

can infer that there are no limits to the deviation from an original type which may be brought about in the course of an indefinite number of generations, we ought to have some proof that, in each successive generation, individuals may go on acquiring an equal amount of new peculiarities, under the influence of equal changes of circumstances. The balance of evidence, however, inclines most decidedly on the opposite side; for in all cases we find that the quantity of divergence diminishes after a few generations in a very rapid ratio.

*Species susceptible of modification may be greatly altered in a few generations.* — It cannot be objected, that it is out of our power to go on varying the circumstances in the same manner as might happen in the natural course of events during some great geological cycle. For in the first place, where a capacity is given to individuals to adapt themselves to new circumstances, it does not generally require a very long period for its development: if, indeed, such were the case, it is not easy to see how the modification would answer the ends proposed, for all the individuals would die before new qualities, habits, or instincts were conferred.

When we have succeeded in naturalizing some tropical plant in a temperate climate, nothing prevents us from attempting gradually to extend its distribution to higher latitudes, or to greater elevations above the level of the sea, allowing equal quantities of time, or an equal number of generations, for habituating the species to successive increments of cold. But every husbandman and gardener is aware that such experiments will fail; and we are more likely to succeed in making some plants, in the course of the first two generations, support a considerable degree of difference of temperature than a very small difference afterwards, though we persevere for many centuries.

It is the same if we take any other cause instead of temperature; such as the quality of the food, or the kind of dangers to which an animal is exposed, or the soil in which a plant lives. The alteration in habits, form, or organization, is often rapid during a short period; but when the circumstances are made to vary farther, though in ever so slight a degree, all modification ceases, and the individual perishes. Thus some herbivorous quadrupeds may be made to feed partially on fish or flesh; but even these can never be taught to live on some herbs which they reject, and which would even poison them, although the same may be very nutritious to other species of the same natural order. So when man uses force or stratagem against wild animals, the persecuted race soon becomes more cautious, watchful, and cunning; new instincts seem often to be developed, and to become hereditary in the first two or three generations: but let the skill and address of man increase, however gradually, no farther variation can take place, no new qualities are elicited by the increasing dangers. The alteration of the habits of the species has reached a point beyond which no ulterior modification is possible, however indefinite the lapse of ages during which the new circumstances operate. Extirpation then follows, rather than such a