

composed of angular fragments from the syenite of St. Ann Hills in the immediate vicinity; while at other places, more remote from such crystalline masses, the ingredients consist entirely of the comminuted fragments of rocks of the Lower Carboniferous.

7. THE COAL MEASURES.*

The line of demarcation between the Millstone Grit and the so-called productive measures is a somewhat arbitrary one; and, from some points of view, the distinction may be regarded more as a matter of convenience for the purpose of description than as one of geological importance. The southern limit of the productive measures is very frequently indicated by the occurrence of great angular blocks of coarse sandstone profusely scattered over the surface, and derived from the sandstone beds of the Millstone Grit. The whole series corresponds very closely, both in geological position and in composition, with Division No. 4 of Sir William Logan's Joggins section, the upper part of the section in the Sydney coal-field being, however, cut off by the sea.

The land area occupied by the productive Coal Measures in the eastern or Sydney coal-field, may be estimated at 200 square miles, being about 32 miles in length from north-west to south-east by about six miles in width. It is limited on three sides by the Atlantic Ocean; and towards the south-west by the outcrop of the subjacent Lower Carboniferous rocks. This area forms the southern extremity of an extensive trough or basin, which is for the most part hidden under the waters of the ocean, and which has been corrugated by numerous subordinate folds, bringing the same coal-seams repeatedly to the surface along the north-east coast of the island, under the most favourable conditions and circumstances for their extraction and shipment.

The whole coast is deeply indented by bays and channels approximately coinciding with the axes of these folds, and affording in the sea-cliffs numerous natural sections of the strata and exposures of the coal-seams. Some of these bays also constitute excellent harbours, one of which—Sydney Harbour—situated towards the centre of the district, ranks among the finest and most commodious on the Atlantic coast of North America. The cliffs are generally from thirty to eighty feet high, standing perpendicularly, or frequently overhanging the sea. The country inland is of a gently rolling character, the maximum height being about 250 feet.

Reports of Progress, Geol. Surv. Can., 1872-73, p. 239; 1873-74, p. 177; 1874-75, p. 195, also Summary Reports for 1895, 1896 and 1897.