

ling of the earth's crust. Down this valley meandered an ancient river, until its mouth was dammed, and its narrow water-course became a mill-pond of huge dimensions. The shallows of the St. Lawrence are pointed out as the uplift of the river bottom that changed a stream into a lake. The theory recalls the Indian legend concerning the origin of Lake Superior. The great Manitou, angry at his wife, is said to have hurled armfuls of rocks into the St. Mary River, then flowing from Thunder Bay, and to have created at once both the lake and the *sault*.

In support of the view that the lake occupies a synclinal trough, it is pointed out that the rocks of the southern and western shores apparently dip north-westward beneath the waters of the lake. The limestones from Belleville to Kingston undoubtedly slope to the east of south under the lake. Few facts, however, can be stated in favor of this theory, and many can be urged against it. Lake Superior, of all the great lakes, is alone held by many to be due to foldings of the earth's crust.

Another school of geologists sees only a "long channel, with the adjacent low lands covered by back water." These men offer no theory as to why the prehistoric river took the course it did, but are content with discovering its ancient bed. They say nothing as to the dip of the strata, but emphasize the contours of the lake bottom.

The lake, considering its size, is a broad, shallow basin, excavated out of Medina shales on the south and west, and bordered on the north by rocks of the Hudson River, Utica and Trenton periods. The western end of the lake is more silted up than other parts, and the average slope of about thirty feet in a mile is about the same from both shores. Farther east, the greater depths are all towards the southern shore. The deepest point—506 feet below high tide in the St. Lawrence—lies fifteen miles off shore, between Rochester and Oswego. Drummond

states that "the line of deepest depression along the length of the lake is also located about two-thirds of the way across the lake towards the New York side. South of Port Credit and Toronto it takes the centre of the lake, but after that, swerves towards the southern side. Preserving a depth of 540 to 570 feet for over 60 miles, it reaches the 600-foot line area, and finally begins to shallow at about nine miles off Oswego, where the depth is 576 feet."

This depression is assumed by Spencer, Claypole, Lesley and others, to be the bed of an ancient river, which originally discharged its waters through the valleys of the Mohawk and Hudson. Buried channels are here found excavated in the rocks, and nearly of sufficient depth to have drained the lake. Probably local oscillations of the earth's crust have raised the old river bed in places, so that its rocky bottom now stands somewhat higher than that of the lake.

Moreover, it is hardly probable that Lake Ontario originally emptied into the St. Lawrence valley. The shallows at the eastern end of the lake (unless the rocks there have since been elevated some 500 feet more than the lake bottom) would effectually prevent the deep excavations to the west by the old river. On the contrary, it is more likely that, in pre-glacial times, the Ottawa was the main branch of the St. Lawrence, and that Leeds and Grenville counties were drained into the prehistoric Ontario River by Oswego through the Hudson to the sea.

Of course, this theory of a river running from Oswego to New York, and draining the present lake postulates a greater elevation of the whole section of the country. The bottom of Lake Ontario is now 500 feet below the level of the ocean, and so cannot now be drained. Geologists are, however, quite confident that New York, Ontario and Quebec once stood at a much higher level. That the