

acters among the laminæ may be taken to indicate periodic currents, of approximately equal force, from the same quarter. In some cases, successive tides in a sheltered estuary may have been the agents of deposition. In others, the sediment was doubtless brought by recurring river-floods. A great thickness of laminated rock, like the massive shales of Palæozoic formations, suggests a prolonged period of quiescence, and probably, in most cases, slow, tranquil subsidence of the sea-floor. On the other hand, the alternation of thin bands of laminated rock with others coarser in texture and non-laminated, indicates considerable oscillation of currents from different quarters bearing various qualities and amounts of sediment.³

Strata or Beds are layers of rock varying from an inch or less up to many feet in thickness. A stratum may be made up of numerous laminæ, if the nature of the sediment and mode of deposit have favored the production of this structure, as has commonly been the case with the finer kinds of sediment. In materials of coarser grain, the strata, as a rule, are not laminated, but form the thinnest parallel divisions. Strata, like laminæ, sometimes cohere firmly, but are commonly separable with more or less ease from each other. In the former case, we may suppose that the lower bed before its consolidation was followed by the deposit of the upper. The common merging of a stratum into that which overlies it must no doubt be regarded as evidence of more or less gradual change in the conditions of deposit. Where the overlying bed is abruptly separable from that below it, the interval was probably of some dura-

³ For a series of experiments to illustrate the origin of the sedimentation of the coal-measures, see H. Fayol, Bull. Soc. "Industrie Minerale, St. Etienne," 2me ser. xv. 1886. "Etudes sur le terrain houiller de Commentry," with atlas.