

grand masses of the Alps. Stretching to the west and to the north, they extended to the valley of the Rhône as far as Lyons, then crossing the summit-level of the Jura, they passed near Basle, covering Lake Constance, and stretching beyond into Bavaria and Austria. Upon the southern slopes of the Alps, they turned round the summit of the Adriatic, passed near to Udinet, covered Peschiera, Solferino, Como, Varese, and Ivrea, extended to near Turin, and terminated in the valley of the Stura, near the Col de Tenda.

“In the Pyrenees, the ancient glaciers have occupied all the principal valleys of this chain, both on the French and Spanish sides, especially the valleys of the centre, which comprehend those of Luchon, Aude, Baréges, Cauterets, and Ossun. In the Cantabrian chain, an extension of the Pyrenees, the existence of ancient glaciers has also been recognised.

“In the Vosges and the Black Forest they covered all the southern parts of these mountains. In the Vosges, the principal traces are found in the valleys of Saint-Amarin, Giromagny, Munster, the Moselle, &c.

“In the Carpathians and the Caucasus the existence of ancient glaciers of great extent has also been observed.

“In the Sierra Nevada, in the south of Spain, mountains upwards of 11,000 feet high, the valleys which descend from the Picacho de Veleta and Mulhacen have been covered with ancient glaciers during the Quaternary epoch.”

There is no reason to doubt that at this epoch all the British islands, at least all north of the Thames, were covered by glaciers in their higher parts. “Those,” says Professor Ramsay, “who know the Highlands of Scotland, will remember that, though the weather has had a powerful influence upon them, rendering them in places rugged, jagged, and cliffy, yet, notwithstanding, their general outlines are often remarkably rounded and flowing; and when the valleys are examined in detail, you find in their bottoms and on the sides of the hills that the mammillated structure prevails. This rounded form is known, by those who study glaciers, by the name of *roches moutonnées*, given to them by the Swiss writers. These mammillated forms are exceedingly common in many British valleys, and not only so, but the very same kind of grooving and striation, so characteristic of the rocks in the Swiss valleys, also marks those of the Highlands of Scotland, of Cumberland, and Wales. Considering all these things, geologists, led by Agassiz some five or six and twenty years ago, have by degrees come to the conclusion, that a very large part of our island was, during the glacial period, covered, or nearly covered, with a thick