

were formed when the bottom of the sea was subsiding. This downward movement protects the new deposits from denudation, and allows them to accumulate to a great thickness; whereas sedimentary matter, thrown down where the sea-bottom is rising, must almost invariably be swept away by the waves as fast as the land emerges.

When we reflect, therefore, on the fractional state of the annals which are handed down to us, and how little even these have as yet been studied, we may wonder that so many geologists should attribute every break in the series of strata, and every gap in the past history of the organic world, to catastrophes and convulsions of the earth's crust, or to leaps made by the creational force from species to species, or from class to class. For it is clear that, even had the series of monuments been perfect and continuous at first (an hypothesis quite opposed to the analogy of the working of causes now in action), it could not fail to present itself to our eyes in a broken and disconnected state.

Those geologists who have watched the progress of discovery during the last half century, can best appreciate the extent to which we may still hope by future exertion to fill up some of the wider chasms which now interrupt the regular sequence of fossiliferous rocks. The determination, for example, of late years of the true place of the Hallstadt and St. Cassian beds on the N. and S. flanks of the Austrian Alps, has revealed to us, for the first time, the marine fauna of a period (that of the Upper Trias) of which, until lately, but little was known. In this case, the paleontologist is called upon suddenly to intercalate about 800 species of mollusca and radiata, between the fauna of the Lower Lias and that of the Middle Trias. The period in question was previously believed, even by many a philosophical geologist, to have been comparatively barren of organic types. In England, France, and Northern Germany, the only known strata of Upper