

up in a mound to throw off the water. They are thus kept perfectly dormant until used, and not so dry as to shrivel the bark. They should always be taken from healthy, vigorous trees, exclusively, and be of firm, well-ripened wood. A moderate-sized shoot or scion, if well matured and sound, is much better than one as thick as a man's finger, *pithy* and unripe. People are by no means so careful and discriminating in this respect as they ought to be. Half of the maladies of trees originate in negligent and vicious systems of propagation. The implements used in grafting are the *grafting-knife*, *saw* and *chisel*. In whip-grafting or splice-grafting, the stocks being small require the knife only, or not more than the knife and chisel. It is always better to have two knives—one to prune and do the rough work, and the other to prepare the scion. *Grafting composition* is prepared in various ways. *Rosin*, *beeswax* and *tallow*, in about equal parts, answer very well. Lately, however, we have found it better to use more rosin and less beeswax and tallow; thus, to two pounds of rosin we add one and one-fourth pounds of beeswax, and three-fourths of a pound of tallow. For whip-grafting on the root, and small trees in the nursery, we use cloth saturated with this composition, instead of the composition itself, and find it more convenient and expeditious. If we have no old calico, we buy a very thin article, at about four cents per yard. This we tear into narrow strips, roll into balls, and then soak in the liquid composition until every pore of the cloth is filled with it. The person who applies it to the grafts takes it from these balls, tears it in pieces the length and breadth required by the size of the stock, and two or three turns of it around the graft secure it completely. This thin cloth soon decays, and yields to the enlargement of the parts it encloses. We have tried tow, paper, and other materials, but find this the best. Having the scions, implements, and composition in readiness, the work is performed as follows:

Whip-grafting on the Root.—For this purpose, seedling stocks are generally used, one or two years old, varying from *one-fourth* to *three-eighths* of an inch in diameter. The graft is always made at the collar, and, therefore, the stems of the plants are cut off at that point; the small tap-roots and any cumbrous fibres are removed, leaving them about four inches in length (fig. 8); they are then washed clean, and are ready for the operation. The grafter then makes a smooth, even, sloping cut, an inch long, upwards on the collar of the root, *A*, and in the centre of this cut he makes a slit or tongue, *B*, downwards. The scion, which should be three or four inches long (fig. 9), is cut on the lower end with a sloping cut downwards, and similar in all respects to that made on the stock; a slit, or tongue, is made in it upwards, *B*, corresponding, also, with that on the stock; and they are then neatly fitted together, the tongue of the one within the other (*A*, fig. 10), and the inner barks of both placed in close and perfect contact, at least on one side. The fit should be so complete as to sit close and firm in all parts. The person who applies the wax, takes a narrow strip of the cloth described, and wraps it firmly around, covering the parts united. A man and boy can graft of these twelve to fifteen hundred per day, and by a special effort two thousand. When the grafting is thus performed, the grafted plants are put away as closely as they can be packed in small boxes, with sandy earth among the roots, and deposited either in a cold cellar or in a dry place out of doors, where frost cannot penetrate to the roots, until planting time in spring.

Whip Grafting on small trees, standing in the open ground, is performed in precisely the same manner, the oblique or sloping cut and tongue, corresponding in stock and graft, fitting into each other with precision, and the inner bark of both, at least on one side, placed in close contact. Stocks an inch in diameter can be grafted in this way. Either the cloth or the liquid composition may be applied, the

latter put on with a brush. For all moderate sized stocks the cloth is preferable. In cold weather, a small furnace can be kept at hand to keep the composition in working order.



Fig. 8.



Fig. 9.



Fig. 10.

Cleft Grafting is practised on trees or branches too large for whip grafting, say from an inch in diameter upwards. In this case, the scion is cut precisely in



Fig. 11.

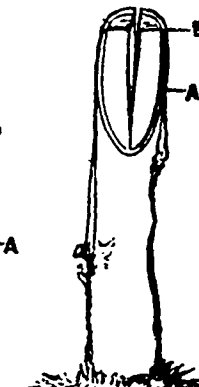


Fig. 12.



Fig. 13.

the form of a wedge (fig. 11). The part cut for insertion in the stock, should be about an inch or an inch and a half long, with a bud (*A*) at the shoulder, where



Fig. 14.

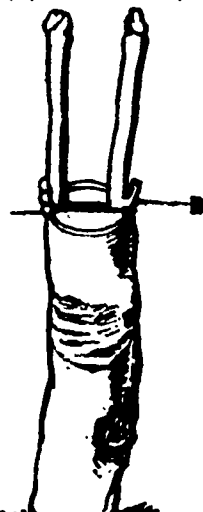


Fig. 15.

it is to rest on the stock; this bud hastens the union of the parts, in the same way as a bud at the base of a cutting, set in the earth, hastens and facilitates the emission of roots: the outer edge should also be somewhat thicker than the inner. A sloping cut (*A*, fig. 12) is then made on the stock, an inch and a half long, another cut (*B*) is made across this cut, about half way down, as at point *B*, the stock is split on one side of the pith, by laying the chisel on the horizontal surface, and striking lightly with a mallet; the split is kept open with the knife or chisel till the scion is inserted, with the thick side out (*A*, fig. 13). Grafts of this kind heal much more rapidly than when cut at once horizontally. Very large branches are sawed horizontally off at the point to be grafted (*A*, fig. 14); the surface is then pared smooth with the knife, a split is made with the chisel, nearly in the centre, and two wedge-like scions inserted (*A*, *B*, fig. 15); if both grow, and they are afterwards too close, one can be cut away. Another mode of grafting such large stocks, or branches, is to cut them off horizontally, as above, and pare them smooth with the knife; then cut the scion on one side, about an inch and a half long, making a shoulder at the top, then raise the bark from the stock with the handle of a budding-knife, and insert the scion between the bark and wood, and apply the composition the same as in the others, all over the cut part. Two or three scions may be put in each. The principal objection to this mode is, that the grafts, if they grow rapidly, are apt to be blown off before they have united strongly to the stock.

The great points to observe *always* are, to have sharp instruments that will make smooth, clean cuts, to have placed in perfect contact the inner barks of scion and stock, and the whole cut surface, and every portion of the split perfectly covered with the composition, to exclude air and water. The scion should always be cut close to a bud at the point (*c*, fig. 9), and have a bud at the shoulder, or point of union with the stock (*A*, fig. 10).

In grafting the heads of large trees, it is not convenient to use the composition in a melted state, to be put on with the brush, and the large cut surfaces cannot well be covered with the cloth; it is, therefore, better to use the composition in such a state that it can be put on with the hands. A very small quantity of brick dust may be advantageously mixed with it, when intended for this purpose, to prevent its being melted by the sun.

Which is the Best Winter Apple?

To the Editor of the CANADA FARMER.

SIR,—I this day forward to your address two Apples, numbered 1 and 2, the names of which I would like if you could let me know, in the next issue of the CANADA FARMER.

Your correspondent, B. L., of Cobourg, in a late number of your paper, highly recommends the King of Tompkins Co. Apple for Canada. So far good; but Mr. George Leslie, of Toronto, in his Catalogue, and Mr. James Dougall, of Windsor, in the "Canadian Fruit Culturist," say it will only keep till March. If such is the case, we require another or other varieties of winter apples to come in after Tompkins Co. King is out of season, in order to have fruit through the year. If B. L., or some other person of experience in Fruit Culture, would be kind enough to say through the CANADA FARMER, which in their opinion is the next best winter apple for Canada that would keep, say till June or July, he would oblige your humble servant, and I have no doubt many more of your subscribers. In deciding upon the merits of a variety, I, of course, mean that hardiness, thriftiness, and fruitfulness, as well as quality of fruit and keeping properties, be taken into consideration.

JOHN CLARK.

Burnbrae, March 27th, 1868.

The larger of the two specimens sent is, we believe, Detroit Red, and the smaller Spitzenberg.