

basins, ridges of elevated land, and broad plateaus intervening between the ridges, and which were at some times under water, and at other times land, with many intermediate phases. The settlement and crumpling of the crust were not continuous, but took place at intervals; and each such settlement produced not only a ridging up along certain lines, but also an emergence of the plains or plateaus. Thus at all times there have been ridges of folded rock constituting mountain-ranges, flat expansions of continental plateau, sometimes dry and sometimes submerged, and deep ocean-basins, never except in some of their shallower portions elevated into land.

By the study of the successive beds, more especially of those deposited in the times of continental submergence, we obtain a table of geological chronology which expresses the several stages of the formation of the earth's crust, from that early time when a solid shell first formed on our nascent planet to the present day. By collecting the fossil remains embedded in the several layers and placing these in chronological order, we obtain in like manner histories of animal and plant life parallel to the physical changes indicated by the beds themselves. The facts as to the sequence we obtain from the study of exposures in cliffs, cuttings, quarries, and mines; and by correlating these local sections in a great number of places, we obtain our general table of succession; though it is to be observed that in some single exposures or series of exposures, like those in the great cañons of Colorado, or on the coasts of Great Britain, we can often in one locality see nearly the whole sequence of beds. Let us observe here also that, though we can trace these series of deposits over the whole of the surfaces of the continents, yet if the series could be seen in one spot, say in one shaft sunk through the whole thickness of the earth's crust, this would be sufficient for our purpose, so far as the history of life is concerned.