

Notebook No. 233 - Leverett

COUNTY

Baraga: 1, 2, 6

Houghton: 4-5, 6

Iron: 8

Marquette: 1

Ontonagon: 2-3, 4, 6

OTHER STATES

Ontario: 3

Wisconsin: 2, 7

I N D E X T O
L E V E R E T T ' S N O T E B O O K
N O . 2 3 3

November and December 1909

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NOTES OF FRANK LEVERETT

U. S. Geological Survey

Notebook No. 233

November 16, 1909 - Well at Lake Gogebic.

Well at south end of Lake Gogebic as reported by J. E. Marshall.

Depth 20'. Pipe 4". Head + 11'. Flows 25 gallons per minute.

Temp. 42°. Water soft.

Penetrated red clay 14'. Hard sand and clay mixed called "Hardpan" 4 ft. Course sand and gravel 2 ft.

Striae

Striae in Northern Peninsula of Michigan reported by E. E. White, Geologist, Cleveland Cliffs Iron Co., Ishpeming, Michigan in letter of July 15, 1909.

Sec. 16,	T.48, R.27W.	S 47° W
Sec. 2,	T.48, R.28W.	S 50° W
Sec. 22,	T.49, R.28W.	S 20° W
Sec. 17,	T.49, R.28W.	S 30° W
Sec. 6,	T.49, R.28W.	S 20° W
Sec. 27,	T.50, R.33W.	S 1° W
Sec. 15,	T.50, R.31W.	S 20° E
Sec. 26,	T.51, R.31W.	S 18° W

Buried valley with rock bed only 440' A.T.

Hershey's notes on preglacial valleys.

From Oscar Hershey's notes June 18, 1897, I learn that a well on farm of J. Jenning center of Sec. 30, Portland Twp., Whiteside Co. is 180' without reaching rock. Altitude of well is about 620'. It was largely through blue till. This is on brow of bluff of Rock River. Rock surface is below 440' A.T.

B. F. Brooks well in NW $\frac{1}{4}$, Sec. 29, Alt. 640' has 25' of loess and yellow till and then blue till to 80' below which is water bearing sand penetrated 10'.

The Pecotimen valley and Yellow Creek were excavated to about 650' A.T. in vicinity of Freeport. Notes July 19, 1897.

Altitudes of Apostle Islands

The lake survey charts show that in the Apostle Group, Oak Island is the only very high one as shown by following data:

Oak Island reaches 480' above Lake Superior in two places and 479' at a Lake Survey Station.

Madeline reaches only 80'.

Basswood - 60'

Stockton and Outer - 60' or more (not fully contoured)

Raspberry and Cat - 60'

Sand, Michigan and Hermit - 40'

Islands not contoured are York, Bear, Otter, Devils, Manitou, Ironwood and N. Twin.

On mainland one mile east of Squaw Bay - 413'. On Point Detour about a mile from shore - 304'.

Huron Mountains

On Meridian 88° 02' directly south of mouth of Huron River is high land about one mile from shore of Lake Superior. Mt. Huron Lat. 46° 53' and Long. 87° 55' at 2 1/2 miles from shore of Lake Superior reaches 931' above the lake or 1532' A.T.

Lake Duluth on north side of Porcupines

Dr. A. C. Lane wrote Dec. 11, that the Highest beach of Lake Duluth in Sec. 15, T.51, R.43W. on a trail from Cuyahoga Landing to Carp Lake is

561' above Lake Superior, as determined by Spirit Level. The Michigan Geological Survey has a bench mark 558' very close to this beach in Sec. 15 and about 3' below the beach. The line of levels run by the Michigan Geological Survey also checks well with a line run by the U. S. Engineers.

Dr. Bell on Lake Nipigon Region, Geological of Canada, 1866-69. Two courses of striae southward and westward which often intersect and show the western to be the later (p. 351). The older set show a range from S 25° E - S 30° W. Those S 25° E are 10 and 13 miles from Thunder Bay on Red River Road. The one S 30° W is on west side of Brittanic Island. All the rest are between S 13° E and S 10° W. (Five other observations) The later striae bear from about due west to S 45° W and are nearly S 65 - 85° W. Only six observations being five less than 65° W out of a list of 23 observations. The westward transport of drift is very marked from this Kaministique region clear to north part of Lake Nipigon.

Limestone and gray and yellow chert is present with drift on east side of lake, on Gneiss Island in Grand Bay on west side and by Sir W. E. Logan at Pic Island on Lake Superior. Some are Devonian and others perhaps Niagaran. There are impure calcareous strata in a few localities in the district between Lake Superior and head of Lake Nipigon, but there are fossiliferous limestones in the drift that do not come from any of these local rocks.

Note on side of page.

Marine shells at junction of Kimigami and Albany River of Pleistocene age Rpt. of 1871, p. 112. Are on a gray clay or is it a till? or a lake deposit? (Geological Survey of Canada 1866-69. pp. 351-3, 362)

In a report the next year (for 1870) Dr. Bell notes that Long Lake heads in a rugged district of Gneiss 500± ft. above the lake or about 1500 A.T. but runs into lower country about midway at its length. (p. 336)

Notes on Mineral Range profile -- datum	578'
Ridella Jc. at connection with CM & St. Paul	457.5
Mass City (Summit 3500' west of)	494
Mass City Station	483
Pepperd crossing of Copper Range RR (not surf.)	477
Gannett for track elevation 1053, profile	479
Firesteel River, bed	{ 325
Firesteel Bridge	{ 425
East bluff, not surface	436
East bluff Service Station	425
Break from 1498½ - 1508 Ch. with 2.48'	
change in level	
1508 Ch.	480.5 + 578
1438.5 Ch.	483.1 + 575.5
1434 Ch. = MP 27	487 + 575.5
1337 Ch. = MP 25	562 "
Motley 1290 Chains (1167 A.T.)	592
Summit 1282 Ch. on beach (1173 or 1176 A.T.)	598 (578 or 575.5)
Otter R. 1200 Ch. (1106 A.T.)	531
Otter R. bed 1199.5 (1092 A.T.)	517
Ridge (Bluff?) 1188 Ch. (1117 A.T.)	542
Ridge at 1155 (beach) (1128 A.T.)	553
Valley at 1125 (not surface)	495



MP 21 is at 1121 Ch.	
Ridge at 1110 (not surface)	531
Farm house 1092+ (not surface)	517
Sand ridge 1072 Ch. (1090-92 $\frac{1}{2}$)	515
MP 20 1069 Ch.	503
Sand ridge 1059 Ch.	508
White station & seelin house 1035 Ch.	4935
Ridge, east of White at 1028 Ch.	497
Ridge at 1018 Ch.	497
Nisula & MP 18 (in service 20+' deep)	444
Cut at 911 Ch. (not surface)	447
Track at 911 Ch.	409
Valley at 874-6 Ch. (not surface)	311
Track	372-4
Top of cut 868 Ch.	389
Ravine 858 Ch. (not surface)	318
Ridge in top of cut 852 Ch.	377
Alston & MP at 840 chains	340
Wagon road 802 Ch.	304
Foot of strip grid 724	225
Level 724 - 705 Ch.	225
Creek at 688	186
East bluff not surface 685	228
Edge of plain 677 Ch. (not surface)	195
Creek at 611 Ch. bed of stream	128
Plain east of creek 598-608	164-169
(Summit at 601 Ch. is 169')	
Creek valley 569-574	116-119

Ridge east of creek at 560 Ch.	158
Pelkie Station 515 Ch.	122
Bridge in Sturgeon River 428-468 Ch.	99
Sturgeon River water surface 466 Ch.	86
W. Bluff of creek 377 Ch.	108
Creek	89
Summit at 91 Ch. (not surface)	173
Summit at 91 Ch. Track	166
Highway at Keweenaw Bay Village 2 Ch.	108' = 686
Track to stamp mill is about level at	107' = 685

This altitude is registered as 105' above Lake Huron.

Only beaches east of Mass City as follows:

5 - Narrow bog in Firestone valley at about	1015'
4 - Lake level at about 1050' formed sand ridges 1046 & 1062' at 1535 & 1515 Ch. from Keweenaw Bay.	
3 - Sand ridges at 1413 & 1424 Ch. marsh lake level.	1084 ₊ '
2 - Sand at 1378 Ch. is 1373 Ch. marsh lake level.	1120 ₊ 38 (<u>1130</u>)
1 - Motley crest (1290 Ch.) Duluth beaches	<u>1167-70</u> '
2 - East of Motley 1 1/2 miles	<u>1130-37</u> '
3 - Sand ridge at 1020 Ch.	1080-91' (<u>1083</u>)
3 - Gravel capping till at 1057-61 chains	1078- <u>1083</u>
4 - North of Nisula and also west	<u>1050+</u>
5 - SE of Nisula	<u>1015</u> '
6 - SW of Alston (Algonquin?)	<u>970</u> '
6 - Delta on Otter Creek NW of Alston	975-80'
7 - South of Alston } 8 - East of Alston }	<u>935</u> ' Algonquin <u>910</u> '

In Mon. XXV - Lake Agassiz

Upham shows this rise of the highest shore to be very general for 54 miles from south end of lake or to Lat. $46^{\circ} 24'$ on east shore amounting to about 18-20'. It is about 1057' at south end and 1075-77' in Lat. $46^{\circ} 24'$. The altitude of west shore is also 1075' in Lat. $46^{\circ} 24'$. But in Lat. $47^{\circ} 30'$, the east shore rises to 1168' while the west reaches only 1140'. The upper shore splits into two distinct members on east side of lake about Lat. 47° . On the west shore this splitting was noted 11 miles further south or about $46^{\circ} 50'$.

December 27, 1909

The bridge of DSS & A RR over Brule River west of Winnebhorizon (?) Station is reported by J. Lucius to be 41' above stream. The stream is 984.7' A.T. by U.S. Lake Survey levels for Lake Superior and Mississippi River canal.

This checks well with DSS & A profile if that has Lake Superior Datum. Dr. Lane seems to have made an error of 10 feet in his calculations of altitudes in this list of Mile Post altitudes of DSS & A RR in Michigan for they are 10 feet too low to tie with the profile from Thomaston west to Superior.

A letter from Dr. A. P. Coleman of January 7 says there is a col at head of Red Paint River about Lat. $50^{\circ} 15'$ and Long. $87^{\circ} 20'$ that is 1046' A.T. (discussed by him in Bureau of Mines Rpt. for 1909, p. 286.) A col near Long Lake 22 miles north from Jackfish about Lat. 49° , Long. 87° is 1018 ft. and is mentioned in same report.

A letter from R. C. Allen of May 19, 1910 says: While in the Northern Peninsula recently I found glacial grooving in Pine River on a large quartzite hill nearby south of Commonwealth, Wisconsin being about S 45° W.

In Sec. 27, T.44, R.36W, Michigan - groovings trending S 20° W.
This is parallel to the elongation of the hills in this township.