

modifications of structure besides those which are beautiful, a host of curious varieties would certainly have been raised; and they would probably have transmitted their characters so truly that the cultivator would have felt aggrieved, as in the case of culinary vegetables, if his whole bed had not presented a uniform appearance. Florists have attended in some instances to the leaves of their plant, and have thus produced the most elegant and symmetrical patterns of white, red, and green, which, as in the case of the pelargonium, are sometimes strictly inherited.¹⁷⁶ Any one who will habitually examine highly-cultivated flowers in gardens and greenhouses will observe numerous deviations in structure; but most of these must be ranked as mere monstrosities, and are only so far interesting as showing how plastic the organisation becomes under high cultivation. From this point of view such works as Professor Moquin-Tandon's 'Tératologie' are highly instructive.

Roses.—These flowers offer an instance of a number of forms generally ranked as species, namely, *R. centifolia*, *gallica*, *alba*, *damascena*, *spinossissima*, *bracteata*, *indica*, *semperflorens*, *moschata*, &c., which have largely varied and been intercrossed. The genus *Rosa* is a notoriously difficult one, and, though some of the above forms are admitted by all botanists to be distinct species, others are doubtful; thus, with respect to the British forms, Babington makes seventeen, and Bentham only five species. The hybrids from some of the most distinct forms—for instance, from *R. indica*, fertilised by the pollen of *R. centifolia*—produce an abundance of seed; I state this on the authority of Mr. Rivers,¹⁷⁷ from whose work I have drawn most of the following statements. As almost all the aboriginal forms brought from different countries have been crossed and re-crossed, it is no wonder that Targioni-Tozzetti, in speaking of the common roses of the Italian gardens, remarks that "the native country and precise form of the wild type of most of them are involved in much uncertainty."¹⁷⁸ Nevertheless, Mr. Rivers in referring to *R. indica* (p. 68) says that the descendants of each group may generally be recognized by a close observer. The same author often speaks of roses as having been a little hybridised; but it is evident that in very many cases the differences due to variation and to hybridisation can now only be conjecturally distinguished.

The species have varied both by seed and by bud; such modified buds being often called by gardeners sports. In the following chapter I shall fully discuss this latter subject, and shall show that bud-variations can be propagated not only by grafting and budding, but often by seed. Whenever a new rose appears with any peculiar character, however produced, if it yields seed, Mr. Rivers

¹⁷⁶ Alph. de Candolle, 'Géograph. Bot.,' p. 1083; 'Gardener's Chron.' 1861, p. 433. The inheritance of the white and golden zones in Pelargonium largely depends on the nature of the soil. See D. Beaton, in 'Journal of

Horticulture,' 1861, p. 64.

¹⁷⁷ 'Rose Amateur's Guide,' T. Rivers, 1837, p. 21.

¹⁷⁸ 'Journal Hort. Soc.,' vol. ix., 1855, p. 182.