

must limit the expression to "Similar things produce similar things." The gardener, as well as the farmer, avails himself of the fact of Inheritance in its widest form, and indeed with special regard to the fact that not only those qualities of organisms are transmitted by inheritance which they have inherited from *their* parents, but those also which they themselves have *acquired*. This is an important point upon which very much depends. An organism may transmit to its descendants not only those qualities of form, colour, and size which it has inherited from its parents, but it may also transmit variations of these qualities, which it has acquired during its own life through the influence of outward circumstances, such as climate, nourishment, training, etc.

These are the two fundamental qualities of animals and plants of which the breeder must avail himself in order to produce new forms. The theoretical principle of breeding is, indeed, extremely simple, but in detail the practical application of this simple principle is difficult and immensely complicated. A thoughtful breeder, acting according to a definite plan, must understand the art of correctly estimating, in every case, the general interaction between the two fundamental qualities of hereditivity and mutability.

Now, if we examine the real nature of those two important properties of life, we find that we can trace them, like all physiological functions, to physical and chemical causes, to the properties and the phenomena of motion of those material particles of which the bodies of animals and plants consist. As we shall hereafter have to show in the more accurate consideration of these two functions, the transmission by *Inheritance*, to express it quite generally, is