CHAPTER II.

Origin of the Basin of the Great Lakes of America.*

Introduction.

Even as recent as a decade ago very little was known as to the origin of the Great Lakes of America. While we find such generalized statements as "most lakes are due to terrestrial crust-movements," yet such crust-movement had not been tested in the American lake-region. Again, from the time of early geological investigations in America, statements are found that the basins were the result of erosion; but the methods of erosion were not explained, and this was the more necessary as most of the basins have rock-bound outlets. Later, in some geological literature, the method of excavation was hypothetically attributed to glaciers. Such was the unsatisfactory condition of our knowledge of the problem when the writer first commenced the study, in attempting to solve the origin of Dundas Valley, at the western end of Lake Ontario, more than a dozen years ago. This investigation has developed results bearing not only upon the origin of the lake-basins, but also upon the physical history of the lakes, and broader questions of the building and sculpturing of the continent.

The methods of investigation have been the studying—(1) of the hydrography of the modern lake-basins and submerged channels upon the coast of America; (2) of the deep wells bored into, or through, the drift deposits, by which buried channels, and their relation to or contrast with the modern valleys, have been discovered; (3) of the elevation of the continent; (4) of the direction of the glaciation in the lake-region; and (5) of the now high-level beaches, in which are recorded continental uplifts, together with the deformation of the old surfaces, owing to unequal terrestrial movements or warpings of the earth's crust.† The lakes which have been the basin of the more careful investigation are Ontario, Erie, Huron, and Michigan, with the respective altitudes of 247, 573, and, of the last two, 582 feet above the sea (see the Map, p. 15).

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