

against its consumption, through a long period, so that the transition may not be very violent: our manufactures would first feel the shock; the excess of population supported by them would cease to be called into existence, as the demand for their labour ceased; the cultivation of poor lands would become less profitable, and their conversion into forests more so.

The iron ores associated with the carboniferous strata being thus conveniently situated in the immediate vicinity of coal and limestone—the fuel and the flux requisite to work them, have led to the establishment of all our great Iron-Works within the limits of the coal-fields, and consequently produced a great condensation of manufacturing population.

The principal supply of lead used in this country is also derived from this series; with regard to zinc and copper, it contributes a smaller proportion than the transition and primitive series.

To trace the position of the horizontal strata above the coal formation, disposed as they are in uniform and parallel bands stretching across the island in similar lines of bearing, is easy, and requires nothing more than a sufficiently general knowledge of the districts in which they occur; but to reduce our description of the coal-fields, scattered as they are in unconnected basins and exhibiting every possible mode of disorder and derangement, into a regular systematic form, is a task of much more difficult accomplishment; not however that we are to imagine the non-existence in this series of an arrangement, as certain and constant as in those described in the two preceding books, but that the more violent convulsions to which it has been subjected, the elevated and deranged position of its strata, and the unconformable disposition of the more recent and overlying formations with regard to it, necessarily produce appearances of much greater intricacy, and require a more patient examination for their development; and even when that is accomplished, render the description of their local distribution much more embarrassed, than when we had only to pursue the simple lines indicating the extent of the younger deposits: the order of superposition, however, is as clearly ascertained in the one instance as the other.

The following general principles may be laid down, to guide us in our order of treating this subject. In the first place, the series of rock formations which ought to be considered together with the coal-measures, should be taken as including the four following subordinate series. I. *Coal-measures.* II. *Millstone grit and shale.* III. *Carboniferous or Mountain limestone.* IV. *Old red sandstone.* These are so much associated together in the same districts, (entering as component parts into the same