

measure of the time in which the older rocks were deposited; for the precise age of the world is probably a problem which science never can solve. All the means of comparison within our reach enable us to say, only, that its duration must have been immense.

In the sixth place, during the deposition of the stratified rocks, a great number of changes must have occurred in the matter of which they are composed. Hundreds of such changes can be easily counted, and they often imply great changes in the waters holding the materials in solution or suspension; such changes, indeed, as must have required different oceans over the same spot. Such events could not have taken place without extensive elevations and subsidences of the earth's crust; nor could such vertical movements have happened without much intervening time, as many facts, too technical to be here detailed, show. Here, then, we have another evidence of vast periods of time occupied in the secondary production and arrangements of the earth's crust.

In the seventh place, numerous races of animals and plants must have occupied the globe previous to those which now inhabit it, and have successively passed away, as catastrophes occurred, or the climate became unfit for their residence. Not less than thirty thousand species have already been dug out of the rocks; and excepting a few hundred species, mostly of sea shells occurring in the uppermost rocks, none of them correspond to those now living on the globe. In Europe, they are found to the depth of about six and a half miles; and in this country, deeper; and no living species is found more than one twelfth of this depth. All the rest are specifically and often generically unlike living species; and the conclusion seems irresistible, that they must have lived and died before the creation of the present species. Indeed, so different was the climate in those early times, (it having been much warmer than at present in most parts of the world,) that but few of the present races could have lived then. Still further: it appears that, during the whole period since organized beings first appeared on the globe, not less than four, or five, and probably more, some think as many as ten or twelve, entire races have passed away, and been succeeded by recent ones; so that the globe has actually changed all its inhabitants half a dozen times. Yet each of the successive groups occupied