

consist of Coal-measure sandstones and conglomerate, Carboniferous Limestone, and more sparingly, Lammermuir grits and granite. In pits thirty feet in depth, beneath sands, the clay is very fine, containing a few scratched stones, and we were informed that this clay has been sunk through to a depth of fifty fathoms (300 feet), so that the bottom of this pre-glacial river-valley is much below the level of the sea.

Under Tynemouth, at the mouth of the river, there is a high cliff of stiff Boulder-clay, about 50 or 60 feet in height, facing North Shields. Stones and boulders large and small are scattered all through the clay from bottom to top approximately in the following proportions :—

Carboniferous Sandstone	.	.	34	} 80 per cent.
„ Limestone	.	.	27	
„ Coal	.	.	10	
„ Ironstone	.	.	5	
„ Shale	.	.	4	
Lammermuir grit	.	.	19	„
Greenstone	.	.	1	„

There are several irregular thin bands of gravel and sand in the Till. It will be observed that excepting two insignificant outlying patches of Magnesian Limestone at Tynemouth, all the rocks up to and beyond the borders of Scotland belong to the Carboniferous series, and the result is, that of the ice-borne erratics, 80 per cent. belong to these formations, and only 19 per cent. to the more distant Silurian grits of the Lammermuir range.

At Sunderland, about a mile north of the harbour light, there is a section of boulder-clay lying on the Magnesian Limestone. The surface of this rock has been polished by glacier ice, and the striations trend very nearly from north-east to south-west. The over-