

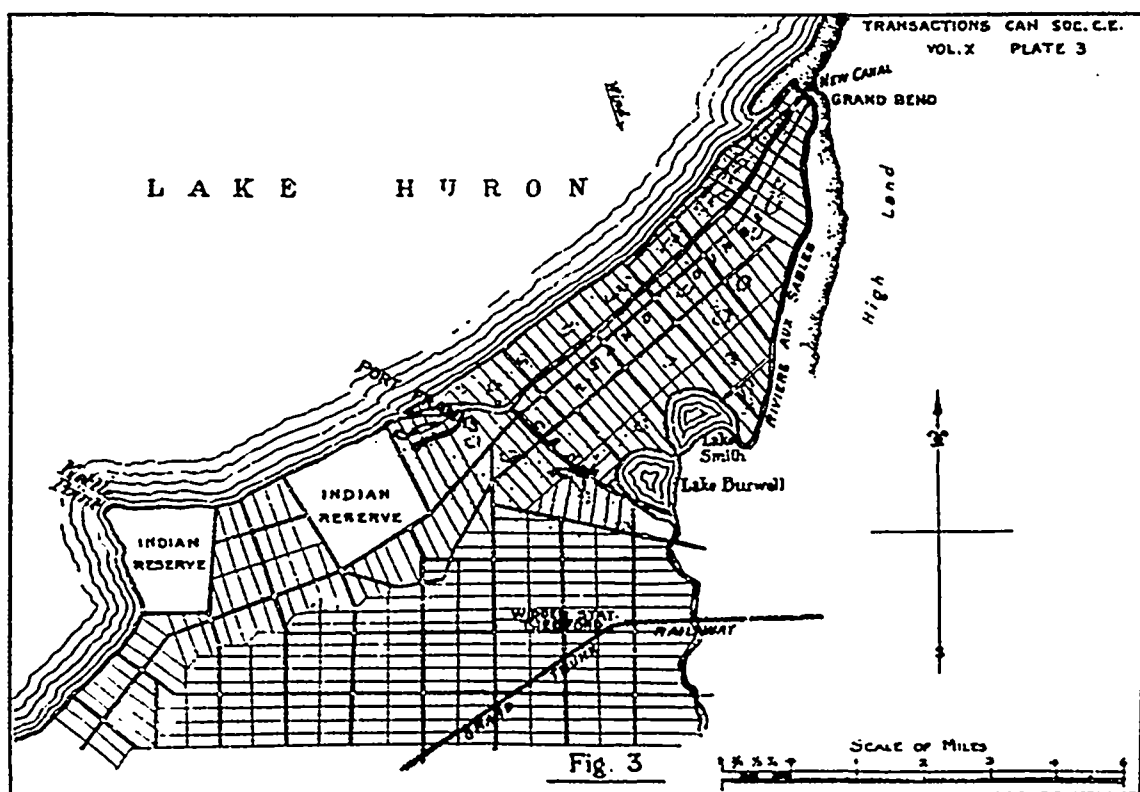
In the sketch, Fig. 3, it will be noticed there are a few sections of old channel not yet filled up. The river must have been obstructed here at different times from natural causes—new mouths made and old ones closed. From Grand Bend to Port Franks the course of the river shows that it followed along the base of the dunes that had been previously formed. In 1872 a contract was let for the excavation of the Lake Burwell Canal. The canal was intended to act as a drain, to reclaim 16,000 acres of land, which at \$5 per acre would amount to \$80,000.

The cost of the canal was about \$80,000, but the result was very disappointing. Land was benefited to some extent, but not reclaimed. Only 1,000 acres of the benefited lands have been sold. The canal began at $1\frac{1}{2}$ miles east of Lake Burwell, bottom width 30 feet, side slopes $1\frac{1}{2}$ to 1, average depth about 6 feet in clay and vegetable matter. About one mile of the canal through Lake Burwell in water and soft mud. Then

spoiled for navigation that these products are teamed four miles over the soft dunes to the Grand Trunk Railway.

The *regimen** of the river has been completely destroyed. No works of a permanent nature can be made at the lake shore or along the river. The damage resulting is not easy to compute in dollars and cents. Every year, every freshet brings down a lot of sand for the river to work through and out of as it may. The narrowest part of the canal is 60 feet, its widest a quarter of a mile, and this through and amongst the highest of the dunes. Lake Burwell is nearly dry every summer. Lake Smith covers two-thirds of its former area.

From the Grand Bend, the old channel, deprived of its current and of carrying the water out of Lakes Burwell and Smith, filled up for a very considerable part of the distance between Grand Bend and Port Franks; on this portion so filled, the sands are heaped up so that no trace of the former channel is visible.



west of Lake Burwell, through two ridges of 65 and 75 feet elevation, and generally about 30 feet of elevation for the distance of $1\frac{1}{4}$ miles to the Sables River, where the canal ended. The author has been unable to learn how the excavation was done, but thinks it was probably by tram-cars and dredge. Lake Burwell was about 4 feet above Lake Huron. As soon as a trench was made, the water rushed out with such force as in a short time to excavate a channel an eighth of a mile wide. The immense amount of sand carried out into the river stopped up the mouth, and a new mouth was formed farther to the north. Mouths were successively formed and closed in a retrograde manner, that is to say, each new one to the north of that which had preceded it. The river channel from the canal forwards was continually choking, shifting and shoaling. A tug at the end of the canal could only get out to Lake Huron and back again by going backwards, so that the screw would scoop out the sand so as to leave a channel for it to float in.

There was a considerable amount of lumber produced at Port Franks; also salt, there being large salt works there. Since the canal was dug, the river is so

The lands near Grand Bend became worse flooded with water than before.

In 1892 a new canal was cut through the beach at Grand Bend, at a cost of \$21,500. It was to have a bottom width of 30 feet, slopes $1\frac{1}{2}$ to 1. The general depth of the beach was 30 feet; length of canal quarter of a mile. It was excavated as follows: top part by scrapers; then by spade, tram car, etc., till a small stream trickled through the trench. This soon washed out a channel nearly as required. The work was completed by a dredge worked in from Lake Huron through the beach, and thence where required, for several miles up the old channel of the river, in which it was at least once disabled by coming in contact with timber buried in the mud and sand. The flow of water has now made a channel out to the lake 100 to 200 yards in width. As might have been expected, a beach or bar at once began to form across the mouth of the canal from its north side. This is rapidly extending southerly, and carrying the channel along the base of the old dunes, on the line that was the margin of Lake Huron

*The term "regimen" has for several years been used by the U.S.A. engineers to express the natural and equable condition of a river such as it has acquired from natural causes and in a long period of time.