

(2.) The reasoning from tidal retardation proceeds on the admitted fact that, owing to the friction of the tide-wave, the rotation of the earth is retarded, and is therefore slower now than it must have been at one time. Lord Kelvin contends that had the globe become solid some 10,000 million years ago, or indeed any high antiquity beyond 100 million years, the centrifugal force due to the more rapid rotation must have given the planet a very much greater polar flattening than it actually possesses. He admits, however, that though 100 million years ago that force must have been about 3 per cent greater than now, yet "nothing we know regarding the figure of the earth and the disposition of land and water would justify us in saying that a body consolidated when there was more centrifugal force by 3 per cent than now, might not now be in all respects like the earth, so far as we know it at present."¹⁹

(3.) The third kind of evidence leads to results similar to those derived from the two previous lines of reasoning. It is based upon calculations as to the amount of heat that would be available by the falling together of masses from space, which gave rise by their impact to our sun, and the rate at which this heat has been radiated. Assuming that the sun has been cooling at a uniform rate, Prof. Tait concludes that it cannot have supplied the earth, even at the present rate, for more than about 15 or 20 million years.²⁰ Lord Kelvin also believes that the sun's light will not last more than 5 or 6 millions of years longer.²¹

¹⁹ Trans. Geol. Soc. Glasgow, iii. p. 16. Prof. Tait, in repeating this argument, concludes that, taken in connection with the previous one, "it probably reduces the possible period which can be allowed to geologists to something less than 10 millions of years." "Recent Advances," p. 174. Compare Newcombe, "Popular Astronomy," p. 505.

²⁰ Op. cit. p. 174.

²¹ "Popular Lectures," etc. p. 397.