

systematic, but not very correct designation of *transition*, *flötz* or *secondary*, and *tertiary formations*. If the erupted rocks had not exercised an elevating, and, owing to the simultaneous shock of the earth, a disturbing influence on these sedimentary formations, the surface of our planet would have consisted of strata arranged in a uniformly horizontal direction above one another. Deprived of mountain chains, on whose declivities the gradations of vegetable forms and the scale of the diminishing heat of the atmosphere appear to be picturesquely reflected—furrowed only here and there by valleys of erosion, formed by the force of fresh water moving on in gentle undulations, or by the accumulation of detritus, resulting from the action of currents of water—continents would have presented no other appearance from pole to pole than the dreary uniformity of the llanos of South America or the steppes of Northern Asia. The vault of heaven would everywhere have appeared to rest on vast plains, and the stars to rise as if they emerged from the depths of ocean. Such a condition of things could not, however, have generally prevailed for any length of time in the earlier periods of the world, since subterranean forces must have striven in all epochs to exert a counteracting influence.

Sedimentary strata have been either precipitated or deposited from liquids, according as the materials entering into their composition are supposed, whether as limestone or argillaceous slate, to be either chemically dissolved or suspended and commingled. But earths, when dissolved in fluids impregnated with carbonic acid, must be regarded as undergoing a mechanical process while they are being precipitated, deposited, and accumulated into strata. This view is of some importance with respect to the envelopment of organic bodies in petrifying calcareous beds. The most ancient sediments of the transition and secondary formations have probably been formed from water at a more or less high temperature, and at a time when the heat of the upper surface of the earth was still very considerable. Considered in this point of view, a Plutonic action seems to a certain extent also to have taken place in the sedimentary strata, especially the more ancient; but these strata appear to have been hardened into a schistose structure, and under great pressure, and not to have been solidified by cooling, like the rocks that have issued from the interior, as, for instance, granite, porphyry, and basalt. By degrees, as the waters lost their temperature, and were able to absorb a copious supply of the carbonic acid gas with which