

A Letter from P. E. I.

The cultivation of the soil on scientific principles gains ground slowly in any country where land is cheap. This has certainly been abundantly illustrated over the greater part of the North American continent. We have to go to Europe, where land has been farmed in small holdings, to ascertain how the same soil can be cultivated for ages and support large populations without any apparent exhaustion of the elements of fertility. The soil is the farmer's capital, his inheritance which has descended to him from his predecessors, and which he must leave to posterity. The amount of capital which he possesses does not always depend on the number of acres he holds, but rather on the amount of fertility on each acre. To make a good living by using this capital without lessening it should be the aim of every tiller of the soil. This is the great principle that underlies all successful farming.

The merchant deposits his capital in a bank, where he may draw on it as required in his business, but if he keeps on drawing and makes no deposits he will soon find his capital gone—the bank will no longer honor his checks. Now, this is the way the average farmer does with his capital; he deposits it in a portion of the earth's surface, perhaps to the extent of 100 acres; he then farms it for a living, and if intelligently cultivated it would give him and those who come after him a good living; but with the usage it generally gets, it is exhausted in a lifetime—capital all gone, outraged nature refuses to make any further discounts. Nothing left for the heirs but to go west and destroy some other portion of the earth's fair surface. This drawing from capital on the farm by using up all the plant food in the soil cannot be too severely condemned. It may increase present receipts, but will surely tend to poverty and calamity in the near future. Besides, we owe it to posterity, to those for whose existence we are responsible, that we leave them as their heritage a soil that is capable of giving them opportunity of fighting successfully the battle of life. How to cultivate the soil and draw from it a generous supply for all our wants, and still leave it as productive as it originally was, is the great question for agriculturists to study. If the next two or three generations rob the soil of as much fertility and lower the production per acre as much as the last two or three have done over the greater part of North America, what is to become of the agriculturist of the future? Yes, and what is to become of the consumer, with this greatly lessened food supply? But I do not anticipate starvation, or that the predictions of Malthus, will ever be fulfilled. The world moves, and the farmer is beginning to move along briskly. The farmer of to-day has great helps in his business that were denied to his ancestors. The great number of good agricultural publications that are circulated extensively, and the great efforts governments are making in their behalf to induce them to farm more in accord with the teachings of science, is going to improve the agriculturist of the future, and is improving the agriculturist of the present. What has been done in countries like England or Holland, where the soil has been cultivated for centuries and has improved rather than deteriorated, can be done in this Dominion if we only go the right way about it.

Poorly farmed countries will depopulate. We need not expect our young men to stay on a farm that is falling off in production year after year. They will seek the virgin soils of the west, as the young New Englander has done, rather than endure the prospects of fighting for a living on the already exhausted homestead. What we want in these eastern provinces is more stock and dairy farming. In many cases smaller holdings better cultivated—fifty acres with a practical knowledge of the principles that underlie thorough cultivation of the soil—is a better inheritance for a young farmer than five hundred acres without that knowledge. Thorough cultivation, thorough manuring and thorough cleanliness are the watchwords of progress in our great national industry—agriculture.

Garden and Orchard.

Top Grafting Fruit Trees.

BY G. C. CASTON.

There are many fruit trees in the orchards throughout this province that are unprofitable on account of being of the wrong variety, some being affected by the fungus scab, others not being good market varieties, poor shippers, etc. Such trees, where the trunks are healthy and sound, can easily be transformed into varieties that are valuable by top grafting. This is a simple process, easily learned, and not, as many suppose, a mysterious and difficult art.

Great frauds have been perpetrated upon the farmers throughout this country in this very line, mostly by sharpers from the other side, who go about with plate books full of fine painted fruit, and sometimes with fine specimens done up in glass jars. They are smooth-tongued, seductive fellows, and they try to make their hearers believe that they can transform an ordinary orchard into a veritable gold mine if they are given a chance. The farmer decides to let them put in a few, but by giving them an inch they take a yard, and the first thing he knows they have his trees stuck full of grafts at 10 cents each, and have run up a bill that opens his eyes. I have known several cases where these gentry have put 100 grafts into a single tree, and collected \$10 for the same, and the next year not only the grafts but the whole tree was dead. In cases where any of their grafts lived to bear fruit, they were found, instead of the fine fruit promised, to be only crabs or Ben Davis or some other inferior sort. Now every farmer and farmer's son should learn to do their own grafting, and have nothing to do with these sharpers.

The first thing to do is to secure scions of the kinds wanted; these may be cut in early spring, but should be cut when there is no frost in the wood, and before any growth has started. The terminal shoots, or in other words the last year's growth, is the part required. I always prefer to get them off a young, healthy, vigorous bearing tree. They should be packed in earth or sawdust till needed.

Any fine warm day in the early part of May will be a good time to do the grafting. The tools required are a pruning saw, a sharp knife, and a grafting chisel. The latter can be made by any blacksmith; it is made with a chisel or splitter at one end for splitting the limb, and a narrow wedge at the other for holding the cleft open while inserting the scion, as shown at Fig. 1.



FIG. 1.

A slip of last year's wood about 12 inches long will make three or four good scions. The scions are cut just long enough to include two or three buds, never more than three, and bevelled equally on each side at the lower end as shown in Fig. 2. The bevel cut should begin just a little above the lower bud on both sides as shown in the cut, and should be about an inch or inch and a quarter from shoulder to point. This should be done with a very sharp knife so as to make a clean smooth cut, and make no abrasion of the bark. It will be seen that the edge with the bud on is to be the outside edge when the scion is placed in position, and this outer edge should be a trifle thicker than the inner one, in order to ensure firm contact between scion and stock, for it is at this point where the union takes place. In placing the scion, after cutting off the limb with a sharp saw, place the chisel across the centre and strike it lightly with a mallet or hammer, being careful not to split the limb any farther down than is necessary to admit the scion; then turn the chisel, drive in the narrow wedge end just enough to hold the cleft open while you place the scion in position, hold the scion in position with one hand, and withdraw the wedge with the other. The cleft will close on the scion and hold it firmly in its place. It is the cambium or inside layer of the bark in stock and scion that unite, and not the outer bark as some suppose, therefore the most particular thing in grafting is to get the inside layer of bark in the stock and scion to come exactly



together. If this is properly done, it is sure to grow. Fig. 3 shows the scion placed in position. For small limbs, say from $\frac{3}{4}$ to an inch in diameter, one scion is sufficient, but for larger ones it is well to put in two, one in each side; this will ensure a quicker healing over of the limb if both grow, and if it is seen that they are going to crowd, one of them may be cut out afterward. The end of the limb should be carefully covered with wax, thumbing it well around the scion and down the sides as far as the split extends, and put a little on the top end of the scion, the object being to keep the sap in and the air out. The wax is made by melting together tallow, beeswax and rosin, in the proportion of say $\frac{1}{2}$ lb. of tallow to 1 lb. of beeswax and 2 lbs. rosin, melt them slowly together, not allowing it to boil, and when melted stir well and pour into a pail of water as much as can be worked nicely at once in your hands, grease your hands and pull it and work it till it is nearly white, and it is ready for use.

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In top grafting a tree the whole top must never be removed at one operation, or it will be pretty sure to kill the tree. Not more than one-third should be removed at once, then by the time second grafting is done the first grafts will have made sufficient growth to take up a good share of the sap, and thus a balance is kept up, and the top is renewed without injury to the tree. This plan of top grafting will be found to work as well on plums as on apples, and there is no better stock than the common wild red plums; they may be planted along the fences where they will be out of the way—they sucker freely on cultivated ground—and when the limbs are large enough they may be grafted with the large and finer kinds, and the results will be surprising both in size and quality of the fruit. The grafting should always be done while the tree is young and vigorous; it is not very successful when the tree becomes old and black-hearted. There is scarcely an orchard in the country that could not be much improved by top grafting, and for the colder sections of Ontario I am satisfied from my own experience that this is the true way to ensure success in raising of tree fruits.

Nursery Stock.

Almost everyone is interested in the planting of fruit trees, shrubs and roses. Many would plant more largely could they secure really first-class goods without any "humbug." If planters were more careful from whom they buy this class of goods, there would be less complaint at not getting value for the money spent. Parties purchasing nursery stock of any kind should satisfy themselves, before purchasing, that the firm soliciting their orders is reliable. As the sale of nursery stock must necessarily be carried on through travelling salesmen, there is more room for dishonesty than in many other lines of trade. This, we are sorry to say, has been taken advantage of, and many planters have to mourn the loss of their money spent in this way, and the worst part of it is the loss of time in the growth of the stock and the great disappointment experienced.

The nursery business requires many years of experience to bring it to perfection. It is a business that cannot be picked up by novices in a year or two. One of the pioneers in this business is Thomas W. Bowman, proprietor of the "Rochester Star Nurseries," of Rochester, N. Y., and Peterborough, Ont. This gentleman has spent 30 years in active work in this line of trade, and has perfected his system of growing and packing so that mistakes seldom occur. He is now in a position to give his customers full value for their money. Persons desirous of securing the best value in this line should give him a trial order, which is sure to lead to a lengthy and pleasant business relation. This firm employ only good reliable men to act as salesmen, and they always have room for one more good "energetic worker." See their advertisement in another column. Write for terms to salesmen, or, if you do not wish to act as a salesman, send them a trial order, addressed to Thomas W. Bowman, Peterborough, Ont. It will have their most careful and personal attention.