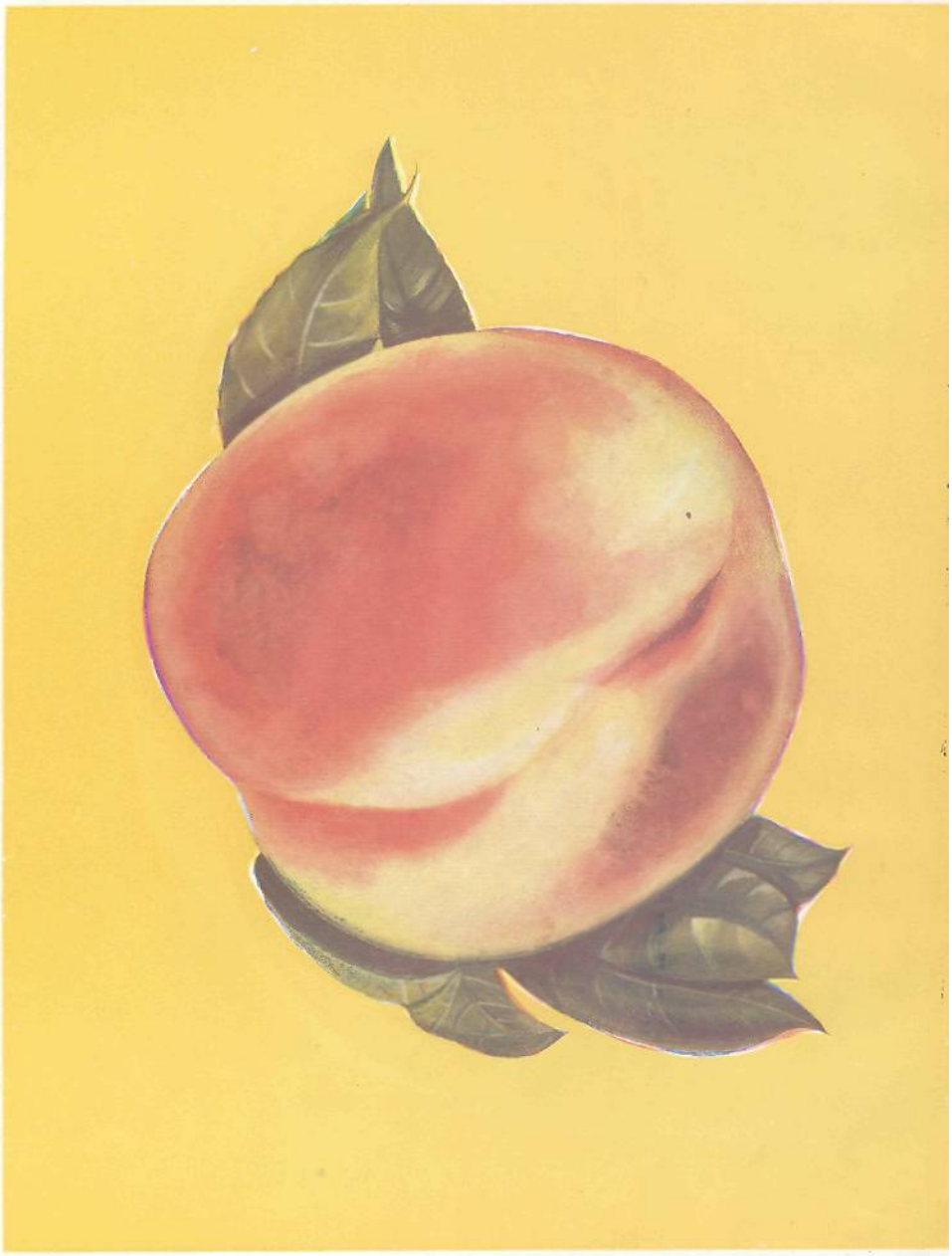

Compost
Fruit Growing

S. R. WILLIAMS

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Chapter I

FRUIT IN THE GARDEN

1. General Factors.

2. Altitude, Rainfall, Frost, Cold Winds and Birds.

3. Special Sites for Different Fruits or Types of Trees.

4. Soils: Light, Heavy, Shallow or Poorly Drained and Some Aspects of Soil Cultivation.

General Factors.

There are few parts of the country where some fruit at least cannot be grown. Except on high ground—where houses and gardens are rare in any case—there are but few districts in which some fruit, whether apples or pears, plums or cherries, blackcurrants or strawberries, to mention but a few of the subjects available, cannot be produced under small garden conditions.

It is true that different parts of the country with differing rainfall, e.g. the South West and the South East, bring differing fruit growing problems—which are dealt with in later chapters. But the same general principles of growing apply whether in Monmouthshire, Cumberland or Somerset. Cold and exposed areas do, however, present special difficulties. The fact that in certain counties, such as Kent and Essex, fruit is grown commercially on a large scale and that, in others, such as parts of Hampshire, Devon and Somerset, strawberries are a feature, and that, in Worcestershire and Cambridge, one finds large plum acreages, has a bearing on the suitability of areas for special crops. It should not, however, deter the small gardener from trying his hand in any county.

So far as altitude is concerned, one may grow apples at 500 ft. above sea level or at even greater height. The choice of varieties becomes restricted, however, wind damage more likely, and the exposure factor at flowering times has an important bearing.

Commercial fruit growers have always to be conscious of frost damage to fruit blossom in May and June, and low-lying areas liable to frost are avoided. On a garden scale, one may have sites near a river, pond or stream and, in such positions, frost damage is a possibility. Where it is known that frost damage is likely, it is wise to consider late-flowering varieties of apple, such as Crawley Beauty or King Edward VII. With wall trees, some protection against frost and cold winds may be given to the open blossom—a subject which will be dealt with in later pages.

Some gardens are steep and this makes for difficult working but bush apples, pears and plums may be grown under these conditions, as well as soft fruit. Rows of the latter should run across the slope to prevent soil being washed down to the lowest levels in heavy rain.

One of the main difficulties with top fruit, and to some extent with certain soft fruit crops, is exposure to cold winds in spring at blossom time. One can do little in an exposed position to cut down wind damage, as a screen of trees may be quite impracticable. In

many gardens, soft fruit crops may be attacked by birds. To ensure that a harvest is obtained, a fruit cage has to be built or, on a small scale, the crops "netted", factors which are dealt with later in this book.

Special Sites for Different Fruits.

When considering individual sites in a garden, and if there are walls against which fruit may be grown, remember that a South wall is best for fan-trained peaches, the later dessert pears and some of the gage plums. A North wall can be used for Morello Cherry, cordon gooseberries and/or red currants, but little else in the fruit line, although a North-facing border can be utilised for a late crop of strawberries if it is wished to extend the season.

A wall facing West will be suitable for cordon or espalier pears or even plums. A wall facing East may lead to trouble at blossom time if early-flowering varieties of fruit are grown; in such a position, I would prefer to have apples, either cordon or espalier.

For covering a shed or wall, or for training up against a fence or building, a Loganberry or Himalayan Giant Blackberry is extremely useful. Another good point about the latter is that it will do well even on the heaviest types of soil and, more important, even where the drainage is not very good—an accommodating plant altogether, in fact, although very strong-growing.

Soils.

Fruit grown on very light sandy soil may suffer from drought in a dry summer. Blackcurrants, raspberries and strawberries are especially prone to moisture-starvation in May and June. The value of building up the humus-content of the soil with repeated applications of organic material, as well as renewed and sometimes permanent mulches, is stressed elsewhere and repeatedly in this book.

Some soils are naturally shallow, a condition which can lead to poor anchorage and rooting in the early years and, indeed, to physical difficulties for some fruits. Dessert apples, in particular, must have an adequate depth of soil in which the root system may develop. For soft fruits, thin, poor soils can mean a severe check in growth and in fruit development in a dry summer. It is true that raising the organic matter status helps, but such treatment may need to be much more generously applied under these con-

ditions, and may not in itself be the answer to the problem.

Of the heavy clay soils, all but the very heaviest will grow fruit. Under heavy soil conditions, cooking apples, plums, blackcurrants and blackberries are more likely to do well than are other fruits. In a small garden, however, it is usual to take a chance on whatever type of fruit is required, whether the soil is heavy, very heavy or moderately heavy.

On a small scale, it is not impracticable to lighten an area of heavy soil by adding coarse sand, ballast or even a 1-2 in. layer of weathered ashes in the top surface of the soil, in addition to adding compost during initial preparation.

Poor drainage on heavy clay soils is a major problem with fruit and leads to poor growth, winter losses and even death of the trees in their early years, in severe cases. A heavy soil with impeded drainage may not lead to trouble until a very wet winter is experienced; then losses may occur even when trees are fairly well established. On ill-drained, heavy land, the digging of a "soakaway" is sound practice. This should be dug at the lowest end of the plot and should be 3 ft. or more deep and 2 ft. or so wide. It should be filled with bricks or stones, and conveniently-placed channels should be cut to lead into it the surface water (in winter particularly).

Planting fruit trees is, altogether, not a cheap proposition and it is folly to plant in very heavy, badly drained soils without first giving attention to this drainage factor. It must also be remembered that fruit trees are long-lived and that some, such as apples, pears and plums, are deep-rooted; thus, the feeding area is 99 per cent in the lower levels of the soil. Little that one does by way of adding organic matter to the top 4-6 inches affects what goes on "down under", although it considerably improves conditions in the top surface of the soil.

There should be no misconceptions about feeding apples, pears and plums in particular, by compost or organic methods. One or more applications can not change the fruit quality overnight, or even in one season. The policy is patience, perseverance, and an understanding of the principles of the cultivation of the fruit concerned.

If one has to deal with heavy soil that is known to be but moderately drained, the fruits most likely to succeed are vigorous varieties of cooking apples, some of the easier-to-grow pears, and black-

berries. I am not suggesting that those subjects will do as well as if in good, well-drained soil, but merely offer them as a guide to new plantings in such adverse conditions.

To sum up the soil aspect, however, one finds fruit growing in gardens in a very wide soil range, from lightest sands to heaviest clays as well as on medium loams. Most gardeners have to try to adapt any extreme of soil to more amenable conditions. In general, there is most opportunity to improve a heavy or a light soil, for some of the soft fruit crops, but this has to be done prior to planting, keeping in mind that bush and cane fruits will normally crop well for 15 years or so before requiring replacement.

It is true that in a garden, where some intercropping is done and intensive use is made of the ground, there is a tendency to dig and cultivate between, or close up to, bush fruits, e.g. black-currants, red currants, gooseberries and raspberries—much more so than if these crops are given a position by themselves where space allows.

If an area can be devoted to the soft fruits, this should be dug over to the full depth of the spade in summer or early autumn, at least a month before planting in any case, to give adequate time for the soil to settle. Whilst digging is done, add as generous a dressing as can be spared of compost, or other organic manure if no compost is available, e.g. spent hops, lawn mowings, sewage sludge, or farmyard manure.

If more compost can be spared, spread a 1 in. layer on the soil surface, and fork this into the top 3 ins. of soil, just prior to planting the soft fruit. If the soil is very heavy, a 1 in. layer of weathered ashes can with benefit also be forked in at the same time.

From a soil-weathering point of view, if the planting is planned for say, December (weather permitting), this allows for some weeks of extra benefit from rain, frost or snow. This point is especially important where heavy soils are concerned.

Regarding the actual soil preparation for planting soft fruit, the surface soil should be left as it is after forking through, except for strawberries, for which a better tilth should be aimed at, i.e. such as is obtained by the use of a wooden rake.

With top fruits, it must be remembered that their life may be 30, 40 or 50 years and the initial soil preparation prior to planting is the last opportunity of cultivation over all the area. It is true that these subjects are more widely spaced, and some inter row

cultivation will be possible for some time, with new plantings, but it must not be overlooked that many gardeners are dealing with already established bush or other trees, and that little or no soil cultivation is possible. Soil improvement in such cases is confined to attention to the surface layers.

The theme of this book is growing fruit in the small garden and making the fullest possible use of compost. It does not claim that organic manuring is the answer to *all* fruit growing problems but it tries to help the gardener, with but limited organic manures at his disposal, to make the fullest use of what he has. It also stresses the soft fruit crops, in particular, that are known to do best under conditions of liberal organic manuring.

Chapter II

1. Types of Trees, including Family Trees.
2. Costs of Trees.
3. Rootstocks.
4. Planting Distances.
5. Pollination Factors.
6. Planting.
7. Staking and Tying.
8. After Care.

Types of Trees.

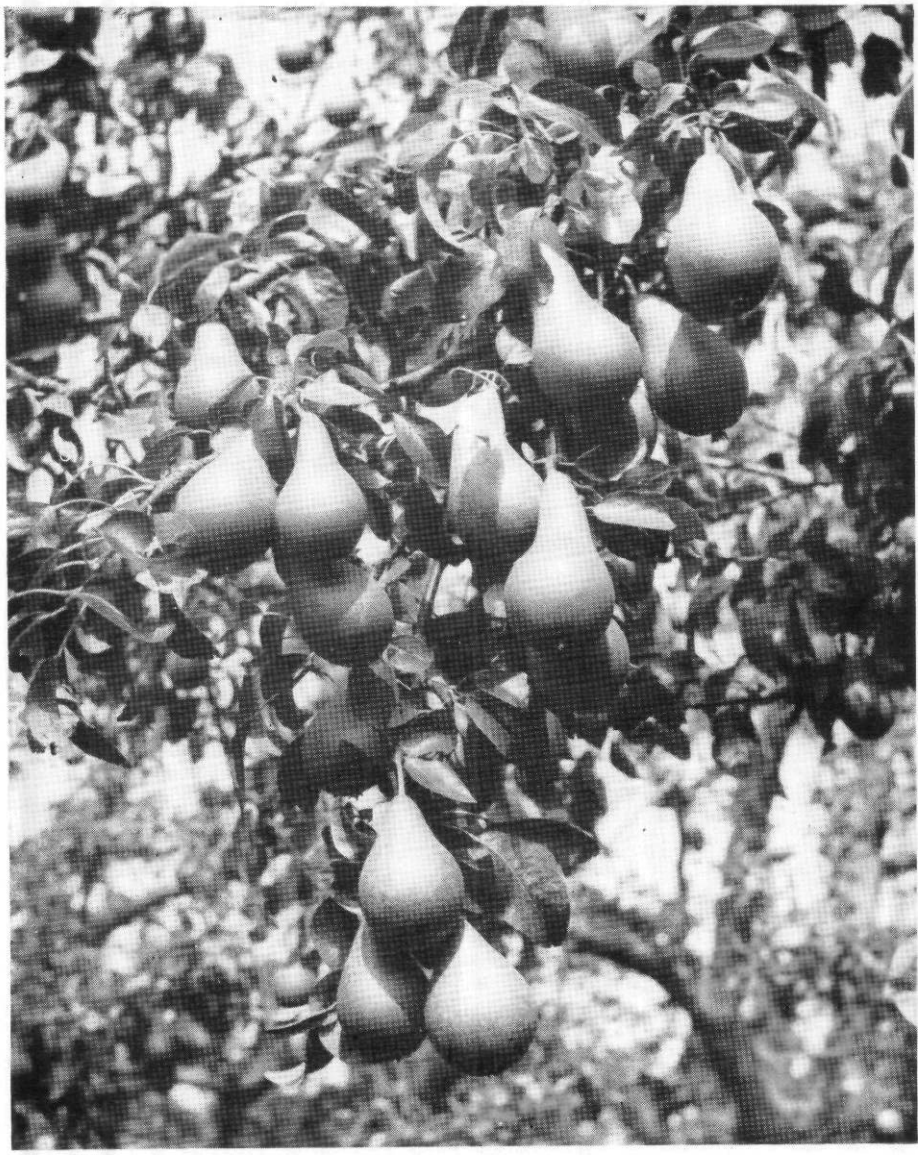
In farm orchards and in grass paddocks are grown Standard Trees, that is, those having a 6 ft. leg or stem. These take a long time to come into bearing—this being a feature of the rootstock on which such trees are grown; the rootstocks have to be strong-growing to support the size of tree concerned. Standards play little part in the small garden for they need to be planted 30 ft. apart each way. Apples, usually cooking varieties, are the most commonly met with as standards, although standard pears and plums are grown. If a standard tree is to be planted, bear in mind that it may be up to 12 years before a full crop is borne, that it is usually best in grass and that the tree should be 4 years old when planted.

Half Standards.—These are trees intermediate in size between a standard and a bush, which have a "leg" or trunk 4 ft. or so high. Such trees are not made much use of in a small garden but, if "head room" is wanted, may sometimes be considered in preference to a bush tree.

Bush Trees.—These are trees with a short stem, trunk or "leg". The smaller forms of bush trees are ideal for garden planting. The obvious reduction in natural vigour is obtained by planting trees which have been "worked" (grafted or budded) on to a so-called dwarfing rootstock, such as Mailing IX, Mailing VII or one of the newer "MM" rootstocks of comparable vigour. When bush trees are purchased or ordered, the type of tree required should be specified and the rootstock ascertained.

For a confined space, this dwarfing factor can be taken a stage further and a naturally weak-growing variety (such as Lanes Prince Albert) can be grown on a dwarfing rootstock such as Mailing IX. This is an extreme example, however, and Bramley Seedling, despite its natural strong-growing character, makes a very good small tree on Mailing IX rootstock—ideal for garden planting in a limited space.

The Family Tree.—Where space is restricted, this type of tree can be considered. Family Trees are bush apple or pear trees on which more than one variety has been grafted. The pollination



An exceptionally good crop of *Conference* pears on old trees.

factor is kept in mind with this type of tree, so there need be no worries on this score.

The main advantage is that such a tree may bear varieties that mature at different times, thus extending the season to the fullest limits under restricted conditions. Such trees need the same basic treatment as described elsewhere, and if one has room for but one tree, why not grow it in a tub!

There is a choice of cooking and dessert apples for this type of tree. If the former are required, a tree with three varieties, i.e. Arthur Turner (season, August to September), Howgate Wonder (season, October to April) and Bramley Seeding (with the same season) can be obtained. For dessert purposes, the choice may be a tree to bear the following three varieties: Laxton's Fortune (season, September to October), Egremont Russet (season, October to November) and Cox's Orange Pippin (season, October to January). Of pears, one can have a tree bearing Laxton's Superb (season, August to September), Durondeau (season, September to October) and Doyenne du Cornice (season, October to November). Other variations of both apples and pears are available. These Family Trees cost under £*2* each.

Cordons.—Cordon trees, although comparatively expensive, are useful for growing against a fence, wall or building. As they are planted closely, 2| ft. apart, advantage can be taken of this fact to have a much wider range of varieties than is possible (in a similar area) with bush trees.

As cordon-trained trees need fairly hard pruning, only apples and pears lend themselves to this method of training and treatment. Cordon trees are planted at an angle of 45 degrees and need to be tied to canes during the early years, whether against a wire fence or wall.

Espaliers.—One often sees these trees with horizontally trained branches, alongside paths, on fences or against walls. Apples and pears are trained in this way and the pruning is as for cordons (i.e. spur pruning). See also Chapter V.

Fans.—Plum and Peach trees are trained in this shape, as they do not withstand the hard pruning needed with cordon or espalier-

trained apples and pears. Adequate height is needed for fans and a wall or fence lends itself best to this purpose.

It is money well spent to buy from a good source. Always order early so that there is every chance of purchasing the varieties needed. It should be noted that there will be a charge for packing and carriage in addition to the cost of the actual trees.

Before going on to discuss planting distances for various fruits and types of trees, it is necessary to understand the influence of the various rootstocks used for top fruit. The rootstock is a type of apple or pear or plum, on which the required variety is grafted or budded. Different rootstocks give differing vigour (and other effects also) but it is the vigour and growth factor that we are concerned with at the moment.

One of the most common faults met in small garden fruit planning, with apples, pears and plums, is too close a planting distance. Overcrowded trees cannot do justice to themselves and, although such trees can be drastically thinned out, and the branches reduced, this is only a temporary measure. The correct planting distance for the variety and the type of tree concerned is therefore most important. If one has, for example, 10 different apple varieties, all on the same rootstock, the ultimate size of tree would vary according to the natural inherent character of the variety concerned. Strictly speaking, one could plant at varying distances according to the individual variety but, in general, trees on Mailing IX rootstock can be planted 12 ft. apart each way.

Plum Rootstocks.—Most plum varieties are budded on to either Brompton or Myrobolan rootstocks, which give fairly vigorous bush trees. There is not as yet, a plum rootstock available that gives such dwarfing effects as is the case with certain apple root-stocks.

Distances to Plant.—Planting distances in a garden may be closer than in a grass paddock but, as already stressed, avoid the common garden practice of planting too closely. This leads to difficulties in pruning and management in later years, as well as making for "crowded" trees and fruit of poor quality. The distances should be as follows:

Cordon apples and pears	21/2 ft. apart.
Espalier apples and pears	12 to 15 ft. apart.

Bush apples on a dwarfing rootstock 12 to 15 ft. apart,
but on vigorous rootstocks such as No. 2 allow
15 to 18 ft. apart.

Pears are usually on Quince A rootstock, and bush trees should be 15 ft. apart but, if it is known that the trees are on Quince C rootstock, plant 12 ft. apart.

Half Standard apples should be 24 ft. apart and standards in a grass field or paddock need 30 ft. each way at least.

Plum bushes should be 15 to 18 ft. apart and half standards 18 ft. apart each way. Fan-trained plums may be 15 ft. apart, as also fan-trained peaches.

Pollination Factors.

The pollination question often causes confusion, for some varieties, such as Bramley Seedling, do not set a good crop with their own pollen, and need pollen from another variety flowering at the same time, to ensure a good "set". Varieties which will set a crop with their own pollen are called Self Fertile, those which will not, Self Sterile. Even self fertile varieties, however, set better crops when there are several varieties, flowering over the same period, planted in the same garden. The varieties described in Chapter VI take into consideration both the self fertility factor and the order of flowering and when selecting but few varieties for new plantings, these features should be borne in mind.

Unless the site is isolated, and/or very few apple or pear trees are grown, the pollination question should not cause concern. Bees help considerably in this connection and neighbours' fruit trees contribute to the cross pollination. If one has a single tree, of a self-sterile or partly self-sterile variety, then poor pollination and the consequent poor setting—and little or no crop—can result.

With apples, pears and plums, where bush, half standard or standard trees are grown, there are many cultural operations common to each of these fruits. To save repetition, such factors as planting, staking and tying are now dealt with as follows:

Planting.—The site for the trees should first be dug over to a depth of the spade. The exact site for each tree should be marked with a cane or stake, so that if several are planted, the trees remain in line or on the square. The hole in which the tree is to be planted should be taken out to a spade depth, and be of such a size

that the roots will not be cramped. Dig or fork the bottom of the hole. In order to obtain the right planting depth some of the top soil may have to be placed in the bottom of the hole, and if this is done, firm it by treading. It is important to stress that the soil must not be wet or sticky when planting is undertaken. The actual planting season extends from leaf fall to February or even early March, but early autumn is the best time. Any broken or damaged roots should be trimmed back to clean tissue, before planting.

Before planting, set the stake in position and plant the tree against this support. The stake is usually placed so that it is on the South West side of the tree, this being the area of prevailing winds in most cases. Set the roots in the prepared site and fill in some soil, lifting the tree a little to settle soil around the roots. Tread the soil to firm and continue to fill in the hole, and to firm, until the right planting depth is reached. If doubt exists as to the planting depth, cover the topmost roots with about 3 ins. of soil if land is heavy; slightly more depth can be allowed on light soils. In either case firm planting is essential.

The same principles of planting apply equally to all types of apple, pear and plum trees. Usually it is best to have some help with the actual planting, i.e. one person to fill in the soil and firm it, the other to hold the tree upright.

Staking.

When young bush, half standard or standard trees are planted, staking is essential, especially if the position is exposed. If this is not done, the young trees can be blown over, and the roots disturbed, which results in a check to growth.

For staking material one can use ordinary stakes, 3 ins. or so thick, those of oak being most durable but not often readily available. The easiest to buy are larch, which although not very long-lasting will serve the purpose for the number of seasons that are required. If the ends of stakes that are to be in the ground are dipped in a copper-containing preservative, longer life will result.

Sometimes "off cuts" from saw mills or wood merchants are available, and 1 in. or 2 ins. diameter used piping can be utilised as stakes, if cut into convenient lengths. A standard tree, that is one with a 6 ft. trunk needs a 7 ft. to 7 ft. 6 ins. stake, of which 18 ins. goes below ground level. The top of the stake should come up to a point just below where the branches start. See Fig. 1. Such

stakes are best driven in prior to planting—after the hole has been taken out, and the tree planted against the stake.

Bush and half standard trees need a stake of such a length that

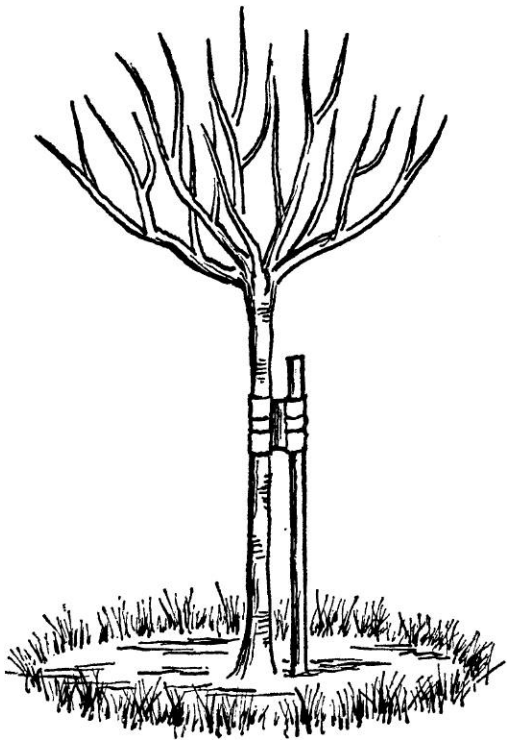


Fig. 1.—Upright stake. The top of the stake should be well below the branches and away from the trunk.

the top comes up to just below where the branches start, with 18 ins. in the ground. Thus, a bush tree having a *21/2* ft. leg would need a stake 4 ft. long.

Stakes should be driven in, after first making a hole, with an iron bar, a sledge hammer or the side of a pick-axe, if a proper stake beetle or "maul" is not available. As well as this upright method of staking, with bush trees, one can drive a stake in slanting at an angle of 45 degrees. The stake should slant South West, which is usually the direction of the prevailing wind. See Fig. 2.

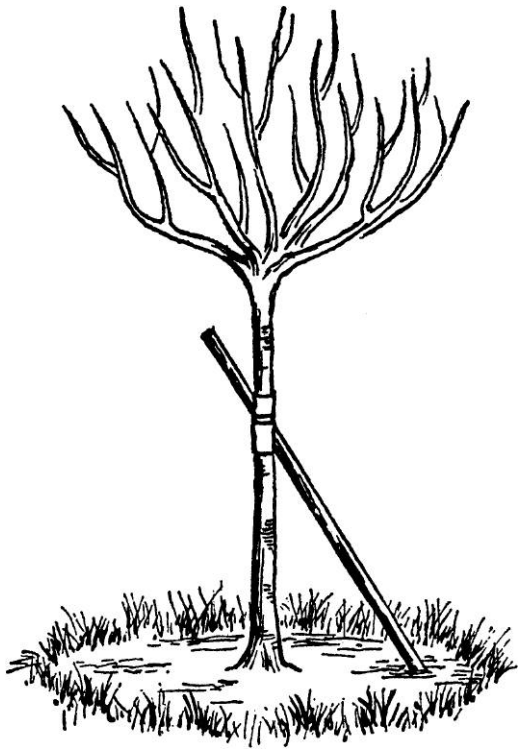


Fig. 2.—Slanting stake.

Tying.

For a few trees, it is easiest to buy from a garden sundries shop some plastic ties which give neat and efficient support. These have a "stopper" which comes between the stake and the tree and so prevents rubbing and possible damage.

There are several other types of tree "ties", also, and it is possible to use an old inner tube from a bicycle tyre, in figure 8 fashion, securing this by tacking it to the stake. Thick string may also be used in a figure 8 twist.

Remember that, in all cases, the ties should be such that the tree is kept upright and not allowed to rub against the stake.

After Care.

In the first few years after planting, the soil should be kept clear

of weeds and grass in a circle around the stem. If grass is allowed to develop too quickly, the growth of the young trees will be checked.

A permanent compost mulch, renewed each spring, will reduce weed growth, encourage new roots, and help to retain moisture. It will also increase the organic matter content on the top layers of soil—an important factor especially on poor land.

Ties and supports should be checked once or twice each year in the three or four years after planting, to sec that they are not too tight.

Chapter III

1. Manuring Fruit.
2. General Principles.
3. Some Materials for Compost Making.
4. Making Compost.
5. Natural Manures.
6. Permanent Mulches.

Manuring Fruit—General Principles.

To many small garden owners, manuring, especially for soft fruit crops, can be a big problem. It is known that several crops, such as Blackcurrants and Raspberries, need and in fact demand, a high level of organic matter in the soil to give best results.

The fact that many gardens are in towns makes the problem of obtaining organic manures even more actute. Fortunately, most gardens, however small, can yield at least some compost-making material, and fullest use should be made of whatever vegetable waste or other suitable material is obtainable.

To turn to actual feeding, if one thinks specifically of compost the ready response by blackcurrants to a heavy organic programme takes pride of place. Abundant new growth, on which the best fruits are borne, can indeed be best encouraged by this type of treatment. Raspberries also, show a good response to heavy organic feeding, a high nitrogen requirement being needed to give ample annual growth of new canes, on which the fruit is borne.

Strawberries do well where a heavy compost application can be made in the pre-planting stage. Due to the close growing nature of this crop it is not so easy to add organic materials when the plants are well established.

To turn to top fruit: it must not be overlooked, concerning apples, that a very high level of organic feeding can give larger-than-usual fruits, rather soft in texture. This latter factor is an adverse one in relation to a good keeping quality, especially for late varieties, both dessert and cooking.

Nitrogenous feeding, of apples and, almost to the same extent, pears, must be balanced with adequate supplies of potash as this nutrient is an essential. Trees are quick to show any deficiency, the symptoms being marginal leaf scorch, small fruits, and some die-back of the shoots.

Phosphates have been shown to be of small importance for apples. Some, in the form of bone meal at 3 ozs. to the square yard, can be given before new plantings. If vegetables are grown beneath apple or pear trees, these need phosphates, therefore apples and pears get some, whether it is needed or not.

To come back to potash, if new plantings are to be made in a paddock or grass plot, and such an area has been down to grass for a long time, potash may be very low. The standard recommendation here would be 2 ozs. of sulphate of potash to the square yard,

before planting, and a similar dressing each spring subsequently. The alternative to sulphate of potash (if available) may be 4 to 5 ozs. of dry wood ashes to the square yard.

As described under management in Chapter VIII, apples grown in grass are a much better proposition than where the trees are in dug land, but I stress that, in a garden, the trees may have to be in a cultivated plot. Where trees are in grass, however, and this is mown regularly, and the cuttings are allowed to rot back into the soil, this in itself supplies potash, as well as giving other benefits described in Chapter VIII.

With apples, it is possible, indeed not difficult, to induce too much growth and to have less fruit in consequence. The balance is maintained by counteracting nitrogen with potash, and to reduce pruning or at least to avoid hard pruning (which encourages even stronger growth).

Where vegetables are grown beneath apple, pear or plum trees, as in a small garden, the feeding of the vegetable crops may come first, and apples or other top fruit are fed willy-nilly, with whatever the vegetables get. It is agreed that the two types of crops should be grown separately for best results, but space may preclude this. The only suggestion I can make in these circumstances is to see that an apple, pear or plum tree does not go short of potash.

It is not usual for fruit trees in gardens, where the soil is enriched with farmyard manure or compost, or both, to show deficiency symptoms such as lack of magnesium, boron, copper, zinc or iron. Normally, the small garden owner need have no worries on this score.

Fruit trees in grass paddocks can be grown quite well if poultry is kept beneath, either on free range or in fold units. This latter method is best, as the folds can be moved frequently, thus obtaining an even distribution of droppings. From time to time, one finds that geese are kept in a small grass orchard, with good results. Under commercial conditions, if the soil is low in organic matter, short term leys, or vetches are often used to build up the humus content. Even on a small scale, it is possible to dig in a crop such as red clover. Such a cover crop can be sown in spring, using 1 oz. of seed to 10 sq. yards, and the seed just covered by raking in.

On soils which are very high in lime, some trouble may be experienced, perhaps with pears more than apples, as a result of iron

deficiency, often called lime-induced chlorosis. Foliage turns yellow and growth is slowed down. Under commercial practice, this is remedied by using a special form of iron (Iron Sequestrenes) which is sprayed on to the foliage. The problem may be met with under garden conditions.

To try and give even general guidance in respect of the feeding of apple trees in a small garden, where there may be several differing types as well as varieties and ages, is not easy* However, I would suggest the following treatments, in addition to compost mulches, where these have been mentioned elsewhere.

For dessert apples give 2 oz. of sulphate of potash, or 4 oz. of wood ashes if available, per square yard each year, in February. If phosphates, in the form of bone meal were applied prior to planting, then do not give any more for three years, and then give a similar dressing, also in February. Repeat this every three years. If vegetables are grown beneath the trees, then ignore the above suggestions in respect of Bone Meal.

Regarding Nitrogen, I suggest 1 oz. to the square yard of Hoof and Horn, applied in February, for dessert varieties in dug land, with no vegetables beneath. If wood growth is vigorous leave out this nitrogen dressing for two seasons, then start it again as growth slows down. If the trees are in grass, increase the Hoof and Horn application to 11/2 oz. to the square yard. Cooking apples can have this same rate to the square yard, if the trees are in dug land, and 2 oz. to the square yard if in grass, but be prepared to reduce this if growth appears to be very vigorous.

One must be prepared for some elasticity in ideas regarding the above suggestions. Each tree can be treated on its own merits in a garden, and manured according to the growth being made. By "per square yard" I mean each square yard of ground occupied by the roots, and this can be taken as the area covered by the branch spread. If the trees are very nearly touching and there are several, then this will mean the whole area occupied by the trees concerned.

Finally, pay particular attention to trees being grown in dug land, with no vegetables being raised beneath them, whether dessert or culinary varieties. In this case, give a mulch of compost each spring, at the same time as the organic manures are applied, or just afterwards. For guidance, a 1 in. or 11/2 in. layer of compost is suitable and, if possible, give the culinary varieties more than the dessert sorts.

Lime.—Whether or not to lime is often a problem but, in general, it should be borne in mind that fruit trees do not have a very high lime requirement. If the soil is known to be acid, then amounts of up to 1 lb. of hydrated lime per square yard may be needed. In an established garden, if doubt exists as to the lime requirement, do not apply more than 4 oz. to the square yard, in alternate years. A soil test to determine the actual pH value is the best method of dealing with this subject.

Some Materials for Compost Making.

There is little material available from the fruit garden itself, except for leaves and unwanted or damaged fruit, and one has to rely on other compost materials to bulk up the supply.

Although this is a book about fruit, the compost materials available may well include waste vegetable thinnings, trimmings of surplus nature, as well as hedge trimmings, grass, lawn mowings, flower heads, tea leaves, old rags, socks and some moistened newspaper. Circumstances will dictate whether straw, sawdust or spent hops are available as well.

To return briefly to the use of fallen, unwanted fruit, the apple thinnings, or those which "fall" with the "June Drop", these are best dealt with by placing them in a box or drum, and chopping them up with a spade, before inclusion in the general compost heap, otherwise they are slow to rot, if used in bulk.

In country areas, in the South West Counties particularly, the residue from apples used in cider making (pomace) can be composted. In such districts it means making friends with local farmers who still make cider, and remembering that October and November are the months when pomace may be obtainable.

The use of other waste fruit materials, such as those from a greengrocer's or a fruiter's shop, should not be overlooked. Often a regular supply of this useful fruit and vegetable waste can be obtained by mutual arrangement, for the cost of regular collection only.

Mixed residues and/or fruit wastes which may range from oranges to bananas, and apples to rotten cabbages, are best utilised in compost making by mixing them in with lawn mowings, straw, hedge clippings and other similar materials, preferably of a dry nature. In considering compost-making materials, do not overlook

household vegetable scraps, old cloth, woollen rags, old socks, vacuum cleaner contents, vegetable trimmings and leaves.

Straw.—It is of little use saying that straw is ideal material for compost-making if it is not possible to obtain or buy it. This may well be the case in towns and cities. The advantages of a horticultural society (which supplies its members with tools, fertilizers, etc.) purchasing a few tons of straw for re-sale to members, could be given serious consideration. Where straw is obtainable it will make good compost by itself if properly treated with water and activator. Mixed with poultry manure it will also make an excellent compost. Often, however, what straw there is available has to be just mixed in with perhaps a dozen other ingredients of the average compost heap. Old straw is one of the quickest materials to be converted into compost.

Leaves.—It will be unusual indeed if there are not at least some leaves available for inclusion in the compost heap in autumn. It is best to utilize them in this way, if possible, as they are slow to rot down if stacked by themselves. Try to mix them in, as available, with other compost-making materials and apply water as necessary to prevent them becoming dry and shrivelling up. If the quantity is such that they have to be kept by themselves, enclose them in temporary wire netting walls, but for ease and speed in rotting down, weigh them in position with some soil and add water and an activator for the quicker formation of leaf mould.

If leaf mould as such is available in quantity, it can be used as a mulch for the soft fruit crops in particular, either by itself or in place of some of the normal compost application—especially if the latter is in short supply.

Making Compost.

A compost heap in a small garden is best enclosed in a rough slatted timber structure, see Fig. 3, of dimensions near to 5 ft. by 4 ft. The heap can be 4 ft. high. When one heap is completed another should be started, so that two wooden structures should be planned for. Such a bin can be made of slatted sides and ends, using rough pieces of wood 3 to 4 ins. wide, spaced 3 ins. or so apart. These can be fixed to corner posts, and a sloping lid made of a piece of corrugated iron. To ensure good aeration to the heap,

start it off by having a 6 in. layer of rough hedge clippings or herbaceous plant stems at the base.

The actual making of the compost may vary according to how

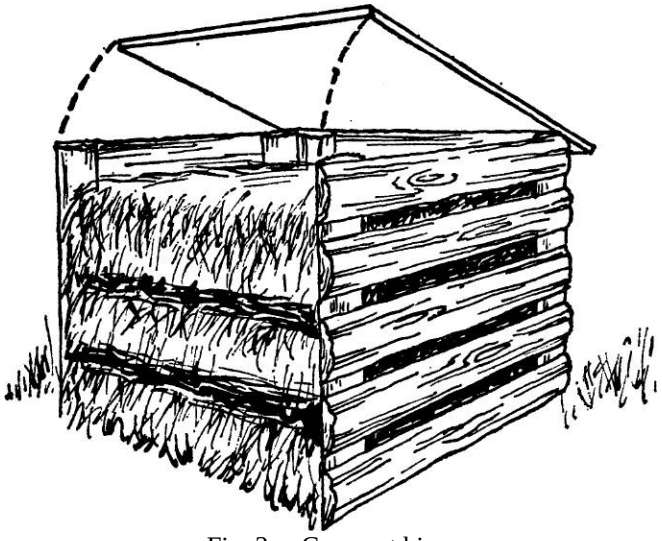


Fig. 3.—Compost bin.

much material is available at one time. If but little vegetable matter is dealt with, at irregular intervals, the heap may have to be built up layer by layer, about 4 ins. at a time. Where this is done, fork over each 8 in. thickness to mix all the various materials together. All material should be damp but the heap should never be saturated with water. If water needs to be added, as is often the case in the summer, add enough to moisten the compost and no more. If a considerable amount of compost material comes to hand at one time it can be mixed before inclusion in the heap, and, any long material chopped up into 4 to 6 in. lengths.

I get good results by using one of the herbal activators, and also by sprinkling lime, at the rate of 2 oz. to each 5 square yards of heap area, after every 9 ins. of height is added.

There are also other proprietary activators which may be used at the maker's directions.

If some farmyard manure is available, about one-fifth in proportion to the other ingredients may be included in the compost heap. If poultry manure is to hand this may be incorporated in the

proportion of 1 to 10 of other ingredients. Remember that the heap should never be allowed to get too dry. Add small quantities of water as may be necessary, especially in summer, but do not saturate the material used; aim at an even moisture-content.

Ventilation should be provided in the heap by building it up round a 3 in. thick stake, centrally placed; the stake is removed when the heap is complete. Finally, cover the top surface with 3 ins. of soil and place the lid of the bin in position.

Within two to three days the heap will heat up and stay warm for about a further three weeks. After about a month the heap should be turned and restacked without a central ventilation hole. After about a further month mature compost will be ready for use.

If possible, try to "gear" the compost-making programme so that supplies will be available for mulching in late winter and, also, for pre-planting purposes in autumn.

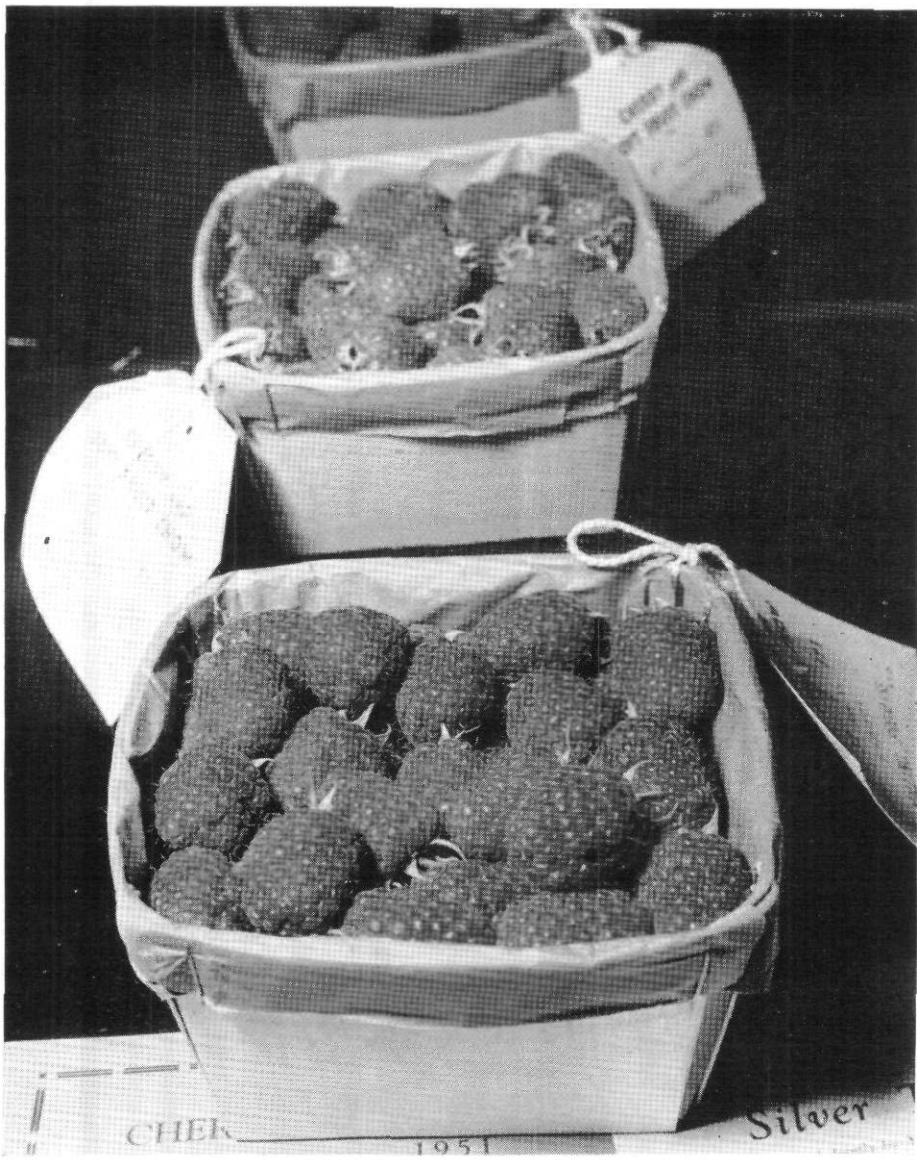
Natural Manures.

The organic materials and manures that lend themselves best to fruit growing are:—

Spent Hops.—This useful organic material, which can also be utilised with other vegetable wastes for compost making, or, be used by itself as a mulch, is not very easily obtainable. If one lives near a brewery and can obtain supplies, these should be used in one or other of the above ways and, in summer, preference should be given to mulching soft fruit crops, particularly raspberries or blackcurrants. A 1 in. layer is sufficient. Although spent hops contain a small amount of nitrogen, it is the organic manure value that is of the greater importance.

Sewage Sludge.—This, too, may not be easy to come by, and what supplies are available may best be utilised in the compost heap. One part can be used to 10 parts of vegetable material. Straw rots down very well with sewage sludge, as do lawn mowings. Where it is available in sufficient quantities to be used by itself, a mulch of 1/2 in. thickness for blackcurrants or raspberries, is a good method of utilisation, in late February. This can be covered by a 1/2 in. layer of compost, or later, by thin layers of lawn mowings.

Bone Meal.—This contains mostly phosphates, and some nit-



A prize-winning example of raspberries (Variety: *Malling Promise*).

rogen, and its use is described in connection with pre-planting preparations under the various fruit headings.

Hoof and Horn.—This is a nitrogeneous material which releases its nutrient value over a long period. It is normally used at the rate of 1 to 2 ozs. per square yard.

Dried Blood.—This is quick-acting and is used where a growth stimulus is needed. The usual rate of application is 1 oz. to the square yard.

Shoddy.—Shoddy (wool waste) is a valuable organic material which contains varying amounts of nitrogen. It may be dug in, during initial preparation for soft fruit, at the rate of 1 lb. to the square yard.

Peat.—Normally this is far too expensive for general use but it is a good mulching material. A \ in. layer is beneficial for soft fruit crops if compost is in short supply.

Fish Manure.—On poor soils, and in the early stages of tree growth, fish manure and/or meat and bone meals, at the rate of 4 oz. to the square yard, may be considered for supplying some organic material as well as for nutrient value.

Permanent Mulches.

The blackcurrant crop lends itself and responds especially well to a permanent mulch. Sheet mulching with straw is a common commercial practice which can be applied on a garden scale. Fuller details are given in the management of this crop, in Chapter X.

There is no reason in garden cultivation why gooseberries and red currants, also raspberries and loganberries, should not be grown by this method, but a combination of straw mulch and compost mulch will give better results, especially if the soil is poor. On a garden scale, half-rotted, old straw is better than new stiff straw.

Sawdust Mulches.—Sawdust has been made use of under garden conditions and to some extent in commercial practice. The main point to remember appears to be that, under careless usage,

loss of nitrogen may occur, due to the bacteria responsible for attacking and breaking down the sawdust, taking the required nutrient from the soil. For soft fruit, a 1 to 2 in. layer may be used as a mulch—best of all on top of a similar thickness of compost. If sawdust is used as an ingredient of the compost heap, 1 to 2 in. layers only should be added at a time, alternated with vegetable matter.

If grass mowings are used as a mulch round fruit trees, do not pile the material in a heap close to the base of the trunk. This may encourage mice which may nibble the bark.

The specific manuring and feeding needed for the various soft fruit crops is dealt with under the various headings, e.g., Blackcurrants, Strawberries, Raspberries, whilst special points about Pears, Plums and Peaches are also dealt with separately in the appropriate chapters.

Chapter IV

A YEAR'S WORK IN THE FRUIT GARDEN

Introduction.

Much of the routine work concerning each fruit crop has been dealt with under separate headings. In this chapter, some reminders are given as to important operations that need attending to at the appropriate times. In short, the main subject matter deals with how to do the various cultural operations, and this chapter serves as a guide as to when these should be attended to month by month, throughout the season. A check on each month's work will indicate which crops need specific attention, and will ensure that no important operation is neglected.

In addition, details are given of some operations that do not arise annually, but which may have to be dealt with from time to time.

January.

Reminders.—Continue pruning apples and pears, and use prun-ings on the bonfire for wood ash supplies. Gather scion wood for grafting, if not already done. Continue with new plantings, if the soil is not too wet. Examine stakes and ties, if trees are put in during autumn or early winter. Make sure that all wall trees, also fruit on fences or wires are securely tied. Soft fruits can also be planted, again, so long as soil conditions are suitable.

Remember that, if vegetables are growing under the fruit trees, these must be covered up if tar oil spraying is contemplated.

Apples and Pears.—If one has old, neglected trees to deal with, there may be moss and lichen growth on the branches. This can be removed by spraying with tar oil at the maker's directions. Such a spray will also kill eggs of aphides which are laid on the bark in late summer. A knapsack sprayer can be used for small trees.

Preparing for grafting.—As pruning is being done this month, if some re-grafting of older trees is being planned, scion wood will be needed. If one has varieties to be used for the purpose, this can be taken now, using the young shoots, i.e. wood growth made last year. These snoots should be kept full length, tied in bundles, and heeled in, that is planted to half their length in a cool border, shaded if possible. The aim is to keep the buds dormant, until the scion wood is wanted for grafting, which will be in March. Always select straight shoots for scion wood, and make sure that each

variety is clearly labelled. It is galling to find in later years, that one has used the wrong scion wood! It has happened.

If no scion wood is available from one's own garden, wood of suitable varieties can be obtained from friends, or, if this is not possible, from a nursery that offers such material. Orders should be placed in early winter, well before that grafting time.

Soft Fruit.—If cuttings of blackcurrants, red currants or gooseberries have been taken, make sure that these are not loosened when the ground thaws out after hard frost. Re-firm the cuttings if necessary.

February.

Reminders.—Complete pruning of apples and pears, and also blackcurrant and red currant pruning if not already done. Gooseberries can be pruned late this month. Spray peaches against Peach Leaf Curl, if this disease was troublesome in the previous season.

Apples, Pears, and Plums.—Reference has been made in the appropriate sections to applications of manures for each of these fruits. Where there are vegetables growing beneath the trees, it is best to apply specific feeds for the fruit, over the area occupied by the roots, usually that covered by the spread of the branches. In many instances, feeding should be attended to during the latter part of this month, if the weather is open. Dig up any suckers (growths from below ground) that arise near apple, pear or plum trees. Try to dig up roots as well; do not cut these growths off at soil level.

Gooseberries.—If pruning was delayed in winter, because of possible bird damage to the buds, this work can be attended to now. Details of the operation are given in Chapter X.

March.

Reminders.—Complete all new plantings if weather has held up operations. Re-graft apple and pear trees. Check all stakes and ties of newly planted trees in anticipation of March winds. Protect blossom of early flowering fruit trees.

Apples, Pears and Plums.—By now, all new plantings should be completed but, if trees are still to be dealt with, remember that a

mulch, to prevent loss of moisture from the soil, is of special importance to late planted trees, especially if the weather is dry and cold winds prevail. Many newly planted trees can be lost under these conditions. When mulching material has been in very short supply, I have used old, rotting sacking with good results. A thin layer only is needed.

Re-heading of Apple and Pear Trees.—A tree which was prepared for re-grafting in winter, can now be dealt with. Saw off another 2 ins. from the branch stubs, and trim the bark neatly with a sharp knife if there are rough edges left. Next cut the scion wood into pieces 6 ins. long, above a bud at the top, and below a bud at the base. With a sharp knife, cut away some of the lower end, as shown in Fig. 4a and 4b to expose 2 ins. and form a onesided wedge.

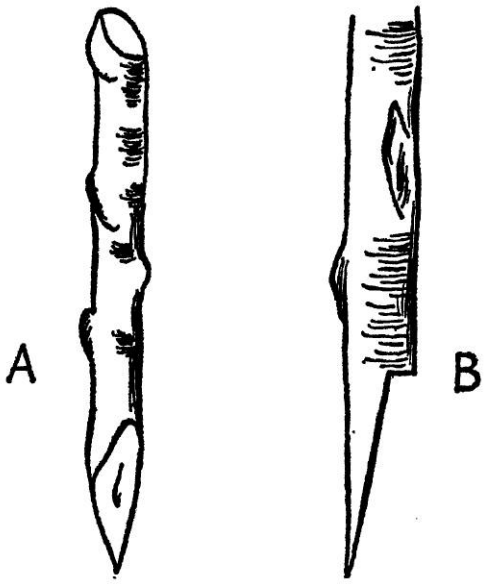


Fig. 4.—Grafting—The Scion.

Next cut a slit in the bark of the branch to be grafted (see Fig 5) and insert the prepared scion in this. If the branch is 2 ins. thick, insert two scions opposite each other; if it is 3 ins. thick, insert

three, evenly spaced. The topmost bud on the scion should be facing outwards.

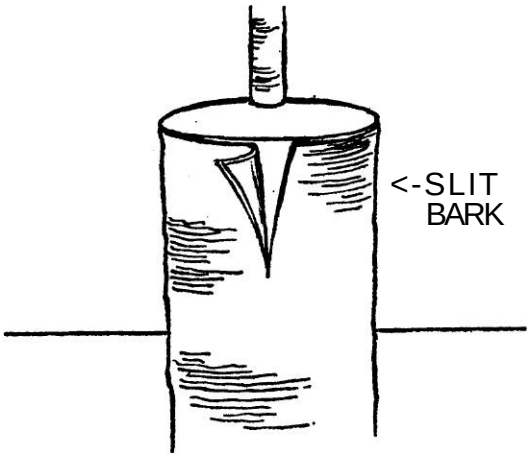


Fig 5.—Crown grafting.

Bind some adhesive tape around the grafted branch, or use a cold grafting wax to seal over the grafted areas, such wax being obtainable from most garden sundries shops.

All being well, new shoots will arise from the topmost buds on each scion, and a new "head" can then be built up. There is no reason why more than one variety should not be grafted on to such a re-headed tree. Making one's own "Family Tree" in fact.

Pears, Plums and Peaches.—Any such trees growing on sunny walls flower rather earlier than trees growing in the open, and some damage by frost and cold winds may occur if the early blossom is not protected. One method of giving protection is to make a lean-to of old fish netting on a lathframe, and set this up in front of the trees concerned, secured to stakes, and just clear of the trees. This protection is needed only on nights when frost threatens or when cold winds prevail.

April

Reminders.—Examine newly planted fruit for firmness, and check all ties and stakes, Be prepared for Gooseberry Sawfly

attacks, also caterpillar damage on apples, pears, and plums. Thin the fruits of peaches on walls.

Apples, Pears and Plums.—The soil around any trees planted during the winter, should now be examined for firmness, and the soil re-trodden if it has sunk or remains loose. Ties and stakes should also be checked closely as high winds in spring can cause "rocking" of the trees; if water collects in the root area as a result, the death of the tree is very probable, or at least a severe check can result.

Apples and Pears.—When the leaves unfold this month, if the branches are examined closely, and dead shoots (such as those affected by Canker) can be seen easily, these should be removed. If caterpillar damage is seen on the foliage, spray with Derris at the first signs of attack. As this preparation is non-poisonous, vegetables growing beneath the trees are not harmed.

Gooseberries.—Pay especial attention to symptoms of Gooseberry Sawfly attack at this time. Often a few caterpillars can pass un-noticed and a considerable amount of foliage can be eaten before control measures are taken. If their presence can be spotted soon enough, what few caterpillars there are can be picked off by hand.

May.

Reminders.—Spray apple trees with Captan preparation if Apple Scab is normally a problem. Thin peaches on wall trees to 6 to 8 ins. apart. Straw down strawberries. Gather early gooseberries. Bark ring unfruitful apple and pear trees. Pay regular attention to hoeing, peferably when weeds are small.

Bark Ringing.—Bark ringing is one method of reducing tree vigour where shoot growth is made at the expense of fruit formation. It is not a routine practice but it is a reliable method if it is carried out correctly and it does not entail as much time and labour as root pruning.

Bark ringing can be done on the trunk or on the branches. With fairly small trees a piece of wire can be put around the trunk to cause a constriction. It must be removed before permanent damage

is caused. A more efficient method, and the only one for large trees, is to remove completely a strip of bark. A strip £ in. to £ in-wide can be taken out around the trunk and 4 ins. apart can be cut away. Only the bark down to the hard wood is removed and the cut surfaces should be protected with grafting wax to prevent harmful fungus entering and damaging the tissues.

Bark ringing must not be done on stone fruits, i.e. plums and cherries, because it may cause gumming and lead to the death of the tree.

The final effect of bark ringing is to reduce the upward flow of water and the downward flow of food materials. It is best done in May or June. The increased food supply in the branches initiates fruit bud development rather than increasing shoot growth.

Peaches.—Surplus shoots will need to be removed this month, described in Chapter IX.

Strawberries.—The important operation at this period is straw-ing down. If straw is not available, use one of the proprietary forms of mats that are available from garden sundries shops. If straw is used this should be placed in position before the green berries are brought down to soil level by their own weight.

June.

Reminders.—Thin fruits of apple, pear and plum if necessary. Place sacking bands around the trunks of apple trees if Apple Blos-som Weevil has been troublesome. Pick strawberries as they ripen, and guard against bird damage. Cut off strawberry runners. Dust or spray raspberries with Derris against Raspberry Beetle.

Apples, Thinning.—The amount of thinning neccessary de-pends on the variety. For dessert apples, reducing the fruits to 4 ins. apart can be taken as a fair guide. Large varieties such as Charles Ross can be left unthinned. Cooking varieties can be thinned to 6 ins. apart.

Take every opportunity in thinning to remove any fruits affected by Scab, Apple Sawfly, or other damage, and always aim at re-taining the best-shaped fruits. Thinning should not be done until after the "June drop" is finished. This is the shedding of surplus small fruit, which takes place over a period. The fact that many

small fruitlets fall to the ground at this time, should not cause concern.

Apples.—If Codling Moth larvae damage the fruit, (the symptoms are described in Chapter XII), the placing of corrugated paper bands around the trunk of the tree will trap some of the adults. These bands should be placed in position now, and removed and burned with the sheltering Codling Moth adults, in autumn.

Plums.—Reference has been made to Silver Leaf Disease in Chapter XII but it should be stressed here that when the typical silvery foliage is seen in summer, the affected branch should be sawn or cut out cleanly, and the cut surface covered with white lead paint.

If plums are heavily laden with fruit, the branches should be propped or supported to prevent breakage. Damage of this sort may lead to the entry of Silver Leaf disease.

Soft Fruit.—This is the soft fruit peak season, and strawberry picking, the first of the blackcurrants, and raspberries can be expected. If the weather is hot and dry, and for newly planted bush and cane fruits in particular, watering may be essential, but remember that a mulch will be of benefit also.

Blackcurrants.—Details of the virus trouble Reversion are given in Chapter XII and it should be remembered that bushes should be examined this month for signs of symptoms. The most usual being the loss of leaf character and a very poor crop. This latter factor can arise from other causes however, such as frost damage in spring.

Strawberries.—Any blossoms that develop on young plants, i.e. those planted last year or in spring this year, should be removed, i.e. deblossomed.

Gooseberries.—Close watch should be kept on young or established bushes for the presence of Gooseberry Sawfly caterpillars, during this month and, indeed, until August. Denis dusts should be applied at the first signs of attack. See also Chapter XII.

Raspberries.—Dust the canes with Derris, against Raspberry Beetle damage to the berries, 7 to 10 days after the flowers open. A second application of dust given 10 days after the first is sound practice.

July.

Reminders.—Water wall trees in dry weather. Pay especial attention to mulching both wall trees and young bush fruit trees. Remove runners from strawberries and clean up strawberry beds after picking has finished.

General.—Pay especial attention to wall fruit trees this month if the weather is hot and dry. Sites near warm walls are always the first to dry out, and newly planted trees in particular can be checked if the soil becomes very dry. Established trees can suffer also, and lack of moisture may mean a check to swelling fruit. A mulch is of particular benefit under such conditions; compost, lawn mowings and spent hops are all suitable materials to use. A 1 in. layer is adequate, but a 2 in. thickness is better.

Apples, Pears and Plums.—A pest that frequently attacks the branches of these trees is Woolly Aphis. The white fluffy patches can be seen in cracks in the wood, and these shelter the insects within. On a small scale, paint the affected areas with methylated spirits, using a stiff brush, as described in Chapter XII.

Peaches.—As the fruit ripens, birds and wasps can be a problem. It is possible to prevent bird damage by netting the trees, using a small mesh strong netting available from garden sundries shops. Wasps however are more difficult to deal with. On a small scale, fruit can be protected by polythene bags.

Strawberries.—Plants that were set out last season, or early this year, will now be making runners, and these should be cut off close to the main plant, before the growth becomes widespread.

August.

Reminders.—Fick early varieties of apples and pears. Gather blackberries, also late varieties of plums. Plant strawberry runners as soon as they are available.

Pears.—Special attention needs to be paid to picking early varieties such as Laxton's Superb. As this variety ripens rather unevenly, the trees may need to be picked over several times.

Strawberries.—An old bed which has outlived its usefulness and is due for clearance, should be dug in now if the soil is not too hard. If the weather is dry and the plot very firm delay digging until rain softens the ground.

September.

Reminders.—Grease band fruit trees. Gather apple and pear varieties as they become fit. Make provision for storage. Late varieties of plums need close attention at this stage. Some blackberries may still be available. Pruning and tying in of this crop, and loganberries, as well as the pruning of raspberries, can be attended to this month if not already completed.

Apples.—Picking the fruit will be the chief operation this month and amongst the varieties that will be ready at this stage are Worcester Pearmaine and, later, Ellison's Orange.

Before picking starts, make sure that, if fruit is to be stored, enough trays or boxes are available. Small wooden trays with raised corners, to allow for free access of air, are ideal storage containers for small quantities of fruit.

Apples, Pears and Plums.—If new plantings are being made, prepare the sites as soon as possible, as described in Chapter II. If stakes and tying materials are needed, obtain these in readiness.

If trees or bushes are ordered, and are received before the site is ready, plant them firmly in some dug ground until they can be planted in their permanent positions. Do not leave the roots exposed, as this can lead to damage and gives the trees a poor start.

There are some kinds of moths that have their pupation stage in summer, and return to fruit trees in autumn and winter to lay their eggs. Amongst these are Winter Moths and allied pests. The adults which are wingless can be trapped by grease banding the trees. The grease, which can be purchased from garden sundries shops, is applied to the trunk of the tree about 15 ins. below the lowest branch. A 3 in. wide band of grease is adequate.

Another method is to fix a 4 in. wide strip of grease-proof paper to the trunk, and smear the grease evenly on to this.

Soft fruit.—Note that if cuttings of gooseberries, red currants or blackcurrants are required, this is the best time to take them. Full details are given in Chapter X.

October.

Reminders.—Examine any fruit in store. Complete picking of late varieties of apples and pears. Take cuttings of blackcurrants and gooseberries, if required. Gather fallen leaves for compost making.

Apples.—Fruits in store should be examined during the month, and any rotten or semi-rotted fruits removed so that they do not contaminate those adjacent.

Picking of the late varieties will be completed this month.

Blackcurrants.—Pruning the bushes may be done in any of the winter months; indeed it is often done in autumn and even immediately after the fruit is picked. But, by now, the work should be completed. A reminder can be given about Big Bud in that if there are any large swollen buds in evidence, these should be picked off and burned, now, when the branches are bare, and such large buds clearly visible.

Pruning, as described in Chapter X can be attended to this month or next. It is easier to see the difference between young and old wood, after the leaves have fallen. Cuttings can be taken this month, if new bushes will be needed in two years time. The method has been described in Chapter X but it should be stressed that propagation material must be taken from the best bushes only.

Gooseberries.—Gooseberry cuttings can be taken this month, as can those of black and red currants. New plantings can be made of both top and soft fruits, except that strawberry planting should now be completed.

Raspberries.—If further plantings are needed, the new canes which arise alongside the established row can be utilised, so long as the parent plants are healthy, and of good vigour. Such canes should be dug out, with as much root as possible, either this month or next, and planted as described in Chapter XI.

As soon as the fruit is picked, pruning can be started, of which

full details are given in Chapter XI. It is always best to get this type of work done in dry autumn conditions whilst the weather is not too unpleasant.

November.

Reminders.—Plant fruit trees. Continue pruning. Tie in loganberries.

Apples. Planning to Re-graft Established Trees.—If there are any bush or half standard apple or pear trees of a variety that crops badly, or is not wanted, the variety can be changed by re-heading or re-grafting. Such trees should be prepared this month, or next, by cutting all the branches back to about 18 to 15 ins. from the main crotch, or point of origin. Any side branches that arise from below the point of cutting should be left, as they act as "sap drawers". Branches removed should be sawn off cleanly. There are other methods of re-grafting an established tree, but the method being described is the easiest, and most suitable for a beginner.

Apples.—When pruning is completed, paint over any large cut surfaces with white lead paint or grafting wax to prevent any spores of fungus diseases, e.g. Canker, from gaining entry. Any very rough edges to cut surfaces should be pared over with a sharp knife.

Loganberries.—Pruning and tying in of the new growths can be done now, or at any time during the winter, but the earlier the job is completed the better.

December.

Reminders.—Tar oil sprays can be applied to apple and pear trees this month. Continue pruning. Planting may be done if soil conditions allow.

This is the month for pruning apples, pears, wall fruits, and bush fruits, if not already completed. New plantings of top fruit and bush or cane fruit may be continued, if soil is dry enough. Any apple or pear trees that are to be re-grafted can be cut back this month.

Apples, Pears and Plums.

Root Pruning.—Root pruning is done to check excessively vigorous trees which are making long extension growths but bear little or no fruit.

Before attempting root pruning, the manuring programme and the pruning methods should be adjusted as they considerably influence growth. Bark ringing can also be done to reduce vigour. Scion-rooting is a fairly common cause of excessive growth. To remedy this, the soil should be removed from around the trunk and all roots growing above the union of stock and scion must be cut off flush with the trunk.

An over-vigorous small tree can be dug up so that the roots and, in particular, the tap root, may be shortened. The tree is then replanted and staked. Root pruning can only be attempted when weather and soil conditions are suitable for planting.

Large bush trees are root-pruned in two stages. A trench should be dug half the distance of the branch spread from the base of the trunk and half way round the tree. It must be wide enough to enable all the lateral roots to be cut through cleanly, i.e., cut off all roots which cross the trench.

Two years later, the other half of the tree should be treated in the same way.

The effect of root pruning is to reduce the root system and to lessen the intake of water and nutrients.

Apples.—Where space is restricted, and there is room for only one apple tree, one answer to the space problem is to plant a Family Tree. This is a tree grafted with more than one variety, often four or five. One can select any cooking sorts, or all dessert varieties. For further details refer back to Chapter II.

Soft Fruit.—Empty ground between the rows can be lightly forked over, to bury any weed growth, when the soil is dry enough for this operation. Gather up any remaining prunings and burn these together with apple tree prunings. All bonfire ash should be stored in a dry place until required.

Making a small Fruit Cage.—This may be a job to consider this month. One of the easiest methods to employ is the building of a structure just above the tops of blackcurrants, gooseberries and red

currants, with the top in movable sections, for ease of picking. The sides and ends may be permanent, except for a means of entry. Convenient top sections can be 6 ft. by 4 ft. and pieces of 2 in. by 1 in. wood are suitable to be used as sides and ends for these sections. The netting should be £ in. mesh wire netting, used for the sides and ends of the cage as well. Stout corner posts, 3 in. by 3 in. in section, are needed together with supporting rails of 2 in. by 1 in. wood for taking the 6 ft. by 4 ft. sections.

A good cluster of *Bromley* apples approaching maturity.

Chapter V

THE PRUNING OF APPLES, PEARS AND PLUMS.

Pruning of Apples.

This operation often causes concern, and considerable variation in ideas exists on the subject, generally. Concerning bush trees in the small garden, the following points should be borne in mind.

First, one may ask, "what happens if no pruning is done at all"? The answer is that too much growth may be made, the branches will be too congested and, although fruit will be borne, it may be smaller than it should be. Then, the stage may be reached when growth will slow down, and too many fruit buds will be formed in relation to the new growth. In short, one has to aim at a balance between wood (shoot) growth and fruit bud formation.

If very hard pruning is done after the early years more wood growth than is needed may be produced and fruiting will be delayed. One method of pruning to avoid is the cutting off of all the new growth at the same level each year, i.e. beheading a tree at a given height. This only encourages more wood growth, and gives the tree little chance to make fruit spurs and fruit buds.

To start with the pruning of a young tree, after planting, this may have 3 or 4 main branches. The 1-year-old wood (the newest growth) should be cut back half way, to an outward-facing bud. Strong shoots may be cut back less hard, and weaker branches rather harder. Next autumn, or winter, the new growth that arises from this cutting back is treated similarly. Keep only the best two or three shoots that arise from the original branches (leaders) and cut out any shoots that cross the centre of the bush, the aim being to encourage an outward framework of branches, i.e. cup shaped.

The main shoots should be treated similarly for the following years. Meanwhile, the main branches will be furnished with side shoots (laterals) and all these that grow out from the tree (outward that is) can be left their full length. Those growing inwards should be cut back each winter to two buds from the base.

In connection with pruning, in the early years, the question of whether fruit formed in the first season after planting should be left or removed, is often raised. If the tree is making good growth. I suggest that a few fruits be retained. To leave many may cause a check in growth.

A logical stage forward from no pruning is the method known as the Regulated System. This can be followed with standard trees, half standards and strong-growing bush trees, i.e. those on vigorous root stocks. Briefly, with established trees this entails

only the removal of crowded or crossing branches, thinning out unwanted shoots, and taking out any dead wood. With this method, sizeable branches have sometimes to be removed, and a pruning saw, with a curved blade is best used for this purpose. The cut surfaces of sawn off branches should be painted over with white lead paint to prevent entry of disease spores.

For established bush trees on the less-vigorous root stocks, the harder method of pruning, called Spur Pruning, is sometimes followed. This, however, is best modified to give a method called the Established Spur System. This is designed to encourage a system of fruiting spurs, close to the main branch-work, and is useful for weaker growing varieties in particular. New lateral growth from the branch frame work is pruned back to two or three buds from the branch. New growth will arise from these buds, which will in turn be pruned similarly the following year.

A spur system of fruit buds will be formed at the base of these shoots which will bear the fruit. These spur systems will need to be thinned out, as they begin to crowd the tree, in order to encourage new growth and reduce the amount of blossom. Some laterals growing towards the outside of the tree may be left to extend naturally; these will form fruit buds and bear the earliest fruit while the spur system is being formed. Some varieties bear fruit on the ends of the shoots, tip bearers, as they are called, and it is essential to make provision for a certain amount of unpruned wood. These unpruned laterals may be cut back to fruit buds or spurs, when their length demands. In short this method aims at a compromise between hard spur pruning and leaving some laterals unpruned.

From this, a further method has been evolved, called the Renewal System. This method which may at first appear complicated to the amateur is, in fact, a successful way of controlling wood and fruit formation to the best advantage. It consists of shortening a proportion of the annual growth in order to produce more wood, leaving some unpruned to form fruit buds. These should be well spaced out over the branch length, to ensure that fruit will not be crowded. The number of laterals, or new growths, to be shortened, depends on the variety and growth of the tree. A strongly growing tree can carry more fruit, therefore perhaps half of the laterals could be shortened and half left untouched. On a weaker tree, which tends to form fruit buds at the expense of new growth, 2 in 3 of the

laterals may be pruned. In this system the individual characteristics of the tree need to be catered for; there is no hard and fast rule. Laterals which are pruned to 2 or 3 ins. in length, will form new wood, which is treated as before, either to be left, or shortened in due course.

Pears.

The pruning of pear trees, in the early stages, follows the same pattern as that for apples. Basically, the treatment of established bushes, in a garden, is also the same for pears and apples. There are, however, a few points to which attention should be drawn.

Pears, generally, will stand harder pruning than apples without being forced into excessive wood growth. Bush trees should be encouraged to form a sturdy framework of branches by moderately hard pruning during the early years. Three or 4 suitably placed branches are pruned to produce 6 or 8 further branches from 2 well-positioned buds, this process can be repeated in the following year. Once the basic framework of the tree has been established, pruning should be lighter until the tree begins to bear.

As pears generally tend to spur up more freely than apples, once the trees have started cropping it will be necessary to thin out the spur systems frequently, to encourage new wood growth.

On older trees which have been spur-pruned rather too thoroughly, it will be of benefit to reduce drastically the amount of fruiting wood, and cutting back branches to produce new growth is advisable. Renewal pruning, as for apples, is practiced, bearing in mind that more wood may be removed, without producing excessive new growth.

Varietal Habit is a factor to consider, for certain pears have a much more erect habit of growth than apples. This is particularly noticeable in Doyenne du Cornice, Fertility and Conference, when hard pruned. When pruning branch leaders to a bud for extension growth, it is better to prune to a bud above the outward-pointing one required. This outward-pointing bud will then grow out at a wider angle, the unwanted portion being removed later.

Other varieties, such as Catillac and Beurre d'Amanlis, also Conference when lightly pruned, have a spreading tendency, and it may be better to prune to an upward bud, or even to a bud above the upward one required, removing the unwanted portion later, as before.

Cordon Trees.—Basically, these are Spur Pruned; that is, all the young growth, each year, is shortened back to within 2 or 3 buds of the base, where fruit buds will form and a spur system is built up. Space, or lack of it, often dictates that this hard cutting back has to be done, to keep the trees within limits.

A modified system is to leave some of the longer laterals full length and curl them round in a circle, tying them firmly with fillis string to make a loop. These loops will form fruit buds along their length in subsequent years, and may be left intact so long as there is room for them. As others are retained, the oldest may be cut out. Espalier trees may be treated in the same way as Cordons.

Biennial Bearing.—Some varieties of apples tend to produce a heavy crop one year and a light one the next. If one has several trees, this tends to balance out, as all the trees may not have the same "on or off" tendency. If one has only 1 or 2 trees however, biennial bearing could cause a total loss of crop one season, and the trees would be likely to produce a heavier crop than usual the next year, and a lighter than average the following season.

Where this is happening, before the expected cropping year, pruning of new wood should be very light, and spur systems should be reduced. A proportion, say one third, of the blossom should be removed at flowering time. In other words aim at reducing the overheavy crops.

Finally, all pruning should be done when the trees are dormant, i.e. in autumn or winter.

Pruning of Plums.

The pruning of Plum trees is straightforward, once the trees are established, and consists mainly of thinning out overcrowded wood. Some rather more detailed pruning is, however, necessary in the early years, in order to build up a suitable framework.

If a maiden tree is planted, that is, a tree within one year of budding or grafting, pruning may be carried out in the Spring, after deciding on tree form. Generally plums will be grown as half-standards having a main stem about 4 ft. in length, before the branch system. An open centre is aimed at, the main branch system forming the outside, with young wood filling in the interior. This method of forming the half standard tree can also be used for Apples and Pears.

Assuming a maiden tree has been purchased, this would be planted in the Autumn and, later on, when the tree has settled down, it should be pruned to a bud, 9 to 12 inches above the height of the lowest branch desired. In the following season shoots will grow from buds below the top, and the most suitable are left, ensuring that they are well spaced and at a wide angle to the stem. Other shoots are removed, leaving about 5 or so which will form the main branch system.

The top bud will grow strongly; this can be offset by making a nick below it with a knife, forcing more growth into the lower buds.

Wide angled branches can be encouraged by making small notches in the bark above selected buds; the topmost shoot can be removed later.

Any growth arising below the position of the lowest branch should merely be shortened for the first year or two before removing, as they assist in thickening the stem.

The selected branches are subsequently pruned to a suitable outward pointing bud, during the first year or two, one third to one half of the new wood being removed; afterwards this is reduced to mere tipping which is discontinued altogether eventually. The tree will consist of 6 to 7 well-spaced main branches, growing from them and lateral growths which will form the bulk of the fruiting wood.

If the tree has been purchased as a 2- or 3-year-old, it is advisable to defer pruning for one year after planting. The branch system of such a tree will already have been formed.

After the framework of the tree has been formed, subsequent pruning will consist of cutting out dead and diseased wood, badly placed wood crossing, or too upright growth, and ensuring that the growth remaining is well spaced.

Drooping Varieties.—Certain varieties have a drooping habit. Although during the early years this factor need not influence pruning unduly, as the tree becomes established the drooping tendency will be more pronounced. It will be necessary to prune branch leaders to an upward-pointing bud, and not to an outward one, as in upright growing varieties. Similarly, lower branches will hang down, and may have to be shortened eventually to a more suitable subsidiary branch.

Silver Leaf Disease.—This serious disease of Plums enters the tissues through open wounds and cuts. It is able to do so during the winter and most readily infects wood through large cuts which expose the heart. During the formation period of the tree, pruning can be carried out in the early Spring, as cuts are relatively small.

On established trees, however, it is better to defer pruning until late Spring or Summer, and to perform this operation during dry weather, especially where large wounds are made. The natural gums exuded at this time assist healing. Broken branches should be sawn off neatly, and all large wounds protected with white lead paint.

Always use a sharp, curved blade knife, or a good pair of secateurs, for pruning. Avoid "jagged" cuts, which can lead to damage, and do not cut too closely to the topmost bud (see Fig. 6).

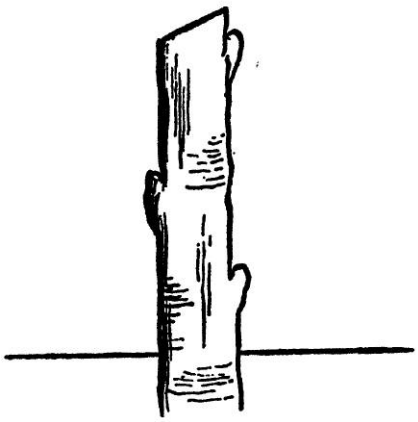


Fig. 6.—Correct pruning cut.

Chapter VI

VARIETIES OF FRUIT TO GROW

Apples, Pears, Plums, Damsons, Peaches, Blackcurrants, Red Currants, Gooseberries, Strawberries, Raspberries, Hybrid Berries and Blackberries.

Apples.

There are several hundred different varieties of apples, but the choice for a small garden has, of necessity, to be restricted. With cooking apples, there is no need to have a wide range of varieties, as there are many late-keeping sorts of equal quality. In the selection of dessert varieties, bear in mind the season that the fruit will be required and remember that the late-keeping sorts will be the most valuable, i.e. those whose natural season is December, January, and February. If space allows, a succession of varieties may be aimed at, and here, the value of cordon trees, which take up little space, can again be stressed, as they permit a wider range of varieties to be grown. The following sorts are chosen for their suitability in the small garden, and can all be recommended for this purpose. The selection is made with cropping in mind, quality, and absence of unusual cultivation features.

Dessert Varieties. In order of ripening.

Beauty of Bath.—This is an early sort, in season during early mid-August, and although of rather sharp flavour, it is a useful variety for this period. The tree is fairly vigorous, and the cropping satisfactory, but the fruit ripens rather unevenly which means "picking over" the tree several times. The fruit is small to medium in size, round, flattened, basically yellow, with red flush and stripes. If an August variety is required, this can be recommended.

Worcester Permaine.—Although a popular variety, and of attractive appearance, being conical and brightly red, with crisp, juicy flesh when ripe, the flavour of this variety is not very high. Despite this factor, it is well-liked, the sweet, juicy character making it one of the most widely-grown varieties. It makes an upright growing tree, is a fairly regular cropper, of moderate vigour and, for the September to October season, can be strongly recommended as a garden variety.

Charles Ross.—Although a dual-purpose variety, suitable for cooking or eating, it is often rather large for dessert purposes. It is in season in October, when there are plenty of other varieties fit to use, but has one advantage in wet areas particularly, in that it is fairly resistant to Scab. The medium to large fruit is pale green, with a red flush and stripes, and generally of handsome appearance. The

flesh is white, juicy and of good flavour, but must be eaten at the right stage for, if kept past its best, it becomes dry and woolly. It makes a fairly vigorous tree, of spreading habit.

Ellison's Orange.—This is a good quality dessert variety, and a heavy cropper, although it tends to crop heavily in alternate years. The fruit is medium-sized, slightly conical, golden yellow, with some red stripes and red flush. It is at its best in October and should be eaten when in peak condition, for the season is fairly short. If eaten at the correct stage, it is very juicy, and of good flavour.

Lord Lambourne.—This is an October to early November variety, round and flattened in shape, of medium size and basically greenish yellow with a bright red flush and dark red stripes. It colours up very well when grown in grass. It is a regular cropper, and a variety to be recommended for flavour and quality. Under conditions of high rainfall and humidity, where Apple Scab is prevalent, this variety can be considered, as it is highly resistant to this disease.

Cox's Orange Pippin.—This well-known variety is regarded as being of highest quality and flavour, but it is not the easiest variety to grow. It is attacked readily by Canker on heavy soils, and in wet districts. It does best in light to medium or gravel type soils, that give free drainage, a particularly important factor with this variety. It is also susceptible to Apple Scab and Mildew. The fruit is of medium size, roundish conical, greenish yellow, with a red flush and some russet. The yellow flesh is crisp, juicy and with an aromatic flavour of its own. It is at its best in a natural store in November and early December. Despite being not one of the easiest varieties to grow, most gardens should have one tree at least. One has to keep the pollination factor in mind with this variety, and suitable sorts to help in this connection are Worcester Permaine and Lord Lambourne. The cooking variety, Early Victoria, is also a good pollinator for Cox.

Laxtorts Superb.—Although very susceptible to Apple Scab, especially in South West counties, this heavy cropping variety must be considered for its late keeping quality, being in season from November to January. Although a heavy cropper in its "on" years,

it often tends to be biennial in bearing. The fruit is medium-sized, conical, green and dull red. The best coloured fruit is obtained by growing the trees in grass and under low nitrogen conditions, where feeding is concerned.

Duke of Devonshire.—This is a late keeping variety in season from January to March, of crisp flavour, upright growth and good cropping quality. It is greenish yellow in colour, with some russet. A useful sort for extending the season.

Brownlees Russet.—The russet varieties are often popular, and deserve to be more widely grown. This particular variety is one of the best, in my experience, with its fairly large fruit, regular cropping, and compact upright growth. It is also a very attractive tree when in flower. Its season of use is March or even later, and it is usually one of the last varieties to be picked.

If a collection of dessert apple varieties is needed, as where a dozen cordon trees can be grown, then the list can be extended considerably. Where 12 varieties are planned for, the following can be recommended to give fruit over a long season.

Laxton s Advance	August
Ellison's Orange	Sept.—early Oct.
James Grieve	ditto
Laxton's Fortune	ditto
Lord Lambourne	Oct.—November
Egremont Russet	ditto
Blenheim Orange	Dec.—January
Cox's Orange Pippin	ditto
Laxton's Superb	January
Tydeman's Late Orange	ditto
Duke of Devonshire	March
Merton Russett	ditto

Cooking Varieties.

Early Victoria.—This is the best-known early apple for culinary purposes, being in season from July to August. It is a very heavy cropper, and often needs to have the crop thinned to give a reasonable size. The fruit is conical and angular, of medium size and green in colour. An excellent cooking variety. The tree growth is upright and compact, a useful feature for garden cultivation.

Grenadier.—This variety is useful to follow on after Early Victoria, being in season in September. It is a good cropper, and very resistant to Apple Scab. The fruit is medium to large in size, conical in shape, and green in colour. Another excellent culinary variety, the flesh cooking to a froth, and very good for tarts and pies.

Lanes Prince Albert.—A good cropping variety, the tree being of weaker than average growth, and of spreading habit. This is another variety which is very resistant to Apple Scab, it bears large, round to conical fruit, green, with a slight red flush. Its season is from November to January. Although the cooking quality is high, it is not quite so good as Bramley Seedling in this respect.

Monarch.—This is another variety which shows some resistance to Apple Scab. It is a regular cropping culinary variety that can also be used for eating, after Christmas. The fruit is large, round to conical in shape, with bright pink to red flush, with red stripes. The cooking quality is good. The season of use is October to January.

Bramley Seedling.—This best-known cooking variety and a favourite for garden planting, does well on a wide range of soils and conditions. The tree is vigorous, and the suitability of No. 7 or No. 9 Rootstock to give a smaller tree, has already been stressed. The fruit is medium to large, flat and angular, green with some red flush and stripes. A very good, long-keeping variety, in season from October to March. A "must" if only one cooking variety is wanted, but other varieties (dessert in the case of a single Bramley tree) must be nearby to give adequate pollination as Bramley Seedling sets a poor crop by itself. Charles Ross is also a suitable pollinator.

Pears.

In a small garden, the selection of varieties may be restricted to a few only, unless one has cordon trees and wishes to extend the season, but the late varieties need a warm position, such as a South wall, to come to their best. All varieties of pears will stew, and there is no need to grow more than one culinary variety, e.g. Catillac.

Laxtons Superb.—This is the best early pear for garden cultiva-

tion. It is in season during August and September, and does not stay in condition for very long. It is also useful as a pollinator for the premier pear variety. Doyenne du Cornice. The fruit is of medium size, roundish in shape, green, with a dull red flush on one side. A very sweet and juicy early pear of good quality. It is best if planted with other varieties to assist pollination, e.g. William's Bon Chretien.

William's Bon Chretien.—This is the well-known "William" pear (the Bartlett Pear in cans), quantities of which are imported each year. A pear of high quality, being sweet, juicy and melting, but very susceptible to Pear Scab. The fruit is fairly large, and golden yellow in colour. It is at its best in September, and is usually picked in late August. It can be pollinated by Laxton's Superb and is a good choice for garden cultivation.

Conference.—If only one variety can be grown, this should be the choice. It is a free and regular cropper, in season during October and November. This variety will set a good crop even when grown alone, but is even better for having nearby other varieties flowering at the same time. The fruit is medium size, long and a brown russet in colour. The flavour is very good, the flesh being sweet and juicy. It is usually ready to pick in late September.

Doyenne du Cornice.—This is the premier quality pear, of very high, delicious, melting flavour and in a class apart in this repect. It is not, however, a very heavy cropper, and definitely needs other varieties nearby which flower at the same period, to help with pollination (Laxton's Superb is suitable for this purpose). Cornice is a large, oval-shaped pear, basically yellow, with a slight red blush and some light russetting. It is at its best in November, and is normally picked in late September or early October. It ripens and "finishes" best on a South wall. If a few pears are to be grown, this variety should be included for its very high quality.

Entile d'Heyst.—A good cropper, of good quality, being sweet and juicy, but of fairly short season in mid-October to mid-November. The fruit is small to medium in size, yellow, with a brown russet. The tree is not strong growing and makes a good bush tree

for the small garden. Fruit is normally picked in late September. The tree can be pollinated by Conference.

Bergamotte D'Esperen.—Another late variety that does best on a South wall in order to obtain the fullest flavour. If grown as a bush, in a sunny position, it makes an open habit tree, suitable for the small garden. It can also be pollinated by Conference. The season of use is March, and the fruit is a pale yellow and of good flavour.

Josephine de Malines.—This is one of the best late-keeping varieties of pear for a small garden. It should be grown in a sunny position, as on a South wall or border to obtain the maximum flavour.

The season of use is December to January and it is normally picked in late September or early October. The fruit is small to medium in size and of good flavour.

If a wider range of Pear varieties is needed, as where cordon trees can be grown, then the following will be a good choice of 12 sorts to give fruit over a long period.

Jargonelle	July and August
Laxton's Superb	ditto
Gorham	September,
Williams Bon Chretien	ditto
Beure Hardy	ditto
Conference	ditto
Beurre Diel	November.
Doyenne du Cornice	ditto.
Glow Morceau	December.
Packham's Triumph	ditto
Winter Nelis	ditto.
Josephine de Malines	Jan.—March.

Cooking Pears.—As mentioned earlier, all varieties of dessert pears may be stewed, and usually the second-grade fruits are used for this purpose. If however, a late-keeping variety of cooking pear is needed, the best variety is Catillac.

This a large, round, irregular-shaped fruit, green and dull red in colour. The tree growth is vigorous, and cropping regular and heavy. This variety is in season from December to April, and is

usually one of the latest to be picked, being gathered in mid to late October.

Quince.—Often a bush is needed to provide fruit for making the delicious Quince jelly. Although bushes are slow to come into bearing, sometimes taking five years or so to crop in quantity, from then on they bear regularly. Quince does best in a deep rich soil, with annual 2 in. compost dressings applied each spring. It can be grown as a bush or against a wall in the same way as the Flowering Quinces (Japonicas, as they are often called), and, if space permits, adds a useful contrast to the range of fruit in a garden.

Plums.

As with apples and pears, there is a very wide range of varieties, but for garden planting, where but few varieties are needed, a choice can be made from the following:—

Early Laxton.—An early, dual-purpose plum, with small, round, red and yellow fruit of sweet flavour. Not too strong a grower and good in this respect for garden planting. The fruit needs picking over a few times as it ripens unevenly. It is ready in late July and early August, and is a self-fertile variety.

River's Early Prolific.—An August plum, especially useful for cooking purposes and well-known as a heavy and regular cropper. The fruit is small, round, and purple in colour. This is not an over vigorous variety. It can be pollinated by Victoria.

Dennis ton's Superb.—This is a very useful variety of gage-type plum, ripening in mid-August. It is of upright habit, self-fertile and of good flavour. It is one of the most regular of croppers.

Thames Cross.— This is a very large, oval fruit, golden yellow in colour and is dual purpose, that is, it can be used for cooking or dessert purposes when ripe. It is a strong upright grower and the season of use is early September.

Victoria.—This is the best known variety of plum, useful for both dessert and culinary purposes. It is oval in shape, red, of medium size and is in season in late August. Being self-fertile, it

An outstanding crop of *Talisman* strawberries on a single plant. Note the use of straw to keep the fruit clean.

can be planted by itself, and is the one variety to plant if the choice or space, is restricted. It makes a compact tree of open, branching habit.

Reine Claude de Bavay.—A very late variety of gage which ripens toward the end of September. It is a large fruit, of good flavour and quality, and self-fertile. The growth is of moderate vigour.

Marjories Seedling.—~*A* self-fertile variety, grown chiefly for cooking but also quite good for dessert purposes. It is one of the latest to ripen, being ready in late September and early October. As it is a vigorous grower, there should be ample space for its development if a bush or half standard tree is being grown. The fruit is large and black in colour.

Damsons.

*Bradley *s King.*—This variety ripens in mid-September, and is fairly large, for a damson, and of sweet flavour. It is a very heavy cropper and of fairly vigorous growth.

Merry-weather.—This is the variety most commonly grown. The fruit is large, thus casting some doubt as to its being a true damson. It is ripe in late September.

Peaches.

Often regarded as the premier fruit, this delicious member of the Prunus family needs careful attention to cultural details in order to obtain good results. It is true that a warm summer is best for ripening the fruit, but a sunny position, as on a South wall, will give good quality peaches so long as the right variety is chosen.

Amsden June.—This is an early variety, normally ready in early July. The fruit is of medium size and greenish-white and red in colour. The flavour is good, being rich, and the flesh very juicy.

Hales Early.—*For* an early sort, where more than one variety is required, this can be recommended, but it must have another variety flowering at the same time to help with pollination, for it d0es not set a good crop where grown by itself.

It is ready in early August. The fruit is green, flushed with red, and the flavour is good.

Peregrine.—This is one of the best-known varieties, and also one of the best for garden planting, on a South wall, or as a bush tree in a sunny position. It ripens in early to mid-August.

The fruit is crimson red, and of high quality. This a good cropping variety.

Rochester.—This is a very good variety for garden planting, being a heavy cropper of good flavour and quality. It is ready for use in mid-August.

Nectarines.

Early Rivers.—This is one of the best varieties for garden cultivation, being hardy and a good cropper. The fruit, ready in August, is large and green with a red flush. The flavour is good.

Elruge.—This is an early September variety, also good for garden cultivation, being a heavy cropper. The fruit is dark red, juicy and of good flavour.

Soft Fruit.

Usually only one or two varieties of each of the soft fruits may be needed for garden cultivation. The following details are compiled with selection for this purpose in mind.

Blackcurrants.

Mendip Cross.—This early variety is a good cropper under most conditions, although somewhat variable in this respect in certain areas. The variety has a fairly short picking season and is of moderate to strong vigour. It is possibly better in the South West, where I found it cropped well.

Seabrook's Black.—This is a fairly vigorous variety of upright habit and is a good cropper which does well on a wide range of soils. It is a mid-season variety.

Wellington XXX.—This very vigorous variety, of a branching, spreading habit, crops well under a wide range of soil conditions. It is mid-season in ripening but does not have a very long season

and picking needs to be attended to regularly. When pruning this variety, remove some of the outside branches if they are very low-growing, otherwise the fruit will be splashed with soil in wet weather.

Baldwin.—This is one of the best varieties for garden cultivation. Growth is of medium vigour and the bushes are ideal for a restricted area. The variety varies somewhat in its cropping qualities in different parts of the country. It needs very generous feeding and responds well to heavy organic manuring. Another advantage is that the fruit "hangs" well so that picking is spread over a fairly long period (for blackcurrants, that is). It is one of the latest varieties to mature.

Westwick Choice.—A very good later variety which crops well under a wide range of conditions and flourishes on heavy soils. The season extends later than Baldwin. The bush is moderately vigorous and of compact habit.

Red Currants.

Fay's Prolific.—An early variety of moderate vigour, with fairly large and long trusses. The branches are rather brittle, however, and bushes should not be planted in an exposed position.

Laxton's No. I.—Of vigorous upright growth, this early variety of good quality is a heavy cropper. The berries are of medium size and, for garden planting, this is a variety that can be recommended for early picking.

Red Lake.—A first-class variety, ripening mid-season to late, and of very good size and quality. It bears very long trusses of large fruit which are in a class apart. A very fine variety, strongly recommended, being a very heavy cropper and generally outstanding in my experience.

Wilson's Long Bunch.—A fairly vigorous variety, with a good quality berry, late in maturing and useful for this reason in extending the picking season. It is a fair cropper, although not so heavy as Red Lake.

Gooseberries.

Keepsake.—A vigorous variety which produces medium-to-large, oval berries, light green in colour. Good for early picking where green berries are wanted for jam and cooking purposes. It is sometimes susceptible to American Gooseberry mildew. (See Chapter XII).

Careless.—This is a good variety for jam-making and cooking purposes. It is mid-season, and of good size and flavour. The berries are large, oval in shape, and pale green in colour. It does not make strong growth under average soil conditions.

Whinhams Industry.—This dark red variety is of fairly good dessert quality and may also be picked early for cooking purposes. The bush is vigorous, of upright habit, and does well on a heavy soil. It is a good dual-purpose garden variety, and is mid-season in ripening. If only one variety were possible, this would be my choice.

Leveller.—This is the premier dessert variety, with large, oval, yellow berries, of good flavour. It is a mid-season variety, and does best under good soil conditions, good drainage, and a high level of manuring. At least one bush of this variety should be grown where dessert fruits are required. It is not of very vigorous growth.

Strawberries.

Under garden conditions, one or two varieties only are needed. Often, just one sort is planted, and the choice is frequently Royal Sovereign. It should be stressed, however, that whatever variety is chosen, plants should be purchased from a good source, so as to obtain virus-free stock.

Cambridge Vigour.—This is an early variety, useful for growing under cloches for early picking. It is a good cropper, very vigorous and of fairly good quality. It is resistant to Red Core disease.

Royal Sovereign.—Fairly early in season, the fruits are large, conical and of good flavour. It is one of the most widely-grown varieties and a good choice for garden planting.

Talisman.—This late variety, of vigorous growth, bears large fruit of good flavour. It is often planted in place of the once-popular Climax, which is now not recommended. Talisman produces runners very freely and crops heavily. It is good for jam-making as well as for eating fresh.

Raspberries.

Lloyd George,—If one variety only of raspberry can be grown, this should be chosen. The New Zealand strain is very satisfactory. The berries are large, long, and produced very freely. Growth is vigorous, and the fruit ripens early in the season. A heavy cropping variety.

Mailing Jewel.—This is but one of a range of varieties raised at East Mailing Research Station. It is a fairly early variety to ripen. Growth is vigorous, although fewer canes are produced than with most sorts. The berries are large and of sweet flavour.

Norfolk Giant.—This is a late variety, and a heavy cropper, the berries being large and conical. It is a good variety for jam making, and particularly good for extending the raspberry season.

The Hybrid Berries.

Loganberry.—This is the best of the hybrid berries, the dark red fruit being in demand for jam, canning and cooking purposes, now that selection of stock material is being made, with freedom from virus troubles in mind, better cropping qualities can be anticipated. This fruit is dealt with in detail in Chapter XI.

Boysenberry.—This fruit resembles a Loganberry and also a Blackberry. The berries are large and dark red, then purple in colour. It is one of the easiest of the hybrid berries, and if one only is to be chosen (other than Loganberry), I would suggest this variety.

Veitchberry.—This fruit is the result of a cross between a Raspberry and a Blackberry. It is about twice the normal size of a raspberry and resembles this fruit in flavour. It is purple in colour, when ripe, and follows raspberries in its picking season.

Phenomenal Berry.—This is similar to a Loganberry, although the fruit is larger, and slightly later. It is of vigorous growth, although rather less so than the Loganberry, and does well on a wide range of soils.

Blackberries.

Himalayan Giant.—This variety is very vigorous in habit, the new canes often being 10 feet or more in length. Fruit is borne on both young and old wood. Fruit is produced in large trusses, the berries being large and round. This is one of the easiest blackberries to grow in a garden where space allows for its vigorous nature.

John Innes.—A variety of less vigour than Himalayan Giant, and very good for garden planting. The berries are sweet and of good size, ripening in August and September.

Chapter VII

1. Picking Apples, Pears and Plums.

2. Storage of Apples and Pears.

Picking Apples.

The correct stage at which to pick is when the fruit parts readily from the tree on gentle upward pressure being exerted. If the apple or pear comes away easily in the hand, i.e. the stalk parts readily from the spur, then it can be gathered, but all the fruits may not be ready at one time and the trees may have to be "gone over" two or three times to gather all the fruit. Take care when picking to avoid "spurs" as this means less blossom and pulling off any fruit possibly less fruit in the following year.

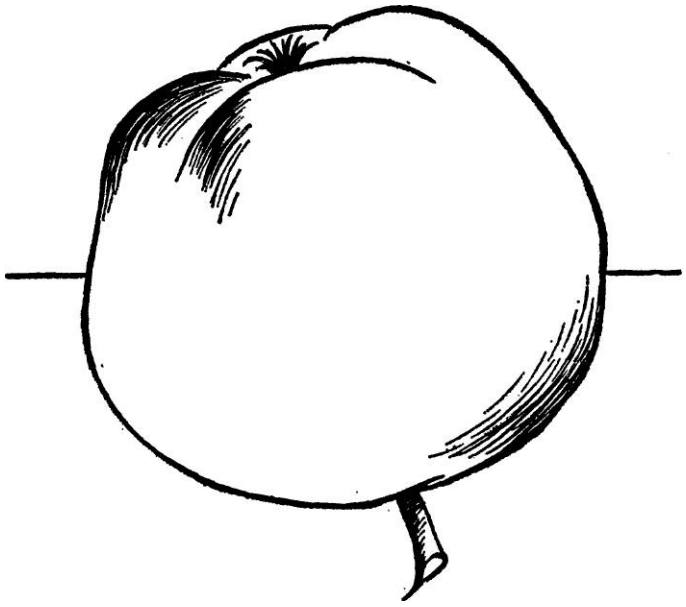


Fig. 7.—When picking apples and pears for storage, the stalk, whether long or short, should be kept intact.

Always pick the fruit when it is dry, and place it carefully in a small basket or a lined container to prevent bruising. Do not store the "windfalls", as these must be used as soon as possible; those which cannot be used, or given away, can be composted, as described earlier in Chapter III.

A ladder or a pair of steps may have to be used for tall trees; if the former, avoid damage to fruit and branches when the

ladder is being moved. Also, make sure that either ladder or steps is fixed securely in position, before use. Where a ladder is used, suspend the basket or picking container on a rung, on a metal hook.

Remember that the early dessert varieties of apples and pears have to be used fairly soon after picking, often in a week or two. Mid-season varieties will need some weeks in store, this varying according to the individual variety, before they come to their best. They will of course be hard when picked and, although eatable, will neither have their proper flavour nor be in the correct stage for eating. Early cooking varieties will not keep for long and should be used as gathered, whilst the mid-season sorts need the same treatment as described above for dessert varieties.

In July and August, early varieties of pears will need to be picked when the fruit parts readily from the trees. Picking may have to be extended over a week or so, for these sorts sometimes ripen unevenly. Care must be taken to avoid picking the fruit too soon, for it will shrivel and fail to mature if in this condition. The same care as with apples, in handling, is essential; the skin must not be bruised or broken. Early varieties do not keep very long and must be watched closely after picking to ascertain their stage of maturity.

Mid-season and late varieties are picked in September and October, and the same general principles apply as for apples.

Picking Plums.

Remember that some early varieties of plum, such as Laxtons Superb, need picking over several times, as the ripest fruit may fall if left beyond the picking stage. Gather the dessert varieties gently, with care, to avoid bruising. Lay them in a lined container and handle by stalk only to preserve the "bloom" on the skin, thus keeping the attractive appearance (especially with the gages).

If ripe dessert plums are being gathered, especially late in the season, take care that no wasps are within the fruits, as is sometimes the case.

Cooking varieties need not be handled quite so gently, as dessert sorts, but do not bruise the fruits at any stage of picking or handling. Always pick the fruit when dry and keep it in cool conditions before use.

Plums, under ordinary garden conditions, present no storage problems. They are usually picked and eaten or cooked fairly quickly. Gage plums should be left to ripen fully, before gathering,

but not so long that they pass their best before picking. Many of the cooking varieties are picked when firm, and, if need be, may be kept for a week or so, but this is not recommended; to enjoy the full flavour, this fruit should be used as fresh as possible.

It will be found that plums on walls, especially warm walls, will ripen ahead of the same variety grown in a bush in an open situation. Wall plums may also come to maturity rather more evenly. Freshly-gathered, ripe, dessert varieties mean plums at their very best.

Storage.

The late varieties of apples and pears will "keep", that is, stay in good condition for several months, if stored under suitable conditions. If there is only an ordinary dwelling house, this restricts storage to some extent, but it is best to use the coolest room available. What is required is evenly cool, not over-dry conditions. For small quantities of late varieties of apples and pears, Dutch type tomato trays, with raised corners, so long as they are clean, are very good receptacles as they allow free ventilation between the fruit. Large apples can be stored one layer thick in such trays, and smaller ones two layers thick. Line the bottom of the tray with clean greaseproof paper before using for storage purposes. See Fig. 8.

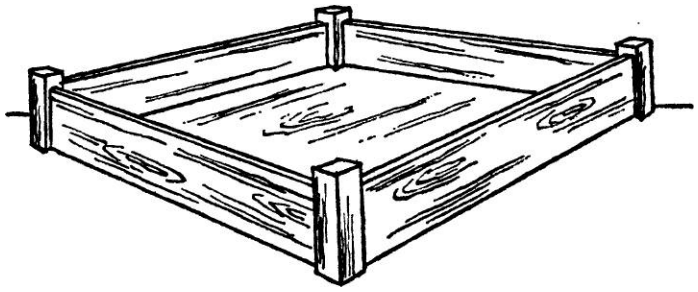


Fig. 8.—A good type of tray for home storage of apples and pears.

It is possible to buy fruit storage racks, especially for apples and pears, and this may be considered if there is a fairly large quantity of fruit to store. I am thinking, however, of the garden with but few fruit trees and of the problems of small scale storage, rather than using racks.

It is essential to store only perfectly sound fruity which must be handled carefully to prevent bruising, as such damage results in rotting and loss. Careful picking to avoid bumping and bruising, and damage by finger nails, is essential. Make sure that the stalk of each fruit is retained (otherwise diseases may enter at this point), this being a very important storage factor. The correct stage for picking, as described earlier, is also an important feature in good storage. Discard any fruits with bird peck holes, wasp damage, or which have been affected by the larvae of the Codling Moth or Apple Sawfly. (Both of these leave holes in the apple). Fruit with dry blemishes on the skin can be stored satisfactorily. Any which are set aside as unsuitable for storage should be used up fairly quick, particularly the cooking varieties. Some late dessert sorts may, however, not be ready for eating at this stage, and may also be used for cooking purposes. Lay the sound fruits in the trays, "eyes" uppermost. To prolong storage of the choicest dessert varieties, each fruit may be wrapped in special "oiled" paper wraps (which can be purchased from horticultural sundriesmen), the usual sizes being 9 ins. by 9 ins. and 10 ins. by 10 ins.

Not only does fruit keep better in these wraps but, also, if one should be affected by rotting, it can be removed and will not easily cause adjacent fruits to be lost for the same reason. It is best to examine the stored fruit from time to time and to take out any affected by storage rots. One of the main causes of loss in store is Apple Scab. If fruits show signs of this disease when they go into storage, losses must be anticipated.

It is interesting to try storing apples in a box holding, say, 20 lbs., which is lined with polythene and which has this material folded over the top completely to enclose the fruit. Polythene tubes are also used, in which a small number of apples may be stored. Both these methods should be tried so that results under one's own conditions may be noted.

If apples are picked on a warm day, stand them in trays or boxes overnight to cool down, then finally sort and put them into the storage place available.

These recommendations are made with the town gardener very much in mind; those who live in country areas may have more sheds or buildings at their disposal. In these circumstances, remember that the best place for natural storage, that is without the aid of controlled temperature or the use of added carbon di-oxide,

is a building facing North. It should have an earth floor, preferably below soil level, and ample ventilation—this latter feature being an important point in a warm October.

If a shed or building is available, the windows or ventilators of which can be used, these should have small mesh wire netting over the apertures to prevent mice from entering the store. A few mice are capable of causing a lot of damage especially if their presence goes unseen for a time.

I have already stressed that an evenly cool room is best for apple and pear storage. A cellar is ideal for the purpose but few cellars will be met with except in country districts. A spare bedroom, or frost-proof garage or shed, may be the most likely storage place under home conditions. It may be that the pantry or a cool cupboard will have to be used but remember the basic requirements: evenly cool conditions, freedom from frost and an atmosphere not too dry.

I would stress again, however, that no matter how good the storage conditions, only sound fruit will store successfully. Remember, too, that a variety will not keep longer than its natural season. If fruit is kept too long, it goes "woolly", that is, it loses it juice and its flavour.

The above points apply equally to late varieties of apples and pears, but bear in mind that it is the naturally late season varieties that are treated in this way. Some common examples are: of dessert apples, Cox's Orange Pippin, Laxton's Superb and Sunset; of cooking apples, Bramley Seedling, Lanes Prince Albert, New-town Wonder and King Edward VII, and of pears, well-known varieties are Winter Nelis and Josephine de Malines.

The mid-season varieties of apples and pears may be stored under the conditions described but must be used once they reach their peak condition. Finally, remember that the best storage results will be obtained with well-grown fruit of firm texture, free from pests and disease damage, and carefully picked and handled at all stages.

It would be easy to suggest that an ideal storage temperature for apples and pears is 40 degrees F., or even lower. In practice, under "home" conditions, fruit may be kept at 40 to 45 degrees F., or at even higher temperature—probably the most likely temperature range that can be maintained.

In old gardens, fruit storage rooms are often found built into the

North side of a wall. These have small windows or ventilators and earth or brick floors, therefore provide cool, semi-dark and fairly humid conditions.

Some special points concerning pears are as follows. A storage temperature of 40 to 45 degrees F. is best and when the fruit is nearly ripe it should be transferred to a temperature of 60 degrees F., so that it develops its full flavour.

As storage proceeds, transfer the fruits which are more highly coloured or more golden to a warmer place. Feel the fruits gently with the ringers, near the stalk end; the nearly ripe fruits will have softened to "give" when pressed lightly.

Pears tend to ripen unevenly and, therefore, frequent inspection is necessary. For this reason, it is easiest if the earlier fruits are left unwrapped, but they must be laid carefully in the trays so that the stalks do not damage adjacent fruits. Oiled wraps can be used as suggested for apples, for late varieties in particular.

Chapter VIII

Cultural Management of Established Bush and Standard Apple Trees in a Garden, with special reference to Trees Growing in Grass.

Management.

The best apples are grown in grass and, where this is possible it is the method that should be adopted. If one has only a few bush or half standard trees, and vegetables or other crops have to be grown in the ground beneath, then the grass method is impracticable. The advantages and benefits of the grass system are:—

1. The mowings, which should always be allowed to rot back into the soil, add valuable organic material and ensure that some potash reaches the tree roots.
2. Deficiencies of trace elements are fewer, iron deficiency in particular.
3. Dessert varieties are much more highly coloured, are firmer in texture and have a better finish, compared with fruit pro duced in dug (cultivated) ground.
4. The keeping-quality of the fruit is very much improved, the texture of the flesh being firmer.
5. Pruning, picking and work generally are much more easily done on grass, especially on heavy soil.
6. Apart from direct benefits, the grass can be used for poultry, even on a small scale, especially if a paddock is being used.

Growing apples in grassland is natural cultivation in the true sense, and frequent mowings with lawn mower without the box, so that the clippings lie on the surface, is organic manuring of the best kind.

Young trees can be severely checked if grass is allowed to grow up close to them in the early years, so, if they are planted into a grass plot, keep a circle 2 ft. all round the trunk, clear of grass for 2 to 3 years. If the land has yet to be grassed down, delay this for a similar period.

There is no reason why the space in between the trees should not be intercropped with vegetables during the early years. Every opportunity should be taken to increase the organic content of the soil by regular compost application, especially if the soil is poor or light.

If established trees are being grown in grass on light soil there may be a check in growth in the early years. In such a case, compost applications, as surface dressing about \ in. thick, will be needed each spring. Such mulches should be placed over the area

occupied by the roots and will serve a double purpose. They will supply plant foods (particularly nitrogen, which promotes growth) and aid moisture retention in dry spells—always an important point on light, sandy soils. Such mulches may temporarily inhibit the growth of grass but will not kill it.

If the trees concerned are being grown in an area where rainfall is very low, grassing down may cause a more severe check in growth in a dry summer, than is intended. In such cases, extra mulch material, i.e. straw or compost, may have to be used on the area under the spread of the branches as an aid to moisture retention, even at the expense of the grass.

If a plot is to be sown down to grass, especially for apples, a good mixture to use is: Timothy and Wild White Clover. The sowing quantities should be 4 parts of Timothy and 1 part of clover at the rate of 1 oz. to the square yard. Seed should be sown broadcast on a finely worked soil surface in April or early May, if possible when rain threatens. Lightly rake the soil surface partly to cover the seed and roll the land once. If no roller is available, and the area to be treated is small, firm the soil with two planks, standing on one whilst the other is moved. This grass should be mown heavily during the first season and not be mown short at any time; aim at a "mat" of about *2* ins.

If established apple trees are being grown in cultivated land, i.e. not in grass, a system of management that can be thoroughly recommended under garden conditions is as follows.

All weeds and any natural grasses may be allowed to develop from July onwards. If this means that some, e.g. thistles, are likely to seed, cut these down before they flower and leave the stems to rot into the soil. If the weed growth is lush, as it may be in a wet July or August, cut it once or even twice with a scythe or bagging hook and let the cut material lie where it is.

This mat of weed growth may be left until spring when the whole can be forked shallowly, just deep enough to bury the weed growth. On light, sandy soil, and on poor soils particularly, the extra organic matter so added will be of especial benefit. The main reason for this treatment, however, is to exert a better finishing effect on the ripening fruit. It is in fact a type of semi-grassing down method. From a practical point of view it is easier to pick and prune trees from a weed-covered site than from a cultivated area.

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I have already touched on the position where other crops are grown between established cropping trees and where space dictates that such crops as vegetables have to be grown. Then, one can only treat the cropped area of soil as the vegetables dictate, and feed the apples through the root area directly under the branch spread —but they will, of course, be affected by the feeding of the vegetables.

If one has bush apple trees on a plot by themselves and the open ground between them is dug or cultivated each year, remember that organic matter is more quickly lost from the soil under these conditions. It is best to practise shallow surface cultivations only in summer and, better still, to let the weeds and natural grasses develop from July onwards, as described earlier.

In conclusion, remember that the production of good fruit is dependent on a number of inter-dependent factors, many of which are of equal importance. No amount of attention to one such factor, e.g. pruning or manuring, will remedy other weak links in the chain of production.

Chapter IX

Pears, Plums, Damsons, Peaches and Apricots.

Pears.

Pears have an appeal of their own and few fruits can equal their melty, juicy attraction when ripe. Some varieties need the protection of a wall to produce fruit of highest quality but there are several sorts that can be relied upon to give good results in the ordinary garden. A few bush or cordon trees should be a part of any new planting scheme.

It has been found during recent years that cold winds and a cold, open, exposed position play a big part in poor results with these fruits. Choice of site, with these factors in mind, is therefore important—if one's garden offers a choice of site, that is. It is true to say, regarding soil conditions, that pears need soil reasonably retentive of moisture but they do stand up to a fairly wet soil better than do apples.

The planning, planting and care of pear trees during the early years follow the same general principles as for apples. In general, pears are best grown in cultivated ground, and they require rather more nitrogenous feeding than do apples. The principles of this subject have been dealt with in Chapter III. Pruning has been covered in Chapter V. For details of varieties see Chapter VI, where some of the best sorts for garden planting have been selected and described. Picking and storage are covered in Chapter VII.

The management and manuring of a pear tree in a small garden are very similar to the treatment advised for apples. It is easiest if the pear trees are growing in a separate place from the vegetables and flowers but, as has been stressed earlier, this is not always possible because of space limitation and a natural inclination to make the fullest use of one's garden area.

To get the best out of a pear tree, it must be adequately fed. This fruit requiries fairly heavy nitrogenous dressings and regular attention to potash requirements. Like apples, pears do not need very much phosphate. Care should be taken with applications of lime, as too much may cause a yellowing of the leaves, due to iron being made unavailable, and vigour may suffer. (This subject has been mentioned earlier, in Chapter III.

Under average garden conditions, on dug land (ground not in grass), pears should have an annual winter dressing of compost or farmyard manure; a 11/2 to 2 in. layer spread over the area occupied by the roots is appropriate. This may be applied in late January or February. Such work is often most easily done when the ground

is hard with frost, thus allowing easier movement of the wheelbarrow.

In addition, apply also a 4 oz. dressing of wood ashes and 1-J oz. of Hoof and Horn, in February. If adequate shoot growth is being made as a result of previous compost dressings, the Hoof and Horn may be reduced or left out temporarily, but be guided each year by the amount of new growth being made. Trees in grass should have 2 oz. of Hoof and Horn instead of 11/2 oz. as suggested for trees not in grass. The phosphate requirement is the same for pears as for apples, that is, applications are required, every 3 years or so, of Bone Meal at the rate of 3 oz. to the square yard.

If, as often happens in an established garden, one has apple and pear trees mixed up together in the same plot, it is not easy to differentiate as regards manuring. The odd pear tree or two should then be fed in the same way as the apples but, if time allows, give a little extra nitrogen, especially if growth does not appear to be very strong.

If one is starting with a new garden and some pears are wanted, try to find space on a wall, preferably facing South, for some cordon trees. Where this is possible, some of the mid-season and later varieties should be grown to provide a welcome increase in the variety of late fruits.

Plums.

Introduction.—The plum is a popular garden fruit as it does well in a variety of conditions. To get satisfactory crops suitable varieties must be chosen with the pollination factor in mind, and the site must be frost-free, as far as possible. The blossoms in April, and the fruitlets in May, are easily damaged by frost and, if this occurs, the whole crop may be lost.

The best types of soil are those of medium and heavy nature which are moisture retentive. Very sandy or chalky soils will not give such good results. A high rainfall area is not a disadvantage except near to picking time, when certain varieties, especially gages, tend to split.

The fruit is more accessible from half-standard trees although standards may be underplanted with vegetables, blackcurrants or strawberries and this is certainly an advantage when space is limited. Fan-trained trees of dessert varieties can be grown against walls.

Plums are used for dessert, cooking, jam-making and bottling, but they will not keep long after picking, as has been stressed in Chapter VII.

Management.—To obtain good quality crops, attention must be given to the growing conditions. Cool, moist soils are ideal and these should be fairly high in organic matter. Plums need ample nitrogen, which can be partly supplied as an annual mulch of compost, in late winter. On poor soil, this should be supplemented with a dressing of Hoof and Horn at 1 oz. to the square yard, also given in late winter, in February if possible. Potash may be needed on light soils more than on heavy types of land, and 2 oz. of sulphate of potash to the square yard each spring or 4 oz. of wood ashes should not be omitted.

Lime should not be applied unless it is known that the land is acid. Over-heavy application should be avoided as this can lead to other troubles linked with lack of iron.

Nitrogen requirements for plums are dealt with, if the trees are growing in grass, by 11/2 to 2 oz. of Hoof and Horn, per square yard, this extra rate being needed to counteract the competition of the sward.

The pruning of plums has been dealt with in Chapter V, but it can be stressed again that all pruning cuts over, say, 1 in. in size should be painted over with white lead paint to prevent the entry of Silver Leaf Spores. Any dead wood should be cut out as soon as seen.

One important point in management, is that plums tend to crop heavily one year and lightly the next. Where the crop is heavy some thinning of the fruit is best done to reduce the very thick masses, for, if the weather is wet, the disease Brown Rot can put in an appearance. This trouble spreads very quickly, and the thicker the fruit the more loss may be sustained. This disease is dealt with in Chapter XII.

Very heavily-laden branches are best supported on forked poles or stakes to prevent any possibility of their being broken under the weight of fruit. If this does happen, Silver Leaf disease spores may enter through the damaged tissue. If such does occur, affected areas must be painted over as described earlier. In any case, one does not want to lose whole branches, as this means loss of potential crop. Staking should be attended to promptly when it can be

seen that some low-growing branches are heavily-laden. Details of suitable varieties are given in Chapter VI, whilst planting is the same as for apples and pears (see Chapter II). Picking of the fruit is dealt with in Chapter VII.

Damsons.

The average small garden may not have room for more than one damson tree, if plums are being grown as well. If one has a paddock or plot of fruit separate from the main garden, some damsons should be considered on the North or East side as a windbreak, due to their tough constitution.

Damsons may appeal to those with limited time to spare, as they require little pruning except during the first few years; when fairly hard pruning to maintain the correct shape should be the rule. Standard or half-standard trees are grown and general management and feeding should follow the same lines as those suggested for plums.

Peaches.

Out of doors, the best peaches are grown on a South wall, where the full benefit of sunshine and warmth is obtained. For such position, fan-trained trees are used, but it is possible to grow peaches as bush trees in the open garden.

Many gardening enthusiasts raise peach trees from stones, these sometimes being of Italian origin, a considerable quantity of fruit being imported from that country each year. Trees raised from stones give variable results, however. They may fruit in a few years, or they may take much longer. Fruit quality may vary, as may the season of ripening. The stone or stones which are to be sown are best kept over winter in a tin of moist peat, as this helps to break down the outer shell and hastens germination.

The "seeds" are best sown out of doors in a sandy soil, in spring, setting them 2 ins. deep, and marking the spot with a label or cane. Not all may germinate, but of those that do, some may make several feet of growth in the first season.

Bush peaches need an open sunny position, in very well drained soil. They are of vigorous habit and one tree may be ample for average garden conditions, or where space is limited.

I would not normally recommend a bush peach, unless there is

ample room, and would much prefer to grow an apple, pear or plum instead.

To return to trees grown on walls, selection of varieties for outdoor growing is important. Two sorts that have done best in my experience are Peregrine and Rochester. These and others are described fully in Chapter VI.

Regarding situation, soil and site, fan-trained peaches can be successfully grown in the Southern and some Midland counties. An important requirement is a fertile soil not liable to water-logging. In the preparation of the site, a barrowful of fibrous loam should be added to ensure a good root run and a good start for the young tree. The soil should not be acid. If it is necessary to add lime to correct acidity, care must be taken that the amount applied is not excessive, as it can lead to a deficiency of iron, causing pale leaves and general lack of vigour. Builders rubble, or crushed mortar, can be incorporated in the preparation of the planting site and this will also serve to improve the physical properties of a heavier soil. The ground should be well forked to two spits in depth and Bone Meal at 4 ozs. and Wood Ash at 3 ozs. to the square yard can be added to advantage. Although a Southern aspect is usual, a South West or West wall can be used, particularly for the early and mid-season varieties. The main consideration is to ensure protection from cold winds or frosts, in spring, and adequate sunlight to ripen both fruit and shoots.

Training.—It will be necessary to decide on the system to be adopted for tying in the shoots. Methods include tying to a trellis work, or to flat headed nails inserted at convenient places between the bricks. In old walls this is easily done, as the mortar is usually soft. Lead-headed nails can be used, folded over the shoots, but take care that damage is not caused by this method. Horizontal wires, not more than 10 ins. apart, may also be used. Whichever system is adopted, the frame work should be 2 ins. from the wall.

Planting and Initial Formation.—Planting is best carried out in the Autumn, before the soil has lost its warmth. The tree will have been budded, usually on to a plum stock, which will give a rather vigorous tree. 15 to 20 feet should be allowed between trees, if more than one is planned for. Planting should be carefully carried out. the union of peach and rootstock should be well above ground level,

and the tree should be 6 ins. from the wall. Soil must be settled between the roots, and adequately firmed. The young tree will generally have 4 or more main growths, and these should be cut back about half way after planting. During the following Spring, growth only should be allowed to develop from each. Unwanted shoots should be rubbed out when small. Tie in all new growths to the wires or supports.

Second Year.—In late Winter the main branches are shortened to a good upward-pointing bud leaving about half of the new growth. Next spring, shoots will arise from buds at the ends of each branch.

Third Year.—Continue to tie in new shoots. Shorten back all new main growths by one third, to a strong bud. All selected shoots are tied or secured to the wall or wires, as before.

Fourth Year.—Pruning is continued as before, though rather more lightly, the aim being to fill up the centre of the tree, working from the original branches, and controlling the natural tendency for strong, upright growth. Certain well-spaced shoots may be left at a spacing of 6 ins. along the branches; these will be tied in during the Autumn to bear fruit the following season.

Subsequent Treatment.—The main framework of the tree being now virtually complete, shoots are selected annually for fruit bearing. Tipping of the branches is continued where required to encourage growth.

Disbudding and Thinning.—The blossom buds will be seen as fat buds in the centre portion of the shoots which were tied in. During the Spring and Summer, growth from these shoots is treated as follows. All new growth pointing towards the wall, or straight out, is removed when 1 in. in length. Disbud to leave one shoot at the tip of the fruiting wood, one at the base of replacement and one blossom bud per 6 ins. of shoot length. The replacement shoot is left entire; others are stopped at 4 to 5 leaves.

After fruiting, the old wood will be removed and the replacement tied in.

Fruit should be thinned when about marble size to leave twice as many as will eventually be required. There may be some losses

during the stoning period. Watering should be done if the weather is very dry. The final thinning of the fruits should be attended to when the stones are well-formed and a general guide is to leave one fruit to each square foot of wall area; but more fruits may be left if desired.

Mulching and Manuring.—It is essential to keep the roots moist, for which reason compost should be placed round the tree in the summer and water applied when necessary. Artificial fertilizers are not essential but, if the tree is lacking in vigour, a nitrogen/ potash dressing may be applied in early spring, in the form of 2 ozs. of wood ashes and 1 oz. of Hoof and Horn to each square yard.

In summer, up to the time the fruits are ripening, damp the foliage during the evenings, after warm days. Not only will this benefit the trees but it will also help to prevent Red Spider.

As the fruit develops, make sure that individual specimens are not being shaded by the foliage, as this may cause uneven colouring. Peaches are ready to pick when they part easily from the tree on being lifted gently. It is best to look over the tree regularly when fruit does start to ripen, so that all may be gathered at its best.

Apricots.—This fruit is not grown very often, possibly because it demands closer attention to detail and has more definite soil and cultural requirements than do many other fruits. Its quality and flavour are well known and in a class apart. If room allows and conditions are favourable, a fan-trained tree on a South wall will provide a delicacy.

The choice of variety is rather restricted. For garden planting, I would recommend New Large Early, which is ripe in July and of very good quality. Moorpark is one of the most popular sorts, however, ready in August and a good cropper.

Apricots are similar to peaches so far as general cultural requirements are concerned. Sometimes they suffer from a form of Die Back but this should not deter one from trying one tree on a warm wall. A well-drained soil is essential and some mortar rubble worked into the top spit of soil is an advantage. The site should be sheltered and not shaded. Planting is best done in October, if possible.

Pruning and training follow similar lines to the treatment needed for peaches, but branches may be rather closer together and the fruits closer than with peaches.

Chapter X

Blackcurrants, Red Currants and Gooseberries.

Blackcurrants.

This, one of the most popular soft fruit crops is invaluable for jam making (often being one of the best liked preserves) as well as for tarts and pies. The high vitamin content of the fruit is made use of in a well-known fruit drink. Many enthusiasts for "blackcurrant tea", made by mixing jam with hot water, find that this is a good treatment for "colds".

The main season for blackcurrants is late June, and through July, into August, but July is the main period of use. This fruit makes a very good crop for a small garden. A limited number of bushes, say six, will pay dividends, even if little or no fruit has been grown previously.

Blackcurrants are one of the most responsive crops to compost gardening and, indeed, demand a very high level of humus in the soil. It is true to say that blackcurrants need as much compost or farm yard manure as can be spared. Due to the large amount of surface roots that are made, annual mulches of compost, or compost with straw on top as a weed smother and permanent mulch, serve this crop very well.

If a new planting is being planned the initial soil preparation is important. Deep digging is essential, bearing in mind that all future cultivations during the next 14-16 years (the life that can be expected) will be of a surface nature. In any case, due to the quantity of roots in the top layer of soil, no deep cultivation should ever be done between established bushes. This is a most important cultural factor, and must be stressed.

During this initial digging, add in some strawy compost, if available. If compost is none too plentiful (and compost enthusiasts can never get enough), apply a surface dressing of 2in. thickness if possible, after the winter digging and up to a week or so prior to planting. Keep this compost in the top few inches, where it will be of most benefit to the developing roots, and fork it in lightly.

When buying bushes, those from a good source pay dividends, for so-called certified stock is the best insurance against the virus trouble called Reversion, which leads to loss of crop. Two-year-old bushes are needed for new plantings. The planting distance under garden conditions is usually 6 ft. by 6 ft. but dwarfer-growing varieties such as Baldwins may be set at 5 ft. by 5 ft.

Just prior to taking out the holes for planting, apply 3 ozs. of

bone meal, and 2 ozs. of wood ashes, to each square yard of the area to be occupied by the bushes. This should be raked into the top few inches of soil.

Take out holes a little larger than the root span, and set the bushes at a depth 2 ins. greater than they were previously; the so-called "soil mark" can be seen on the stems. Fill in the soil around the roots and tread it firmly. Two-year-old bushes have 3 or 4 main growths or branches. After planting cut these off, so that about 2 ins. only, remains. This hard cutting back ensures ample new growths from the base of the bush; it is new wood, in plenty, that must be the aim with blackcurrants.

Planting may be done any time from September to February (the dormant season), so long as the soil is not too wet and sticky. In bad weather bushes may be heeled in, that is planted temporarily, until soil conditions are suitable. After planting has been completed, a mulch of compost (even if only J in. in thickness) will be of great benefit in helping the bushes to get away to a good start, in that such a mulch acts as an aid to moisture retention.

In fact, compost plays such a big part in successful blackcurrant growing because the high organic content of compost-enriched soil retains the moisture so essential to the swelling of large, juicy berries. Not only is this benefit ensured, but nitrogen released from the compost is the main element responsible for the strong new wood, which bears the best quality and largest berries.

To return to pruning; the shoots made in the first year after planting are left untouched at the end of the season. These will bear some fruit the next summer, and at the end of that year 2 or 3 of the shoots should be cut down to 2 or 3 buds.

The main principle of pruning established blackcurrants is to cut out at least some of the old shoots that have borne fruit, and leave in as much as possible of the young wood. The new wood is always light and straw coloured, whereas the older wood is dark brown or black. Where possible, cut old shoots down to soil level, so that new growth from below the soil is encouraged. If faced with pruning established bushes for the first time, remove about one third of the total amount of wood present, such wood of course being the older shoots.

The prunings cut off the newly planted bushes may be used for cuttings, if further bushes are wanted. These should be prepared by cutting them 10 ins. long, above a bud at the top and below a

bud at the bottom, discarding any very weak thin growth at the ends of the shoots. See Fig. 9.

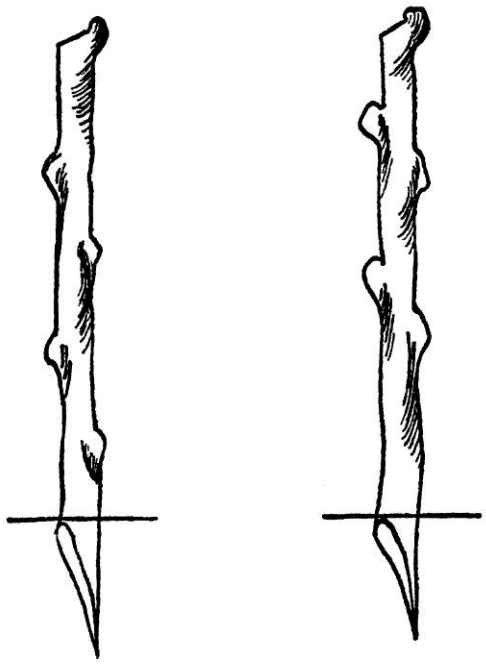

Fig. 9.—Left: Blackcurrant cutting with buds intact. Right: Gooseberry cutting. Leave only three buds at the top of the cutting.

Insert the cuttings firmly so that only 1 in. remains above soil level and set them 12 ins. apart. This can be done as soon as such cuttings are available, i.e. when the main batch of bushes are planted. The earlier in the winter that this job is done the better, and October is the best time for inserting cuttings. Do not leave shoots exposed to the weather after being cut off the bushes; prepare and use them the same day if possible.

At the end of the first year's growth, in autumn, cut the new shoots down to leave 2 ins. only on each, cutting just above a bud in each case. After a further years growth, the bushes will be two years old, and ready for planting in their permanent positions.

If one has to tackle neglected bushes, that have grown very tall, the best way to deal with them is to cut all growth down to within

1 in. of soil level, in winter. This, with the manuring practices recommended, will ensure new growth, and far better results than if the neglected bushes are just left.

Regarding the manuring of established bushes, apply as generous a mulch of compost, as can be spared, every year, in late winter or early spring. A layer 2 to 3 ins. deep is a good amount to aim at, and this should be applied to the square yard or so occupied by the bushes. As mentioned earlier, a straw mulch over the compost, applied afresh each spring, ensures still more organic matter as it rots, and also acts as a weed suppressor.

As well as the annual compost applications, blackcurrants respond to a dressing or organic nitrogenous fertilizer, especially of the slow acting type, such as Hoof and Horn. This is best given in three applications, one in March, one in April and one in May, each at the rate of 1 oz. to the square yard of the area occupied by the bushes. Spread the fertilizer evenly on each occasion. An annual application of 2 ozs. of bone meal, and 2 ozs. of wood ashes, will also be needed, and should be applied, on top of the surface mulch, each February.

Apart from hoeing in the early years, in the area between the bushes, and pulling out by hand any large weeds that may come through the mulch material, there is no soil cultivation needed for this crop, so long as annual applications of compost are made.

Reference is made in Chapter XII, to Big Bud, which can be the chief pest of blackcurrants, and it need only be stressed here that if any large, round buds are seen on the shoots, when they are bare, in winter, such buds should be picked off and burned, to prevent further spread. Each affected bud may contain several hundred Big Bud "Mites". During the summer months, aphis may attack the tops of the young shoots; if this happens, spray with a Derris preparation, at the first sign of attack.

To come to the gathering of the crop; remember that in picking the fruit the early varieties are ready first, and should be picked when fully black but not so soft that the berries split. The mid-season and late varieties will follow. Pick the berries when nearly all on the string are black, but the very end berry may still be red in colour. The fruit should be picked in fine dry weather.

Always handle the "strings" (bunches of fruit) by the stalks. Do not crush the ripe berries in handling, and lay them gently into the packing container which is usually a small chip basket or punnet.

Full details of the best varieties are given in Chapter VI and these points should be borne in mind when making a choice for new plantings.

Red Currants.

These are not so popular as the other soft fruit and, usually, not more than one or two bushes are required. The brightly-coloured fruit is much liked by birds and bushes often have to be "netted" to protect the berries.

Red currants will grow quite well on a fairly wide range of soils. For best results, however, a good medium loan is desirable. Drainage is important and care should be taken to see that this is adequate. The site chosen should be sunny and not too exposed to strong winds. Red currants can also be grown as cordons on North walls, where they are generally quite successful and have a longer period of ripening.

Two-year-old bushes are best for planting. Soil preparation and planting are the same as for gooseberries, and the same planting times apply. The early stages of pruning are the same as for gooseberries and the pruning method adopted is as for dessert gooseberries, i.e. spur pruning. The spacing of bushes is generally 6 ft. apart, and firm planting is essential.

After planting the bush should be allowed to settle in. The branches are then pruned back to 5 or 6 buds from the base. From the topmost buds growth will arise during the following season. Usually the strongest growth will arise from the two buds nearest the cut; if a weak third growth arises, it can be removed.

In the winter following, the eight strong shoots which form the framework of the bush are shortened by one third to one half of their length. If the bushes are not growing strongly the harder pruning is adopted. If desired, more branches may be allowed to develop from other buds, for a vigorous bush can carry twelve or even sixteen branches.

Red currants produce fruit on pruned spurs of two year and older wood. Therefore, all growth except the terminal shoot, which is the continuation of the branch, is pruned in the winter to two buds. Fruit will subsequently be borne at these points. The terminal shoot is shortened as before according to vigour. Subsequent pruning is the same, always spurring back hard all growth except the branch extensions.

If, however, it is decided later to raise some bushes from cuttings, these are prepared from sound, well-ripened primings in the autumn. They should be 12 ins. in length and all buds except the top 4 or 5 are removed. The cuttings can either be planted out then, at a spacing of 6 ins., pushed down into a spade cut, or left "heeled" into the ground and planted in the spring.

Regarding manuring, prior to planting, fork in a 2 in. layer of compost, and give 4 oz. to the square yard of bone meal, also 3 ozs. to the square yard of wood ashes. Each February subsequently, excluding the first one after planting, give a 1 in. mulch of compost and a dressing of 3 ozs. to the square yard of wood ashes, 2 ozs. of bone meal, and 1 oz. of hoof and horn, all to the square yard and applied evenly over the area occupied by the bushes.

Other routine work includes hoeing in summer and early autumn, and the removal of any large weeds by hand. Mention has been made of how birds are attracted to the ripe fruit, and a net may have to be used for protection, if the soft fruit is not being grown in a fruit cage.

Gooseberries.

This crop is always useful in a garden, especially as it crops early in the season, the first berries being available for cooking purposes, i.e. for tarts, pies and jam, in late April and early May and continuing into June. Gardeners who live in early areas, Devon for example, will enjoy the first "picks" slightly sooner than those elsewhere. The ripe berries of dessert gooseberries are not ready until later in the season, chiefly in July and August. Some varieties are best picked green for cooking, and some are best for dessert purposes alone, but several can be put to both uses and, in a small garden particularly, these are especially valuable. Some of the best varieties, including the dual-purpose sorts are described in Chapter VI.

The best age of bush to plant is 2 or 3 years. Preparation for planting and the actual planting are the same as for blackcurrants, but the depth of planting should not be greater than the bushes were previously—this being seen by the "soil mark" on the stem. Gooseberries are grown as bushes, with a "leg", i.e. not as a "stool" as are blackcurrants. Planting may be done in autumn or winter, but October is the best time, so that the soil settles in position before winter. Do not plant if the soil is very wet. If conditions

are unfavourable, the bushes can be heeled in until the soil is suitably dry. Planting distances should be 5 ft. by 5 ft. square for most varieties but, on naturally rich, deep soils, 6 ft. apart each way is the spacing recommended. As with other soft fruit crops, an exposed position may mean damage to the blossoms by cold winds or frosts early in the year. Although frost damage is not so likely as with a low-growing crop such as strawberries, avoid a low-lying position where new plantings are being made in the garden. As with other soft fruit crops, poor drainage can lead to roots dying out in winter and to the death of the bushes, and this must be borne in mind. Some varieties, Leveller particularly, will not do well on clay soils; under these soil conditions, the dual-purpose variety, Whinhams Industry, should be considered.

Often, when space is limited, soft fruit has to be grown beneath apple, pear or plum trees. Gooseberries lend themselves to such a position, being quite tolerant of some shade. Gooseberry bushes are rather more expensive to buy than are blackcurrants or red currants, and a 3-year-old bush may cost approximately 5/- from a nursery.

In the early years after planting, shorten back the main branches about half way. Aim at an open centre to the bush, with the main shoots well spaced out, to allow ease of picking and to avoid congestion of laterals (side growths).

When cutting back the new growth on the main shoots (the Leaders) each winter, any weak shoots should be cut more than half way and any stronger than usual, less than half way. Always cut to an outward-facing bud to promote upright and outward growth, thus preserving the open centre of the bush. If "weeping" varieties are grown, always cut to an upward-facing bud. For dessert varieties, and where large berries are wanted, the best method of pruning to adopt is spur-pruning. This means having about 9 to 12 main branches in an open cup shaped formation. All the side growths (the Laterals) in these branches are shortened back each winter to 2 buds, thus forming short "spurs" on which the fruit is carried. With gooseberries, the fruit is borne on the older wood. If birds are troublesome in that they eat or damage gooseberry buds, delay pruning until late February, when the trouble will be minimised if not prevented. (If bushes are grown under a "cage", this point will not apply).

For bushes of ordinary varieties, which will be used for picking

green berries, or mostly for this purpose (with perhaps some berries left to ripen) a different system may be adopted. The general shape of the bush should be the same as described earlier, but all the laterals need not be shortened back to 2 buds. They should be shortened sufficiently to allow easy picking of the berries however, usually to about half way, and some of the lower growing ones shortened back to prevent the fruit being splashed with soil. Low hanging branches should be cut off in any case. Some varieties are of weeping habit (pendulous), e.g. Cousens Seedling, and this point is especially important with these types.

If more gooseberry bushes are required later, hard wood cuttings should be taken in October, about 10-12 ins. long. Use firm, new shoots and remove all buds except the top three (seee Fig. 9). Insert the cuttings to one third of their depth, only. The aim is to retain a "leg", thus keeping the branches up from the soil level. At the end of one year, lift the rooted cuttings and replant them slightly shallower, again with the aim of producing the "leg" or main stem. At the end of a further year, the young bushes may be set out in their permanent positions.

To turn to feeding and nutrition: potash is particularly important to gooseberries, which are quick to show any deficiency. Considerable potash is available from compost but it is best to give a 4 oz. to the square yard application of wood ashes (or 1 oz. of sulphate of potash) to the whole gooseberry area each year, in February. If insufficient potash is available, the deficiency shows as a brown marginal leaf scorch and some dying back of the main growing points on the branches may take place.

Regarding nitrogen: there should be sufficient available from compost application to promote adequate growth. Too high a nitrogen application leads to branches being blown out and to overmuch shoot growth being made. Growth is wanted, certainly, but not too much soft growth.

In commercial practice, gooseberries are given fairly heavy dressings of bulky organic manure, farmyard manure often being used at about 5 lbs. to the square yard, particularly on light soils. Shoddy, at the rate of 1 to *11/2* lbs. per square yard may be used as an annual mulch if little or no compost is available.

On very light soils magnesium deficiency may occur; the leaves develop a red margin, later turning yellow. If these symptoms show, and the soil is also thought to be deficient in magnesium,

apply about \ lb. of magnesium limestone to each square yard.

To summarise: the manuring of established bushes should be as follows. Apply a 1 in. mulch of compost in February and, with this, add a 4 oz. to the square yard dressing of wood ashes and 2 ozs. to the square yard of bonemeal.

Routine work in summer involves pulling out any large weeds by hand, or hoeing off any general weed growth when it is small. Do not hoe or cultivate too near to the bushes.

Picking the fruit is a straightforward operation. The earliest berries may be gathered when large enough for cooking purposes and further pickings may be carried out several times if necessary, as further fruits develop. Remember to leave the berries of dessert fruits to ripen fully before gathering, but not for so long that they start to split.

A point to keep in mind about this crop is that, as cordons, gooseberries will do quite well on a North or East wall, the mid-season varieties being best for this position. If gooseberries are cordon grown, spur pruning is best adopted.

Chapter XI

Strawberries, Raspberries, Hybrid Berries and Blackberries.

Strawberries.

There is no need to stress the popularity of this delicious fruit, it is in season during June and early July, if ordinary varieties are grown, although with the use of autumn-fruiting types the season can be extended considerably.

In the small garden, some fruit is usually grown for eating fresh and the smaller berries are used for jam. If the latter purpose is of especial consideration, a suitable variety should be chosen for the purpose but, normally, any variety is suitable for preserving.

This is yet another soft fruit crop that responds very well to heavy compost applications. For top-quality berries, a high level of organic matter in the soil is essential, and fruit quality is much improved by heavy organic manuring. Plants also do much better in dry weather conditions, when the soil is well enriched with organic matter. Fruit size is also largely dependent on soil moisture, and the fact that this is improved by humus gives added reason for high compost applications. It must be stressed however, that too high a nitrogenous level in the soil can lead to over-soft growth and, more important, to over-soft berries, with the result that in a wet season, the crop is more liable to attack by the Grey Mould fungus, called Botrytis.

The main point to bear in mind when planning for strawberries is that a bed will usually give three or four good crops and then deteriorate. This means that fresh plantings have to be made to replace the old beds. Bearing in mind that no fruit is taken in the first year after planting, plans must be made well in advance of requirements. If, for example, a bed is retained only for 3 crops planted in, say, August 1960, cropped for the first time in 1962, again in 1963 and 1964, then pulled out, a new planting should be made in 1963 to give fruit in 1965.

The site for the strawberry bed should be open, sunny and well-drained. It should not be in a depression, or in low-lying land where frost damage is likely, for the open blossoms can easily be damaged, by low night temperatures (32° F. or less) in May.

The best time to plant strawberry runners (the young plants) is in August, or as soon afterwards as possible, so that the plants become established before winter. Planting distances in the garden should be *21/2* ft. between the rows and 18 ins. between the plants in the rows. Depth of planting is important and the crown, the fleshy area above the roots, should be inserted to about half its depth.

Too deep a planting will lead to losses, as will too shallow and too loose a planting. Always plant firmly and use a trowel to give a large enough hole, in which the roots are not cramped.

Although fruit may be taken in the first season after planting, better crops are obtained later by taking off the flowers in the first season (de-blossoming). Under garden conditions it is possible to compromise, and allow some of the young plants to fruit, but, and this is important, only if planting was done early, i.e. in August or September.

If, however, strawberries are to be grown under cloches, young plants *are* cropped in the first season, i.e., planted in August, cloched in January and cropped in May. I have always found it best to discard such plants after picking has finished as the "forcing" lowers the vitality, but if there are no other plants, these can be kept for one more season.

The length of time it is advisable to keep an ordinary bed of strawberries, whether less or more than say three years, depends very largely on the incidence of virus troubles, such as Yellow Edge and Crinkle. These cause loss of vigour and poor crops, and are spread very largely by Strawberry Aphides and other sucking insects. If a bed is cropping well, vigour is good and the plants are generally healthy, then such factors dictate whether the bed is to stay down for another year.

To return to the newly planted bed: in addition to removing the flowers during this first season, the runners must also be cut off as they form, otherwise the whole bed will become a tangled mass of growth.

Routine work on strawberries may be summarised as follows: on established beds, top dressing in spring; hoeing if necessary; strawing down in May; protection from birds if necessary by netting or other means; picking; and cleaning up the beds in late summer, followed by a final hoe through, then surface applications of compost in the late winter. To deal with each of these points in turn, top dressings in spring should be as follows: apply 2 ozs. of bone meal and 2 ozs. of wood ashes to each square yard. Such materials must be scattered evenly over the soil between the rows. There are several methods of protecting the ripening berries from being splashed with soil or grit. Straw laid between the rows when the plants are in flower is the method in general use. The straw should be laid in postition and tucked well under the flower trusses

when these are still upright or when the weight of the newly-set fruit is just beginning to bear down. Enough straw must be used to form a protective layer between fruit and soil.

If straw is unobtainable, there are various kinds of straw mats that may be used, or a sheet of black polythene may be laid between the rows. Whichever method is adopted, slug damage is lessened by the mulch material.

Fruit of best quality is obtained by picking the berries in early morning in cool conditions. If this is not possible, never leave picked fruit in the sun. Take it into cool conditions immediately after picking. Always handle fruits by the stalk; do not pinch the berries between thumb and finger.

In a wet season, especially if the weather is damp and warm whilst the fruits are ripening, some losses may occur due to the disease called Botrytis or Grey Mould. Infected berries are attacked by the fungus which may envelop the whole berry with its furry grey mould. Such fruits should be picked off, kept separate from sound fruits and, later, be burned. It is a good practice to pick off such berries separately as soon as infection is seen.

After picking is finished, the plants will send out runners which must be cut off. Often the quickest method is to cut down alongside each row with a bagging hook and, at the same time, cut off the old foliage from the tops of the plants. All this cut material, together with the straw mulch, must then be gathered up; it will form good material for the compost heap. If there is Mildew infection on the strawberry foliage, make sure that such material is placed on a warm heap, so that the disease spores are destroyed.

After this clearing up and the removal of any large weeds from between the rows and plants, lightly fork through the bed, very shallowly. If the weather is damp, further weeds may grow and hoeing on one or two more occasions may be necessary during the winter months. Any strawberry runners that have rooted themselves in the rows may be left.

If a bed has reached the end of its cropping life, after picking has finished the whole of the straw, plants and runners should be dug in to provide a useful source of organic matter.

If birds are a problem, one method of protecting the strawberry bed is to use old fish netting suspended about a foot or so above the plants on wire supports. If nets are not used, one can only rely on plastic windmills, strips of tinfoil or aluminium foil, or even a scare-

crow. A scarecrow with a brightly coloured jacket may be effective. One way to ensure the picking of ripe fruit is to start at daybreak! It is a known fact that ripe strawberries gathered at this time, when cool, are at the peak of condition and flavour.

The best crops of strawberries I ever saw were grown on a small area, by an enthusiast who dug in a mixture of compost and farmyard manure at the rate of 100 tons to the acre, about 50 lbs. to each square yard. The amount of compost that can be made will limit the rate of application but there is no doubt that a very generous dressing forked into the strawberry bed before planting pays dividends.

In cold or exposed areas, some protection from wind can be obtained by the use of wattle hurdles. See Fig. 10.

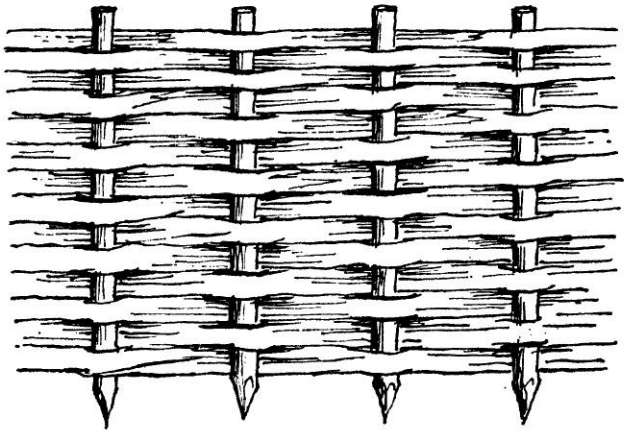

Fig. 10.-—Wattle hurdle.

Alpine Strawberries.—With this type, the foliage and fruits are small but the flavour is good. One of the best varieties is Baron Solemacher. This does not produce runners; new plants are raised from seed, which should be sown in autumn or early spring. Plants should be set 15 ins. apart and may be put out in a shaded position.

Autumn-Fruiting Strawberries.—These, often called "Everbearers", Perpetuals or Remontants, continue to crop from mid-July until the autumn frosts. By covering the beds with cloches or frames the season can be prolonged still further.

Some of the best varieties are Sans Rivale and St. Claude. As

their names suggest, they were developed by French specialists.

The plants are propagated by dividing the crowns either after fruiting or in early spring. The divisions should be planted 1 ft. apart each way in beds.

A variety recently introduced is Hampshire Maid, which fruits continuously through the summer and autumn. The flavour is particularly good.

Climbing Strawberries.—One of the best-known varieties is Sonjana. Each plant produces several runners and fruit is borne from June until autumn.

The runners may be allowed to trail downwards or they may be tied up with strings or canes, or the plants may be grown against a fence. They develop rapidly so that a large crop is obtained from comparatively few plants. This economy in space is valuable in small gardens and a climbing plant or two provide much added interest. The flavour of the fruit is fairly good but, in my opinion, does not equal that of the best of the ordinary varieties.

Raspberries.

This very popular cane fruit forms a valuable addition to the diet in June and July, and is one of the most widely used fruits for jam making. With this latter factor in mind, it is best to choose a variety especially for the purpose, either early mid-season or late, to suit best the individual needs. Personally, I suggest a late sort so that the fruit season is extended as much as possible. Full details of recommended varieties are given in Chapter VI.

Raspberries respond well to a high level of compost manuring. This is best done initially by a heavy application of compost forked into the top 6 ins. of dug soil in which the canes are to be planted, if possible treating a yard wide strip down which the row will run.

The fibrous, extensive root system flourishes in a free "run" and will thrive best of all where ample soil moisture is available. Raspberries crop heaviest in areas where summer rainfall is higher than average. As the fruit swells in the months of June and July, when dry conditions may prevail, the need for ample humus in the soil is apparent if only for this reason.

One condition in which raspberries will not succeed is where drainage is poor. This may be especially applicable in heavy soils, where the water is slow to get away in winter. Heavy losses due to

the drying out of the canes, may occur under such conditions. No amount of feeding will overcome such trouble, so choose the site for the new planting with care, and due attention to the drainage factor.

Just prior to putting in the canes, the following fertiliser mixture should be applied to the planting area:—3 oz. of bone meal, 2 oz. of wood ashes (or if not available, 1 oz. sulphate of potash), and 1 oz. of Hoof and Horn. This mixture should be applied evenly and raked into the top few inches of soil.

New raspberry canes should be planted in early autumn, in October if possible, and the best distances under garden conditions are, rows 6 ft. apart and canes 18 ins. apart. After planting, which should be done firmly, cut each cane down to 9 ins. from soil level. This is to encourage the production of new canes from below ground and is linked with the fact that raspberries fruit on the young canes, i.e. those made during the preceding year. Cutting down the newly planted canes means that no fruit will be borne in the summer following, but this delay will be amply repaid later. At the end of the first season's growth, there will be no pruning to do, as all the shoots are young ones, but, after a further year, and in each subsequent autumn, the pruning will be as follows:—

Cut out, at ground level, all the canes that have fruited. This will mean that only young shoots (canes) are left. The weakest of these may be cut out, and the width of the row be reduced to 9 ins. or so.

There are several different methods of training; the one I like best for a garden is that in which all the canes are tied to wires at a spacing of 6 ins. apart. If there are more canes than are needed for this, cut out the weakest ones, down to soil level.

The lower wire to support the canes may be *21/2* ft. from the ground, whilst the second wire may be *21/2* ft. above it. See Fig. 11. These wires will need to be secured to stout posts at each end of the row and, if the row is more than 30 ft. long, intermediate posts for support will also be needed.

After pruning is completed, and the new growth tied in, remove the dead canes and burn them. Pull out any large weeds by hand, and lightly fork alongside the row, but not close up to it or surface roots will be damaged.

Regarding mulching and feeding: surface compost dressings should be applied each year in February or March. If sufficient compost is available, apply a 2 in. layer, spreading this evenly over

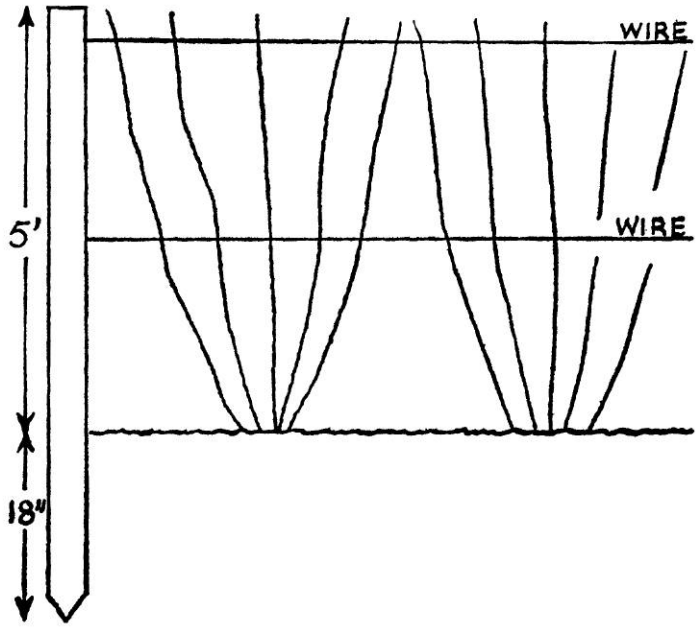

Fig. 11.—Method of training raspberry canes to two wires.

an area 4 ft. wide, i.e. approximately 2 ft. on either side of the centre of the row. In addition to the compost, the following dressing should be scattered evenly alongside each row, equal parts of bone meal and wood ashes at 4 oz. to the square yard. This should be applied in March, each year. If cane growth is poor, due to poor soil conditions, give 1 oz. to the square yard of Hoof and Horn as well. The area to be treated in each case, is the yard-wide strip in which the row is sited.

A light layer of straw, laid over the mulch is a means of providing extra organic manure and, also makes for easier working and picking. Such an extra mulch will also suppress some weed growth.

In early spring the tops (tips) of the canes may be shortened back, removing about 9 ins. and cutting to a sound bud. This is usually thin and often unripened wood, and some "die-back" frequently occurs at this point. All dead tissue should be removed.

When the flowers are open, and it is known from previous experience that berries have been damaged by the larvae of the Raspberry Beetle (see Chapter XII), the open blooms should be dusted

with derris when they are damp. This kills the adults, as they lay their eggs, and also the young larvae.

During the summer, the new canes (Spawn) may come up at some distance from the main row. Any such new shoots that are too far away from the row to be of use, should be hoed off, or pulled out by hand when small. It is not easy to hoe very close to a row of raspberries as the new shoots may easily be damaged. It is best to pull out by hand any weeds that come through the mulch.

The ripe fruit must be picked when dry and handled with care, to prevent any crushing, between thumb and finger. Always pick into small containers—1/4 or 1/2 lb. punnetts are suitable—so that the fruit is kept in good condition. The row or rows will need to be picked over several times, as the fruit does not ripen all at once. Always try to pick the berries in the coolest part of the day.

If the fruit is picked when damp or is crushed in handling, so that the juice "runs", it quickly deteriorates. It may well be that fruit is to be eaten or cooked soon after picking but, even so, the aim should be to gather it in peak condition.

A problem may arise where already established raspberries are taken over and unsatisfactory results are obtained. If the crop is poor, if the vigour of the canes is much less than it should be and, especially, if it is known that the row has been planted for some years, it is usually best to discard such canes and to make a new planting. (See also Raspberry Mosaic in Chapter XII.)

Autumn Fruiting Raspberries.—Autumn Fruiting Raspberries are a useful crop, especially in a private garden where they prolong the soft fruit season after the blackberries are finished. To obtain autumn fruit, pruning is done in February or early March. All the canes are cut down to ground level. The new canes, which normally require thinning during the summer, fruit at their tips in September and early November.

Lloyd George is the most popular variety and will fruit in summer or autumn according to the method of pruning employed. Hailsham and November Abundance are good, red, autumn varieties and those less well known include Corfe Mullen Wonder and October Red. The new variety, September, is very good.

Many gardeners enjoy the novelty of yellow raspberries, and October Yellow is a good variety of this type.

Autumn varieties should receive the same treatment culturally as summer-fruiting varieties, apart from pruning.

Loganberries and Blackberries.

Of all the hybrid berries, these are the most popular. They deserve a place in any garden, a position on a wall or fence in full sun being ideal. There is now a thornless variety for those who object to the prickles on the ordinary kind. The growth is similar to the raspberry in that the fruit is borne on new shoots. These are best tied into the wall or fence, as they grow, otherwise, if left, they become straggly and not so easy to deal with at the end of the season.

Loganberries have a high moisture requirement in the summer months, but they will not tolerate wet soil conditions in winter. Good drainage is an essential.

As stewed loganberries are my favourite fruit, I may be accused of bias if I extol their virtues at length, but few readers will, I feel sure, disagree with my view that the flavour of this fruit is in a class apart. The berries are usually ripe in late July and August.

The planting season is early autumn, for preference, otherwise during winter, so long as soil conditions are not too wet. Canes may be planted as late as March but care is needed to prevent losses in a dry spring. The depth of planting should be about 1 in. deeper than the plants were previously. Like raspberries, loganberries are best cut down to 9 ins. from soil level immediately after planting. This encourages new growth in the first season. These new shoots that arise, should be tied into the wires, or wall, as they develop. Do not allow them to straggle on the soil surface, as stressed previously.

Some of the blackberry varieties, also some of the hybrid berries, are of less vigour than the loganberry and Himalayan Giant blackberry. If more than one is planted, spacing is varied according to the natural vigour. If two loganberries or more are planned for, they may be set out 12 ft. apart.

The manurial requirements of the loganberry are similar to those of the hybrid berries and closely allied to those of the raspberry. The loganberry thrives on heavy compost dressings and a high organic content in the soil. This can be ensured by applying a bucket-full of compost to each square yard of planting area during the initial preparations, and a 2 in. mulch each spring on the area

occupied by the roots. Prior to planting, give a 2 oz. dressing of bone meal to each square yard and an equal quantity of wood ashes. If it is felt that the soil is low in fertility, add, also, 2 oz. of Hoof and Horn to the square yard.

In addition to the annual compost applications apply a dressing of 2 ozs. of bone meal and 4 ozs. of wood ashes (or 11/2 ozs. of sulphate of potash if no wood ashes are available); scatter this evenly over the area occupied by the plants, in March. Do not lay the mulching material in a heap close to the main stems or young growths may be damaged.

The easiest and best variety of blackberry to grow is Himalayan Giant. This is described fully in Chapter VI, but it must be stressed here that it is a very vigorous grower and needs ample room to develop freely if planted against a wall, a shed or a fence.

A useful point about this fruit is that it will do quite well on heavy soil, even where drainage is not very satisfactory. It will not do as well as if soil conditions are good but, nonetheless, will thrive quite well under what are regarded as adverse conditions for fruit generally.

The easiest method of training the hybrid berries and blackberries is on a wire fence, which has wires about 15 ins. apart, the whole being kept rigid by stout posts at either end of the row and at intervals in the row, if this is more than 30 ft. long, although I am not anticipating such an area in the garden. Such a fence may however be considered for, say, one loganberry, one blackberry and perhaps one other hybrid berry. In such cases plant the canes 12-15 ft. apart, and use the same spacing if two plants are set against a wall, or fence.

After fruiting, the old canes are cut out, at soil level, and the strongest new growths tied into the wires (or against the wall or fence as the case may be). If a wall is utilised, drive flat-topped nails into the crevices, to which the shoots may be secured. Tarred twine is good material for this work. If there are many new growths, the weakest ones should be cut out at soil level, leaving perhaps the best 5 or 6 shoots.

A good method of training is to tie in the new growths to the right and to the left, leaving a space of 2 ft. or so clear in the centre. Next years young shoots are then tied into this central area. When pruning, and taking out the old shoots, make sure that the young

remaining canes are not damaged. Old shoots are best cut into pieces, rather than just pulled out. An alternative method of training is shown in Fig. 12.

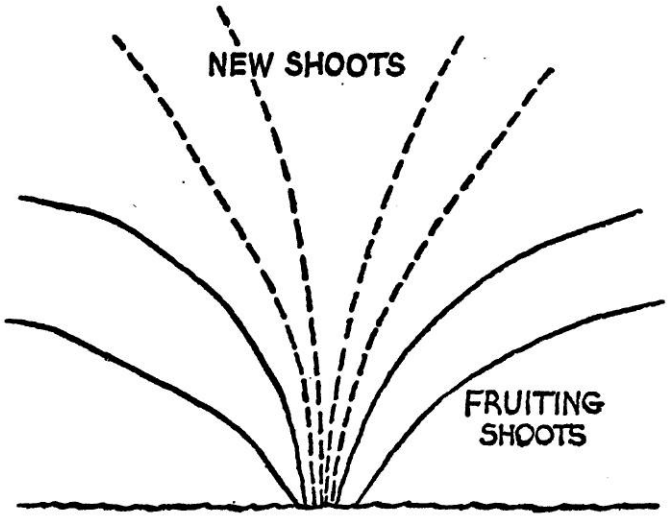

Fig. 12.—Loganberry. Tie in new shoots in the centre. Later, after the old shoots have fruited and been cut out, bring down the new shoots.

The pruning of a strong-growing Himalayan Giant calls for gloves and, sometimes, persistence. Although there are plenty of young canes to replace the older ones, some of the latter can be retained if necessary, any lateral growths being shortened back to 1 in.

If a loganberry shoot is allowed to stay in contact with the soil, especially the tip of the young shoot, new roots will be formed and, in fact, a natural layer is obtained. When rooted, this may be detached and planted up, for a year to grow on, prior to being set out where it is to fruit. This propagation should only be done, however, if the parent plant is vigorous and a good cropper.

Loganberries and blackberries in particular are able to compete with a fair amount of weed growth, but large weeds should not be allowed to develop (or seed) and are best pulled out by hand. Otherwise, surface cultivation, i.e. hoeing, is needed from time to time in summer, in the area around the base of the plants. Take

care not to damage the tips of young shoots (they will give the following years crop) during any such surface cultivation.

There is a dwarfing virus trouble that affects loganberries. If one takes over a garden when the canes and growth are very stunted, where plants are affected by this virus, the stools throw up several or many thin, weak, new growths. Such a plant is best discarded.

The Loganberry Beetle Larvae sometimes causes damage to the berries. If it is known that this pest is troublesome, spray with Derris when three quarters of the flowers have fallen. Repeat this spraying a week later. Picking the fruits of the hybrid berries and blackberries should be done in dry conditions, and it may be necessary to "go over" the canes several times for the fruit ripens in batches. With loganberries, leave the fruits until they are a dark purple in order to get the full flavour.

To get the fullest benefit from soft fruit crops, bear in mind that the blackberry, Himalayan Giant, will crop until September and the variety John Innes until the same period, thus giving the longest season during which fresh fruit of this type can be obtained.

Chapter XII

Some of the more common Pests and Diseases of Fruit and suggested control measures in a garden

Pests and Diseases.

There are very many pests and a number of diseases which attack fruit trees and bushes. The more common problems are dealt with in this Chapter. One does not expect to get these troubles all at once, fortunately. Very frequently, if only one or two trees are grown, very little spraying need be done. In any case, it is hardly economical to pay £10 for a knapsack sprayer, to protect *£1* worth of apples. It is true that small trees can be sprayed with a syringe, and that in some cases, timely application of an insecticide or fungicide means the difference between some fruit and no usuable fruit at all. In some instances, certain control measures may be applied which entail no insecticides, and some of these are stressed in this chapter.

It has already been emphasised that several factors contribute to the incidence of certain pests and diseases. High rainfall and a low-lying site with poor air circulation mean more likelihood of Apple and Pear Scab. Heavy and badly drained soils encourage Apple Canker, especially with some varieties, e.g. Cox's Orange Pippin. Hedgerow rubbish and weedy areas may harbour pests. The presence of dead wood in all kinds of fruit trees, more particularly apples, pears and plums, should be avoided, as such material may lead to further attacks of certain fungus diseases such as Apple Canker.

If one has old or neglected apple or pear trees to deal with, the branches may be found to be partly covered with moss and lichen. Such trees can be cleaned up by using a Tar Oil spray in winter, at the maker's directions, but, any vegetables beneath the trees must be covered whilst this spraying is in progress. Tar Oil also kills the eggs of aphides on the shoots and branches.

Pests.

Some of the more common pests of fruit crops are as follows:—

Aphides.—A number of different aphides attack fruit. In many cases they cause distortion and curling of the foliage and may severely check growth. The eggs of these pests can be killed during the winter months with a tar oil spray, used at the maker's directions. If this is not possible, the pests can be dealt with by applying derris sprays but these must be applied at the first signs of attack.

Apple Blossom Weevil.—The larvae of this pest feeds within

the flowers and causes the petals to turn brown and shrivel. Nothing can be done about blossom already attacked but, next year, the trees should be sprayed with a derris preparation just as the buds are breaking in March. Sacking bands tied round the trunks of the trees will trap the adult weevils in summer, and should be removed and burned in autumn. Any brown "capped" blossoms should be picked off and burned.

Apple Capsid.—This is often a very serious pest of apples. The capsid bugs feed by sucking sap from the young leaves and making small holes. The small fruitlets are also attacked, these showing rough, raised patches. Cupsid bugs also attack soft fruit crops, i.e. redcurrants, blackcurrants and gooseberries. A complete control of this pest is difficult, but on apples the trees can be sprayed at green or pink bud stage with derris whilst nicotine or derris sprays used on soft fruit as against aphides will ensure control. Remember, however, that nicotine is a poisonous spray.

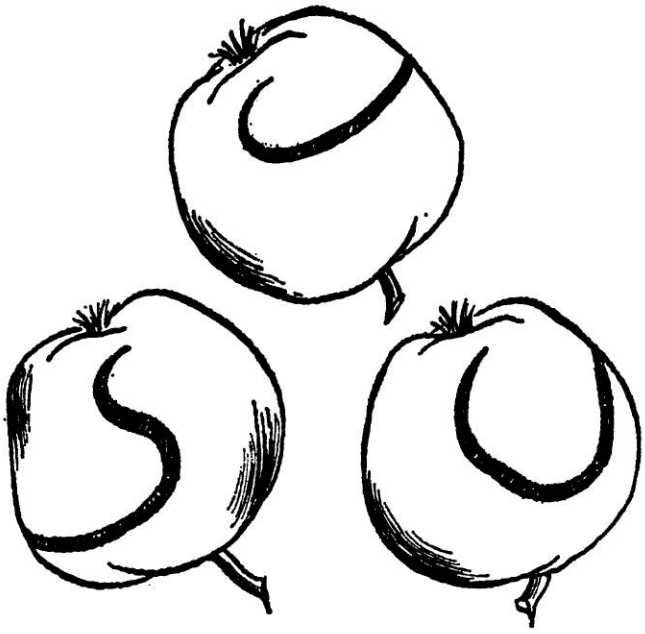

Fig. 13.—Ribbon scar caused by Apple Sawfly Larvae.

Apple Sawfly.—The larvae of the sawfly attack the developing fruit during June. They feed within the apple and make typical scars on the skin, later they enter the centre of the fruit. This pest is one that causes so-called "maggoty" fruit. Where this pest is known to be present in a garden, cultivate the soil beneath the trees so that the hibernating larvae are disturbed. The usual spray control is nicotine applied when most of the petals have fallen. See Fig. 13.

Big Bud Mite.—(Blackcurrant Gall Mite.) This pest causes the attacked blackcurrant buds to swell up (hence the name "Big Bud"), and this symptom can be seen in late winter and spring. Affected buds do not open, thus no fruit trusses are formed. Gooseberries and redcurrants are also liable to attack from this pest. On a small scale the swollen buds should be carefully picked off and

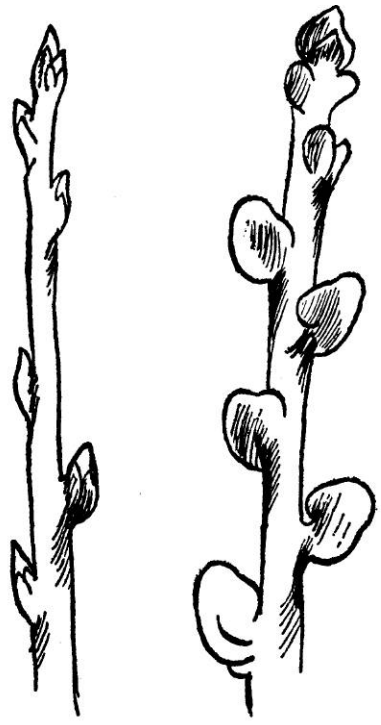

Fig. 14.—Blackcurrant Gall Mite. Left: Healthy shoot. Right: Infected shoot.

burned. When cuttings are taken it is essential that these come from bushes free from Big Bud Mite. See Fig. 14.

Codling Moth.—This is often a serious pest of apples. The damage is done by the larvae, which feed within the apple and create the well-known "maggoty" symptoms. Some affected fruit falls before it is mature in July and August. The moth lays its eggs in the fruitlets, and the larvae pupate in cocoons in the bark or beneath the tree. Where this pest is anticipated, spray the trees with derris in early and mid-June. A good method in a garden is to place bands of corrugated paper around the trunks of the apple trees just below where the branches start. The larvae will pupate in this shelter and the whole can be taken off and burned during the winter.

Fruit Tree Red Spider Mite.—This pest attacks several kinds of fruit trees and is particularly prevalent in hot, dry weather. It feeds by sucking the sap from the foliage, thus causing loss of vigour and checking growth. Under garden conditions, spray with derris in early June and again 14 days later.

Gooseberry Sawfly.—This caterpillar pest can cause severe damage, under which the bushes may be completely defoliated. Damage may occur from the end of April until late summer, as there are several "broods" of these pests. The bushes should be sprayed with derris in April, as soon as the larvae are seen, it being essential to take control measures before the attack builds up. Keep watch for later attacks.

Pear Midge.—This can be a serious pest of pears. The larvae feed inside the fruitlets and cause them to shrivel and fall. Pears grown against a wall are sometimes the worst affected. On a small scale the affected fruitlets should be picked off and burned. During the summer, the cultivated ground under the trees should be well cultivated, thus bringing the pupating larvae to the surface. Nicotine sprays may be applied when the flowers are open, if damage is anticipated.

Plum Aphides.—There are more species than one, of aphides that attack plums and the worst is the Mealy Plum Aphis. Attacked

foliage curls up and the tips of the shoots are damaged and may well be killed. Derris sprays may be used as a control, when the buds are just starting to open, and also in early April. For this latter spray, application must be made at high pressure and directed at the insects, before the leaves curl up.

Raspberry Beetle.—The larvae of this pest feed within the fruit. The canes should be sprayed or dusted with derris 7 to 10 days after flowering, and another application is best given 10 days later.

Strawberry Aphis.—This aphis causes much damage to strawberry plants. As it is a carrier of the virus disease Yellow Edge, it should be controlled rigorously. As soon as the aphides are seen the plants should be sprayed or dusted with a derris preparation.

Strawberry Eelworm.—The symptoms here are stunted and swollen crowns, and leaves distorted and red in colour. If this pest is present none of the infected plants should be used for taking runners; such plants should be burned. New clean stock should be planted up in a different part of the garden, where no previous trouble has been experienced. If one is dealing with a fair number of new runners, these should be dipped, prior to planting, in hot water at a temperature of 115 degrees for 10 minutes, if it is thought that eelworm infection is present or if new plantings have to be made on a site previously showing trouble.

Woolly Aphis.—The best method of control is an indirect one. If new apple trees are being planted, choose those on an M.M. prefix rootstock. The M.M. stands for Malling-Merton (two Research Centres) who evolved those rootstocks, one of the merits being that resulting trees are resistant to Woolly Aphis. Trees on these M.M. rootstocks are more expensive than on ordinary rootstocks. Where this pest is present, the white woolly masses should be painted with methylated spirits, applied with a stiff paint brush. Several applications may be needed.

Wasps.—These often cause considerable damage to ripe fruit in August and September; apples, plums, pears and peaches may all be attacked. Further damage is often caused where the fruit has

been pecked by birds. The best method of control is to seek out the "nests", which should be destroyed. On a small scale, a few fruit, as on wall trees, can be protected by polythene bags. *Diseases.*

American Gooseberry Mildew.—The first signs of attack are seen on the young shoots; these become covered with a white powder, which later changes to a pale brown. The bushes become stunted and the fruit disfigured. Excessive use of nitrogenous fertilisers should be avoided as these cause over-soft growth. Bushes should be sprayed at the first signs of attack with washing soda at the rate of 2 lbs. in 10 gallons of water, with 2 lbs. of soft soap added.

Apple Canker.—This a serious disease of apple trees (also pears), where young shoots and branches are killed. The infected wood should be cut out and burned. The disease can enter through wounds and damage to the bark and causes a rotting and dying out of the affected tissue. Protect large cut surfaces with white lead paint.

Apple Scab.—This is one of the commonest diseases of apples. Black spots develop on the young fruit, which increase to give large blackened areas. The leaves and shoots can also be affected. Some varieties are more susceptible to Apple Scab; they include Lord Derby, Early Victoria, and Worcester Permaine, whilst others (described in Chapter VI) are fairly resistant. In severe cases spraying with captan preparations is recommended.

Bitter Pit of Apples.—This is a disorder of apples, the reason for which is not yet clearly understood, but is thought to be due to cultural factors. Small dark spots appear in the flesh just beneath the skin, and small depressions may also be present. These symptoms can appear in the fruit after it has been stored. Good drainage and cultivation should be aimed at, and fruits should be fully mature before they are gathered. Fruit from young trees is sometimes the most affected.

Brown Rot.—In a wet season particularly this disease attacks apples, pears and plums. It causes a typical brown rotting of the affected fruits. It is essential to remove all such fruits as soon as

they are seen, to prevent other fruits being damaged. The dried up (mummified) fruits that occur when this disease has attacked apples and plums, should always be removed from the trees to cut down further spread of the trouble.

Coral Spot.—This fungus is found mostly on dead wood, which should be cut out in any case, and also on live wood. The fruiting bodies are small and red in colour, and many may be found on an infected shoot. When pruning is being done, take care not to damage the bark, or branches that are left, or this may provide entry for the fungus spores.

Mildew.—This is often troublesome on apples, and the young shoots are coated with a white "dusty" fungus. Cox's Orange Pippin is very susceptible. On a garden scale the affected shoots or foliage can be cut off. Spraying affected trees with washing soda can also be done.

Peach Leaf Curl.—Affected leaves have a red tinge, which is followed by curling and distortion, this considerably checks the tree's growth, in a severe attack especially. In mild cases, on a small scale, the affected leaves should be picked off. The control measures are to spray the trees in mid-February with lime sulphur, 1 pint to 5 gallons of water, or captan preparations may be used at makers directions.

Red Core Disease of Strawberries.—Red Core disease is caused by a fungus which attacks the inner tissues of the roots and causes them to turn red and to rot.

Infection is worst in waterlogged conditions and in the spring and autumn when root growth should be greatest. Patches of plants may have small, dull foliage which often becomes tinged red or yellow. The plants eventually collapse and die. The fungus infects the surrounding soil which then becomes unsuitable for strawberry growing. Some varieties, e.g. Perle de Prague, Cambridge Early and Oberschlesien are fairly resistant, whereas Mme. Lefe-bvre and Tardive de Leopold are susceptible. New varieties are being bred for resistance.

Raspberry Mosaic.—This is a very serious disease of rasp-

berries; affected plants show a yellow mottle in the foliage, causing the plant to lose vigour. This is a virus disease, and is spread by sap transference, and so care should be taken not to damage the canes. Because Raspberry Mosaic is a virus disease it is essential to keep the plants free from aphis, as this pest transmits the trouble by infected sap. If the disease is serious, the canes should be grubbed and burned, and new plantings should be made with clean certified stock.

Reversion,—This is a virus disease which affects blackcurrants, and can be very serious. The first recognisable symptom of this disease is the change in the shape of the leaves, which sometimes appear to resemble nettles. Big Bud Mite spreads Reversion, and so should be controlled rigorously. It is essential to buy healthy stock and, if propagating, cuttings should only be taken from clean bushes. Any bushes showing signs of reversion should be dug up and burned. Affected bushes give a poor crop or no crop at all, and if there is any fruit it is very small.

Silver Leaf Disease.—This is a fairly common disease of plums, and affected leaves become silvery in colour. The spores of the fungus responsible for this disease are carried by the wind, and enter the living wood through wounds or pruning cuts. All dead wood should be cut out and burned. In severe cases the tree should be dug up and burned. Victoria is a susceptible variety. In all cases of heavy crops, branches should be propped up to prevent breakage, as such damage can provide means of entry for the fungus. If an attack can be spotted at an early stage, cut out the affected branch, in May.

Yellow Edge of Strawberries.—As the name implies, the symptoms are a yellow discolouration to the edges of the leaves. Affected plants become very stunted in growth, and the crop very poor, with small fruits. There is also an upward curling of the leaves. The symptoms show up toward the end of the season. As this is a virus trouble, runners must not be saved from affected plants. If only isolated plants are affected, these must be pulled out. Always plant certified runners and, as this disease is spread by sucking insects, make sure that strawberry aphis is not allowed to develop.

Fire Blight Disease of Apples and Pears.—This disease has recently become important and it is causing much concern to fruit growers in Britain. It has been known in America for some time.

Fire Blight also attacks pears and the variety Laxton's Superb is the most susceptible. Apples and related rosaceous plants, i.e. Cotoneaster, Hawthorn and Mountain Ash, are also liable to be affected. The disease is due to bacteria which attack the fruiting spurs and travel backwards into the branches. The symptoms are seen during the growing season when whole branches or trees bear wilted and blackened foliage. The bacteria may be spread by bees, rain or on pruning instruments. Infected branches or whole trees must be removed and burned.

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