

a fjord whose waters reach a depth of 840 feet. In the St. Lawrence river, a little below the mouth of the Saguenay, there is a channel 1,134 feet below the surface. This increases in depth in passing seaward. In the region of the centre of the modern gulf, the floor of the old channel is now submerged 1,878 feet, and the adjacent valley 1,230 feet; thus showing the cañon as being over 600 feet deeper. As at the mouth of the channel through the Gulf of Maine, so at the mouth of that of the St. Lawrence, there is a deep chasm; for inclosed between the banks, 100 fathoms below the surface, there is now the depth of 3,666 feet, with water 2,000 feet deeper just seaward of it. Although this ancient valley is over 60 miles wide at its mouth and was a narrow channel, yet it is not as broad as some portions of the modern so-called river. The breadth of the submerged valley throughout its windings for a length of 800 miles or more, is remarkably regular, only gradually increasing its magnitude in passing seaward. Other and smaller channels are visible in the soundings: thus, south of the Straits of Canso, between Nova Scotia and Cape Breton island, there is one 1,200 feet deep, according to the British admiralty charts, while adjacent soundings show less than 600 feet of water.

Hudson's Bay rarely exceeds a depth of 600 feet, yet at the outlet the channel is 1,200 feet deep. This depth increases in passing down the straits, where the scanty soundings show 2,040 feet before reaching the mouth. Here, in Hudson's Straits, the old valley is a chasm across a mountain system, whose peaks, upon the southern side rise to 6,000 feet above tide. The cañon of the St. Lawrence also crosses the trend of two mountain systems, but these are of no great height. The same is true for any of the other submarine valleys described.

The record of a former high continental elevation is again inscribed in the depths of the Great Lakes — Ontario reaching to 491 feet below ocean level, Superior to nearly as much, Michigan to 300, and Huron to 150 feet. The lake basins are merely closed up portions of the ancient St. Lawrence valley and its tributaries. Their distance from the sea would necessitate not merely a general elevation of the continent, but also a greater amount of elevation towards the head-waters of the system, as has been shown with regard to the excavation of the upper portion of the ancient Mississippi cañon. The lake basins are all excavated out of Paleozoic rocks, except a part of that of Lake Superior.

The soundings do not afford all the information that we desire, yet they demonstrate the presence of submarine valleys reaching upon all our coasts to depths of 3,000 feet or more. Again, the soundings

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Fig. 1.—Map of the Gulf of St. Lawrence, showing the Canso S.

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