

sulphate of ammonia, nitrate of soda or guano, to crops or trees where vigorous growth is the object; phosphoric acid, in the form of superphosphates, bone ash, bone meal and apatite, etc., where fruit or fully developed seed is required; and potash fertilizers, as wood ashes or kainit, are very useful in growing crops which store up considerable starch in their growth. It is needless to remind the fruit grower these days of the value of wood ashes as a fertilizer and insecticide for the orchard and garden. It pays to use all the wood ashes made at our own homes, and frequently to buy from our neighbors who offer them for sale. If we expect to grow paying crops of fruit and vegetables, we must supply the elements of growth and development to those soils which are being repeatedly cropped.

Hardy Cherries.—2.

BY JOHN CRAIG, DOMINION HORTICULTURIST,
OTTAWA, ONT.

(Advance Sheets of Bulletin No. 17.)

VARIETIES RECOMMENDED.

With present experience the following varieties are recommended for trial, and will probably prove valuable in those sections where climatic conditions permit the cultivation of the pear: Amarelle Hâtive, Strauss, Griotte Impériale, Olivet, Gros Gobet.

The following list comprises varieties which appear to grade in hardiness with the Wealthy apple:

Spate Amarelle, Fouchès, Morello, Minnesota Ostheim, Brüsseler Braun, Orel 25.

Among those of exceptional hardiness, and which should be tested along the northern border of the apple belt are: Riga No. 18, Vladimir, Bessarabian and Shatten Amarelle.

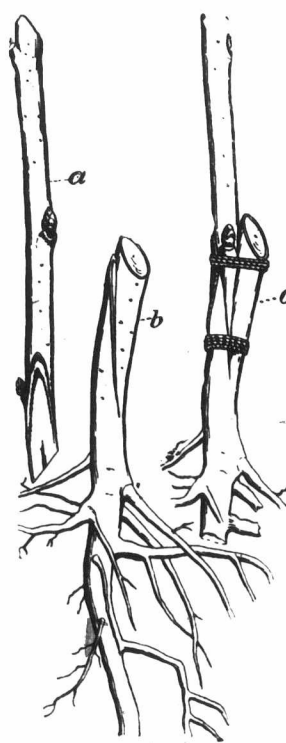
PROPAGATION.

Budding.—Cherries are propagated for commercial purposes almost entirely by budding. This consists in transferring a single bud of the desired variety to the stock or branches upon which it is to grow. The operation is usually performed during the month of August, when (using a nurseryman's phrase) "the bark slips." It is effected by slicing a well ripened bud from a twig of the growth of the same season, and inserting it under the bark of the stock, where it is securely tied. If the operation is successful all the top above inserted bud is cut off the following spring. By rubbing off and preventing the formation of other wood the whole growth of the stock is directed into this channel. In this way trees of suitable size for orchard planting are produced in two seasons. In the Western States, where the snow fall is limited, some objections have been urged against this method of propagation, on the ground of the prevalence of root injury to the more or less tender stocks. In regions of abundant snow fall, as in the Province of Quebec and Eastern Ontario, this objection does not carry the same weight.

PROPAGATION BY ROOT CUTTINGS.

When cherries are on their own roots, as when grown from sprouts, they may be multiplied by means of root cuttings. The surface system of roots,—those nearest the top of the ground,—are used for this purpose. These are taken up in the autumn and cut into three-inch lengths, packed in boxes with earth and stored in a cool cellar till spring. When the ground is in proper condition the cuttings are planted in rows, sticking them in a slanting position and covering completely, so that the top end is about an inch below the surface of the soil. Several shoots will usually start; the strongest should be trained up to form the future stem, and all others broken off. Where greenhouse facilities are available, the cuttings may be started during winter with gentle bottom heat in the propagating bench, and set in nursery rows the following spring.

CROWN GRAFTING.



Root grafting, as ordinarily practised, when applied to the propagation of the cherry is attended with little success.

Crown Grafting, which is inserting the scion in the crown or collar of the stock, at or a little below the surface of the ground, is in the experience of the writer a much more successful method. This may be done in winter, using stocks which have been stored for the purpose; or early in spring upon stocks already established, and undisturbed in the ground for a year. Prof. Budd claims satisfactory results when the stocks are taken up in the autumn and grafted in the graft room during winter. Careful comparisons have been made here for the past three years, with a view to determine which plan was attended with the best results. The average returns show a gain of over fifty per cent. in favor of crown grafting.

early in spring, upon stocks in the ground, which had been planted the year previous. A strong growth is obtained the first year, at the end of which the graft may be taken up, and part of the old root cut away. The yearling graft may then be replanted, setting it deeper than formerly, so that the scion is brought under ground and offered conditions favorable to the emission of roots. The principal objection to the method is that at the time—early in spring—when this work should be performed, many other duties engage the attention of the fruit grower, making it difficult to accomplish in a limited time a large amount of this kind of grafting. The method is one, however, that can always be practised to some extent. It will prove of special service to amateurs, for whose benefit the following instructions are given:

The stocks should be planted in nursery rows the year previous to the date of grafting. Cut well matured scions in autumn of the growth of the same season, keep these in a dormant condition over winter by packing in forest leaves, or damp sawdust. In this locality the best time for out-door grafting is usually during the first two weeks of April. Figure IX. illustrates the method of crown grafting the cherry, as usually conducted in the graft room. (a) shows the scion cut wedge shape, (b) the stock with a slanting cleft for the reception of the scion, (c) the scion in position, firmly bound with waxed thread, and (d) illustrates the joint completed by a covering of grafting-wax, to exclude the air.

In the case of out-door work the process is essentially the same, except in the manner of tying. Instead of binding first and waxing afterwards, a firmer joint is made by applying the wax first, and covering this with a cotton bandage, which adheres to the wax and holds the scion in position. It must be remembered in the case of stocks which are in the ground, that the top is cut off at the point indicated in the figure as soon as the scion is inserted, after a little practice this is easily removed by an upward cut, which can be made without disturbing the scion.

STOCKS.

The Mazzard cherry (*Prunus avium*) is probably used by nurserymen more than any other as a propagating stock. It is a native of Europe, and is supposed to have given rise to many of our cultivated varieties. All varieties of cherries unite with it readily.

The Mahaleb cherry (*Prunus mahaleb*) is used to considerable extent, partly on account of its dwarfing tendency, and also because of its adaptability to clay soils, as pointed out by Professor Bailey. (See bulletin on native plums and cherries.)

The Morello stock (*Prunus cerasus*) has not been largely used by nurserymen, chiefly owing to its sprouting habits. It is hardy, however, and can be frequently procured by amateurs when Mahaleb or Mazzard are not easily obtained.

Wild Red or Bird cherry (*Prunus Pennsylvanica*) has been successfully used as a budding stock for some years by several experimenters, but its ultimate value for this purpose has not been definitely determined. Most varieties seem to unite with it as readily as with Mazzard. Budded trees of many varieties on this stock in the trial grounds of the Central Farm are making a vigorous growth, apparently having made a perfect union. The ease with which seed of this species can be procured in nearly all parts of the Dominion, as well as its great hardiness, should render it a popular stock for cold climates.

GRAFTING WAX.

Many receipts are offered for the manufacture of grafting wax. A satisfactory wax for out-door use is made by melting together five parts resin, and two parts beeswax; to this is added one and a-half to two parts linseed oil. For winter in the grafting room the same amount of resin, with less oil and beeswax, makes a wax more suitable for indoor application.

A liquid grafting wax is made by melting together one pound white resin, and one ounce beef tallow; to this, when partly cooled, eight ounces of alcohol is added, stirring in slowly. This should be kept in closed cans to prevent the alcohol evaporating.

Apple Growing.

BY THOMAS BROOKS, BRANTFORD, ONT.

Plant in the spring, thirty feet apart each way, and don't forget you are planting a living thing with a life to be fed, protected and cared for, if you would have it a thing of beauty and profit. If you do not mean to feed, protect and care for it, don't plant it. Of all the kinds of fruit grown in this country the apple is capable of adapting itself to the greatest variety of soil, climate and surroundings, but under no circumstances must we neglect the feed, care and protection. Remember the apple tree, though a living thing, is tied to one spot; it cannot roam in search of food. Take your cow into the field and give her only twenty feet of rope, she will soon eat up all the feed within her reach, and have nothing but the ground to stand on, and if you do not supply her wants will prove unprofitable. Now I believe this to be the condition of too many of our apple trees; they have little more than the ground to hold them up, and if there was any such thing as their getting out, they would follow one another over the fence, like so many breachy sheep. General practice has been something like this for the first ten years. The orchard has been made to grow all the grain and roots that could be got from it, thus doing double duty—all right if double fertility has been applied to the trees, but this is too often neglected. Unless the orchard has had very liberal treatment in the way of manure and cultivation, the ground will be poorer than before the trees were planted. To me there appears a great similarity between animal and tree or vegetable life. For our domestic animals to become strong, healthy and vigorous, they must be fed and cared for in a proper manner. The cow, to give good results at the pail, must have the proper feed in right proportion and quantity, with good care; so the orchard, to give good results in the barrel or cellar, must have its wants supplied to that end from year to year.

The animal and its needs, and how and with what to supply them for any desired end, is now pretty well understood. In the care of the orchard these points are rather more obscure, and perhaps not so well understood by the average farmer. The suitable treatment of the tree itself, in the way of cleaning and pruning, may in the main be agreed upon. The only remedy I know of to cure any unfavorable subsoil conditions, either in the field or orchard, is tile draining. This will greatly benefit a hard clay subsoil or a cold damp bottom, and in the orchard I believe a good depth, even to four or five feet, to be necessary. If a tile drain is too near to surface in the orchard, there is danger of the tiles filling with small roots from the trees.

I do not wish to be tedious, and of what I have written this is about the sum. First, if the orchard is on hard clay or cold subsoil, deep and thorough tile draining with perfect outlet. If in grass, which I always think is the nicest condition, after the trees are well in bearing, not, however, to be sodbound, but kept mellow with top dressing, ashes and coarse manure. Next is clean bark and proper pruning, and let me say right here, better prune too little than too much. I have seen most ruinous results from over much pruning. Get the tree into nice shape and form as to the desired height of the lower limbs from the ground, and the direction of leading branches, during the first five years. After that, under no circumstances ever prune closer than to cut a branch off a limb; never cut a leading branch off the trunk. I think that success in apple growing, as in many other things, lies in the faithfully carrying out of some of the old, well-established facts which I have tried to point out. First and last, feed the apple tree.

Legal Department.

To the Editor FARMER'S ADVOCATE.

SIR,—What is the law in Manitoba governing line fences? My neighbor insists that I shall build and maintain all dividing lines. Am I compelled to fence against stock? C. W. K.

ANS. You are not compelled to fence against your neighbor's stock, for whenever two persons have adjoining fields and no fence between them, each must take care that his own beasts do not trespass on his neighbor's. But under Chap. 12 of the Revised Statutes of Manitoba, it is provided that whenever any owner of land erects a line fence the owner of the adjoining land shall, as soon as he encloses lands adjacent to or along the line fence, pay to the person who erected the line fence, or his assigns, a fair compensation for one-half the line fence. Such compensation may be determined by arbitration, if not otherwise agreed upon. And further, that each of the parties occupying adjoining tracts of land shall make, keep up and repair a just proportion of the division or line fence on the land dividing such tracts and equally on either side thereof. And further, the disputes between the owners or occupants of adjoining lands, in regard to their respective rights and liabilities under this Act, shall be decided by the majority of the three fence viewers appointed in the same manner as stated in Subsection (C) of the sixth section of this Act. The whole Act bears upon the subject, and its provisions should be strictly followed.