

all belong to one species ;" they are, as he adds, nearly as numerous as those of the silkworm.

The Orange Group.—We here meet with great confusion in the specific distinction and parentage of the several kinds. Galesio,¹¹ who almost devoted his life-time to the subject, considers that there are four species, namely, sweet and bitter oranges, lemons, and citrons, each of which has given rise to whole groups of varieties, monsters, and supposed hybrids. One high authority¹² believes that these four reputed species are all varieties of the wild *Citrus medica*, but that the shaddock (*Citrus decumana*), which is not known in a wild state, is a distinct species; though its distinctness is doubted by another writer "of great authority on such matters," namely, Dr. Buchanan Hamilton. Alph. De Candolle,¹³ on the other hand—and there cannot be a more capable judge—advances what he considers sufficient evidence of the orange (he doubts whether the bitter and sweet kinds are specifically distinct), the lemon, and citron, having been found wild, and consequently that they are distinct. He mentions two other forms cultivated in Japan and Java, which he ranks undoubted species; he speaks rather more doubtfully about the shaddock, which varies much, and has not been found wild; and finally he considers some forms, such as Adam's apple and the bergamotte, as probably hybrids.

I have briefly abstracted these opinions for the sake of showing those who have never attended to such subjects, how perplexing they are. It would, therefore, be useless for my purpose to give a sketch of the conspicuous differences between the several forms. Besides the ever-recurrent difficulty of determining whether forms found wild are truly aboriginal or are escaped seedlings, many of the forms, which must be ranked as varieties, transmit their characters almost perfectly by seed. Sweet and bitter oranges differ in no important respect except in the flavour of their fruit, but Galesio¹⁴ is most emphatic that both kinds can be propagated by seed with absolute certainty. Consequently, in accordance with his simple rule, he classes them as distinct species; as he does sweet and bitter almonds, the peach and nectarine, &c. He admits, however, that the soft-shelled pine-tree produces not only soft-shelled but some hard-shelled seedlings, so that a little greater force in the power of inheritance would, according to this rule, raise a soft-shelled pine-tree into the dignity of an aboriginally created species. The positive assertion made by Macfayden¹⁵ that

¹¹ 'Traité du Citrus,' 1811. 'Teoria della Riproduzione Vegetale,' 1816. I quote chiefly from this second work. In 1839 Galesio published in folio 'Gli Agrumi dei Giard. Bot. di Firenze,' in which he gives a curious diagram of the supposed relationship of all the forms.

¹² Mr. Bentham, 'Review of Dr. A. Targioni-Tozzetti,' 'Journal of Hort. Soc.,' vol. ix. p. 133.

¹³ 'Géograph. Bot.,' p. 863.

¹⁴ 'Teoria della Riproduzione,' pp. 52-57.

¹⁵ Hooker's 'Bot. Misc.,' vol. i. p. 302; vol. ii. p. 111.