

species found occurring in widely-separated systems, — Scotch firs and larches, for instance, among the lignites of the Lias, or *Cyprina islandica* and *Ostrea edulis* among the shells of the Mountain Limestone. But never yet has the geologist found in his systems or formations any such evidence as facts such as these might be legitimately held to furnish, of the independent *de novo* production of individual members of any single species. On the contrary, the evidence lies so entirely the other way, that he reasons on the existence of a family relation obtaining between all the members of each species, as one of his best established principles. If members of the same species may exist through *de novo* production, without hereditary relationship, so thoroughly, in consequence, does the fabric of geological reasoning fall to the ground, that we find ourselves incapacitated from regarding even the bed of common cockle or mussel shells, which we find lying a few feet from the surface on our raised beaches, as of the existing creation at all. Nay, even the human remains of our moors may have belonged, if our principle of relationship in each species be not a true one, to some former creation, cut off from that to which we ourselves belong, by a wide period of death. All palæontological reasoning is at an end forever, if identical species can originate in independent centres, widely separated from each other by periods of time; and if they fail to originate in periods separated by time, how or why in centres separated by space?

Let the reader remark further, the bearing of those facts from which this principle of geological reasoning has been derived, on the development hypothesis. We find species restricted to circles and periods; and though stragglers are occasionally found outside the circle in the existing state of things, never are they found beyond their period among