the survival of the fittest, and heredity were already known; and it is somewhat strange that no attempt was made to correlate these, and find out the general principle underlying them, except by Mr. Darwin, and about the same time independently by Mr. Wallace.

In his introduction to this book Mr. Darwin says, "In considering the origin of species, it is quite conceivable that a naturalist, reflecting on the mutual affinities of organic beings, on their embryological relations, their geographical distribution, geological succession, and such other facts, might come to the conclusion that each species had not been independently created, but had descended, like varieties, from other species. Nevertheless, such a conclusion, even if well-founded, would be unsatisfactory until it could be shown how the innumerable species inhabitating this world have been modified, so as to acquire that perfection of structure and co-adaptation which most justly excites our admiration. . . . It is therefore of the highest importance to gain a clear insight into the means of modification and co-adaptation. At the commencement of my observations it seemed to me probable that a careful study of domesticated animals and cultivated plants would offer the best chance of making out this obscure problem."

Accordingly after due deliberation he took up the study of domestic pigeons, procuring every breed that could be obtained, reading all the literature he could find on the subject, and associating himself with several eminent pigeon fanciers. Great as are the differences between the breeds, it may be regarded as almost certain that they have all descended from the Rock pigeon (Columba livia.) The various races such as the Pouter, Carrier, Fantail, Tumbler, Trumpeter, &c., differ from one another far more widely than do well-marked species of the same genus, or even family. And these modifications are produced by the will of man exercised in the process of selection. It might be as well to mention also here a phenomenon which Mr. Darwin has called "correlation of growth." This consists in the fact that while man may be intentionally modifying one part of the organism by selection, one or more other parts are unintentionally modified along with it, and become characteristic of the race.

Man's conscious power of modifying both the external and internal characteristics of domestic animals is too well known to require any lengthened description. This artificial selection operates by accumulating natural variations in certain directions. Man can never act by selection, except on variations first given him in some slight degree by Nature. Over all causes of change Mr. Darwin is convinced that the accumulative action of selection, whether exercised methodically and more quickly, or unconsciously and more slowly, but more efficiently, is by far the predominant power. The consideration of variation under domestication, and artificial selection introduces us to variation in a state of nature and natural selection. The fact of variation in domestic animals and cultivated plants is a self-evident one; and the fact of variation in a state of nature, on a little consideration becomes equally so. Else what is the meaning of so many doubtful species, of monstrosities and sports? Amongst organic beings in a state of nature there is individual variability—no two beings are precisely alike. This fact, together with the high rate at which all organic beings tend to increase, necessitates a "struggle for existence." "Owing to this struggle for life, any variation, however slight, and from