

throughout Europe and North America, and on which a single bud suddenly produced the red magnum bonum. We should also bear in mind that distinct varieties, and even distinct species,—as in the case of peaches, nectarines, and even apricots,—of certain roses and camellias,—although separated by a vast number of generations from any progenitor in common, and although cultivated under diversified conditions, have yielded by bud-variation closely analogous varieties. When we reflect on these facts we become deeply impressed with the conviction that in such cases the nature of the variation depends but little on the conditions to which the plant has been exposed, and not in any especial manner on its individual character, but much more on the inherited nature or constitution of the whole group of allied beings to which the plant in question belongs. We are thus driven to conclude that in most cases the conditions of life play a subordinate part in causing any particular modification; like that which a spark plays, when a mass of combustibles bursts into flame—the nature of the flame depending on the combustible matter, and not on the spark.⁶³

No doubt each slight variation must have its efficient cause; but it is as hopeless an attempt to discover the cause of each, as to say why a chill or a poison affects one man differently from another. Even with modifications resulting from the definite action of the conditions of life, when all or nearly all the individuals, which have been similarly exposed, are similarly affected, we can rarely see the precise relation between cause and effect. In the next chapter it will be shown that the increased use or disuse of various organs produces an inherited effect. It will further be seen that certain variations are bound together by correlation as well as by other laws. Beyond this we cannot at present explain either the causes or nature of the variability of organic beings.

⁶³ Professor Weismann argues 'Saison-Dimorphismus der Schmetterlinge,' 1875, pp. 40-43. strongly in favour of this view in his