

ORIGIN OF THE HARBOR LAKES OF WESTERN
MICHIGAN

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(Abstract)

A line of lakes which are unique in their origin and in their relation to Lake Michigan is found along the west shore of Michigan from Saugatuck to Frankfort. These lakes are of all sizes from very small up to 4-5 mi.² in area. They are the result of ponding at the mouth of streams and are separated from Lake Michigan by a line of dunes from a few hundred feet to a mile in width. Their surfaces are only a few inches above the level of Lake Michigan and in many cases a channel has been made connecting them, thus forming a perfect landlocked harbor.

The explanation of their origin and existence is found in conditions peculiar to this shore. Nowhere else along the Great Lakes is there such a series of great sand dunes. The formation of these dunes by westerly winds while Lake Michigan was rapidly changing level accounts for the widening of the mouths of the streams which was followed by ponding as the deposition of the sand dunes continued. When Lake Chicago was in existence the southern half of Lake Michigan stood as much as 50 ft. higher than at present and during both Lake Algonquin and Lake Nipissing times the whole lake stood 15-25 ft. above the present level. Following both Algonquin and Nipissing times it was considerably lower. Borings at Milwaukee show it to have been at least 50 ft. under the present level. The Streams flowing into Lake Michigan cut down rapidly at their mouths while the level of the lake was being lowered and at the same time they were deflected from side to side by the great quantities of sand drifted into their mouths by the prevailing winds, and so wide estuaries were formed as deep as the lowest level to which the lake fell. As the lake rose again these estuaries were shut off at the mouth by the later sand dunes.

