

to Lyell, local rise of temperature in the earth's crust, so that larger and smaller reservoirs of melted rock-material may accumulate. If the water and gases impregnating the rocks are converted into vapour, volcanic eruptions and earthquakes ensue. The slow elevations of the ground are also referred by Lyell, in the later editions of the *Principles*, to subterranean rise of temperature and to the consequent expansion of the solid rocks, whereas decrease of temperature or the removal of gaseous material gives origin to subterranean cavities, intrusions, and subsidences.

Lyell was during the greater part of his life an opponent of Lamarckism. In the early editions of the *Principles*, he recognised the occurrence of constant change in the organic world, but refused to associate the modification of living forms with any definite history of evolution during the successive geological ages. He began with the fundamental question whether changes in the animal and plant world were still in progress, or if organic creation had already arrived at its highest development. After discussing Lamarck's views on the production and modification of organs, Lyell enumerated a number of data regarding the limits of variability of wild and domestic species and the results of cross-breeding, and expressed his conviction that each species had been created with the characteristics still presented by it. He allowed that species can to a certain extent accommodate themselves to their environment, but asserted that the possible changes were slight, and rapidly accomplished, having no influence upon the essential characteristics of the species. He held that unlimited variability was further prevented by the natural aversion of species in the wild state to cross-breeding, and by the small fertility of hybrids. Lyell afterwards revoked these opinions, a change in his views having been effected by the writings of A. R. Wallace and Charles Darwin.

The two famous papers of these authors on the variability of species appeared simultaneously in the year 1858 in the publications of the Linnæan Society. Darwin's epoch-making work on the *Origin of Species* by Natural Selection was published in the following year, and another work of that year was W. Hooker's *Flora of Australia*.

Lyell, together with the great zoologist Huxley and the philosopher Herbert Spencer, at once enthusiastically accepted