

mentary and incomplete, must be regarded as possessing a certain interest of its own, in its character as a portion of the fossil records of a country whose *later* geologic history, like her civil one both late and early, is meagre in its authentic materials, and, in consequence, unsatisfactory in its details.

With but one baiting place,—that furnished by his Grace the Duke of Argyle's discovery of Miocene leaf-beds in the Island of Mull,—we have to stride, in Scotland, wholly across the Tertiary divisions, and find our first footing on the deposits of the Pleistocene. I have not yet seen the leaf-beds represented in any collection, save the great British one in Jermyn Street. They must, however, be regarded as possessing peculiarly a *Scotch* interest, not merely from the glimpse which they yield us of those old dicotyledonous forests of our country which succeeded, after the lapse of unreckoned ages, the coniferous forests of the Oolite, but also from the circumstance of their irrefragably demonstrating that, up till a comparatively late period, Scotland had its great outbursts of Trap. A thick bed of rudely columnar basalt overlies the most modern of these beds; and deposits of trap tuff, in which his Grace detected rolled chalk flints, overlie the older ones; thus showing, that long after the times of the Chalk, and when trees allied to the yew, the plane, and the buckthorn, grew in our forests, those deluges of molten matter from the abyss which had obtained throughout the earlier geologic ages, had not yet ceased, but were, on the contrary, potent enough to overspread wide areas to the depth of from twenty to forty feet. From these times of fire we at once pass, in this northern part of the island, to a period of ice,—to the ages represented by grooved and polished surfaces, travelled rocks, boreal shells, and the boulder clay. Though geologically the period was one, it yields, I am disposed to think, evidence of three distinct successive stages.