

and the high antiquity of man, as a breeder of animals, has only recently become known. Most naturalists, however, freely admit that our various breeds, however dissimilar, are descended from a single stock, although they do not know much about the art of breeding, cannot show the connecting links, nor say where and when the breeds arose. Yet these same naturalists declare, with an air of philosophical caution, that they will never admit that one natural species has given birth to another until they behold all the transitional steps. Fanciers use exactly the same language with respect to domestic breeds; thus, an author of an excellent treatise on pigeons says he will never allow that the carrier and fantail are the descendants of the wild rock-pigeon, until the transitions have "actually been observed, and can "be repeated whenever man chooses to set about the task." No doubt it is difficult to realise that slight changes added up during long centuries can produce such great results; but he who wishes to understand the origin of domestic breeds or of natural species must overcome this difficulty.

The causes which excite and the laws which govern variability have been discussed so lately, that I need here only enumerate the leading points. As domesticated organisms are much more liable to slight deviations of structure and to monstrosities than species living under their natural conditions, and as widely-ranging species generally vary more than those which inhabit restricted areas, we may infer that variability mainly depends on changed conditions of life. We must not overlook the effects of the unequal combination of the characters derived from both parents, or reversion to former progenitors. Changed conditions have an especial tendency to render the reproductive organs more or less impotent, as shown in the chapter devoted to this subject; and these organs consequently often fail to transmit faithfully the parental characters. Changed conditions also act directly and definitely on the organisation, so that all or nearly all the individuals of the same species thus exposed become modified in the same manner; but why this or that part is especially affected we can seldom or ever say. In most cases, however, a change in the conditions seems to act