

The chief of these is gravitation, transposing loose materials to lower levels, and tending ultimately to reduce the earth to a perfect spheroid, in which all the solid materials would be spread over the channel of the sea, and our globe would be changed into a solid nucleus, enclosed in two spheres of water and the atmosphere. The action of gravitation is counteracted by chemical forces, the source of subterranean heat, which elevates strata, raising them beyond the level of the sea to form islands, and, in many cases, propelling them high into the aerial ocean, producing mountain ranges, the sources of rivers and fertile soils, and also giving rise to a diversity of climates, adapted to every variety of constitution in plants and animals.

Parallel with these unceasing mutations in the inorganic constituents of the earth's crust, we find corresponding mutations in the vegetable and animal kingdoms, whose history constitutes the second division of geology. If our ancient strata were merely aggregates of transported materials accumulated under water, and indurated by pressure and the action of subterraneous heat, we might possibly admit the doctrine of unceasing cycles of changes without trace of a beginning or prospect of an end. Even if organic remains were found in such strata, provided they were identical in species with those at present