

lity and colour—bright yellow, green, almost white, blue, purple and red. In some portions of North America the climate appears singularly favourable for the production of new and good varieties. Downing describes no less than forty, seven of which are of first-rate quality, and have been recently introduced into England. Darwin says that varieties occasionally arise having an innate adaptation for certain soils, almost as strongly pronounced as with natural species growing on the most distant geological formations. Thus, in America the Imperial Gage, differently from almost all other kinds, is peculiarly fitted for dry light soils, where many sorts drop their fruit, whereas on rich heavy soils its fruit is often insipid. There is a species of sloe (*Prunus spinosa*), a thorny shrub growing wild in Europe, bearing a small black plum, austere in taste (differing from our *Prunus A. virginiana*) which is often used for giving colour and astringent flavour to wines. This was thought to be the parent of all our plums. But the parentage is now commonly accorded to *Prunus insititia*, or the Bullace, which is found wild in the Caucasus, and north-western India. It is becoming evident to fruit growers that many of our cultivated plum trees from various causes, are becoming constitutionally debilitated, and not reliable. Sooner or later we shall be compelled to fall back on our native varieties for further improvement. I would refer you to an article describing these by D. L. Adair, illustrated in the March number of the *Journal of Horticulture* for 1869. Believing it to be the only reliable plan for future improvement, and in the hope of opening a similar road in Ontario, I have already set in motion a plan which will secure the best seed from the best native varieties. I do not propose in this paper to offer a list of named varieties, knowing that many of them, imported and natives, can only be considered suitable to certain localities, the desirableness of which must be arrived at by personal test. Any standard work on fruits, such as J. J. Thomas's on American fruits, will fully name varieties.

The soil considered to be the best fitted to its culture is a strong clayey loam. In light soils it grows less strong, and is more subject to the attacks of insects, yet there are varieties suited to every soil. The trees should be set one rod apart, when making an orchard. This will give one hundred and sixty trees to the acre. The ground must always be kept free from weeds, and the top soil slightly cultivated as not to injure the roots. An annual top dressing should be given of well rotted manures, and in no way dug into about the roots. This bringing of crude manures in immediate contact with the roots is one of the causes of constitutional derangement and disease. As to the amount to be applied, I should say that after the tree had come fully into bearing, but not before, there can be no harm in a generous application of lime, ashes, salt or bone dust, mixed

with well rotted stable manure, say two wheelbarrows to a tree at the annual fall dressing. It should be borne in mind that an overstimulated growth in its infancy will indeed enlarge its organic form, but at the same time will weaken its power to resist changes of temperature and moisture. The character of growth differs so much in varieties that it would not be safe to lay down any definite rule in pruning and training. This is one of the lessons to be learned by observing the growth of each variety, for what can be more opposite than that of the Greengage and Bradshaw? Yet there is one general rule to be observed in the expansion or contraction of the head of each tree. On looking at the current year's growth, you will see alternate buds on the in and out sides of each limb. If the head require expansion, cut close to the outside one; if contraction, to the inside bud, at the spring pruning, just as they are bursting into leaf. The wound will then readily heal over. The head should be started low down, not more than three feet from the ground. In this way the trunk will be secured from the intense rays of the sun, and so prevent induration of the bark. But should this from any cause occur, longitudinal cuts, without going so deep as to injure the wood, with a sharp knife, just through the bark, in several places, up and down the trunk and limbs, about the 1st of July, will be the means of forming a new and healthy bark. Another advantage in having the head of your trees low is the facility in gathering fruit and in destroying insects.

In securing trees from the nursery, you are not always sure of getting those which form a healthy union. The way to secure such is to plant your own pits from some known hardy and thrifty growing kinds, such as the Columbia. Plant them in the exact place you wish them always to stand, and graft to suit yourself, with such varieties as you esteem. Remove the earth to near the collar, cut off the head of your seedling in the spring, and graft at the ground in the second year after germination. You will in this way establish a better union between scion and stock than usually prevails in nursery practice. There is no mutilation of root required for its removal, nor would it be indiscriminately grafted on stock produced from mixed seed. I have a dozen varieties grafted and budded into one tree, and it is surprising to see the difficulty some of these have to live on an uncongenial stock. This, as well as high manuring, is another cause of constitutional debility. I am sorry to say that this condition has not commanded as much attention as the importance of the subject requires. It is one of the evils, however, incidental to the business of producing large quantities of trees. The old seedling apple orchards of the country, one hundred years of age, still stand in vigorous bearing as monuments of the past, and a living condemnation of unhealthy unions. Let us who are amateurs educate ourselves in this branch of

the business, and then we can help our friends, the large producers.

#### FRUIT.

Under this head let me remark that the many varieties now under cultivation differ so much in flavour, form, colour and size, that the range might appear sufficient to satisfy the most fastidious, were it not for the great novelty and known fact that new and rare specimens can readily be produced by a wise selection of seed, high cultivation, and hybridization, the limit to which still lies veiled in the impenetrable future, and must of necessity so continue as long as new combinations are possible. The fruit, to be at its greatest perfection, should remain on the tree until the slightest pull detaches it from the stem. It may then be eaten, canned, dried, or made into preserve. A highly profitable business could be carried on by taking the Pond's Seedling, Italian Prune, or Columbia, when fully ripe, removing their pits and dipping them into hot syrup, then drying in an oven heated to about one hundred and twenty degrees, after which they may be compressed into glass jars, and are then fit for shipment; thus got up they are extremely fine, made into puddings and used in confectionary. I annually prepare in this way sufficient for family use; they are indispensable from the many uses made of them. The fruit should be carefully picked on a dry day, without injury to the spurs, and carried to a cool fruit room, and there packed as peaches are for shipment in open crates. They bring usually from four to six dollars per bushel. I believe the time to be not far distant, when railway directors will find it to be to their advantage to have special cars for the carrying of fruits, under a more careful supervision than now prevails.

#### DISEASES.

I have already partly spoken of these, but in addition to over stimulation by manures improperly applied, and by uncongenial unions of scion and stock, I may add those produced by changes of temperature. I would give you a simple illustration; last fall my plum trees went into winter quarters with a healthy and sound appearance, and would no doubt so have continued, but for the mild weather in a part of January and February, which came on after the trees had a partial rest, stirred to vital motion the sap, and this condition was followed by cold, producing a contraction of the organizable matters thus set in motion, before opportunity was afforded for their chemical elaboration. Hence the spring found the tree with that matter in an abnormal and dead weight state; some died entirely, others were late in the season before the new force was able to push forth the appearance of new life. Rapid changes from freezing to thawing should be prevented, if possible, by some efficient means, such as covering with evergreen boughs, protection by hedges, trees, or hill sides. These sudden changes are the