

dently of the character of either parent, are sometimes developed to a monstrous size; and the increased size of the pods in the foregoing cases may be an analogous fact. On the other hand, M. de Saporta informs me that an isolated female plant of *Pistacia vera* is very apt to be fertilised by the pollen of neighbouring plants of *P. terebinthus*, and in this case the fruits are only half their proper size, which he attributes to the influence of the pollen of *P. terebinthus*.

No case of the direct action of the pollen of one variety on another is better authenticated or more remarkable than that of the common apple. The fruit here consists of the lower part of the calyx and of the upper part of the flower-peduncle¹⁴⁴ in a metamorphosed condition, so that the effect of the foreign pollen has extended even beyond the limits of the ovarium. Cases of apples thus affected were recorded by Bradley in the early part of the last century; and other cases are given in old volumes of the 'Philosophical Transactions';¹⁴⁵ in one of these a Russeting apple and an adjoining kind mutually affected each other's fruit; and in another case a smooth apple affected a rough-coated kind. Another instance has been given¹⁴⁶ of two very different apple-trees growing close to each other, which bore fruit resembling each other, but only on the adjoining branches. It is, however, almost superfluous to adduce these or other cases, after that of the St. Valery apple, the flowers which, from the abortion of the stamens, do not produce pollen, but are fertilised by the girls of the neighbourhood with pollen of many kinds; and they bear fruit, "differing from one another in size, flavour, and colour, but resembling in character the hermaphrodite kinds by which they have been fertilised."¹⁴⁷

I have now shown, on the authority of several excellent observers, in the case of plants belonging to widely different orders, that the pollen of one species or variety, when applied to the female of a distinct form, occasionally causes the coats of the seeds, the ovarium or fruit, including even the calyx and upper part of the peduncle of the apple, and the axis of the ear in maize, to be modified. Sometimes the whole ovarium or all the seeds are thus affected; sometimes only a

¹⁴⁴ See on this head the high authority of Prof. Decaisne, in a paper translated in 'Journ. Hort. Soc.,' vol. i., new series, 1866, p. 48.

¹⁴⁵ Vol. xliii., 1744-45, p. 525; vol. xlv., 1747-48, p. 602.

¹⁴⁶ 'Transact. Hort. Soc.,' vol. v. pp. 65 and 68. See, also, Prof. Hildebrand, with a coloured figure, in 'Bot. Zeitung,' May 15, 1868, p.

327. Puvis also has collected, 'De la Dégénération,' 1837, p. 36) several other instances; but it is not in all cases possible to distinguish between the direct action of foreign pollen and bud-variations.

¹⁴⁷ T. de Clermont-Tonnerre, in 'Mém. de la Soc. Linn. de Paris,' tom. iii., 1825, p. 164.