

covered with glaciers, which radiated from the central heights through the seven principal valleys of that chain, where striæ and flutings are seen on the polished rocks directed towards as many different points of the compass. He also described the 'moraines' of the ancient glaciers, and the rounded masses of polished rock, called in Switzerland 'roches moutonnées.' His views respecting the old extinct glaciers of North Wales were subsequently confirmed by Mr. Darwin, who attributed the transport of many of the larger erratic blocks to floating ice. Much of the Welsh glacial drift had already been shown by Mr. Trimmer to have had a submarine origin, and Mr. Darwin maintained that when the land rose again to nearly its present height, glaciers filled the valleys, and 'swept them clean of all the rubbish left by the sea.' *

Professor Ramsay, in a paper read to the Geological Society in 1851, and in a later work on the glaciation of North Wales, described three successive glacial periods, during the first of which the land was much higher than it now is, and the quantity of ice excessive; secondly, a period of submergence when the land was 2,300 feet lower than at present, and when the higher mountain tops only stood out of the sea as a cluster of low islands, which nevertheless were covered with snow; and lastly, a third period when the marine boulder drift formed in the middle period was ploughed out of the larger valleys by a second set of glaciers, smaller than those of the first period. This last stage of glaciation may have coincided with that of the parallel roads of Glen Roy, spoken of in the last chapter. In Wales it was certainly preceded by submergence, and the rocks had been exposed to glacial polishing and friction before they sank.

Fortunately the evidence of the sojourn of the Welsh

* Philosophical Magazine, ser. 3, vol. xxi. p. 180.