areas of ice dispersal there were minor centres, as, for instance, in the Cuillin Hills in Skye and in the Cheviots.

The ice radiating from the three main centres coalesced on the intervening plains, and moved towards the Continental Shelf on either side. Thus the ice from the Eastern Highlands invaded the Midland Valley, and met the sheet from the Southern Uplands as far south as the Pentland Hills and the Lammermuirs on the east, and Muirkirk and New Cumnock on the west; the confluent streams moving towards the North Sea and the Firth of Clyde. Again, the glaciers from the mountains of Ross and Inverness crossed the plain of the Moray Firth and invaded the coastal belt of Nairn, Elgin, and Banff.

As already indicated, the ice flowing eastwards off the mainland of Scotland united with the Scandinavian *mer de glace* on the floor of the North Sea. One branch of the combined ice-field moved northwards from the Firth of Forth, and, skirting the coast-lines of Kincardine and Aberdeen, ultimately overrode Caithness, Orkney, and Shetland on its onward march to the Atlantic. The southern branch, pressed back by the Scandinavian sheet, was deflected southwards, and invaded the plains of England south of Flamborough Head.

On the north coast of Sutherland the ice advanced in a northwest direction under the influence of the *mer de glace* that passed over Caithness and Orkney. Along the western seaboard, from Cape Wrath to Kintyre, the general movement was outwards across the Continental Shelf, with important local deflections due to the physical features of the Western Isles. During the maximum extension the ice from the mainland crossed the Minch and overtopped the Outer Hebrides; it coalesced with the local sheet of the Cuillin Hills, and the combined streams surmounted the basalt plateau to the north of these mountains.

South of Loch Fyne the Highland stream advanced towards the Firth of Clyde, where it united with the ice from the western portion of the Southern Uplands, and moved southwards towards the Irish Sea, a branch being deflected westwards across Kintyre under the influence of the sheet radiating from the north of Ireland.

No reliable estimate can be given of the thickness of this extensive ice-field, but it must have reached great dimensions when none of the peaks of the mainland rose as nunataks above the surface of the ice, when the outlying islands were overtopped and the intervening sounds were occupied by the *mer de glace*. Professor James Geikie suggests that some of the mountains in Harris may have protruded above the ice-field.

The phenomena attributable to the ice during the period of