

that of a basin as that of a shallow elongated plate with its middle a little raised. Its true margins are composed of portions of the over-crust folded, overlapped and crushed, as if by lateral pressure emanating from the sea itself. We cannot, for example, look at a geological map of America without perceiving that the Appalachian ridges, which intervene between the Atlantic and the St. Lawrence valley, have been driven bodily back by a force acting from the east, and that they have resisted this pressure only where, as in the Gulf of St. Lawrence and the Catskill region of New York, they have been protected by outlying masses of very old rocks, as, for example, by that of the island of Newfoundland and that of the Adirondack Mountains. The admirable work begun by my friend and fellow-student, Professor James Nicol, followed up by Professor Lapworth, and now, after long controversy, fully confirmed by the recent observations of the Geological Survey of Scotland, has shown the most intense action of the same kind on the east side of the ocean in the Scottish highlands; and the more widely distributed Eozoic and other old rocks of Scandinavia may be appealed to in further evidence of this.¹

If we now inquire as to the cause of the Atlantic depression, we must go back to the time when the areas occupied by the Atlantic and its bounding coasts were parts of the shoreless sea in which the earliest gneisses or stratified granites of the Laurentian age were being laid down in vastly extended beds. These ancient crystalline rocks have been the subject of much discussion and controversy, to which reference has been made in a previous chapter.

It will be observed, in regard to these theories, that they do

¹ Address to Geological Section, Brit. Assoc., by Prof. Judd, Aberdeen Meeting, 1885. According to Rogers, the crumpling of the Appalachians has reduced a breadth of 158 miles to about 60. Geikie, Address, Geological Society, 1891-2.