the pips of sweet oranges produced in Jamaica, according to the nature of the soil in which they are sown, either sweet or bitter oranges, is probably an error; for M. Alph. De Candolle informs me that since the publication of his great work he has received accounts from Guiana, the Antilles, and Mauritius, that in these countries sweet oranges faithfully transmit their character. Gallesio found that the willow-leafed and the Little China oranges reproduced their proper leaves and fruit; but the seedlings were not quite equal in merit to their parents. The red-fleshed orange, on the other hand, fails to reproduce itself. Gallesio also observed that the seeds of several other singular varieties all reproduced trees having a peculiar physiognomy, partly resembling their parent-forms. I can adduce another case: the myrtle leaved orange is ranked by all authors as a variety, but is very distinct in general aspect: in my father's greenhouse, during many years, it rarely yielded any fruit, but at last produced one; and a tree thus raised was identical with the parent-form.

Another and more serious difficulty in determining the rank of the several forms is that, according to Gallesio,[16] they largely intercross without artificial aid; thus he positively states that seeds taken from lemon-trees (*C. lemonum*) growing mingled with the citron (*C. medica*), which is generally considered as a distinct species, produced a graduated series of varieties between these two forms. Again, an Adam's apple was produced from the seed of a sweet orange, which grew close to lemons and citrons. But such facts hardly aid us in determining whether to rank these forms as species or varieties; for it is now known that undoubted species of Verbascum, Cistus, Primula, Salix, &c., frequently cross in a state of nature. If indeed it were proved that plants of the orange tribe raised from these crosses were even partially sterile, it would be a strong argument in favour of their rank as species. Gallesio asserts that this is the case; but he does not distinguish between sterility from hybridism and from the effects of culture; and he almost destroys the force of this statement by another,[17] namely, that when he impregnated the flowers of the common orange with the pollen taken from undoubted *varieties* of the orange, monstrous fruits were produced, which included "little pulp, and had no seeds, or imperfect seeds."

In this tribe of plants we meet with instances of two highly remarkable facts in vegetable physiology: Gallesio[18] impregnated an orange with pollen from a lemon, and the fruit borne on the mother tree had a raised stripe of peel like that of a lemon both in colour and taste, but the pulp was like that of an orange and included only imperfect seeds. The possibility of pollen from one variety or species directly affecting the fruit produced by another variety of species, is a subject which I shall fully discuss in the following chapter.

[16] 'Teoria della Riproduzione,' p. 53.
[17] Gallesio, 'Teoria della Riproduzione,' p. 69.
[18] Ibid. p. 67.