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James M. Robertson, Director and State Geologist

Autobiography

F.T. Thwaites

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MADISON 5, WIS.
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Mr. George F. Hanson
State Geologist
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Dear Mr. Hanson:

In accordance with your request I am inclosing a copy of Fred's autobiography.

Yours very truly,

Mrs. F. T. Thwaites

AUTOBIOGRAPHY
F. T. Thwaites

Fredrik Turville Thwaites was born in Madison, Wisconsin December 23, 1883. He was a near-victim of the great diptheria epidemic of those days and his health was poor for many years afterward as a result. He did not attend school until about 10 years of age and later missed much time in school. Events which turned him toward geology included a boat trip down the Ohio River in 1894, a trip through Europe including Switzerland in 1897, a trip through Norway in 1902, and a camping trip through Yellowstone Park in 1903. From these expeditions he became interested in land forms and geology in general. In 1904 a summer job in western Kansas introduced Thwaites to problems in ground water geology and development.

On graduation from the University of Wisconsin in 1906 the only job offered was with a privately financed exploration party in Canada under the indirect charge of C. K. Leith. This work included surveying in the Cobalt District of Ontario followed by a magnetic survey of possible iron formations west of Sudbury. Work was discontinued on account of the illness of the assistant at orders from the head of another Leith party.

The field season of 1907 was devoted to assisting the late William C. Alden of the U. S. Geological Survey in his studies of the Pleistocene of Wisconsin. In 1908 Thwaites received his Masters Degree at the University of Wisconsin. The summer was spent in work for Samuel Weidman of the Wisconsin Geological Survey, again mainly on the Pleistocene. Instead of returning to school, work for the State Survey was continued and resulted in a new geological map of Wisconsin. Field surveys for this map included some of the Driftless Area in 1909, discontinued by reason of illness, and studies of the sandstones of the Lake Superior coast of Wisconsin in 1910 and

1912. The second project involved two innovations; first the use of a gasoline-powered launch to visit water-side exposures and later of a car to cut down the time lost in moving from one outcrop to another. It took a long time to convince others that this was an economy and did not involve slipshod field work. Thus it may be seen that early experience on the water and in "roughing it" were turned to good account. Two theses at the University of Wisconsin were both on field problems in previously little-known territory. These studies were under the direction of N. M. Fenneman who was also a student of land forms. In 1913 a trip to Alaska to do surveying for Lawrence Martin in his studies of glaciers served to follow up previous experience with the Pleistocene glacial deposits of Wisconsin. In 1914 Thwaites furnished the motor transportation for a reconnaissance of the Paleozoic of Wisconsin by E. O. Ulrich. This work was continued later in the season in collaboration with Samuel Weidman. Thwaites had a mind of his own and many of his conclusions did not agree with those previously accepted. From this fact it is easy to appreciate that considerable friction resulted especially with those who had previously had it all their own way.

Lacking a recommendation for a teaching position Thwaites was appointed Curator of the Geological Museum in 1912 and continued in that position until 1928. This job did not prove very successful. He concluded that no decision was ever reached as to whether the museum was to be a showplace for visitors, an adjunct to teaching, or a storage repository for collections made by the faculty. Hence in the fall of 1916 the intervention of Lawrence Martin in assigning part of his time to teaching was welcomed as a relief. At first Thwaites' teaching was in what would now be termed Geography. In the first World War much effort was devoted to teaching planetable mapping both to prospective officers and to student trainees. When the war was over,

Thwaites took over much of Martin's work, glacial geology, as well as continuing the work in mapping now applied to geological work. In 1916 and 1917 field work on a folio was begun in the Driftless Area of western Wisconsin in collaboration with Martin and W. H. Twenhofel.

In 1928 the museum work was discontinued and given to others, but in the following year the resignation of A. K. Lobeck added another field to Thwaites' teaching, namely the land forms of the United States.

Work was begun on the Pleistocene of northern Wisconsin in 1926 and was continued with road material funds during the field seasons of 1927 and 1928. A very large area was reconnoitered in fair detail although the use of air photographs had not yet become possible. Work from the ground was done with a model T, a chevrolet 4, and on foot in roadless areas. This work was discontinued when the State Geologist was removed from the Wisconsin Highway Commission in 1929. The field seasons of 1929 and 1930 were spent on the road material survey of Illinois, in part on Pleistocene gravel and in part on the limestones of the Pennsylvanian. In 1932 the Sparta-Tomah manuscript was refused by the U. S. Geological Survey by the opposition of Ulrich and Campbell.

From 1912 on Thwaites took up the study of cuttings from water wells in Wisconsin and adjacent states. At first this research was directed only toward geologic structure and stratigraphy but gradually it was expanded to include the practical problems of ground water supplies. These studies brought him into contact with many well drillers and engineers who came to appreciate and respect his results. Thwaites had always been interested in engineering as shown by the amount of work in that line which he took while a student at the University. The financial support of this subsurface work was meager and field work with it had to be severely curtailed. Much of this work was taken over by the State Board of Health which finally obtained authority to regulate well drilling including the collection of samples of

cuttings.

In 1932 his objective was the water supplies of Allegany State Park, New York at the former Allegany School of Natural History. In 1934 work was resumed on the Pleistocene of northeastern Wisconsin with the aid of a grant from the Geological Society of America. 1935 was occupied by arrangements for and conducting the Ninth Annual Field Conference of the Kansas Geological Society in Wisconsin. In 1936 the field work for northeastern Wisconsin was completed. Five semesters from 1942 to 1945 were spent in teaching physics mainly for a Naval project.

In 1948 field work was commenced on the Pleistocene of the Door Peninsula in Wisconsin in collaboration with Dr. Bertrand of the Catholic University of America. This enterprise, which was not completed until 1952, was privately financed and hence received the name "Operation Shoestring." By this time air photographs had come into their own and were used for both topography and formation boundaries. This experience was valuable for the teaching of mapping.

Whatever may have been the opinions of earlier members of the University Faculty, Thwaites' teaching was eminently successful. The classes in Mapping totaled many hundred and grew from the two at the start in 1920 to a maximum of over 90. Almost all received a weeks practical experience in the field in rough country around Devils Lake, Wisconsin. Living was in camp at the lake. Glacial Geology had a maximum of over 40 and emphasized field trips. Physiography of the United States suffered from the competition of Geography and was abandoned before retirement in 1954. Geomorphology resulted in an attempt to write a textbook with a new approach based on the principles of physics. This was not completed

and final abandonment was decided upon when it became apparent that it would not be accepted by devotees of the old school of geomorphology. A marked feature of teaching was that many students were of the second generation, children of earlier students.

Although supposed by University Regulation to retire in the spring of 1954 Thwaites was kept on one year teaching Geomorphology and Glacial Geology, then two additional years on research on subsurface geology, thus finally retiring on the first of July, 1957.

Died June 7 1961

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