

in some cases very positively, as to the direction in which they have been drifted. Generally, in all the north of England, the diluvial gravel has been transported by the same routes or the same points of origin as the boulders ; but there is some variety in this respect worthy of notice. On the eastern side of the island, from the Tyne to the Humber, the gravelly deposits appear partly of local and partly of distant origin. On the Yorkshire coast, local gravel, derived from the chalk wolds or oolitic moors, lies in very irregular beds, distinct altogether from the clays full of pebbles brought from the Cumbrian and Penine mountains ; at Bridlington, local chalk and flint gravel lies *over* the other diluvium, and at Hessele, on the Humber, similar local gravel lies *under* it.

It might be proper, in these cases, to confine the term diluvium to that portion of the gravelly masses which, by the abundance of the fragments from very distant parts, requires the supposition of extraordinary circumstances for its accumulation. It is not solely, nor, perhaps, even principally, in this proper diluvium, that the bones of elephants, hippopotami, horses, deer, &c. occur ; they seem, on the contrary, to be rather more plentiful in the local gravel deposits. Cases, however, occur, as at Brandsburton, and at Middleton on the Wolds, near Beverley, of elephantine and other remains in the midst of erratic gravel derived from great distances.

The most singular circumstance attending the accumulation of the proper diluvium is the extreme confusion, and almost total want of laminar or stratified structure, in its mass : pebbles, and fragments of rock, of all sizes, of different nature, and from different regions, lie mixed indiscriminately in clay many yards in thickness ; which seems clearly to prove that the whole was rapidly accumulated, and that the particles had not time to be arranged according to magnitude or specific gravity, but were heaped confusedly together by a force of extraordinary intensity and short duration.