

us to comprehend the former effects of those agencies, by which the surface of the earth has been renovated and maintained.

The elevation of the beds of seas and rivers, and their conversion into fertile countries—the submergence of islands and continents beneath the waters of the ocean—the rapid formation of conglomerates from shells and corals on the sea shore—the accumulation of beach and gravel, and the inhumation of animals and vegetables—the slow deposition of sediment by lakes and rivers—the imbedding of innumerable generations of insects, and the formation of limestone from their almost invisible skeletons—the construction of solid stone out of fragments of bones, and rocks, shivered by earthquakes—the engulfing, in estuaries and inland seas, of land animals, birds, and reptiles—the consolidation of both organic and inorganic substances into rock, by the infiltration of flint and lime by thermal waters—the transmutation of submerged forests into coal and lignite—the destructive and conservative effects of volcanic eruptions—the conversion of sand, gravel, and clay, into homogeneous masses by heat, and even the production of metalliferous veins of gold and silver—all these phenomena have passed in review before us, although our inquiries have extended through periods which, however vast and remote in relation to the records of our race, are but brief and modern in the physical history of the earth.