Wisconsin Geological and Natural History Survey
3817 Mineral Point Road
Madison, Wisconsin 53705-5100
TEL 608/263.7389 FAX 608/262.8086
www.uwex.edu/wgnhs/

James M. Robertson, Director and State Geologist

The Green Bay Forest Bed Locality

F.T. Thwaites

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THE GREEN BAY FOREST BED LOCALITY. by Dr. F.T. Thwaites

The exposure visited in company with Prof. Iltis on 30 June and 1 July, 1958 is located in SE¼SE¼ sec. 22, T. 24 N., R. 21 E. on the farm of Norbert F. Peters, Nicolet Road, R. 1, Green Bay, Wisconsin. The excavation was made for filling in the nearby city and is roughly 35 feet deep and 250 feet long. It was visited on 5 September, 1952 by the writer and Kenneth Bertrand of the Geography Department at The Catholic University of America, Washington, D. C. At that time it was smaller. Logs were collected from a mass of fine sand just below the red till. One of these was run for radiocarbon at the Yale laboratory with the preliminary result of 9330 ± 330 yeqrs. Later this was revised to 11940 ± 390 years. This revision illustrates some of the uncertainties of this method of age determination.

The exposure extends from the road which is slightly below 600 feet elevation to a level of 640 feet above sea level. The face was only fairly well exposed at the last visit and the accompanying sketch was made without the use of instruments. It combines several field sketches and is not claimed to be accurate in detail. The top layer is the Valders till which contains much clay although there are some layers of sand. It is pale red in color. The bottom of the till is a fairly level surface not over 8 feet below the top of the exposure. Below the till materials are mixed in a confused manner. Several colored photographs were taken but an accident to the camera caused this work to end prematurely. So far as can be determined the material just below the till in point of age of deposition is a dark red clay. This clay is obscurely stratified and contains masses of fine sand and some ice-rafted glacial boulders. There appeared to be some logs just below the till. At the north end of the exposure the clay is thick and lies on a coarse to gravelly sand most of which is horizontally bedded and in places appears to be ripple-marked. About a third of the distance along the face from the north end is a mass of logs and peat mixed with this red clay. Near to the organic material the clay is a pale green-gray probably due to reduction of the ferric oxide by the carbon. At the south end of the pit there is a considerable thickness, at least 10 feet of fine sand with

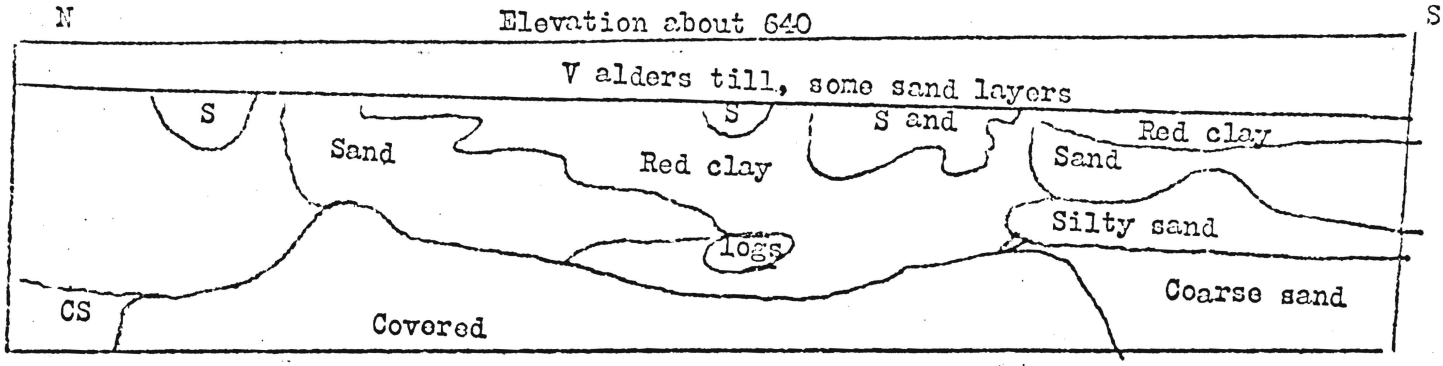
disturbed stratification. A few feet of red clay separates this from the till above. Below the fine sand is an irregular thickness of a material which is unstratified like till and yet is not like any known gray till of the region in being very sandy. The writer suggests that this is a flow or slide deposit formed under water. More of it was exposed in the pit just north of Mr. Peters house which was not studied in any detail. Below the gray silty sand of this deposit is the same coarse pebbly sand that is exposed farther north.

The extremely complex deposits of this pit are matched by the results of explorations for building material and for ground water to the east and south of this locality. At least a score of test borings were put down to locate two producing water wells. No two of these, even if only a few feet apart showed exactly the same materials. Mr. Peters well was affected by the first one of the producting wells and the level of water was lowered a few feet. There are a considerable number of gravel and sand pits in this area.

The writer interprets the deposit in the Peters pit as laid down in a lake which was impounded in front of the advancing Valders glacier. The rise of water level in this lake must have had a profound effect on stratification. The forest growth was formed mainly before the Valders ice blocked the Straits of Mackinac. The mass found mixed with red clay must certainly have been transported by ice or by an iceberg. There are no roots in position of growth. The clay in which it lies is somewhat puzzling for it is very poorly stratified entirely unlike the usual clay of a glacial lake. It could have been deposited in very turbulent water and is much redder than the overlying till. The extensive disturbance of all the pre-till materials is clearly due to friction with the overriding ice which caused shove. It is not clear just which way the ice moved but presumably it was inland from the Bay.

At Two Creeks on the shore of Lake Michigan relations are much more clear. There the clays deposited on top of the older or gray till are stratified. The Forest Bed grew in these clay for the most part. Subsequently sand with some

clay was laid down on the Forest Bed. Then the Valders ice reached the area and caused disturbance similar to that at Green Bay. These exposures clearly place the Forest Bed as older than this pro-Valders lake deposit.



Nicolet Road

Length of exposure about 250 feet (not measured)