

Notebook No. 296 - Leverett

COUNTY

Shoreline

OTHER STATES

Ontario: 1-2

ODDMENTS

Shorelines and drainageways, East-central Michigan: 3-4

Ann Arbor, Michigan
February 7, 1934

Mr. W. A. Johnston,
Geological Survey,
Ottawa, Canada.

Dear Mr. Johnston:-

Dr. George M. Stanley, of the Geology teaching staff in the University of Michigan, has been doing considerable work on the shore lines in the Superior Basin, and especially on the series of shore lines immediately above the Nipissing, and his PhD degree, awarded by the University, was based on a thesis giving the results of these investigations. I have asked him to write you in regard to the main results of his studies, and his letter is submitted herewith.

Dr. Stanley is desirous of extending his studies into the Georgian Bay region in the near future, and hopes to obtain funds from the Penrose Bequest, or some other source, to cover his field expenses. It seems to me that this is a very important district to study in order to clear up the matters mentioned in your letter of January 29. He does not, however, wish to intrude if you have plans to carry on these studies, and would like to be informed as to what you have in view. It occurs to me that both of you might work there to good advantage at the same time, for you could draw on his knowledge of the features to the West to aid in interpretation, and could give him the benefit of your studies in the district to the East. By thus combining your results of previous work you would be better prepared to interpret the features of the Georgian Bay district and that to the north near the North Bay Outlet. You might perhaps work adjoining districts independently and arrange for occasional field conferences, if it is not feasible to make a joint study or desirable to do so. The aim should be to accomplish as much as possible in a given time and reach an interpretation that is well founded.

The results obtained by Dr. Stanley in his studies in the Superior Basin have been a great surprise to me, in showing so marked an uplift of the latest well defined shore line above the Nipissing, an uplift that seems to carry it to about 1070 feet in the vicinity of North Bay. But this may fit in well with your interpretation that the marine submergence in the Ottawa valley reached Petawawa, whose altitude now is 500-525 feet. Dr. Stanley is of the opinion that the highest Algonquin beach is not represented in the vicinity of North Bay. He thinks its plane would be considerably above any beach there. Stanley thinks the profile of Fort Brady warped waterplane as shown in Pl. XXIII, Mon. 53, U. S. G. S. is not correct. He thinks it has a steeper slope north from St. Ignace. He is not certain that the shore he has been tracing, which lies just above the Nipissing is the one at Fort Brady, near Sault Ste. Marie. It is important to determine how much uplift had occurred there before the icesheet melted away. It is also important to determine the slope of the plane of Algonquin beaches that antedate the time when uplift brought the Kirkfield outlet up to the level of the Port Huron Outlet. This may be done by selecting such Algonquin beaches as are to be found north of the isobase running through the Kirkfield outlet. In this connection I would call attention to the need of determining the same in reference to the slope of the plane of Nipissing beaches that antedate the two-outlet stage of that water body. Taylor thinks the early Nipissing, prior to the two outlet stage may be exposed north of the east end

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of the Superior Basin. It is thus quite a complex situation, requiring painstaking analysis. In addition to these complications there is very little known as to the trend of the ice border, and possible changes in the trend as the ice-sheet melted away from the Georgian Bay district. If all these matters can be cleared up in a single season's work it will be a great accomplishment. It should be undertaken soon if funds are available.

Very truly yours,

Frank Leverett



Spillway of Lake Saginaw south from the Perrinton into DeWitt map is below 720'. It passes through a gap in the St. Johns moraine and comes to Stony Creek which carries westward drainage outside that moraine to the Grand River Outlets. This is 750' at border of Laingsberg and DeWitt maps in Long. 84°30' and is below 720' at west side of DeWitt map Long. 84°45'.

In the Corunna map, Maple River drains westward from near its head close to Shiawassee River at altitude above 770' to 740' at border of Laingsberg map Long. 84°15' outside the St. Johns moraine. There is a glacial drainage on north edge of this moraine along Shiawassee River to Owosso that runs south from Owosso through a gap in the St. Johns moraine. It is above 760' at east side of the map Long. 84°00' and is below 750' at Owosso - and about 740' where it comes to Maple River.

In the Burt map, Flint River has a delta in the First Lake Saginaw at 735' and a shore line at 740' at the Genesee and Shiawassee county line in Secs. 19 and 24. Its shore is gravelly in Sec. 26 and Sec. 33, Hazelton above 735'. The lake had a bay up to Flushing on east side of the county line and fully as far south in Misteguay Creek drainage west of the county line - in each case about 4 miles north of Lat. 43°00'. The distance from there to the NE corner of the Mt. Pleasant map in Lat. 43°45' is nearly 50 miles - and the beach there is about 60 feet higher than at the south side of the lake in the Burt quadrangle. Maple River has a delta where it entered Lake Saginaw at and west of the Duplain Rochester Colony, 3 - 4 miles north of Lat. 43°00' with highest points 735' near west edge of the Elsie map. Gravel bars in Elsie village and in Baker Creek drainage SE of Elsie are 730 - 735 feet.

The moraine in south part of the Elsie map is probably of same age as the Alma moraine. Its outwash near Ovid is about 770' and is about 750' in Ovid at

north side of the Inlay Outlet channel, whose floor is about 730' and which has a delta at border of Lake Saginaw at corresponding level of 730 - 735 feet.

Rise 30 - 35 feet from Lat. 42°35' - 43°45' in Saginaw beaches

Rise of 10 feet from Lat. 43°02' to Lat. 43°15'

Rise of 10 feet from Lat. 43°15' to Lat. 43°35'

Total rise 50 - 55 feet in 50 miles

Arkona beach from 730 - 775 feet in 15' (43°30' - 43°45' (45 feet in 17 miles

725 - 730 feet in 10' (43°05' - 43°30' (sic)

Total 50 feet in 47 miles

Warren beach from 680 to Lat. 43°15'

690 to Lat. 43°30'

705 at Lat. 43°45'

Total rise 25 feet made in north 17 miles where the others rise

30 - 35 feet.