

to draw indefinitely on the great bank of time,<sup>1</sup> just as in former ages they had been quickly brought to book by existing prejudices.<sup>2</sup>

Whilst these contributions to the genetic view of nature on the large scale were being independently worked out, the sciences which deal with the minute and hidden phenomena of organic growth had made great progress in the same direction. Here a definite scheme of development was quite evident to the most casual observer. In these sciences indeed we have to do with what is called in the German language "the history of development" *par excellence*, a term which is inadequately rendered by "Embryology" in French and English. For it is an error which has frequently and for long periods obscured the correcter view to assume that the changes and processes which characterise the development of embryonic or germ life are essentially different from those which exist in the larger and more complex adult organism. The abolition of the fundamental distinction between the processes of embryonic and of adult or full-

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ogy.

<sup>1</sup> Lyell, vol. iii. p. 358: "Confined notions in regard to the quantity of past time have tended more than any other prepossessions to retard the progress of geology, . . . and until we habituate ourselves to contemplate the possibility of an indefinite lapse of ages having been comprised within each of the more modern periods of the earth's history, we shall be in danger of forming most erroneous views in geology."

<sup>2</sup> One of the first to attack the uniformitarian doctrine in geology and to apply the principles of modern physical science to geolog-

ical and cosmical questions in this country was Lord Kelvin. His influence belongs, however, mainly to the post-Darwinian period, and begins with his celebrated memoir 'On the Secular Cooling of the Earth' (Edin. Trans., 1862, reprinted in the 3rd vol. of 'Math. and Phys. Papers,' p. 295). See also the 2nd vol. of his 'Popular Lectures and Addresses.' According to the introductory statement in the former paper his doubts regarding the uniformitarian teaching began as early as 1844. I shall refer to these speculations at the end of this chapter.