

remarkable from announcing its maturity by "a spontaneous and almost sudden dislocation," when deep cracks suddenly appear, and the fruit falls to pieces; and this occurs with the wild *C. momordica*. Finally, M. Naudin well remarks that this "extraordinary production of races and varieties by a single species and their permanence when not interfered with by crossing, are phenomena well calculated to cause reflection."

USEFUL AND ORNAMENTAL TREES.

TREES deserve a passing notice on account of the numerous varieties which they present, differing in their precocity, in their manner of growth, their foliage, and bark. Thus of the common ash (*Fraxinus excelsior*) the catalogue of Messrs. Lawson of Edinburgh includes twenty-one varieties, some of which differ much in their bark; there is a yellow, a streaked reddish-white, a purple, a wart-barked and a fungous-barked variety.¹⁴⁴ Of hollies no less than eighty-four varieties are grown alongside each other in Mr. Paul's nursery.¹⁴⁵ In the case of trees, all the recorded varieties, as far as I can find out, have been suddenly produced by one single act of variation. The length of time required to raise many generations, and the little value set on the fanciful varieties, explains how it is that successive modifications have not been accumulated by selection; hence, also, it follows that we do not here meet with sub-varieties subordinate to varieties, and these again subordinate to higher groups. On the Continent, however, where the forests are more carefully attended to than in England, Alph. De Candolle¹⁴⁶ says that there is not a forester who does not search for seeds from that variety which he esteems the most valuable.

Our useful trees have seldom been exposed to any great change of conditions; they have not been richly manured, and the English kinds grow under their proper climate. Yet in examining extensive beds of seedlings in nursery-gardens considerable differences may be generally observed in them; and whilst touring in England I have been surprised at the amount of difference in the appearance of the same species in our hedgerows and woods. But as plants vary so much in a truly wild state, it would be difficult for even a skilful botanist to pronounce whether, as I believe to be the case, hedgerow trees vary more than those growing in a primeval forest. Trees when planted by man in woods or hedges do not grow where they would naturally be able to hold their place against a host of competitors, and are therefore exposed to conditions not strictly natural: even this slight change would probably suffice to cause seedlings raised from such trees to be variable. Whether or not our half-wild English trees, as a general rule, are more

¹⁴⁴ Loudon's 'Arboretum et Fruticetum,' vol. ii. p. 1217.

1096.

¹⁴⁵ 'Gardener's Chronicle,' 1866, p.

¹⁴⁶ 'Géograph. Bot.,' p. 1096.