

of these must have affected the surface or crust by a vertical uplift of many hundreds of feet. The amount of the latest recorded movement can be, to some extent, estimated by the present position of certain terraces which occur along the Ottawa and St. Lawrence rivers. These are found at elevations ranging as high as 900 feet above sea-level on the slopes of the mountains east of Montreal, while on the upper Ottawa and around Lake Nipissing terraces are recorded at even greater heights. Thus high level beaches in the vicinity of North Bay were recorded by Mr. F. B. Taylor\* at elevations of 1100 to 1200 feet and were regarded by him as of marine origin. Along the Ottawa, below Mattawa, Mr. R. Chalmers records beaches and sand terraces at elevations of 1000 feet and more, and further adds "Extensive deposits of sand and silts, implying submergence are spread over this part of the country up to a height even greater than that of the beaches referred to which have been described in earlier reports of the Geological Survey as Algoma sands\*."

These sands were formerly supposed to be due to fresh-water agencies, but subsequent investigation has shewn that portions of the deposits thus styled contain marine organism, especially along the lower Ottawa, while their similarity in many respects to those which have been styled *Saxicava* sands in the lower St. Lawrence basin and which are held to be of marine origin, is very remarkable.

While therefore the Ottawa at some time flowed in a tolerably direct line from the mouth of the Mattawa to the St. Lawrence, certain causes have interposed at different periods to deflect the waters from their original course and to cause them to excavate other and newer channels. In an examination of the valley of the river these interruptions will be found at various points. Thus in that portion of the river between the Mattawa and the head of the Deep River, a distance of fifty-four miles, the channel is fairly straight. Several heavy rapids and falls however occur among which may be mentioned Des Joachims, Roche Capitaine, Deux Rivières, La Trou, L'Eveille, &c.

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\*Bulletin Geol. Soc. Am., Vol. V, 1893.

\*Rep. Geol. Sur. Can., Vol. X, p 18 J.