the mechanical and cosmical importance was clearly foreseen by Lord Kelvin in 1852, but which is hardly assimilated yet by scientific, much less by popular, thought.

The two doctrines of the conservation of matter and of energy would lead to the idea that nature is a kind of *perpetuum mobile*, nothing in the way of matter or energy being lost; and that such a reversal of her processes is possible as we are accustomed to deal with in purely mechanical contrivances. But a closer examination of the processes of nature, as distinguished from those of artificial machines, revealed the fact that,

speaks of "periods of mutation"—*i.e.*, of rapid change of species, of which he gives various instances. He concludes that "as many steps as the organisation has taken since the beginning, so many periods of 'mutation' must have existed." He considers the vital processes to be built up out of "units." "Of such units there are probably in the higher plants several thousands, and their ancestors must have run through as many periods of mutation." He concludes with the following words: "Although such calculations are naturally exposed to much criticism, they nevertheless lead on very different roads to identical results. Lord Kelvin, who a few years ago collected and examined critically the various data referring to this subject, arrives at the conclusion that provisionally, and with all reservations, the duration of life on the earth can be placed at 24 millions of years. We accordingly take this figure for our biochronic equation. And as we can with great probability estimate the number of elementary properties in one of the higher plants at some thousands, it follows that the interval of time between two periods of mutation must have lasted several thousands of years." (See de Vries's Address to the German Assoc. of Science at Hamburg in 1891, 'Verhandelungen,' &c., p. 202, &c.; also Lord Kelvin (Phil. Mag. (5.) 47, p. 66). Mr Wallace has, from an entirely different point of view, been led to the conclusion that "certain definite portions of man's intellectual and moral nature could not have been developed by variation and natural selection alone, and that, therefore, some other influence, law, or agency is required to account for them." This would account for an apparent, though perhaps not an actual, break in the continuity of all natural processes, which, in the dictum *natura non facit saltum*, has received a very general expression and acceptance. This dictum—supported by the authority of Leibniz—is, however, by some modern thinkers denounced as a scholastic and antiquated aphorism. (See Yves Delage, 'L'Hérédité,' &c., p. 266.)