

2. **Barrier Basins.**—These may be due to the following causes:—

(a) *A landslip* often occurs in mountainous regions, where strata, dipping towards the valley, rest on soft layers; the hard rocks slip into the valley after heavy rains, damming back the drainage, which then forms a barrier-basin. Many small lakes high up in the Alps and Pyrenees are formed by a river being dammed back in this way.

(b) *A glacier.*—In Alaska, in Scandinavia, and in the Alps, a glacier often bars the mouth of a tributary valley, the stream flowing therein is dammed back, and a lake is thus formed. The best-known lake of this kind is the Märjelen Lake in the Alps, near the great Aletsch Glacier. The lake varies in area, being sometimes a mile in length, and at other times disappearing entirely through a crevasse in the ice; in August 1907 it disappeared in one night. Lake Castain in Alaska is barred by the Malaspina Glacier; it is two or three miles long and a mile in width when at its highest level, and discharges through a tunnel nine miles in length beneath the ice-sheet. The famous parallel roads of Glen Roy in Scotland are successive terraces formed along the shores of a glacial lake during the waning glacial epoch. Lake Agassiz, which during the glacial period occupied the valley of the Red River, and of which the present Lake Winnipeg is a remnant, was formed by an ice-dam along the margin of two great ice-sheets. It is estimated to have been 700 miles in length, and to have covered an area of 100,000 square miles, thus exceeding the total area of the five great North American lakes: Superior (31,200 square miles), Michigan (22,450 square miles), Huron with Georgian Bay (23,800 square miles), Erie (9960 square miles), and Ontario (7240 square miles).

(c) *The lateral moraine of an actual glacier.*—These lakes sometimes occur in the Alps of Central Europe and in the Pyrenees.

(d) *The frontal moraine of an ancient glacier.*—The barrier in this case consists of the last moraine left by the retreating glacier. Such lakes are abundant in the northern hemisphere, especially in Scotland and the Alps.

(e) *Irregular deposition of glacial drift.*—After the retreat of continental glaciers great masses of glacial drift are left on the land-surfaces; but, on account of the manner in which these masses were deposited, they abound in depressions that become filled with water. What are called “kettle-holes” are evidently spaces originally filled by large masses of ice, which melted away after the detrital matter was laid down. Often these lakes are without visible outlet, the water frequently percolating through the glacial drift. These lakes are so numerous in the north-eastern part of North America, that one can trace the southern boundary of the great ice-sheet by following the southern limit of the lake-strewn region, where lakes may be