

under what circumstances they might be moved by the waters of the ocean.

Either we may suppose the waters to be thrown in a body over the land, so as to conquer by their violence and volume certain inequalities of the surface, and to cause particular local currents depending on the resistance offered by the physical configuration of different districts; or we may imagine alterations in the relative level of land and water, in the whole region where the detritus is spread, of sufficient amount to permit the transfer of heavy bodies by oceanic currents over surfaces which subsequently (at once or in succession) became dry land. This latter supposition admits of many gentle or many violent upward movements of the land round a vertical axis; and in this instance the axis may be imagined to pass parallel to the extreme points whereto the detritus has reached, viz. Bridgnorth and the mouth of the Humber, or north-east and south-west; and the movement to be upwards in all the region between this and the Cumbrian mountains. The consequence might be, dispersion of gravel, &c. from the primary mountains, in various directions within the semicircle from N.E. to S.W.; and it is entirely within this range that *all the* Cumbrian detritus is really located. To determine whether the upward movements assumed were gentle or violent, we must look to the deposits of boulders and gravel which have resulted; and as the leading facts which they exhibit are undoubtedly the heterogeneous admixture of substances of different magnitude and density, the absence of parallel and continuous stratification, and the frequency of contorted and inexplicably jumbled masses, we cannot hesitate to pronounce in favour of sudden and violent movements of incomparably greater energy than those by which most of the old conglomerate rocks were formed.

Geologists to whom this reasoning is not satisfactory may take as a basis of deduction the other speculation, that the ocean has been violently thrown over the land.