

As wild plants are so rarely liable to bud-variation, whilst highly cultivated plants long propagated by artificial means have yielded many varieties by this form of reproduction, we are led through a series such as the following,—namely, all the eyes in the same tuber of the potato varying in the same manner,—all the fruit on a purple plum-tree suddenly becoming yellow,—all the fruit on a double-flowered almond suddenly becoming peach like,—all the buds on grafted trees being in a very slight degree affected by the stock on which they have been worked,—all the flowers on a transplanted heartsease changing for a time in colour, size, and shape,—we are led by such a series to look at every case of bud-variation as the direct result of the conditions of life to which the plant has been exposed. On the other hand, plants of the same variety may be cultivated in two adjoining beds, apparently under exactly the same conditions, and those in the one bed, as Carrière insists,<sup>158</sup> will produce many bud-variations, and those in the other not a single one. Again, if we look to such cases as that of a peach-tree which, after having been cultivated by tens of thousands during many years in many countries, and after having annually produced millions of buds, all of which have apparently been exposed to precisely the same conditions, yet at last suddenly produces a single bud with its whole character greatly transformed, we are driven to the conclusion that the transformation stands in no *direct* relation to the conditions of life.

We have seen that varieties produced from seeds and from buds resemble each other so closely in general appearance that they cannot be distinguished. Just as certain species and groups of species, when propagated by seed, are more variable than other species or genera, so it is in the case of certain bud-varieties. Thus, the Queen of England Chrysanthemum has produced by this latter process no less than six, and Rollisson's Unique Pelargonium four distinct varieties; moss-roses have also produced several other moss-roses. The Rosaceæ have varied by buds more than any other group of plants; but this may be in large part due to so many members having been long cultivated; but

<sup>158</sup> 'Production des Variétés,' pp. 58, 70.