

pointed out in 1832, as the two great flaws in Lamarck's attempt to explain the origin of species, first, that he had failed to adduce a single instance of the initiation of a new organ in any species of animal or plant; and secondly, that variation, whether taking place in the course of nature or assisted artificially by the breeder and horticulturist, had never yet gone so far as to produce two races sufficiently remote from each other in physiological constitution as to be sterile when intermarried, or, if fertile, only capable of producing sterile hybrids, &c.*

To this objection Lamarck would, no doubt, have answered that there had not been time for bringing about so great an amount of variation; for when Cuvier and some other of his contemporaries appealed to the embalmed animals and plants taken from Egyptian tombs, some of them 3,000 years old, which had not experienced in that long period the slightest modification in their specific characters, he replied that the climate and soil of the valley of the Nile had not varied in the interval, and that there was therefore no reason for expecting that we should be able to detect any change in the fauna and flora. 'But if,' he went on to say, 'the physical geography, temperature, and other conditions of life, had been altered in Egypt as much as we know from geology has happened in other regions, some of the same animals and plants would have deviated so far from their pristine types as to be thought entitled to take rank as new and distinct species.'

Although I cited this answer of Lamarck, in my account of his theory,† I did not, at the time, fully appreciate the deep conviction which it displays of the slow manner in which geological changes have taken place, and the insignificance of thirty or forty centuries in the history of a species, and that, too, at a period when very narrow views were

* Principles of Geology, 1st ed., vol. ii. ch. ii.

† Ibid., p. 587. 1832.