

Varieties by natural Means of Selection,' to appear at the same time.*

By reference to these memoirs it will be seen that both writers begin by applying to the animal and vegetable worlds the Malthusian doctrine of population, or its tendency to increase in a geometrical ratio, while food can only be made to augment even locally in an arithmetical one. There being, therefore, no room or means of subsistence for a large proportion of the plants and animals which are born into the world, a great number must annually perish. Hence there is a constant struggle for existence among the individuals which represent each species, and the vast majority can never reach the adult state, to say nothing of the multitudes of ova and seeds, which are never hatched or allowed to germinate. Of birds it is estimated that the number of those which die every year equals the aggregate number by which the species to which they respectively belong is on the average permanently represented.

The trial of strength, which must decide what individuals are to survive and what to succumb, occurs in the season when the means of subsistence are fewest, or enemies most numerous, or when the individuals are enfeebled by climate or other causes; and it is then that those varieties which have any, even the slightest, advantage over others come off victorious. They may often owe their safety to what would seem to a casual observer a trifling difference, such as a darker or lighter shade of colour rendering them less visible to a species which preys upon them, or sometimes to attributes more obviously advantageous, such as greater cunning, or superior powers of flight or swiftness of foot. These peculiar qualities and faculties, bodily and instinctive, may enable them to outlive their less favoured rivals, and being transmitted

* See Proceedings of Linnæan Society, 1858.