

# Memorial to Richard Foster Flint

## 1902-1976

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Richard Foster Flint, Yale University's eminent authority on the glacial ages, died suddenly of a stroke on June 6, 1976, at the age of 74. His international reputation as a leading Quaternary scholar was gained during a long and distinguished career, which saw Quaternary science evolve into an exciting interdisciplinary field of study having important implications for society. Dick was widely recognized for his carefully researched and perceptively written volumes that provided an authoritative global synthesis of Quaternary processes and events, but he was also highly regarded as a thoughtful and dedicated field geologist. Only a few months before his death he had returned from southern Chile where he had completed a field season of mapping and stratigraphic research.

Dick was born in Chicago, Illinois, on March 1, 1902, to Professors Natt William and Edith Burnham Foster Flint of the University of Chicago. After receiving his early education at the University School, he entered the University of Chicago from which he graduated a Phi Beta Kappa in 1922 with a B.S. degree. Editor of his class yearbook and student head marshall, he also was a star water-polo player and won a major letter in swimming. After three years of graduate study under the tutelage of such renowned professors as T. C. and R. C. Chamberlin and R. D. Salisbury, Chicago awarded him a doctorate in geology, summa cum laude. The same year he joined the geology faculty at Yale where he became full professor in 1945 and was appointed Henry Barnard Davis Professor in 1957, a chair he held until his retirement in 1970. From 1951 to 1957 he served as Director of Graduate Studies and then, for the next seven years, as chairman of the Department of Geology and Geophysics. His lifelong association with Yale was broken only briefly during World War II when he served, with the rank of major, as head of the Arctic Section of the Arctic, Desert, and Tropic Information Center of the United States Army Air Force.

Dick embarked on his career as a Quaternary geologist in the late 1920s when the concept of glacial ages in Earth history had become firmly established and the basic framework of a global stratigraphy of multiple Pleistocene glaciation broadly outlined. Nevertheless, major challenges lay ahead. It was a time when glaciology had not yet developed into a rigorous quantitative discipline, and comparatively little was yet known about the nature of existing glaciers that could serve as a basis for evaluating their Pleistocene predecessors. The floor of the world oceans was still terra incognita and few visionaries foresaw the impact that oceanographic study was to have on solving the problem of the ice ages. In those days, the chronology of glaciations was tenuous, at best, and largely based on deductive estimates of the long-term rates of geologic processes. The breakthrough in radiometric dating that would make possible a quantitative assessment of geologic time would not come for many years. These were all areas in

which Dick Flint was to make important contributions, both through his own research and syntheses and through his being a catalyst for others. But at the same time, his interests and his impact were to range much more widely over the broad interdisciplinary field of Quaternary studies. In his productive later years he was as much at ease discussing current research problems and strategy with palynologists, marine geochemists, climatologists, archaeologists, or vertebrate paleontologists as with his stratigraphic and glacial-geologic co-workers.

His earliest glacial studies were carried out in Connecticut, a field area in which he pursued active mapping throughout his life. His initial work led to the publication, in 1930, of a large memoir and accompanying geologic map on the glacial geology of the entire state. It also resulted in a series of papers in which he developed the concept that the Laurentide Ice Sheet in southern New England, rather than experiencing steady marginal recession at the end of the Wisconsin glaciation (as then generally thought), had undergone extensive stagnation and downwasting. In later years, he enlarged on many aspects of the glacial history of Connecticut through detailed quadrangle mapping.

In the early 1930s, Flint spend several field seasons in the Pacific Northwest studying the glaciation of the Okanogan Highlands and adjacent Columbia Plateau. Unconvinced by arguments for catastrophic flooding, which had been published by J Harlen Bretz in his earliest papers on the Channeled Scabland, Dick took a more cautioned approach. He became a participant in the "flood controversy" that persisted for the next three decades until the carefully documented regional evidence for sudden release of the ice-dammed waters of Lake Missoula across eastern Washington led to widespread acceptance of Bretz's ideas.

In the remaining years before the war, Flint's interest shifted to problems of marine terraces along the eastern seaboard of the United States and to problems of glaciation in Labrador and Newfoundland. During this period, he also participated as Senior Scientist in the Boyd Arctic Expedition to Northeast Greenland where he was able to see at first hand a modern analogue of the large Pleistocene glaciers that would continue to occupy his attention in the coming years.

In the early 1940s, Dick was chairman of a committee of the National Academy of Sciences that compiled a glacial map of North America which was published in 1945. During this interval, too, he developed a conceptual model for growth of the Laurentide Ice Sheet that was to appear in several papers and in the first of his major syntheses published in 1947 under the title *Glacial Geology and the Pleistocene Epoch*. This important book, which summarized the state of Pleistocene research up to 1945, quickly became a standard reference.

Dick began a long affiliation with the United States Geological Survey immediately following World War II, and during four successive field seasons he undertook systematic mapping and stratigraphic study of the glacial deposits of eastern South Dakota. The results subsequently were presented in Professional Paper 262.

Development of the radiocarbon-dating method in the late 1940s provided a promising new means of solving many of the late Quaternary chronologic problems that had long perplexed geologists. Dick played a major role in the application of this method to the dating of glacial deposits and helped establish the Yale Geochronometric Laboratory. It became one of the best known and most productive radiocarbon research facilities in North America. He also was instrumental in establishing *Radiocarbon* and was an editor of this journal until his death.

Among Flint's most important activities in the late 1950s was his stratigraphic and chronologic study of Searles Lake that clearly established the relationship between plu-

vial episodes in the western Great Basin and fluctuations of late Pleistocene glaciers. He also headed a group that compiled the impressively detailed *Glacial Map of the United States East of the Rocky Mountains*. In addition, he undertook an extensive revision of his glacial text which was published in 1957 as *Glacial and Pleistocene Geology*. This book was destined to become one of the most widely used and cited works on the glacial ages until publication of its successor fifteen years later.

Up to this point in his career, Dick's field work had been confined largely to North America. But in the late 1950s, he not only began a series of projects overseas that broadened his understanding of Quaternary events but also provided some important impetus in several neglected areas of research. The first of these excursions took him to eastern and southern Africa where he undertook an extensive and critical review of the basis for the stratigraphic framework that had been developed over the preceding several decades. The questions and doubts that he raised spurred subsequent field studies that led to a major reassessment of the pluvial chronology of East Africa and of the inferred paleoclimatic interpretation.

In 1963 he began a decade of cooperative geologic mapping and stratigraphic studies with South American colleagues in glaciated sectors of Colombia, Argentina, and Chile. Much of this work was in areas where the number and limit of drift sheets were previously unknown or poorly defined. Although the Chilean investigation was incomplete at the time of his death, he was able to establish stratigraphic sequences on both sides of the Andes and was well on the way to reconstructing a paleoclimatic record that encompassed most of the Pleistocene.

Dick Flint's impact on the students in his classroom was no less impressive than his research. His graduate course in glacial and Pleistocene geology was taken by a generation of Yale geologists, many of whom went on to become Quaternary specialists themselves. A highlight for many graduate students at Yale in the 1950s and 1960s was the Pleistocene seminar that he organized and chaired, and which introduced the participants to a truly interdisciplinary approach to Quaternary science. But Dick reached a far greater number of students in the basic Earth science course that he established in 1947; and over the next two decades he introduced more than 3,000 Yale undergraduates to his comprehensive views on geologic processes and Earth history. This knowledge received an even wider distribution through the successive editions of the influential beginning geology text, which was co-authored with his Yale colleagues and published by John Wiley and Sons.

"A superior teacher," he once stated, "knows that in every class there's at least one student who is naturally brighter than he is. It's this realization—and what he does about it—that makes him a superior teacher." In his contact with students he would stress the "gift of the ability to reason" and would point out "the thrill that always accompanies the creation of something, whether a work of art, or an idea." He taught his students to be skeptical, and, like Francis Bacon, "to read, not to contradict, nor to believe, but to weigh and to consider."

A day in the field with Dick could be a rigorous and rewarding experience, for his mapping and stratigraphic work were precise, his questions were always perceptive, and his insistence on hearing the evidence in support of a favored hypothesis was designed to test one's use of the scientific method.

Dick's wide reputation as a Quaternary scholar led to his association with a number of leading scientific journals: *American Journal of Science*, *Quaternaria*, *Quaternary Research*, *Radiocarbon*, and *Zeitschrift für Geomorphologie* on which he served as associate editor, co-editor, or member of the editorial board. Dick was a Fellow of the

Geological Society of America and served as chairman of its Quaternary Geology and Geomorphology Division. In 1945 he helped found the binational Arctic Institute of North America and subsequently served as a member of its board of governors and chairman of its executive committee. He also was a Fellow of the American Academy of Arts and Sciences and an Honorary Member of the Geological Societies of London, Edinburgh, Stockholm, Finland, and Argentina. Among the many honors he received in special recognition of his professional accomplishments were honorary degrees from Trinity College (Dublin) in 1963 and the University of Wrocław (Poland) in 1966, the De Vane Medal of the Yale Chapter of Phi Beta Kappa, the Penck Medal of the German Quaternary Association, and the Prestwick Medal of the Geological Society of London. Because of his stature as an outstanding leader of his generation in Quaternary research in the United States, it came as no surprise when he was elected president of the Seventh INQUA Congress, the first to be convened in North America. In 1973 he was named an Honorary Member of INQUA.

When Dick retired from active teaching in 1969, an international testimonial was held at Yale in his honor in the form of a conference on the late Cenozoic glacial ages. The papers presented by colleagues and former students, and subsequently published in a single symposium volume by the Yale Press, encompass the broad range of disciplines into which the study of the glacial ages had spread.

Throughout his professional life, Dick was blessed with having as a stimulating and enthusiastic companion his devoted wife, Margaret C. H. Flint, who outlived her husband by only six months. While maintaining her own active interests in interior design and preservation of historic sites, Peggy Flint accompanied Dick on his many field excursions and other travels and became, in her own right, a knowledgeable and perceptive student of the Quaternary. The Flints are survived by their daughter, Anne Ogilvy, three grandchildren, and a great-grandchild.

The 1971 edition of Flint's *Glacial and Quaternary Geology* was dedicated "with loyalty and affection" to the Friends of the Pleistocene, a "nonorganization" he helped found some thirty-seven years earlier. With the passing of Dick Flint, the Pleistocene has lost one of its staunchest and most dedicated advocates, and one of its very best friends.

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