Great Lakes thus formed, is the evidence of ice action on an enormous scale in their vicinity. There must have been a time when the climate of this part of the earth was colder than at present. The immediate effect of such increase of cold would be to block the outlets of these lakes with heavy ice at certain seasons, and perhaps continuously for years in succession, causing the water to overspread the land adjacent. The soil thus reduced to the condition of plastic mud would be in a condition to be readily torn up, and ridged, and furrowed by ice fields driven upon it by wind and current, and the rise of the waters. If an obstruction of this sort at the outlet of one of the upper lakes, as for example that of Lake Superior, should give way suddenly, thousands of square miles of ice fields, borne along in a huge flood, would be precipitated at once into the basins of the lower lakes with tremendous effect. The hydraulic pressures and energy of movement developed under such conditions, would be fully adequate to account for the ice and water markings at different levels in the lake region, that have heretofore been ascribed to ordinary glacial action, or to changes of level of the geological strata themselves, instead of that of the waters. These effects of ice accumulation in the waters of the lakes would be intensified and extended by the coincident increase of snowfall on the land adjacent that would ensue. In the very nature of the case this sort of combined ice and water action must have occurred in this region as nowhere else in the world. The basin of these lakes being of immense size, and their outlets narrow, and their waters fresh and easily frozen, and their latitude such that increase of cold might readily occur, the conditions are perfect for such action, and as a matter of fact evidences of it appear everywhere in the area in question, and in the valleys that would become accessible through ice accumulation and rise of the waters.

From the point of view that has been indicated the peculiarities of the drainage system, and waterways of New York State, become clearly explicable. Southward from Lake Ontario there is a succession of terraces of rock rising step by step, as low cliffs or ledges, extending east and west across the State. The loose debris on the surface exhibits forms of arrangement that would result from the thrust of floating ice fields finding their way through valleys, or propelled against shore lines by prevailing winds. But the underlying resistant rock remaining in firm ledges is channelled along the lines where the material was softer, or in a direction parallel to Lake Ontario, which was excavated in like manner. Thus the outlets of Cayuga and Seneca Lakes, which originally ran northward, now run eastward because of the removal of a stratum of softer material by ice action in the manner described. Thus, likewise, the Erie canal was made possible, the channel which it occupies being a topographical feature so conspicuous that it was noted by the Indians, the five nations living in its vicinity being known as the Iroquois, which signifies the "House of the Long Hall," referring to this natural avenue between the seaboard and lake region.

From the head waters of the Mohawk eastward the location of the channel oc