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FRANK LEVERETT

1859–1943

BY

WILLIAM H. HOBBS

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Frank Leverett.

FRANK LEVERETT

1859-1943

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The greatest American glacial geologist of our generation and one of the greatest of all time died after a brief illness at his home in Ann Arbor, Mich., November 15, 1943. He was born March 10, 1859 in the little village of Denmark in the extreme southeastern corner of Iowa.¹ Denmark had been founded only twenty-two years earlier by pioneer farmers from New Hampshire and Massachusetts. They came with traditions of culture and they were largely Congregationalists in their religious faith. With little delay they had founded Denmark Academy and the first Congregationalist church west of the Mississippi River. The Academy prepared its students for college, and schooling and religion bulked large in the village life.

Frank Leverett's nearer ancestors included college graduates, and he was probably descended in the ninth generation from Thomas Leverett, who emigrated from Boston, England, to Boston, New England, in 1663. Frank's descent is through Major General Sir John Leverett, son of Thomas, an early governor of the Massachusetts Bay Colony, and through John Leverett, son of Sir John, the eighth president of Harvard College.

The nearest ancestors of Leverett were mainly pioneer farmers from Maine and New Hampshire, strong and enduring and of outstanding longevity. So far back as the record is available it is as follows: Frank 84, father 79, mother 70, paternal grandfather 74, paternal grandmother 81, maternal grandfather 87, maternal grandmother 82, maternal great-grandfather 87, his father 87 and mother 96, his grandfather 93 and grandmother

¹ In 1895 Dr. Leverett submitted to the National Academy of Sciences an autobiographical sketch of five manuscript pages together with a list complete to that time of his published work. This list was supplemented by one covering his later papers. This was mailed August 2, 1943, a few months only before his death. The sketch has been used in preparing this memorial and the bibliography has been printed without change.

96. The average age of these eleven successive immediate ancestors including Frank himself is more than 84 years.

Leverett entered Denmark Academy with no plan of later going to college, but expecting to be a farmer as was his father. He completed the academic course in 1878 when nineteen years of age. He was then interested in stock raising, horticulture and scientific agriculture. He taught school for two years, but in 1880, when he became of age, an interest in scientific lines was stimulated by an uncle, Colonel G. B. Brackett, who was a prominent horticulturist later to serve for some years as chief pomologist of the United States Department of Agriculture. Frank decided to reenter Denmark Academy and study Latin and Greek, then required for entrance to college. A year later a teacher of science was needed at the Academy, and arrangements were made which permitted Leverett to teach scientific subjects while pursuing his study of the classics.

Leverett's teaching of sciences at the Academy continued from 1881 to 1883, and during this period he became much interested in geology. Within easy reach of the Academy are exposures of the Mississippian (Burlington) limestone and also of the Coal Measures. Charles Wachsmuth at Burlington possessed a fine collection of fossils from both these formations and Leverett was accustomed to take his students to study these collections as well as visit the quarries and mines. In his own fossil collection was a plant which he was unable to identify from the published descriptions, so he sent it to the paleobotanical authority of the time, Professor Leo Lesquereux. It proved to be a new species and by Lesquereux it was named *Sigillaria Leveretti*.

This, Leverett's initial honor in the field of geology, stimulated further his desire to enter college and he considered seriously the University of Michigan, where Alexander Winchell occupied the chair of geology and was becoming widely known from his itinerant lectures and ultrapopularized books. On the advice of Colonel Brackett, and because of the geological features displayed on a grand scale in the vicinity, Leverett decided in favor of Colorado College at Colorado Springs. To this choice is probably due the change of Leverett's major in-

terest from paleontology to glacial geology,² for the incumbent of the chair of geology at Colorado College was Professor George H. Stone, already well launched on his career as glacial geologist, later to be signalized by a ponderous monograph on the glacial gravels of Maine and their associated deposits (Monograph U. S. G. S., xxxiv, 1899, 499 pages, maps).

With Professor Stone frequent geological excursions were made into the neighboring mountains, and in addition to geology Leverett gave considerable time to laboratory work in blowpipe analysis and assaying. He soon realized that he needed more laboratory work in physics and chemistry and in other natural history sciences, so in the fall of 1884 he entered the Iowa Agricultural College at Ames. There in addition to chemistry, physics, botany and zoology, he took other necessary courses in the curriculum and was graduated in November, 1885, with the degree of Bachelor of Science. At Ames he came under the inspiring teaching of a great scientist, the botanist Charles E. Bessey.

As his graduating thesis at Ames, Leverett completed a study of the local artesian well district, during which study he came into correspondence with W J McGee, then an amateur Iowa geologist, and with Professor T. C. Chamberlin at Madison, Wisconsin, who was in charge of glacial geology on the United States Geological Survey. Both these men read and criticized his thesis. On McGee's advice Leverett applied to Chamberlin for a position on the Survey and was invited to come to Madison for a conference. The journey from Denmark of two hundred and fifty miles was made by Leverett on foot, giving close attention throughout to the features within this area where his life work was to begin.

The budding glacialist was engaged on a temporary basis for a single year, but this was extended annually until 1890, when he was given a permanent appointment as assistant geologist. In 1901 he was advanced to geologist and in 1928, a year only

² This shift away from paleontology to a different branch of geology speaks for the strong influence of his teacher, for it is well known that our great paleontologists were started on their careers by having rich fossiliferous horizons near their early homes. Examples are Walcott, Schuchert, Ulrich, Bassler, Foerste and Twenhofel.

before his automatic retirement for age, to senior geologist. His retirement from the Federal Survey in 1929 closed a distinguished active career of forty-three years.

To quote from the autobiographical sketch:

"My work has been a steady expansion of the area under investigation, which has spread from the starting points in Iowa and Illinois over the entire glaciated part of the United States between the western limits of the Laurentide ice sheet in Kansas and the Atlantic Coast in New Jersey, and from the Missouri and Ohio valleys northward to the Canadian Boundary. I hastily examined several areas of mountain glaciation in Colorado, California and Washington, and in the Yellowstone National Park in the summer of 1916. I carried on a comparative study of European glacial deposits in the year 1908, and was greatly stimulated by the helpful guidance of the leading glacialists, notably Penck, Keilhack, Wahnschaffe, Kilian and de Martonne, as well as by our eminent American geographer W. M. Davis, who was at the time conducting excursions in the Alps."

For the most part the travels necessary to cover in such detail the North American glaciated area were made on foot, and Leverett himself has estimated that these in the aggregate were more than four times the circuit of our globe. The tough fibre inherited from his long-lived farmer ancestors doubtless in part explains this. His endurance was well known to all who had climbed in his company. He was never seriously ill, and his only tour in a hospital was for eleven months in 1920 with a broken hip. He had slipped on a rug as he rushed to the window to see if a passing cab was the one he had ordered to take him to the railroad station.

His indoor labors were no less untiring as he prepared the great reports which were marked by such meticulous accuracy that his statements were never seriously challenged. Utilized by highway engineers, his reports came to have an authority seldom accorded to the work of scientists. Leverett's memory was so retentive that a colleague's query concerning any locality brought out at once almost the complete glacial history.

Leverett's name is not connected with the more fundamental of the conceptions of glacial geology, most of which had been

formulated before his entry into the field. His studies formed however the foundation on which others have built in their elaboration of these early conceptions. Dr. T. C. Chamberlin, his chief in the Geological Survey, was accustomed to cite Leverett so frequently in his lectures at the University of Chicago that the students came to refer to Leverett as "Chamberlin's eyes."

On December 22, 1887 Leverett was married to Frances E., daughter of James and Anna (Frey) Gibson, who died July 10, 1892. He was married, second, December 18, 1895 to Dorothy C., daughter of Russell and Dorothea (Schmidt) Park, who survives him. There have been no children by either marriage.

In 1909 Leverett was made staff lecturer in glacial geology at the University of Michigan and each spring semester he delivered an elementary course of lectures and an advanced course on the "Comparison of European and North American Glacial Formations." An important feature of the advanced course was a number of long excursions from Ann Arbor through the glaciated area. These were greatly prized by those privileged to participate in them. After Leverett's retirement in 1929 the University of Michigan at the commencement exercises of 1930 conferred upon him the honorary degree of Doctor of Science.

The official publications of Dr. Leverett were issued by the Government in massive quarto monographs, professional papers and reports; in octavo bulletins and water supply papers; and in folio atlases, all luxuriously illustrated (See list at end). These included three massive quarto masterpieces published as Survey monographs. They are: The Illinois Glacial Lobe (Monograph XXXVIII, 1899, 817 pages and 24 plates); Glacial Formations and Drainage Features of the Erie and Ohio Basins (Monograph XLI, 1902, 800 pages and 26 plates); and (With Frank B. Taylor) The Pleistocene of Indiana and Michigan and the History of the Great Lakes (Monograph LIII, 1915, 529 pages and 32 plates). These and his other official publications much exceed in volume those of any other member of the Survey staff from its beginning. His many unofficial publications here appear in his bibliography as a separate list.

Honors in full measure came to Dr. Leverett. In 1891, the year after its foundation, he was elected a fellow of the Geological Society of America. He was a fellow and in 1928 a Vice President of the American Association for the Advancement of Science. In 1910 he was President of the Michigan Academy of Sciences, Arts and Letters, and for his presidential address chose "Outlines of the History of the Great Lakes." He was also a member of the Academies of Science of Iowa, Wisconsin and Washington (city), of the Geological Society of Washington, American Geographical Society, American Forestry Association, and American Geophysical Union. He was a corresponding member of the National Geographic Society, and a member of the honorary fraternities of *Phi Kappa Phi* and *Sigma Xi*. He was honored by election to the American Philosophical Society (1924), and to the National Academy of Sciences (1939).

Three natural monuments have been given Dr. Leverett's name. In 1891 an outlet glacier at the head of the Sondre Strömfjord in Southwest Greenland was named Leverett Glacier by the First University of Michigan Greenland Expedition. (Repts. Greenland Exped. Univ. Mich. 1926-1931, Pt. 1, 1931, map on p. 9). In the same year the First Byrd Antarctic Expedition gave his name to one of the largest glaciers discovered by the Expedition (Gould, Cold, the Record of an Antarctic Sledge Journey, pp. 210-212, 232, 1931. Also Some Geographical Results of the Byrd Antarctic Expedition, *Geog. Rev.*, vol. 21, No. 2, 1931, large folding map opposite p. 194). A few months only before his death a great Pleistocene ice-dammed lake of the type to which he had devoted so many years of study was given his name (*Science*, vol. xcvi, No. 2541, Sept. 10, 1943, pp. 227-230). A fortnight before his death an excellent bust of Dr. Leverett was completed by the sculptor, Carleton W. Angell.

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