

ture, and from the lowest instincts up to the highest, and, finally, from brute intelligence to the reasoning powers of Man. The improvement in the grade of being had been slow and continuous, and the human race itself was at length evolved out of the most highly organised and endowed of the inferior mammalia.

In order to explain how, after an indefinite lapse of ages, so many of the lowest grades, of animal or plant, still abounded, he imagined that the germs or rudiments of living things, which he called monads, were continually coming into the world, and that there were different kinds of these monads for each primary division of the animal and vegetable kingdoms. This last hypothesis does not seem essentially different from the old doctrine of equivocal or spontaneous generation; it is wholly unsupported by any modern experiments or observation, and therefore affords us no aid whatever in speculating on the commencement of vital phenomena on the earth.

Some of the laws which govern the appearance of new varieties were clearly pointed out by Lamarck. He remarked, for example, that as the muscles of the arm become strengthened by exercise or enfeebled by disuse, some organs may in this way, in the course of time, become entirely obsolete, and others previously weak become strong and play a new or more leading part in the organisation of a species. And so with instincts, where animals experience new dangers they become more cautious and cunning, and transmit these acquired faculties to their posterity. But not satisfied with such legitimate speculations, the French philosopher conceived that by repeated acts of volition animals might acquire new organs and attributes, and that in plants, which could not exert a will of their own, certain subtle fluids or organising forces might operate so as to work out analogous effects.

After commenting on these purely imaginary causes, I