

flower of another variety; and conversely I several times fertilised ordinary flowers with peloric pollen. Only once I succeeded in raising a plant from a peloric flower fertilised by pollen from a peloric flower borne by another variety; but the plant, it may be added, presented nothing particular in its structure. Hence we may conclude that no general rule can be laid down; but any great deviation from the normal structure, even when the reproductive organs themselves are not seriously affected, certainly often leads to sexual impotence.

Double Flowers.—When the stamens are converted into petals, the plant becomes on the male side sterile; when both stamens and pistils are thus changed, the plant becomes completely barren. Symmetrical flowers having numerous stamens and petals are the most liable to become double, as perhaps follows from all multiple organs being the most subject to variability. But flowers furnished with only a few stamens, and others which are asymmetrical in structure, sometimes become double, as we see with the double gorse or *Ulex*, and *Antirrhinum*. The *Compositæ* bear what are called double flowers by the abnormal development of the corolla of their central florets. Doubleness is sometimes connected with proliferation,⁹⁶ or the continued growth of the axis of the flower. Doubleness is strongly inherited. No one has produced, as Lindley remarks,⁹⁷ double flowers by promoting the perfect health of the plant. On the contrary, unnatural conditions of life favour their production. There is some reason to believe that seeds kept during many years, and seeds believed to be imperfectly fertilised, yield double flowers more freely than fresh and perfectly fertilised seed.⁹⁸ Long-continued cultivation in rich soil seems to be the commonest exciting cause. A double narcissus and a double *Anthemis nobilis*, transplanted into very poor soil, has been observed to become single;⁹⁹ and I have seen a completely double white primrose rendered permanently single by being divided and transplanted whilst in full flower. It has been observed by Professor E. Morren that doubleness of the flowers and variegation of the leaves are antagonistic states; but so many exceptions to the rule have lately been recorded,¹⁰⁰ that, though general, it cannot be looked at as invariable. Variegation seems generally to result from a feeble or atrophied condition of the plant, and a large proportion of the seedlings raised from parents, if both are variegated, usually perish at an early age; hence we may perhaps infer that doubleness, which is

⁹⁶ 'Gardener's Chronicle,' 1866, p. 681.

⁹⁷ 'Theory of Horticulture,' p. 333.

⁹⁸ Mr. Fairweather, in 'Transact. Hort. Soc.,' vol. iii. p. 406: Bosse, quoted by Bronn, 'Geschichte der Natur,' B. ii. s. 77. On the effects of the removal of the anthers, see Mr. Leitner, in Silliman's 'North Ameri-

can Journ. of Science,' vol. xxiii. p. 47; and Verlot, 'Des Variétés,' 1865, p. 84.

⁹⁹ Lindley's 'Theory of Horticulture,' p. 33.

¹⁰⁰ 'Gardener's Chronicle,' 1865, p. 626; 1866, pp. 290, 730; and Verlot, 'Des Variétés,' p. 75.