

contemporaneous deposits were not always lithologically similar. Hence mere resemblance in mineral aspect cannot usually be regarded as satisfactory evidence of contemporaneity, except within comparatively contracted areas. The Carboniferous Limestone has already (p. 863) been cited as a notable example. Typically in Belgium, central England, and Ireland, it is a thick calcareous group of rocks, full of corals, crinoids, and other organisms, which bear witness to the formation of these rocks in the open sea. But traced into the north of England and Scotland it passes into sandstones and shales, with numerous coal-seams, and only a few thin beds of limestone. The soft clay beneath the city of London is represented in the Alps by hard schists and contorted limestones. We conclude, therefore, that lithological agreement, when pushed too far, is apt to mislead us, partly because contemporaneous strata often vary greatly in lithological character, and partly because the same lithological characters may appear again and again in different ages. By trusting too implicitly to this kind of evidence, we may be led to class together rocks belonging to very different geological periods, and, on the other hand, to separate groups which really, in spite of their seeming distinction, were formed contemporaneously.

2. It is by the remains of plants and animals imbedded among the stratified rocks that the most satisfactory subdivisions of the geological record can be made, as will be more fully stated in Books V. and VI. A chronological succession of organic forms can be made out among the rocks of the earth's crust. A certain common facies or type of fossils is found to characterize particular groups of rocks, and to hold true even though the lithological constitution of the strata should greatly vary. Moreover, though