change as the measure of past revolutions—an assumption, however, which may be erroneous, for the present may be a period when all geological events march forward more slowly than they used to do. The argument proceeds on data partly of a physical and partly of an organic kind. (*a*.) The physical evidence is derived from such facts as the observed rates at which the surface of a country is lowered by rain and streams, and new sedimentary deposits are formed. These facts will be more particularly dwelt upon in later sections of this work. If we assume that the land has been worn away, and that stratified deposits have been laid down, nearly at the same rate as at present, then we must admit that the stratified portion of the crust of the earth must represent a very vast period of time.[70] (*b*.) On the other hand, human experience, so far as it goes, warrants the belief that changes in the organic world proceed with extreme slowness. Yet in the stratified rocks of the terrestrial crust we have abundant proof that the whole fauna and flora of the earth's surface have passed through numerous cycles of revolution—species, genera, families, orders, appearing and disappearing many times in succession. On any supposition, it must be admitted that these vicissitudes in the organic world can only have

[70] Dr. Croll put this period at not less, but possibly much more, than 60 million years. Dr. Haughton gives a much more extended period. Estimating the present rate of deposit of strata at 1 foot in 8616 years, assuming the former rate to have been ten times more rapid, or 1 foot in 861·6 years, and taking the thickness of the stratified rocks of the earth's crust at 177,200 feet, he obtains a minimum of 200,000,000 years for the whole duration of geological time: "Six Lectures on Physical Geography," 1880, p. 94. Dr. Haughton has also proposed another geological measure of past time, based upon the assumed effects of continental upheaval (Proc. Roy. Soc. xxvi. (1877), p. 534). But Prof. Darwin has shown it to be inadmissible. (Op. cit. xxvii. (1878), p. 179.) For various opinions regarding geological measures of time see J. Phillips, Brit. Assoc. 1864: Croll, Phil. Mag. 1868: T. McK. Hughes, Proc. Roy. Inst. Great Britain, March 24, 1876: Dupont, Bull. Acad. Roy. Belgique, viii. (1884): T. Mellard Reade, Quart. Journ. Geol. Soc. 1888, p. 291.