

Again, if the water plane were at or near the sea level, as is sometimes claimed, Ontario would have been in the combination, and there would have been no Niagara Falls until the elevation at the opening of the Recent period. The idea that it was low enough to receive salt water is set aside by the absence of remains of salt-water life.

As the above suppositions suggest, the subject has its many doubts; and they extend to Niagara Falls as well as to lake levels. Many, therefore, are the diverse geological explanations. The above are only suppositions. For other recent views, see C. K. Gilbert's *History of the Niagara River*, *Smithsonian Report* for 1890; J. W. Spencer, *Amer. Jour. Sc.* for 1891 and 1894; W. Upham, *ibid.*, Jan., 1895; and F. B. Taylor, *ibid.*, April, 1895.

Lake Ontario has been supposed to have had an outlet in Champlain time, from its southeastern extremity at Rome by the Mohawk River to the Hudson, on the ground that the St. Lawrence at the mouth and elsewhere was under the border of the ice-sheet; and it has been stated, in opposition, that the Mohawk flows over a rocky bottom at Little Falls, at a height of 370' above the sea. The shell deposits on the St. Lawrence near its mouth at a height of 600 feet, are evidence that the ice had disappeared; so that its mouth must have been open for the discharge of the lake. But still, since the Champlain depression at Rome was 194', directly east at Albany near 350', and along the St. Lawrence 500' to 600', it is possible that all northern New York to and beyond the Mohawk was sufficiently depressed for the more southern discharge.

In reply to the suggestion that Lake Superior and others in the combination may have discharged through Huron and Lake Nipissing into Ottawa River and thence to the St. Lawrence, it has been stated that the channel beyond Lake Nipissing, along Mattawa River, has no appearance of having been the course of a stream larger than the present (A. Barlow, in letter from G. M. Dawson). The height of Lake Nipissing is only 40' above that of Lake Superior, and the highest land farther east is but 25' above this, while the height at the confluence of the Mattawa and Ottawa is 6' below the level of Superior.

*Lakes of the Great Basin.* — Among the flooded lakes of the Glacial and Champlain periods none have greater interest than those of the Great Basin. The largest of them are: the expanded Great Salt Lake of Utah, or Lake Bonneville, as it was named by Gilbert in 1876 in honor of Captain Bonneville, who gave the first account of the existing lake after a visit in 1833; and Lake Lahontan, so named by C. King, in 1878, after the explorer La Hontan. The former lay against the eastern side of the Great Basin; and underneath it were Lakes Provo and Sevier, as well as the Great Salt Lake. Great Salt Lake was quadrupled in length and increased in its waters 400 fold. Lake Lahontan covered the localities of many small lakes along the western side of the Great Basin. Lake Bonneville is described at length by Gilbert (1890), and Lahontan by King, and also later by I. C. Russell (1885). The lakes, as defined by Gilbert and Russell, are shown on the map, Fig. 1548.

There are a number of terraces about both regions which mark the shore-lines of the former greater lakes. The highest terrace of Lake Bonneville shows that at maximum flood the water stood 1000 feet above the existing level of Great Salt Lake.

The occurrence of two sets of terraces, and of two sets of deposits in the lake area, one of clay and another of marl, indicate, according to Gilbert, the occurrence over the Great Basin, in the Quaternary era, of two epochs of floods, and of a dry interval between in which the level of the lake was reduced from 1000' to 200' above the present level.