because of the severe economic depression. He left Illinois after only a relatively brief stay.

In 1933 the Crickmay family moved to a 50-acre farm (purchased for $2000) near Haney in the Fraser River Valley of British Columbia. In addition to growing vegetables and raising livestock, Crickmay continued his private field and research work and any available consulting work throughout the remainder of the Depression and into the wartime years of the 1940s. In retrospect and for whatever reasons, it is regrettable that Crickmay's recognized geological talents, skills, and energy were not more fully utilized during this period.

He was once again engaged by the Geological Survey of Canada in 1943 to map the Pouce Coupe–Peace River area of Alberta and British Columbia, the results being published as a Preliminary Map, Paper 44-31 (1944). In addition, Map 673A (geology of Kitscoty, Alberta) and Map 674A (Innisfree, Alberta), based partly on Crickmay's earlier field work in 1935, were incorporated in GSC Memoir 232 by G. S. Hume and C. O. Hage in 1942. These represent Crickmay's only published works between 1936 and 1950, a hiatus in an impressive and distinguished 50-year (1925 to 1975) continuum of about eighty publications.

In 1945, Crickmay was engaged by Imperial Oil Limited to carry out field mapping in the Northwest Territories for Norman Exploration Ltd. Other field assignments ensued: along the Peace and Wabiskaw Rivers in 1946 and North Saskatchewan River in 1947, and in the Gulf Islands, Straits of Georgia, in 1948. At this time he accepted a permanent staff position with the Producing Department, Imperial Oil Limited, and took up residence in Calgary. He worked mainly on fossil and rock collections in the laboratory, identifying, describing, naming, and cataloging fossils and employing fossil information to date, correlate, and interpret the many stratigraphic units, particularly in the Devonian of western and northern Canada. He retired from Imperial as senior research geologist in 1964, but continued consulting work for the company until 1970. He also continued to work on field projects.

In addition to his important role in petroleum exploration, Crickmay made a fundamental contribution to classic paleontology and biostratigraphy in his many publications, including naming a number of new species, notably from the Jurassic and Devonian, and establishing basic stratigraphic correlations using key fossils, particularly in the Devonian. He also named a number of Devonian stratigraphic units: the Trout River, Grumbler, and Alexandra Falls Formations, as well as the Mildred Lake, Moberly, Christina, Calmut, and Firebag Members of the Waterways Formation.

Crickmay was awarded honorary membership in the Canadian Society of Petroleum Geologists in 1975 in recognition of his geological expertise and authority, especially in Devonian paleontology and biostratigraphy.

Retirement from Imperial in 1964 meant that Crickmay could now continue with total dedication his private, far-ranging research, from paleontology to geomorphology. These private studies, ostensibly a hobby, in fact constituted a second career during his employment. Crickmay's enthusiasm for the science of geology could not be contained or satisfied by the requirements or expectations of a normal job in industry.

In his favorite and most stimulating second field of inquiry—landscape geomorphology—Crickmay departed radically from the classical ideas of W. M. Davis as to the importance of stream downcutting and general downwasting of topography and from Walther Penck's concept of scarp retreat. Instead, Crickmay proposed a "hypothesis of unequal activity," contrasting the rapid lateral or oblique erosion by rivers with the generally slow and relatively ineffectual downwasting process. In fact, he considered lateral erosion or corrasion by streams to be the most potent agent of change in all of nature's landscape: in quantitative terms, perhaps up to a million times more effective in reducing and shaping the landscape, as contrasted to the relatively benign process of downwasting.

These investigations of the role of rivers in fashioning landscape architecture or scenery took Crickmay through many areas of North America and as far away as the southern part of the continent of Africa. The tremendous driving force of these inquiries into the erosion process may be appreciated from the resulting fallout of a formidable series of mostly privately published scholarly papers. These presented many documented observations, powerful arguments, and logical and simple conclusions, laced with discussions of the philosophical merits of inductive versus deductive reasoning in scientific pursuits. This work culminated with the writing of a book entitled *The Work of the River*, published in 1975 by Macmillan, London (271 p.).

Anathema to Crickmay was for editors of scientific periodicals to discourage publication of ideas radically different from current thinking. He had experienced manuscript rejection by experts or editors who allegedly kept scientific literature within the bounds of conventional wisdom. The reaction of a rugged individualist like Crickmay was swift—he resorted to private publication. An excerpt from the foreword of one of his private papers ("The Art of Looking at Broad Valleys," 1969) brings Crickmay, the scientist and character, into focus:

> A word regarding the publication: what I have to say is too far beyond the conventional to seem safe and comfortable for editors. . . . Admittedly, innovation has on occasion forced its way into a scientific periodical, but only with great difficulty, and it would be totally uncanonical in textbook or standard reference (both of which are expected to be out of date when published)—unless one found a publisher with unusual courage. . . . Hence the privately presented pamphlet for publishing inquiries on the boundary of human knowledge.

The geological community admired Crickmay's intelligence, broad knowledge, conscientious and exacting work standards, and independent thinking, sharply honed by his scientific and philosophical writings. One knew that his works were well researched and clearly thought out, and that he could be devastatingly critical in written text. Perhaps this created a fear among some colleagues who may have considered him distant, uncompromising, or unapproachable. In fact, in face to face encounters, I found Crickmay to be a modest and personable gentleman. He enjoyed a fine professional relationship with a number of petroleum industry colleagues, and he treasured his long and mutually respectful working cooperation in paleontology with the late Professor P. S. Warren, established after they first met in the field in 1925.

Colin Crickmay enjoyed carpentry, especially furniture-making, hiking and climbing, as well as the arts (music, opera, and literature) with his wife Mary. Colin and Mary were mutually devoted for 62 years. In addition to being a steadfast mother who brought up the children while Colin was away in the field, Mary was totally dedicated to encouraging and promoting Colin's geological work. She even accompanied him on a couple of arduous river surveys, along the Mackenzie River in the Northwest Territories, and the Athabaska River in Alberta.

The art and science of geology have lost a devoted and innovative thinker, writer, and teacher. Regrettably, the works and wisdom of Crickmay are known mainly by his contemporaries. Current and upcoming geologists likely would benefit by perusing selected articles from the many contributions of this versatile earth scientist. Colin Crickmay has left us a legacy of the accomplishments of an extraordinary intellect energized by a perennially youthful curiosity in the world around him.

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