

that he has himself witnessed decided advantage from obtaining bulbs of the onion, tubers of the potato, and various seeds, all of the same kind, from different soils and distant parts of England. He further states that with plants propagated by cuttings, as with the Pelargonium, and especially the Dahlia, manifest advantage is derived from getting plants of the same variety, which have been cultivated in another place; or, "where the extent of the place allows, to take cuttings from one description of soil to plant on another, so as to afford the change that seems so necessary to the well-being of the plants." He maintains that after a time an exchange of this nature is "forced on the grower, whether he be prepared for it or not." Similar remarks have been made by another excellent gardener, Mr. Fish, namely, that cuttings of the same variety of Calceolaria, which he obtained from a neighbour, "showed much greater vigour than some of his own that were treated in exactly the same manner," and he attributed this solely to his own plants having become "to a certain extent worn out or tired of their quarters." Something of this kind apparently occurs in grafting and budding fruit-trees; for, according to Mr. Abbey, grafts or buds generally take with greater facility on a distinct variety or even species, or on a stock previously grafted, than on stocks raised from seeds of the variety which is to be grafted; and he believes this cannot be altogether explained by the stocks in question being better adapted to the soil and climate of the place. It should, however, be added, that varieties grafted or budded on very distinct kinds, though they may take more readily and grow at first more vigorously than when grafted on closely allied stocks, afterwards often become unhealthy.

I have studied M. Tessier's careful and elaborate experiments,⁶ made to disprove the common belief that good is derived from a change of seed; and he certainly shows that the same seed may with care be cultivated on the same farm (it is not stated whether on exactly the same soil) for ten consecutive years without loss. Another excellent observer, Colonel Le Couteur,⁷ has come to the same conclusion; but then he expressly adds, if the same seed be used, "that which is grown on land manured from the mixen one year becomes seed for land prepared with lime, and that again becomes seed for land dressed with ashes, then for land dressed with mixed manure, and so on." But this in effect is a systematic exchange of seed, within the limits of the same farm.

On the whole the belief, which has long been held by many cultivators, that good follows from exchanging seed, tubers, &c., seems to be fairly well founded. It seems hardly credible that the advantage thus derived can be due to the seeds, especially if very small ones, obtaining in one soil some

⁶ 'Mém. de l'Acad. des Sciences,' 1790, p. 209.

⁷ 'On the Varieties of Wheat,' p. 52.