

from which the characters in question could have been derived by a cross. We must attribute all such cases to the appearance of absolutely new characters in the buds. The varieties which have thus arisen cannot be distinguished by any external character from seedlings; this is notoriously the case with the varieties of the Rose, Azalea, and many other plants. It deserves notice that all the plants which have yielded bud-variations have likewise varied greatly by seed.

The plants which have varied by buds belong to so many orders that we may infer that almost every plant would be liable to variation, if placed under the proper exciting conditions. These conditions, as far as we can judge, mainly depend on long-continued and high cultivation; for almost all the plants in the foregoing list are perennials, and have been largely propagated in many soils, under different climates, by cuttings, offsets, bulbs, tubers, and especially by budding or grafting. The instances of annuals varying by buds, or producing on the same plant differently coloured flowers, are comparatively rare: Hopkirk¹⁵⁶ has seen this with *Convolvulus tricolor*; and it is not uncommon with the Balsam and annual Delphinium. According to Sir R. Schomburgk, plants from the warmer temperate regions, when cultivated under the hot climate of St. Domingo, are eminently liable to bud-variation. I am informed by Mr. Sedgwick that moss-roses which have often been taken to Calcutta always there lose their mossiness; but change of climate is by no means a necessary contingent, as we see with the gooseberry, currant, and in many other cases. Plants living under their natural conditions are very rarely subject to bud-variation. Variegated leaves have, however, been observed under such circumstances; and I have given an instance of variation by buds on an ash-tree planted in ornamental grounds, but it is doubtful whether such a tree can be considered as living under strictly natural conditions. Gärtner has seen white and dark-red flowers produced from the same root of the wild *Achillea millefolium*; and Prof. Caspary has seen a completely wild *Viola lutea* bearing flowers of two different colours and sizes.¹⁵⁷

¹⁵⁶ 'Flora Anomala,' p. 164.

Gesell. zu Königsberg,' Band vi., Feb

¹⁵⁷ 'Schriften der physisch-okon.

3, 1865, s. 4.