

not glaciated. Deep lake basins in the harder rocks are not regarded as among the possible results of glacier excavation, their existence in glaciated regions being generally due to the damming of channels by the glacial deposits and sometimes to changes in level.

Thus a glaciated country bears everywhere the marks of the ice. The more delicate marks—the scratches or groovings—would be now universally visible over the exposed rocks, were it not for their removal by weathering. On the harder rocks they may generally be found by removing the soil.

The effects of abrasion and degradation are apparent also in the grander work of shaping mountains and excavating deep valleys; but in the production of these results, the ice was aided to a very large extent by the subglacial streams. Moreover, the degradation and excavation were carried on as effectually, or more so, by the later floods from the melting ice. The fiords are attributed to the ice; but the waters from the melted ice were the main eroding agent, while the ice worked chiefly by lateral abrasion.

### FOREIGN.

In Europe the region of the Scandinavian Mountains was the great center of the accumulation and distribution of ice and bowlders. There were also some local centers: as in the Scotch Highlands; in the Alps, Urals, Caucasus, and Pyrenees; in the mountains of Auvergne, Lyonnais, and Beaujolais, in France. At the time of maximum glaciation the ice was continuous from Scandinavia westward over the British Isles, eastward to the Urals, and southward almost to the parallel of  $50^{\circ}$ . The ice spread over nearly  $55^{\circ}$  of longitude, which is  $10^{\circ}$  more than was true in North America between the coast of Labrador and the Coteau des Prairies; but the degrees are much shorter, as the southern limit of the area lay  $10^{\circ}$  to  $13^{\circ}$  farther north than the North American. This difference in southern limits corresponds with the existing difference in the positions of isotherms on the two continents. The glacier did not cover England south of the Thames, nor any part of France. Brussels and Dresden were near its limit. The accompanying map (Fig. 1552), by J. Geikie (from his paper on *The Glacial Succession in Europe*, *Roy. Soc. Edinb.*, 1892) shows, by the paler shading, the supposed limits of the ice during the time of maximum glaciation, and by the darker color, those during the epoch of the later Baltic glacier.

The glacial drift crossed the Baltic from Scandinavia eastward and southeastward over north Russia, the Baltic Provinces, and Moscow, reaching nearly as far south as Kieff; and southward over Denmark, part of Germany, and Poland. It spread southwestward over the Faroe and Shetland Islands and to the coast of Norfolk, in England. The distance of travel varied from five miles, or less, to 500 or 600. There is evidence also of transportation toward the Polar regions.

In Great Britain, the movements were mainly in the direction of the slopes of the mountains and their valleys, the drift radiating from different