## LATE PLEISTOCENE OSCILLATIONS.

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In the southern part of the basin altitudes of the shore-line are not definitely determinable because, apparently differential uplift caused a transgression of and a cutting away of the original shore-line in this part of the basin. The altitudes of this beach are not sufficiently numerous to accurately determine the direction of maximum uplift and rate of tilt, but they show, approximately, that the differential uplift which affected this area during the life of and after the disappearance of the lake was greatest in a nearly due north direction and that the rate of tilt is about 3 feet per mile over part of the basin. The high rate of tilt as shown by the deformation of this beach is remarkable when it is considered that the present altitudes of the beach record only the differential uplift which took place during the latest stages of the marine submergence. It also shows that the region north of the Ottawa river was probably affected by a greater amount of uplift than has affected the Ottawa region.

It is known that the direction of maximum uplift over a great part of the Great Lakes region is in a direction about north 20 degrees east. The change of direction to nearly north in the Ottawa valley nearly coincides with the direction of general glaciation. This supports the view that the uplift of the land was due to isostatic readjustment following the removal of the burden of the ice-sheets, which theory has at least a high degree of probability to support it.

## Character of the Champlain Clays.

The Champlain or Leda clays, as they were named by J. W. Dawson, have long been known to be widespread in the Ottawa valley and to have a maximum thickness, in places, of nearly 200 feet. They are exposed in numerous sections in the vicinity of Ottawa, at various altitudes from 130 feet, in the lowest part of the Ottawa valley, up to 600 feet above sea-level, the highest locality at which they are known to occur being in the stream valley leading up to Kingsmere from the east.

In physical character the clays are markedly different in their upper and lower portions. The lower portion is a sandy and silty clay often well laminated, especially towards the base.