

of drifting ice.¹⁷⁹ The stones were most probably transported by floating plants. Seaweeds with their rootlets wrapped round loose blocks might easily be torn up and drifted out to sea so as to drop their freight among corals and crinoids living on the bottom. But more usually trees growing on the land would envelop soil and stones among their roots, and if blown down and carried away by storms and floods might bear these with them.¹⁸⁰

Next in abundance to the sandy sediment came the deposits of mud now forming shales. These occur in seams or bands from less than an inch to many yards in thickness. They are commonly black and carbonaceous, frequently largely charged with pyritous impregnations, sometimes crowded with concretions of clay-ironstone. Coal occurs among these strata in seams varying from less than an inch up to several feet or yards in thickness, but swelling out in some rare examples to 100 feet or more. A coal-seam may consist entirely of one kind of coal. Frequently, however, it contains one or more thin layers or "partings" of shale, the nature or quality of the seam being alike or different on the two sides of the parting. The same seam may be a cannel-coal at one part of a mineral field, an ordinary soft coal at a second, and an ironstone at a third. Moreover, in Britain and other countries, each coal-seam is usually underlain by a bed of fire-clay or shale, through which rootlets branch freely in all directions. These fire-clays, as their name denotes, are used for pottery or brick-making. They appear to be the soil on which the plants of the coal grew, and it

¹⁷⁹ For remarks on the climate of the Carboniferous period see *postea*, p. 1340.

¹⁸⁰ For accounts of these travelled stones in Carboniferous rocks see especially D. Stur, *Jahrb. Geol. Reichsanst.* xxxv. 1885, p. 613, and the authorities cited by him; also W. S. Gresley, *Geol. Mag.* 1885, p. 553; *Quart. Journ. Geol. Soc.* xliii. 1887, p. 734; V. Ball, *op. cit.* xlv. 1888, p. 371.