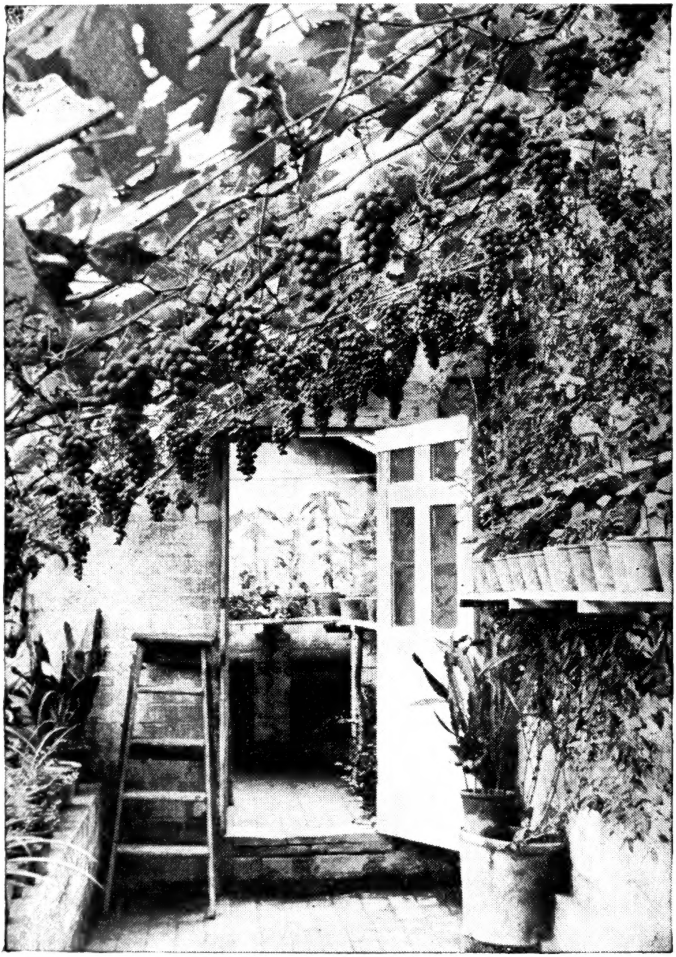
FRUIT GROWING

FRUIT GROWING FOR AMATEURS



Black Hamburgh Grapes in an Amateur's Greenhouse

Fruit Growing for Amateurs

BY
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(Editor of "Popular Gardening")

Assisted by
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FREELY ILLUSTRATED BY PHOTOGRAPHS AND SKETCHES

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PREFACE

THE cultivation of fruit trees, if practised with care and discrimination, proves of absorbing interest, and is profitable. If, however, the work is commenced by the inexperienced without due inquiry, and in ignorance of essential details of cultivation, failure, comparative if not absolute, is inevitable. Providing the amateur plants a representative selection of fruits, and disposes them in the positions best suited to their needs, he will not have long to wait for some return on his outlay. He should plant not only Apple, Pear, Plum, Peach, and Cherry —none of which gives a fair crop until several years have passed —but Strawberry, Raspberry, Gooseberry, and Currant. If Strawberries are planted in late summer a crop of excellent fruits may be obtained the following year, and the bush fruits quickly come into bearing. By widening the scope of his fruit garden the amateur adds not only to its interest, but secures a profitable return in as short a time as possible. If walls are available it should be the object of the gardener to cover them without delay, for wall area is valuable. The simplest way to do this is to plant trained standards between the fan-trained trees or espaliers; in the course of years the latter will spread and occupy the whole wall area, but, meanwhile, much fruit can be obtained from the trained standard trees planted to fill the upper part of the wall.

"Fruit Growing for Amateurs" is published with the object of guiding amateur gardeners who possess, or are about to

plant, fruit trees. The chief points of difficulty which confront the inexperienced are dealt with, and selections of reliable varieties are given. The pages are freely illustrated by sketches, and these, it is hoped, will assist the reader in elucidating the mysteries of training and pruning. If certain points still remain obscure, let the reader write for further information to the Editor of *Popular Gardening*, and a reply will be given through the columns of that paper.

In the preparation of this book I have to acknowledge the valued assistance of Mr. J. Gardner, who has written several of the chapters. Use has also been made, in a few instances, of notes written by Mr. George Abbey, Mr. H. H. Aitken, and Mr. J. Wright, while many of the sketches have been re-drawn from originals by Mr. H. C. Rollinson, whose explanatory notes accompany them.

H. H. T.

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CHAPTER I

Making a Fruit Garden

THE formation and planting of a fruit garden require a good deal of care and foresight if full advantage is to be taken of the space at disposal. It does not fall to the lot of everyone to have the opportunity of laying out a new garden, and generally the best has to be made of the ground available. If the position can be chosen, a site sloping very slightly to the south is to be preferred, and fairly high ground is much better than a low and flat situation, which usually suffers from late spring frosts. Shelter from the north and east is an advantage, and may be the means of saving the blossom and tender foliage from damage in spring.

The accompanying plan shows how a piece of ground may be laid out with the object of making the utmost out of the space. It represents a site 180 feet long and 150 feet wide, and it could, of course, be reproduced in its entirety or a portion of it could be copied. It is surrounded by a wall, and the names of the different kinds of fruit trees that succeed on the four aspects are mentioned. Thus anyone possessing one aspect will see at a glance the best kind of tree to plant. The garden is intersected by walks, and has a narrower walk all round. The borders in front of the walls facing south and west are 16 feet wide, and would provide ideal positions for Strawberries or bush fruits if required. The borders in front of the north and east walls are only 5 feet wide, as these aspects are not so suitable for growing crops, but would accommodate a double row of late Strawberries

Bush Fruits between Apple Trees.—The best kinds of Apple trees to grow are bushes and pyramids on the Paradise Stock. These commence to bear fruit when quite young, and are far more satisfactory than standard trees when quick returns are a consideration. If they are planted 15 feet apart each way there will be sufficient space for a Gooseberry or Currant bush between them—at any rate, for a number of years. Gooseberries that are required to hang until ripe are better in a bed by themselves, so that they can be netted to keep off birds. The bushes should be 5 feet apart.

Black Currants are a profitable crop, and a good-sized plantation will not be the least remunerative part of the garden. They pay for good cultivation, and give very little trouble.

Even when Apples are planted with bush fruits there will be a good deal of space between them for some years, and every available piece of ground should be cropped with vegetables until the trees approach full size.

Pyramid Pears on the Quince Stock may be planted at a similar distance apart with bush fruits between them, and here again there will be ample space for "catch" crops.

If it is decided to plant Apples and Pears alone, without bush fruit, a space of 12 feet each way between the trees will suffice. In that case it will be necessary to make larger beds of Currants and Gooseberries; but the plan of intermixing answers well, and the bushes give good returns until the permanent trees become large enough to fill the space.

Plums and Cherries succeed under similar conditions, and when wall space is limited some bush-trained trees should be included if these fruits are wanted. Plums, especially, crop much better in very firm soil, for if the ground is too rich and rather loose, the trees grow very vigorously and bear comparatively small crops in many instances.

Cordon Apples and Pears.—A good fruit garden would not be complete without these, for many of the finest fruits are obtained from cordons. By growing this form of tree the amateur is enabled to plant an increased number of varieties. Cordons do well on a south or west wall, and they are most useful for planting by the side of a walk in a sunny position. The best plan is to train them obliquely, for this allows a greater length of stem, and to a certain extent it checks rank growth, thus promoting fruitfulness. They should be planted 2 feet

Plan for Amateur's Fruit Garden

apart, and trained to a wire trellis when in the open. Gooseberries succeed admirably as cordons, and this is an ideal way to grow dessert varieties.

Espalier Pears and Apples also do well in similar positions, and should be planted from 15 feet to 20 feet apart.

Raspberries.—These are always profitable, and are welcomed by everyone, consequently, a good-sized bed should be planted. The rows may be 5 feet apart, and the plants 2 feet asunder in the rows. The best plan is to tie the canes to wires secured at the ends of the rows, and in the middle, by posts. Autumn fruiting Raspberries deserve a place, as they are a welcome addition to the summer crop. They should be given a similar amount of space.

Loganberries and allied fruits like the Laxtonberry and Newberry are grown on the same principle as summer Raspberries, but the plants should be 8 feet apart owing to their vigorous growth. As a general rule one row of each kind will be sufficient. They succeed admirably on an old fence or trellis, and make an effective screen.

Strawberries.—To get the best results with these the plants should not be kept for more than three years; consequently, it is advisable to layer runners every year to maintain a vigorous stock. If the space devoted to Strawberries in the plan is too much, a portion of it might be planted with vegetables, and this would give the plants a highly desirable change of ground. Most varieties succeed well if planted 2 feet apart, but vigorous growers should have more space, and "catch" crops of vegetables can be taken off between the plants the first year. The perpetual Strawberries also merit inclusion, as they prove welcome in the autumn when the main crop is over. Good cultivation is essential to get fine fruit.

Fruit Trees on Walls.—It is a great advantage to have a wall surrounding, or partly surrounding, a garden. Dwarf fan-trained trees are the best to plant, and these should really be placed 20 feet apart; on no account should they be closer than 15 feet. A wall is covered more quickly if standard trees are planted between the dwarf ones, and when that is done the latter should be 25 feet apart. Of course, this is only practicable in the case of high walls—those 12 feet high and upwards. Peaches, Apricots, Pears, Plums, and Cherries all succeed like this

For a wall with a south aspect Pears, Apricots, Peaches, Nectarines, and Figs are the most satisfactory; but Plums can also be included if required. The same kinds are suitable for a wall facing south-west or west. For a west wall Pears are hard to beat, and espalier- and cordon-trained trees might be chosen. Plums and Morello Cherries are the best for a north aspect; but sweet Cherries can also be grown there. Red Currants may be included to provide late fruit for succession. The same kind of trees will succeed on an east wall, and Jargonelle Pears often do well on such an aspect. It should be mentioned that cordon Apples of choice dessert varieties succeed admirably on a south or west wall, and in cold districts will produce fine fruit owing to the extra protection and warmth.

CHAPTER II

Planting Fruit Trees

THE planting of fruit trees can be carried out at any time from October until March, provided that the ground is not too wet, and is not rendered unworkable by frost and snow. Early planting has several advantages: in the first place, the soil is more or less warm, consequently, the trees are inclined to commence root action as soon as planted. They become well settled in the soil before spring, and make better growth the first season than those planted after the turn of the year. It is important to have the ground in readiness to receive the young trees directly they arrive from the nursery, so that they are not kept out of the ground longer than is necessary. If any of them are at all dry at the root when they come to hand, soak them in clear tepid water before planting. If they are allowed to remain in a dry condition the wood will shrivel, and such a state of affairs is a serious check to the satisfactory progress of the trees.

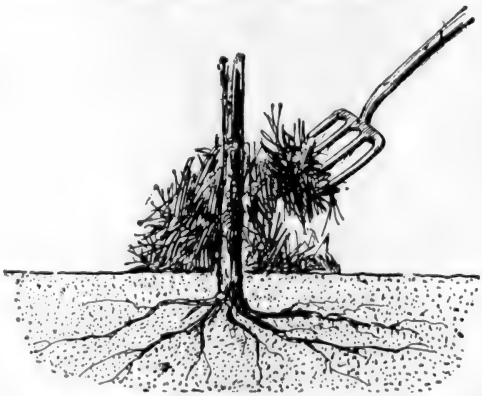
The Best Soil.—Fruit trees succeed best in a deep, loamy ground, and this ought to be cultivated to a depth of quite 2 feet before planting takes place; if it is dug deeper, so much the better. When the land has been under cultivation for some years, and has been regularly enriched with manures, it is not desirable to add manure at planting time, as such treatment would encourage the trees to grow with undue vigour. It is a better plan to feed the trees when they are bearing full crops of fruits. In the case of land that is being freshly broken up for planting, however, the addition of some well-decayed farmyard manure is beneficial. This should be incorporated with the lower soil, and should not be allowed to come in contact with the roots. Lime rubble ought to be mixed in the soil where stone fruits are to be planted.

Needless to say, planting should be done when the soil is in a fairly dry and friable condition, and it is important to avoid

Planting, Staking and Labelling Standard Fruit Tree

Ways of Labelling Fruit Trees

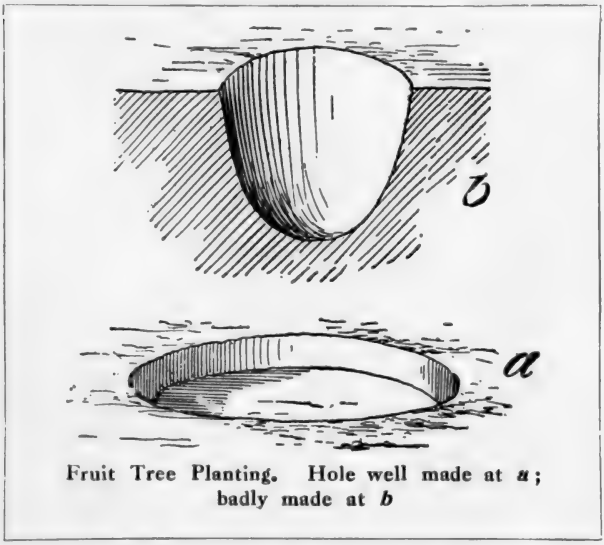
Incorrect Planting; the hole is too small and the roots cannot be spread out



When a mulch of manure is applied, it should be spread over the ground near the tree, not placed thickly round the stem as shown

doing the work in wet weather, for when the ground is sticky it cannot be trodden down firmly around the roots.

Distance between the Trees.—The distance apart at which to plant the trees is an important matter. Bush and pyramid Apples and Pears should have a space of quite 12 feet left between them in the rows, and when they are grown in large blocks, leave rather more space between the rows. It is not too much to allow standard trees a distance of 30 feet each



Fruit Tree Planting. Hole well made at *a*; badly made at *b*

way. Until they develop large heads, the space between can be planted with bush fruits and vegetable crops. Cordon Apples and Pears succeed admirably at a distance of 2 feet apart; while fan-trained specimens of Pears, Plums, Cherries, Apricots, or Peaches should be 15 feet apart. It is essential to take out wide holes when planting, so that the roots can be spread out fully, but they do not require to be deep. As a general rule the earth mark on the stem, in the case of young trees, will indicate the depth at which they should be planted. All that is necessary is to cover the roots effectively; deep

planting often causes the trees to make rank growth, which is the chief cause of unfruitfulness. Do not make the middle of the hole lower than the sides, but keep it as level as possible.

Staking for Support.—After the tree has been placed in position, drive in the stake, if support is needed, before the soil is filled in, so that it can be placed between the roots to avoid injury to any of them. Tie with tar twine, and place a piece of old cloth around the stem of the tree to prevent the string cutting into the bark. See that the roots are spread out carefully to their full extent, and if the ends of any of them are damaged, trim them off with a sharp knife. Fill in with some of the finest soil around the roots, and tread it down firmly, afterwards leaving all level and tidy on the surface. If a mulch of short stable manure is given it will protect the roots in case of severe frost during the winter.

Concerning Orchard Trees.—When large permanent orchards are required standard trees will be found the best. Whether the land was under cultivation previously or not is not an important matter, as it would require to be deeply broken up in any case. The point is its subsequent treatment after planting; if the ground is to be cropped with garden produce for a time, all well and good; but if it is to be laid down with grass, do not neglect to cultivate the soil for a space of at least 4 feet from the stems of the trees. Under such conditions it is an easy matter to keep the weeds hoed off when necessary, and the trees will be found to make free and healthy growth. On the other hand, if the grass is allowed to grow up to the tree stems, growth will be far less vigorous and satisfactory. This is an important matter, and deserves the attention of all who wish to make their orchard a success.

Suitable Trees to Buy.—Trees to be purchased should always be of the best possible value. Two-year- or three-year-old trees are perhaps the best with which to begin. Those of the former age have been cut back once in pruning, and have had two seasons' growth from budding or grafting. Choose young trees which have stout but firm young shoots upon them, but do not think that mere vigour is best. Trees may have very strong growths, and at the same time these, owing to their unripened character, may be of little value, and when pruned back fail to grow satisfactorily. When making purchases it should be mentioned to the vendor for what purposes the trees

are required. It is not much use, for example, to buy fan-trained trees for planting in the open.

Of course, it is quite possible to buy maiden trees and grow and train them for whatever purpose is required; but the amateur will be well advised to buy trees two years old. Maiden trees have had but one season's growth, and usually consist of one straight stem.

Fruit Tree Stocks.—Apple trees for small gardens should be on the Paradise Stock in preference to the Crab. The trees are smaller on the Paradise, and are in nearly all cases quicker in coming into bearing than when on the Crab or seedling Stock.

There are many sorts of Pears which fail completely when grown directly upon the Quince. Unless these are "double worked" (that is to say, budded not directly on the Quince but on another variety of Pear which itself is budded on the Quince), they are absolute failures, and this is serious when only one or two trees can be grown. But for small gardens Pears should be grown upon the Quince Stock either from single or double working. Pears grown upon Pear Stocks make very large trees as a rule, and to keep them within bounds in a small area involves much pruning, and this in its turn tends to barrenness and overproduction of shoots which seldom produce fruit.

Most land requires draining for fruit growing. In all cases it is not possible to carry out draining. Where the ground lies very low, and water does not readily escape, the trees may be mounded or planted somewhat above the surrounding level. In each hole in which a tree is planted there may be placed half a barrow load of broken bricks and lumps of old mortar. This to some extent drains the position of the tree, but by no means solves the problem of badly drained land where there is no outlet for surplus water.

CHAPTER III

Root Pruning

FRUIT trees frequently become too vigorous and luxuriant, and in such cases a little judicious root pruning is invariably what is required to remedy the trouble. In addition to checking excessive branch growth, root pruning renders the fresh shoots fruitful, brings the roots nearer the surface, and causes the production of fibrous roots, which are essential to healthy, profitable trees. Root pruning can be carried out from the end of October to the end of March, but it will be found the best plan to get it done early, when the soil is in good workable condition and the weather mild.

The root pruning of fruit trees more than five years old should extend over two seasons, one half of the roots being treated one year and the other half the next. Dig out a circular trench about 2 feet wide half-way round the tree, at a distance of from 3 to 4½ feet from the main stem according to its age and size. In dealing with large trees the trench must be farther away from the trunk than when root pruning young trees. Small fibrous roots should not be damaged, but long, bare, fibreless roots must be shortened, and particularly those that strike downward into the subsoil; excavation underneath the trees is, of course, necessary in order to get at these.

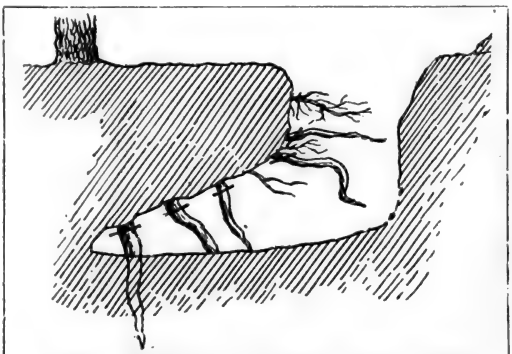
A sharp knife should be used, the cuts being made in a slanting direction, starting from the underside of the roots. All pieces of root cut away ought to be removed from the trench. When the work is finished the trench is carefully filled in again with good soil, that removed in many cases being suitable if some fibrous loam, road-grit, and lime rubbish are mixed with it.

Young fruit trees, especially Pear, Plum, and Peach, are very liable to produce vigorous, barren branches, during the first few years after being planted. Unless this excessive vigour is checked the trees develop so rapidly that they may become full of gross shoots that do not bear fruit, and, moreover, destroy

the shape and balance of the trees. Many growers advise that each autumn, for the first two or three years after planting, the trees should be lifted, a plan that answers the same purpose as root pruning older trees. Some of the soil is removed from beneath and around the roots, and the tree is lifted up; the soil is then made firm again and more added with the object

Trench dug half way round Fruit Tree for purposes of root pruning

of bringing the roots of the fruit tree nearer the surface ; 2 inches of soil covering above the uppermost roots is sufficient. It is obvious that only comparatively small trees can be lifted conveniently ; when they have become established root pruning must be resorted to. If young fruit trees, and particularly



Cutting the thick roots that have entered subsoil

those growing against a wall, were lifted or root pruned during the first three or four years following planting, they would make more shapely trees and bear heavier crops than usual. If a tree is allowed to grow as vigorously as it will during the early years of its life, it will probably never give satisfaction. These remarks do not apply to standard trees in the orchard, but to bush, and more especially trained, trees in the garden.

CHAPTER IV

Renovating Fruit Trees

WHEN trees have carried heavy crops of fruit for a number of years they often lose vigour, and fail to yield such satisfactory results as previously. When this is the case there are two courses open: one is to root out the trees altogether and plant young ones, and the other is to renovate them by replacing the old soil with fresh material. In many cases it is desirable to adopt the latter plan; in fact, it is often profitable to do so, for trees so treated frequently take a new lease of life and produce good crops for many years. Pears, Plums, and Apples all respond readily to this method. When it is desired to keep old trees for sentimental or other reasons, one can frequently do much to improve their general health by judicious and timely treatment.

New Soil for Old.—In the first place the soil should be removed for some distance around the stem of the trees, right down to the roots; it is desirable to remove it to the tips of the roots, as the small fibrous roots are those that take up nourishment and feed the trees. In the case of really old trees it is not advisable to disturb the main roots; but when dealing with young trees, of which the roots are in a better state of preservation, the soil may be taken from among them. Do not allow the roots to get dry through exposure, but have the fresh compost at hand to fill up at once.

After the work of excavation has been done, it remains to fill the vacant spaces with fresh soil, and this should consist chiefly of turf loam, although old potting soil is often suitable. Turves cut 4 inches thick that have been stacked for some months are the best for the purpose. They are chopped up thoroughly with a spade, and to each barrowload is added a sprinkling of old lime rubble and ½-inch bones; bonemeal at the rate of a 6-inch potful to each barrowload may be added with advantage. The compost should be well mixed in an open

shed to have it in a good condition, and to prevent its becoming saturated by rain.

When all is in readiness fill up the spaces round the trees, and tread the soil firmly as the work proceeds. Take care to spread out the roots evenly, and any that are inclined to descend into the subsoil should be raised. When the roots once take hold of the new soil a great change in the growth of the trees will be perceptible, and old specimens that have ceased to produce good crops will soon bear regularly again.

This kind of treatment may be carried out in a modified degree even with trees that fruit regularly. If a layer of 3 inches of soil is removed, and a topdressing applied, the trees or bushes will benefit proportionately, and if the work is done early, the manurial properties of the compost will be washed down to the roots before the spring.

Improving Orchard Trees.—There is not much doubt that these are more neglected than trees growing in gardens. One of the most important matters is to keep the soil free from grass immediately over the roots, for it is found that grass checks the growth and vigour of the trees very considerably. If the trees do not thrive, the turf should be removed for a distance of 3 feet round the stem so that a rich topdressing can be applied. This space around the tree should be kept regularly hoed and clean throughout the year to prevent grass or weeds from growing.

It often happens that the trees are badly infested with lichen and moss, which is objectionable, and serves to harbour a variety of harmful insect pests. When nothing has been done to destroy these parasitic growths for a number of years, the trees should be well sprayed with caustic alkali winter wash, for which the formula is given in another chapter. Choose a calm day for the operation, so that the spray will not blow about, and take care to reach every part of the branches. This preparation, if properly applied, will destroy all obnoxious growths on the trees, and they will present a far more healthy appearance in spring, while the wash will destroy the eggs of insects that it touches.

It frequently happens that fruit trees reach a non-productive state owing to injudicious pruning. In some cases they have been cut back hard year after year, and the chief results have been the production of a quantity of vigorous growths but very

Young Apple Trees on the Paradise Stock

few fruits, especially in the case of Plums and Pears. These growths should be thinned out rather than removed entirely. Retain the better placed ones, and shorten them to about one-third of their length. As a result fruit buds will form, and more fruit will be obtained. When dealing with trees of this description, root pruning will do much to restore them to fruitfulness. Severe branch pruning is useless, for it only results in rank growths at the expense of fruit.

The management of bush trees, especially Apples, sometimes presents difficulties after the trees have been established ten or twelve years, and have filled their allotted space. A plan which answers admirably is to leave a side shoot when summer pruning, about 18 inches below the top of each branch, and in the winter shorten back the branch to this growth, which should be pruned to one-third of its length. The trees will thus be kept clear of one another, and the operation can be repeated as necessary, taking care to cut back to a different point each time. The advantage of shortening back the branches in this way will be apparent, for otherwise thick clusters of spurs form at the extremities of the branches. This is unsatisfactory, and the fruits decrease in size, as it is not possible to encourage fresh growth, which is so essential. It is common to see trees that have failed to produce satisfactory crops, and means are often necessary to bring about the desired improvement.

Root pruning will often work wonders. In other cases, however, it is well to saw off the branches to within 2 or 3 feet of the main stem. After this, pare the cuts over with a sharp knife and dress them with gas tar. The trees so treated will make vigorous growths, which must be duly thinned out and pruned, and in a year or two fine fruits will be produced on the young wood. Apples and Pears succeed under this treatment, and there are many trees that would be improved if taker in hand on the lines recommended. As a general rule, large trees and those of ungainly proportions will derive most benefit by having the branches headed back;

CHAPTER V

The Pollination of Fruit Blossoms

THIS is a subject which attracts greater attention as the years pass. There can be no doubt as to its importance. Unfortunately experiments on a large scale have not yet been carried out, so that it is not possible to give a complete list of self-fertile and self-sterile varieties; but the following notes, which were contributed recently to *Popular Gardening* by an amateur fruit grower, "J. Ursy," who has himself carried out the experiments, will no doubt prove of assistance to the reader:

For many years it has been known by a comparatively few observers and experimenters that a large number (probably the majority) of the varieties of Apples, Pears, Plums and Cherries cannot produce fruit without the cross-pollination of their respective blossoms with those of other varieties. When this happens to be the case the variety under consideration is said to be "self-sterile"—the word sterile being used in its broad sense of inability to produce fruit. If, on the other hand, the blossom can produce fruit without the introduction of pollen from another variety, it is termed "self-fertile." Such being the state of affairs, it is quite possible to introduce into a plantation a variety of, say, Apple which stands little or no chance of ever fruiting; such chance becoming less if there are but few varieties in or near the enclosure. Instances have been recorded of large, one-variety plantations which for many years have failed to produce fruit notwithstanding favourable blossoming and weather conditions. When, however, a small number of other suitable varieties have been interplanted and blossomed, the barren brought forth fruit. In this connection the following extract from the catalogue of Messrs. Reasoner Bros., of Florida, is of interest: "Plums seldom, if ever, bear well when isolated; the fact is the flowers need cross-pollination from vigorous sorts. . . ."

The matter of an affinity for self-sterile blossoms is not one

of male and female flowers, which would be quite easy to understand. It is more difficult of explanation. Why is a self-sterile blossom so incapable? Its ovaries become fertile when strange pollen is introduced: its pollen can fertilise strange ovaries.

It is not Nature which is at fault; rather it is man's interference with Nature, either when he deliberately produces cross-bred varieties or when he perpetuates freaks which Nature would soon have squeezed out of existence. Man having introduced a new variety, e.g. Cox's Orange Pippin, perpetuates it by grafting or budding. Nature perpetuates from seed, but Cox's Orange Pippin grown always from seed very soon reverts to something very different, and in course of time probably retrogrades to Pyrus Malus or some other wild Apple which will assuredly be as self-fertile as the popular cross-bred Cox is self-sterile.

Nature has various agents for pollenising fruit flowers, but of these bees are far the most important, because unlike other insects they carry the pollen from flower to flower and tree to tree, whereas the various flies, wasps, etc., are unable to do so to any appreciable extent. These latter may indeed help in pollenising self-fertile blooms by shaking off the pollen, just as a camel-hair paint brush might do. Wind has no great pollen distributing and carrying power.

It should be noted that if a self-sterile flower A is fertilised by the pollen of a self-sterile flower B, it does not follow that B can be fertilised from A—the affinity need not be mutual, though it often is, and it is obviously desirable that it should be so.

From what has been written above it may appear that there are many obstacles in the way; but in practice this is not so. The writer's garden contains seven varieties of Plums, twenty-five of Apples, and fourteen of Pears, all of which bear fruit freely except one, viz. Catillac Pear, which seldom bears anything, and will continue to be an unprofitable tree until an affinity is found and provided. Since neighbouring gardens in no way help, it follows that the necessary affinities must be present, though in some cases unknown as such to the owner. Many of his varieties are self-sterile.

It may be added that many affinities have yet to be discovered and many varieties have still to be classified as fertile or sterile.

Apple Lord Grosvenor, a good cooking variety

To find affinities involves making a large number of experiments, but testing for self-fertility is much easier. If this last were done for every well-known and desirable variety a great advance would be made. Let it be once for all established whether any particular kind be self-fertile or self-sterile and no further tests in that direction will be required. Attention can afterwards be concentrated on finding affinities. One swallow does not make a summer, nor do one dozen experiments *prove* anything, but the cumulative value of results obtained by independent experimenters working carefully would be very great. Some experimenters appear to have found affinities for certain varieties which being self-fertile do not require them; perhaps the self-fertility was not well marked.

Apples.

Self-fertile

1 Baumann's Red Reinette
2 Ecklinville Seedling
3 Golden Spire
4 King of Pippins
5 Kerry Pippin
6 Lord Grosvenor
7 Lord Derby
8 Newton Wonder
9 Potts' Seedling
10 Stirling Castle
11 Washington

Self-sterile

12 Allington Pippin (16), (36), (37)
13 Annie Elizabeth
14 Bismarck
15 Bramley's Seedling (18), (8)
16 Beauty of Bath (12), (18), (21)
17 Byford Wonder
18 Cox's Orange Pippin (7), (10), (12), (15), (16), (29), (30), (32), (34), (35)
19 Grenadier (7), (28), (31), (33)
20 James Grieve (10), (18)
21 Lane's Prince Albert (7), (10) (16), (19), (25)
22 Lord Hindlip
23 Mère de Ménage (34)
24 Northern Greening
25 The Queen (1)
26 Worcester Pearmain (18)
27 Wellington

Used for Cross-pollination

28 Crab
29 Devonshire Quarrenden
30 Duchess's Favourite
31 Early Victoria
32 High Canons
33 Hoary Morning
34 Lady Sudeley
35 Langley Pippin
36 Ribston Pippin
37 Summer Golden Pippin

Pears.

Self-fertile

1 Conference
2 Duchesse d'Angoulême
3 Durondeau
4 Doyenné Boussoch
5 Hacon's Incomparable

Self-sterile

6 Beurré Clairgeau
7 Beurré Diel
8 Catillac (19)
9 Clapp's Favourite
10 Doyenné du Comice (21)
11 Louise Bonne de Jersey
12 Pitmaston Duchess (8), (11), (14)
13 Souvenir du Congrès
14 Williams' Bon Chrétien (15,) (17), (18), (20)

Used for Cross-pollination

15 Beurré Easter
16 Beurré Giffard
17 Duchesse d'Angoulême
18 Fertility
19 Josephine de Malines
20 Le Lectier
21 Winter Nelis

Plums.

Self-fertile

1 Czar
2 Denniston's Superb
3 Damson
4 Early Favourite (Gisborne's)
5 Early Transparent
6 Early Myrabelle
7 Golden Transparent
8 Kentish Bush
9 Monarch
10 Magnum Bonum Red
11 Magnum Bonum White
12 Oullin's Golden Gage
13 Pershore
14 Prince Engelbert
15 Reine Claude Violette
16 Reine Claude de Bavay
17 Victoria
18 Warwickshire Drooper

Self-sterile

19 Black Diamond
20 Bradley's King of Damsons
21 Coe's Golden Drop (1), (2), (6), (9), (15), (37), (38), (39), (40), (44)
22 Coe's Violet
23 Cox's Emperor
24 Curlew
25 Early Greengage
26 Early Orleans
27 Grand Duke
28 Histon Gage
29 Imperatrice
30 Jefferson (5), (9), (39), (40)
31 Kirke's Blue
32 Late Orleans
33 Late Transparent (5)
34 Mallard
35 Old Greengage (1), (9), (37) (39)
36 President
37 Pond's Seedling (1)

Plums (*continued*)

Self-fertile	*Self-sterile*
	38 Prune d'Agen
	39 Rivers's Early Prolific (1), (9), (26)
	40 Reine Claude d'Altham (21), (22), (30)
	41 Sultan
	42 Stint
	43 Washington (37)
	44 Wyedale

Cherries.

Self-fertile	*Self-sterile*
1 Florence	8 Ambe Bigarreau (5), (7), (13), (18)
2 Kentish Morello	9 Black Tartarian
3 Late Duke	10 Burg d'Annay
4 Morello	11 Bigarreau Napoleon
5 Napoleon	12 Elton Heart (13), (19)
6 Rundles	13 Frogmore Bigarreau (7), (8)
7 Turk	14 Knight's Black Eagle (7)
	15 Knight's Early Black (14)
	16 Kentish
	17 May Duke
	18 Old Black Heart (4)
	19 Rivers's Early Black (8)
	20 White Heart

In the above lists, which are lamentably incomplete, the numbers within brackets indicate the serial numbers of the ascertained affinities. Among the self-sterile kinds are included some which are so feebly fertile as to be practically sterile. Coe's Golden Drop would appear to be rather a light-o'-love among Plums.

No universal fertilisers have yet been found. If such there be they will probably be wild fruits such as Crab-apples, Sloes, etc.

CHAPTER VI

Increasing Fruit Trees

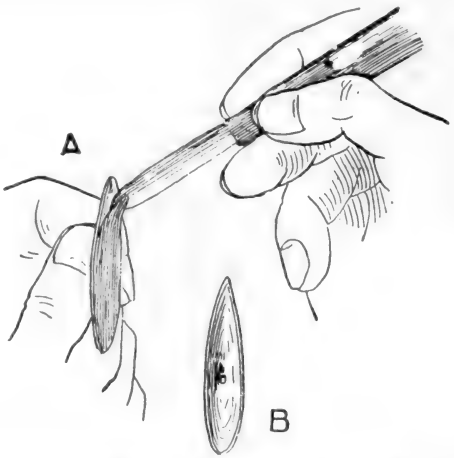
THE three chief methods adopted for the propagation of fruit trees are budding, grafting, and taking cuttings. Budding and grafting are commonly practised in dealing with Apple, Pear, Plum, Cherry, and others, while such bush fruits as Gooseberry and Currant are increased by cuttings.

Budding Fruit Trees is an interesting operation which is best carried out during the months of July and August. The exact time depends largely upon the weather; for in addition to having the buds in right condition, it is most important that the sap should be flowing freely in the stocks, so that the bark can be easily separated from the stem to allow the insertion of the buds. Wet weather encourages the flow of sap, and therefore a period when wet conditions prevail should, where possible, be chosen.

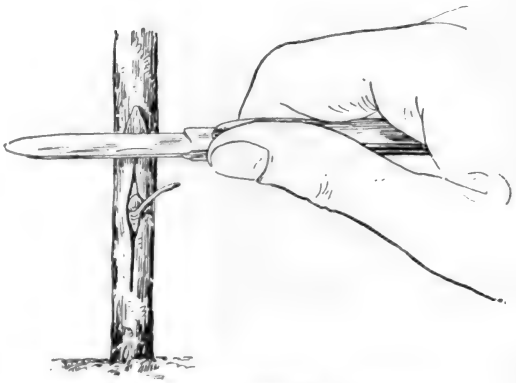
The stock usually employed for Pears is the Quince; those for Plums are the common Mussel, the wild Bullace, the seedling Plum, and the Myrobalan Plum. For Apples the Paradise stock is used, whilst the best stock for Cherries is the Gean or wild Cherry. For Apricots, Peaches, and Nectarines the Mussel, Brussels, and Brompton stocks will be found satisfactory.

The selection of the buds is a matter of considerable importance; they should be neither too old nor too young. Vigorous, healthy, medium-sized wood of the current season's growth should be chosen, that which is turning brown (a sign of maturity) being the best, whilst the buds should of course be plump and prominent. Having obtained the growth containing the buds remove the leaves, leaving half an inch or so of the stalk at each bud.

To cut out the buds a sharp budding knife should be used, and be inserted below the leaf stalk, in preference to commencing at the top of the bud. The thin slice of wood cut away with the bark at the back of the shield must next be removed. This



Removing piece of Wood from back of bud (A); a useless bud is shown at B. the "eye" having been removed



Bud properly inserted in Stock

requires great care, or the bud itself may be removed also. The point of the knife should be used to lift up the end, and then the thin slice of wood carefully pulled away by means of the knife and the thumb. If the eye or vital part of the bud comes away with the slice of wood, leaving a small hole at the back of the shield, the bud is of course rendered useless, and another must be obtained.

The incision in the stock should be just through the bark, and of about the same length as the shield of the bud. The cut must be in the shape of a T, and the bark on each side be carefully raised by running the haft end of the knife down between the wood and the bark. If the stock is in good condition the bark will part readily from the wood. The shield and bud must now be carefully inserted and thrust well into the incision, the bark being gently pressed round the bud; care must also be taken not to tear or break the edges.

The buds should be well bound in position with soft string or worsted, and room left for the bud itself to develop properly. Growth from the bud will not be made until the following spring, and growth produced by the stock should not be shortened until this period. If the weather is hot and dry the trees must be frequently sprayed, and provided with plenty of water.

Grafting Fruit Trees.—The stocks are ready for grafting in most districts from the middle of March until early April. It can be readily determined, however, when they are in the correct condition by the fact of the sap rising, and the buds commencing to swell. The stocks should always be in a more active state of growth than the scions, and the latter have been kept in a dormant condition by being placed in the soil under a north wall. Trees that were cut back previously should be again shortened a little so as to get down to sound, fresh wood; the cuts should be made rather obliquely so as to allow the moisture to run off. It is important to see that the stock and scion meet closely on at least one side near the bark, for if the union is not perfect there is small chance of the scion growing. The grafting tools must be sharp so as to make clean cuts, and for the purpose a good chisel is useful.

Crown Grafting.—In the case of fair-sized and large trees that are headed back, crown or rind grafting is the most desirable. Make the scion about 8 inches long, and cut the lower end to a point with a " shoulder " to it, something like a pointed

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Showing the various processes in Whip or Tongue Gratting

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Saddle Grafting

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Wedge or Cleft Grafting

pen. The cut from the "shoulder" should be about 3 inches long. Slit the bark of the stock to the same depth as the cut part of the scion, lift the bark from the wood with a sharp piece of bone, and insert the scion. Stout stems may have three or four grafts inserted in them; always do the work quickly so as not to allow the cut surface to become dry. When the required number of grafts have been placed in position, bind them up tightly with broad strands of raffia. After this apply

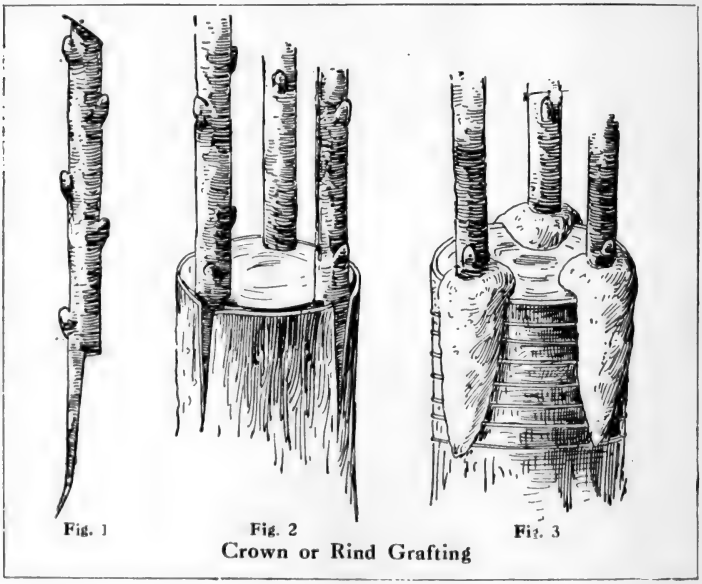


Fig. 1 Fig. 2 Fig. 3

Crown or Rind Grafting

a dressing of clay or grafting wax to keep out the wet, and keep the grafts moist at the base until the union is effected.

Tongue or Whip Grafting is a good method for small stocks. Remove a portion of the bark in a slanting manner, and cut a small notch in the stock to receive a tongue-shaped portion that is cut in the scion about ½ inch deep. Make both to fit perfectly before binding them up with raffia and applying the wax or clay.

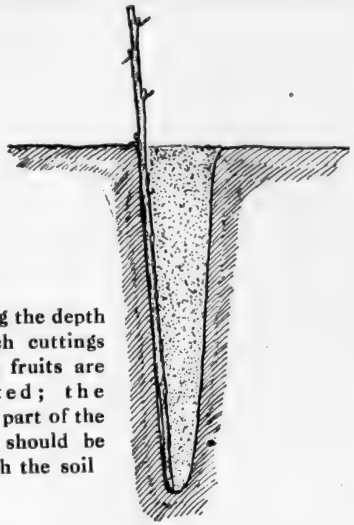
Saddle Grafting is recommended when the stock and scion are the same size. In this case both sides of the stock must be cut to make the latter wedge-shaped, while the scion is cut to fit on this. It must be made quite secure against winds and storms.

Grafting wax is a good substance to apply, and is obtained from the horticultural sundriesman. Many prefer clay, but this must be free from stones and grit, and should be worked up until it is brought to the consistency of putty. During bright sunny weather it is necessary to give it a spray over with the syringe occasionally, to keep it from cracking.

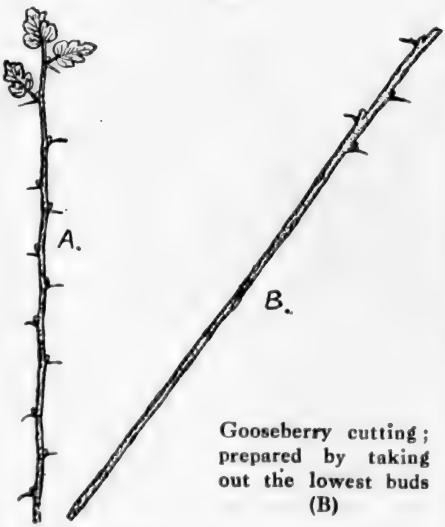
Bush Fruits from Cuttings.—Although it is not desirable to propagate inferior sorts of either Black, Red, or White Currant trees, those who possess healthy trees of good varieties should take a few cuttings each year and insert them in the open ground in autumn. When selecting Black Currant growths for the purpose of cuttings, care should be taken to avoid any trees on which the buds are swollen or unduly large, as these in all probability are infested with the gall mite, commonly termed "big bud." Growths of the past summer are best; they ought to be as straight as possible and sufficiently long to allow the prepared cuttings being from 10 to 12 inches long in the case of Black Currants and from 12 to 15 inches long in the case of Red and White Currants. The reason for having the Red and White cuttings longer than the Black is that trees of the former do best when trained with clean stems, whereas the latter are more profitably grown as stemless bushes.

In preparing cuttings of Red and White Currants all the buds except three or four at the top of each must be cut out, whilst in the case of Black Currant cuttings all the buds are allowed to remain. The top or unripe portion of each shoot is removed, whilst the base is cut across just below a joint. The cuttings should be inserted 6 or 7 inches apart in rows 12 inches from each other, the most usual method being to get out a narrow trench some 4 or 5 inches deep and, after spreading a layer of road grit in the bottom, arrange the cuttings in position and fill in the soil, making it firm by treading—particularly about the base of the shoots.

Should the soil become loosened after frost it must be made firm again, and if all goes well a good proportion of the cuttings will take root and make progress during the summer. In order



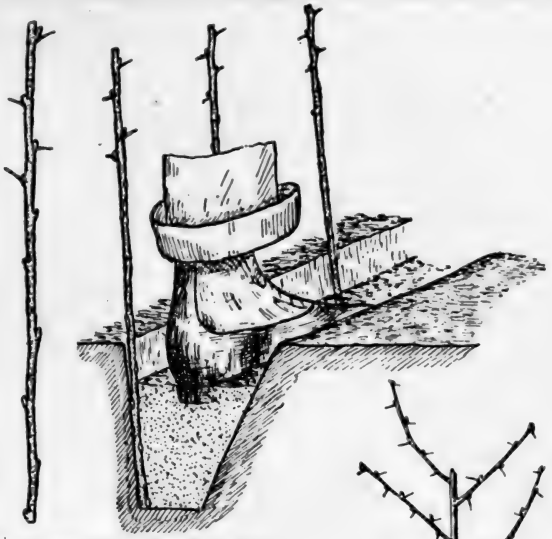
Showing the depth at which cuttings of bush fruits are inserted; the greater part of the cutting should be beneath the soil



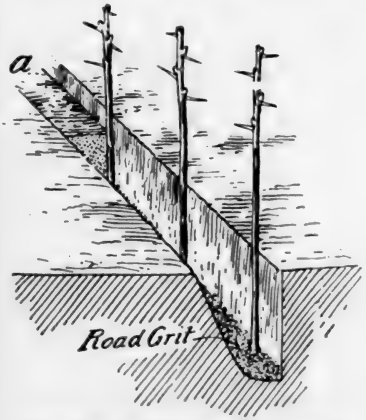
Gooseberry cutting; prepared by taking out the lowest buds (B)

to provide the young trees with ample space for development they should be transplanted a yard or so apart in the autumn, say during the month of November.

Young Black Currant trees should be hard pruned for two successive seasons in order to lay the foundation of fruitful specimens and induce the production of growth from below the soil. When once a good foundation has been formed, winter pruning simply consists of shortening or removing weak, badly placed shoots and old branches to prevent overcrowding. Young Red or White Currant trees need hard pruning for two seasons, and then seven or eight of the strongest and best placed



Making Gooseberry Cuttings firm after insertion



Showing small, straight trench (a) suitable for cuttings of Bush Fruits

The buds must not be removed from Black Currant cuttings, otherwise necessary shoots, as shown, will not be forthcoming

branches should be selected for forming a spur-trained clean-stemmed bush.

The Raspberry is easily increased by means of suckers—shoots which spring up round about the parent plant. They may be transplanted in early autumn or at almost any time, and if kept moist will soon become established. Each sucker ought to be taken up with a few roots.

Raising fruit frees from seed is usually an unprofitable proceeding for the amateur, unless he wishes to attempt to raise new varieties. Seedling Apples, Pears, Plums, Cherries, and Peaches do not bear fruit for many years, unless they are grafted or budded upon a suitable stock, while even bush fruits take several years to reach the fruiting stage.

CHAPTER VII

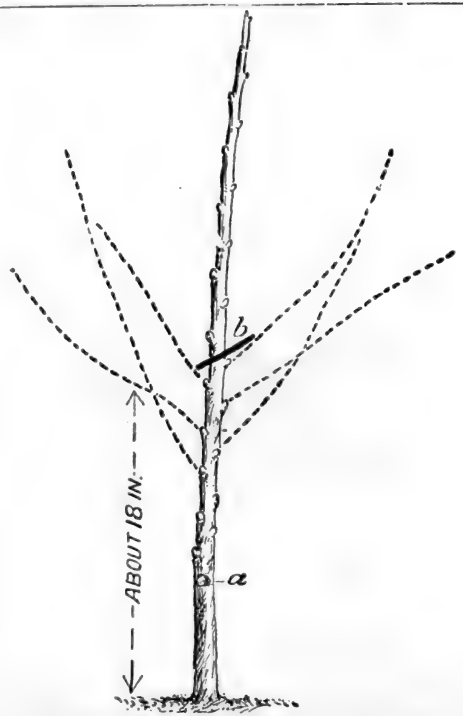
Forms of Fruit Trees

THERE are many forms of fruit trees, and the amateur who is not conversant with them may well be excused if sometimes he is bewildered.

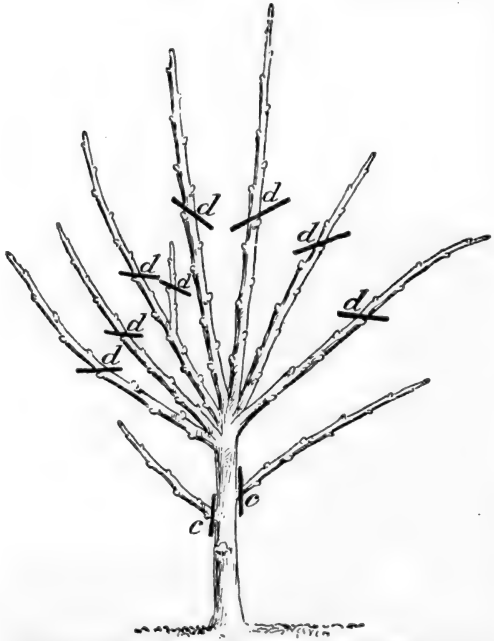
Standard.—Everyone knows and recognises a standard tree, of which the branches are at the top of a stem of greater or less height. A half-standard is one in which the stem is considerably less tall than the full standard; it is to be commended for small gardens. Apples, Pears, Plums, and Cherries chiefly are grown as standards and half-standards.

Bush and Pyramid.—The commonest forms of fruit tree are the bush and pyramid. The bush has no pronounced central stem, the branches arise from towards the base, and the centre is therefore more or less open. The pyramid, on the other hand, has a distinct, central stem, and the branches arise from it at intervals throughout its full length. As the stem increases in height so, too, are more branches formed. The Apple is commonly grown as a bush; Pear is supplied as a pyramid, and the Plum either as a pyramid or bush.

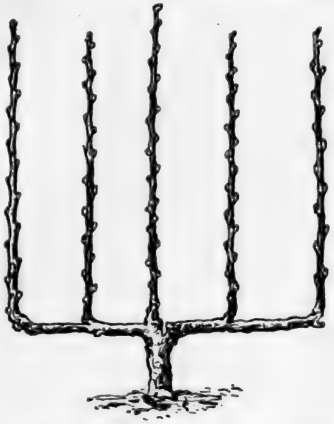
Cordon.—A cordon tree is suitable for planting against a wall, espalier, or trellis. There are single cordons having only one stem, double cordons having two stems, and treble cordons having three stems. Further, there are upright and oblique cordons; in the former the branches are upright; in the latter they are slanting. There are also horizontal cordons, in which the branches are trained in a horizontal direction; these are very useful for planting alongside the garden walks. The horizontal cordon may be single, having one branch only, or it may be double, in which case it possesses two branches, one on each side of the short stem. Apples and Pears, together with Gooseberries and Red and White Currants, are most commonly grown as cordons. Apples only are, as a rule, grown in the form of horizontal cordon.



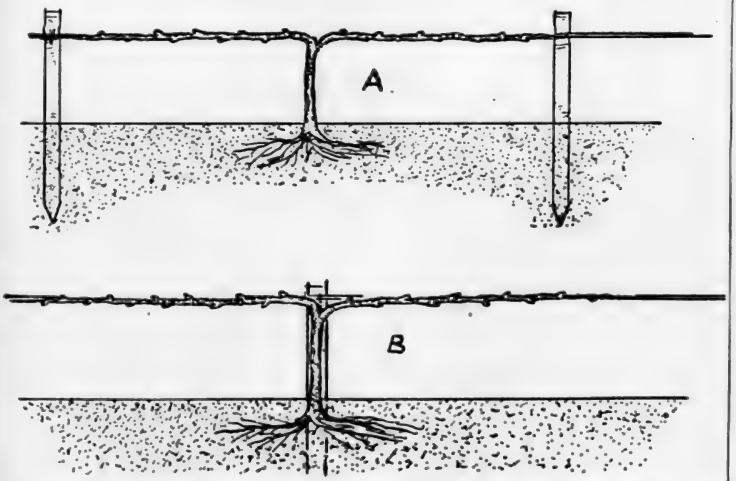
Maiden Apple Tree: (a) where budded, (b) where to prune



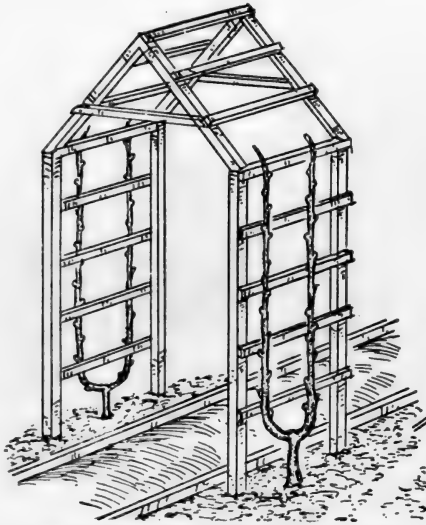
Two-year-old Apple Tree: (c) branches to be cut off, (d) where to prune



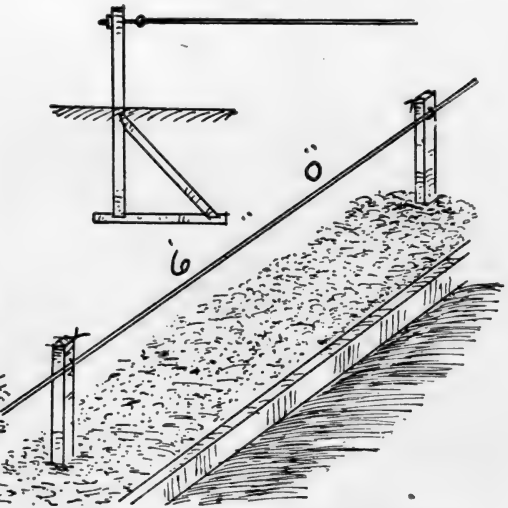
Red Currant trained as an espalier



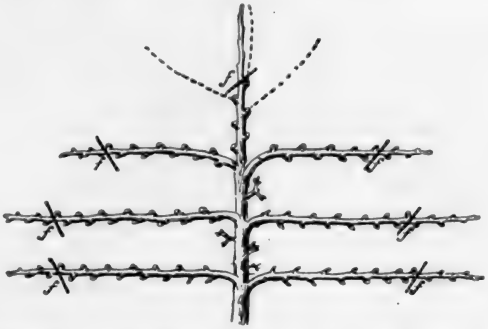
Horizontal Cordon Fruit Trees. Correct planting and staking (A) and incorrect (B) are shown



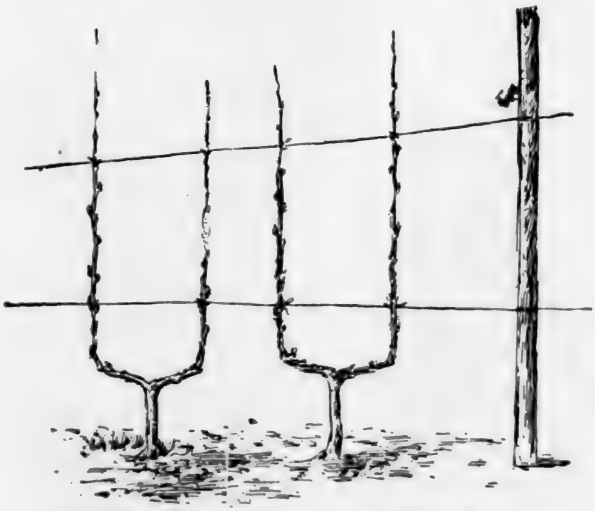
Double Cordon Fruit Trees trained on arch



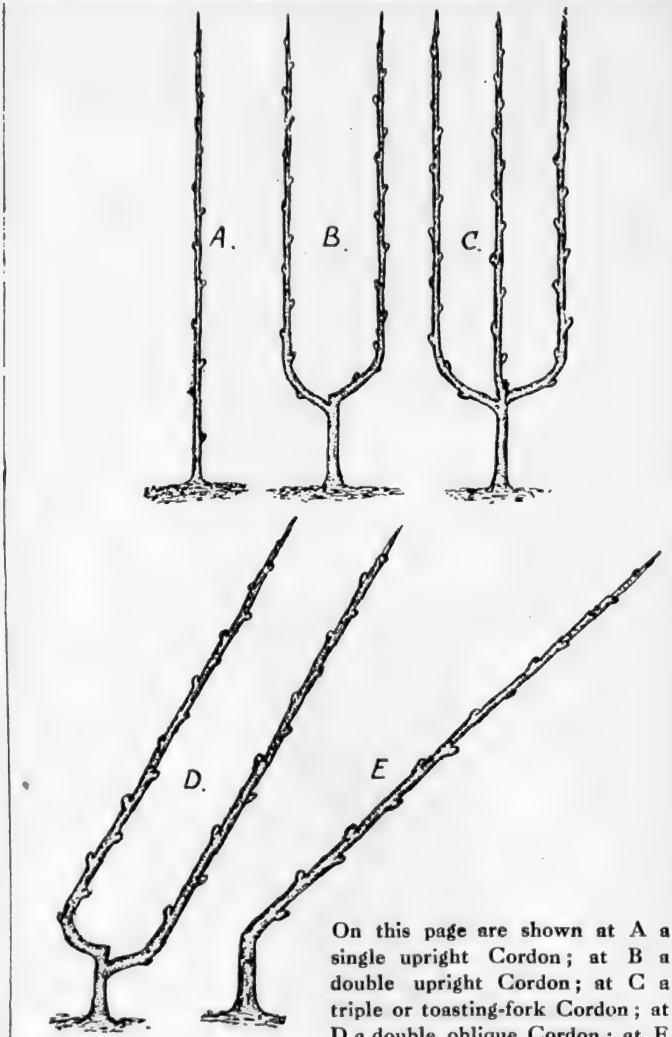
Showing suitable trellis for horizontal Cordons



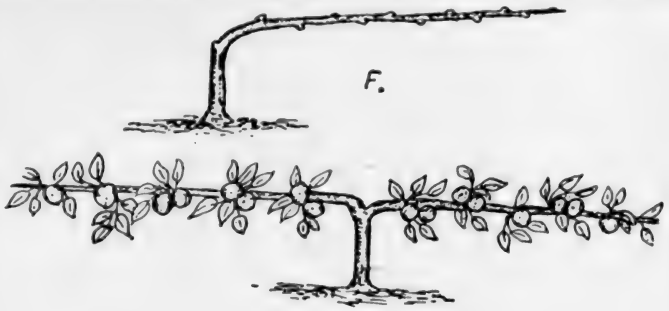
Branches of horizontal Espalier of Pear Tree ; the branches are pruned at (f) in winter



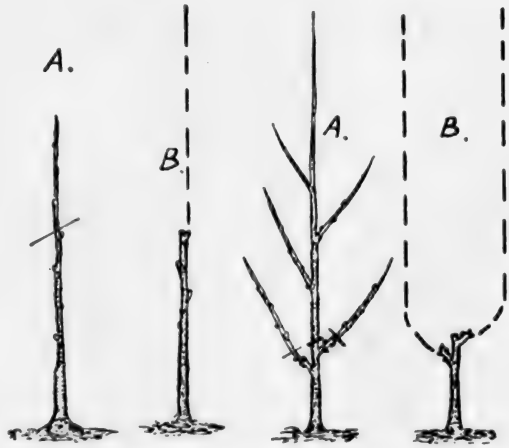
Double Cordon Fruit Trees on Wire Support



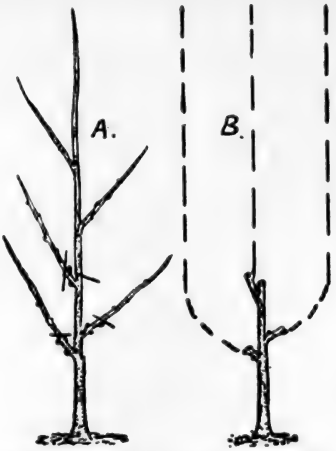
On this page are shown at A a single upright Cordon; at B a double upright Cordon; at C a triple or toasting-fork Cordon; at D a double oblique Cordon; at E a single oblique Cordon



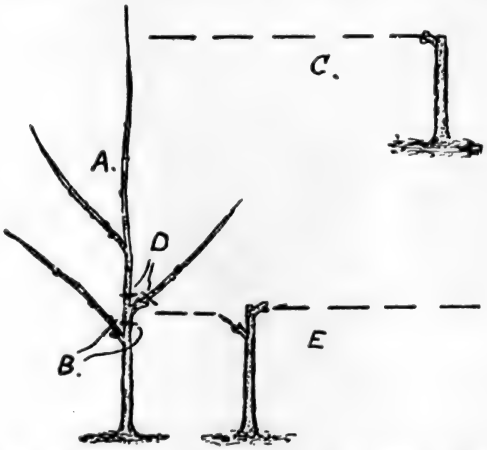
A single horizontal Cordon is seen at F, and a double horizontal Cordon at G



The left-hand sketches illustrate at A a Maiden, the cross line indicating where to prune to train it as a single Cordon; the result of the training is shown by the dotted line B. On the right hand is shown at A a young Apple or Pear Tree, the cross lines indicating where to prune to train it as a double Cordon, shown by the dotted lines B



This sketch shows at A a young Tree, the cross lines indicating where to prune to train it as a toasting-fork Cordon, depicted by the dotted lines at B



This sketch shows at A a young Tree, the cross lines B indicating where to prune to train it as a single horizontal Cordon, shown by the dotted lines in C, whilst the cross lines D indicate where to prune to train it as a double horizontal Cordon, shown by the dotted lines in E

Espalier.—The chief forms of fruit trees grown on walls, in addition to cordons, are horizontal espaliers, in which the branches are in successive horizontal tiers, each tier about 18 inches above the other; and fan shaped, in which the branches radiate from the centre and base of the tree. Pear, Plum, and

A typical pyramid Pear Tree: the winter's pruning is to the points marked *e*

Apple may be obtained as horizontal espaliers; while Cherry, Plum, Pear, Peach, and Nectarine are commonly grown as fan-shaped trees.

An economical method of planting a wall with fruit trees is to arrange tall-stemmed standards between fan-trained trees. Thus the former will furnish the upper part of the wall, while the latter fill the lower part. As, in due course, the fan-trained trees increase in height, the standards are removed to make room for them. The standards must therefore be planted with the view of utilising the upper wall space until the lower trees shall need it.

CHAPTER VIII

Summer Pruning

SUMMER pruning does not appear to be practised by amateurs generally; their Apple, Pear, and Plum trees particularly, and especially those planted against a wall or espalier, would be greatly improved thereby. The object of summer pruning is to prevent the trees from making excessive and useless growth and misusing energy which might otherwise be diverted towards perfecting the buds for another season, namely, those at the base of the shoots. The work consists in pinching or cutting off the ends of the side shoots that form on the branches. It is a mistake to do the work too early, or the trees continue to form a number of secondary shoots which have again to be pinched off as soon as they have formed one or two leaves. If the pruning is not done until late in July, fewer secondary shoots will be produced afterwards than if the pruning is done some weeks earlier.

Trees growing against a wall will need attention first, for in that position growth is naturally more advanced than on trees in the open garden. The opportunity ought to be taken at the same time to cut off shoots for which there is no room, for they crowd the trees and prevent light and air reaching the buds. If amateurs would pay greater attention to the disbudding or removal of superfluous growths, and to summer pruning, there is little doubt that their trees would benefit; generally speaking, fruit trees are much too crowded with growths.

Summer pruning ought undoubtedly to be practised on Apple, Pear, and Plum trees, and on all those grown in the form of espaliers or cordons. If time permits, it may with advantage be practised on Gooseberries, Red and White Currants grown as bushes, though with these fruits summer pruning is rarely carried out systematically. Cherries, too, especially those growing against a wall, ought to be summer pruned.

It is not advisable to complete the summer pruning of a

Typical Summer Shoots of Pear Tree

Summer Growths after being shortened

If Side Shoots subsequently form, they, too, must be "stopped"

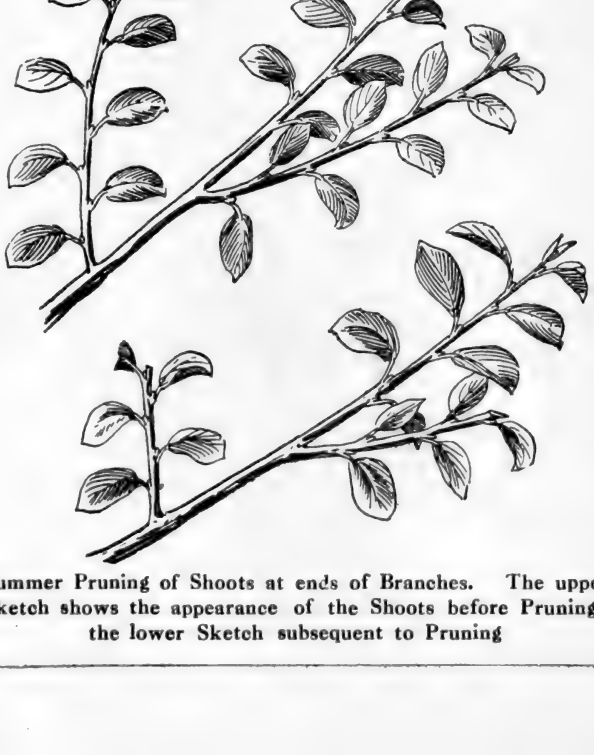
Wrong Way of Summer Pruning. The shoots have been cut too severely

Showing how the Buds at the base of the Shoot start into growth if Summer Pruning is too severe

How the Shoots are Pruned in Winter

tree in one day; the work should be gradually done, and the whole pruning be spread over a period of several weeks, whilst a commencement should be made at the top of the tree and the operation carried out downwards. In this way a severe check, which would most probably cause the fruit to fall prematurely, is avoided.

For the purpose in question fruit trees can be divided into two sections—namely, those which fruit more or less on spurs, as, for instance, the Apple, Pear, Plum, Sweet Cherry, and Apricot, and those which produce their fruit on shoots made the preceding year, as the Nectarine, Peach, and Morello Cherry;



Summer Pruning of Shoots at ends of Branches. The upper Sketch shows the appearance of the Shoots before Pruning; the lower Sketch subsequent to Pruning

in the latter cases little summer pruning is required beyond cutting out weak growths and thinning out others where they are too crowded. Bush and Pyramid Apple, Pear, and Plum trees do not need summer pruning so closely as cordon and wall-trained trees, whilst Apple and Cherry trees should not be so strictly dealt with as Pears and Plums, more license being allowed and the growth of more young shoots permitted. Established Apple trees invariably produce numerous shoots having a plump bud at the end. These will bear fruit and should not therefore be interfered with. The leading growth of the various branches should not be shortened at the summer pruning.

Reference to the sketches that accompany this chapter will no doubt render this explanation of one of the most important practices in fruit cultivation clear to the reader.

CHAPTER IX

The Apple

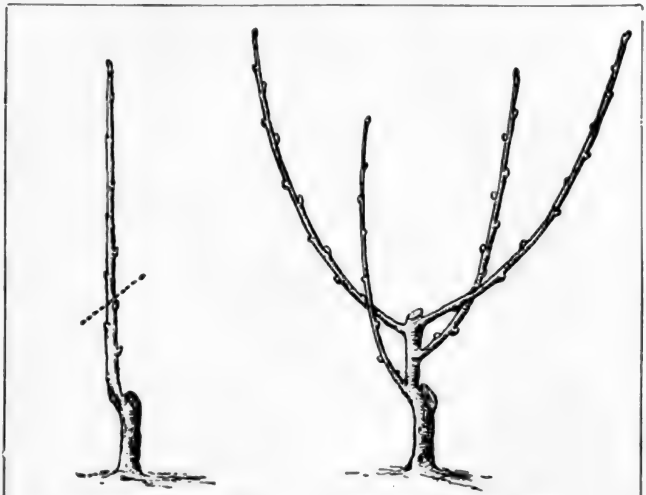
THE Apple is perhaps the most useful, and certainly one of the most profitable, hardy fruits. It is by no means difficult to grow successfully; if the trees are given proper care and attention, fine crops of handsome fruits will be obtained. It is advisable to select for the trees a position that is sheltered from cold winds, yet exposed to full sunshine; a low-lying situation should be avoided if possible, as there the blossoms are more liable to be damaged by late spring frosts than on higher ground.

The best soil is deep loam, resting on a well-drained subsoil; but Apples can often be grown successfully in various kinds of soil with ordinary care. Before planting, it is important to cultivate the whole ground thoroughly to a depth of fully 2 feet. This is far better than preparing separate holes for the trees, as it ensures much better drainage and a free percolation of water. If the ground is in good condition, having been manured regularly for previous crops, no manure should be added at the time of planting; but if the land is poor and in a somewhat exhausted condition, a dressing of decayed farmyard manure may be dug in with advantage.

The best form of tree for the amateur to plant is the bush tree on the Paradise stock; they should be planted 12 feet apart each way. Standard apples are budded on the Crab stock, and should be planted 30 feet apart for a permanent orchard. When this is done the space between may be filled with dwarf trees or bush fruits until the standards attain a large size. Bush Apples will be found more satisfactory for small gardens, for they commence to bear fruit when young.

Apples also succeed as espaliers, which may be planted along the side of walks, and as cordons. In cold districts choice dessert varieties succeed admirably as cordons when planted against a south or west wall; they then produce fine fruit of good colour and flavour.

In the cultivation of fruit trees on meadow land it is important to keep the ground clear of grass round about the stems; for a distance of 3 or 4 feet from the stem the soil should be kept hoed and free from weeds. Grass has a retarding influence on growth; if it is allowed to grow on the soil near the trees, these develop very slowly and take a long time to make large heads.



A Maiden Tree 18 months after budding, cross line showing where to prune

Tree in following year, showing two summers' growth

The best time to plant is in November, but this work may be done between then and the end of March, provided that the weather is mild and the ground free from excessive wet, frost and snow. It is far preferable, however, to get the work done early in autumn, for the trees then become well settled in the soil before the season of growth starts.

Pruning requires a certain amount of care, but in the case of young trees it is a safe rule to prune hard, so as to form a good foundation. Take care to cut to an outside bud, especially in dealing with varieties of upright growth. Opinions differ as to

whether Apple trees should be pruned the first season after planting or left for a year. In the case of bush trees, espaliers and cordons, first-year pruning is certainly to be recommended, and generally in the case of standards also. The only exception to the rule is when standard trees are planted late in the season, say, during February or March; even then the expert grower favours early pruning, but the amateur would be on the safe side in leaving the trees alone for a year, and then to cut them back. Vigorous growth would then be fairly certain, which might not be the case if pruning was carried out the first season, especially if the summer was hot and dry. Any very weak shoots are cut out, and the main growths are shortened to about a foot in length.

After two or three years' hard pruning to form a good foundation of branches, standards will not need to be cut back so much; in fact, a judicious thinning of the branches, removing any that would cause overcrowding, and those that cross over one another, is all that is necessary. An occasional branch may require to be shortened a little to maintain uniform development, and to ensure a shapely tree.

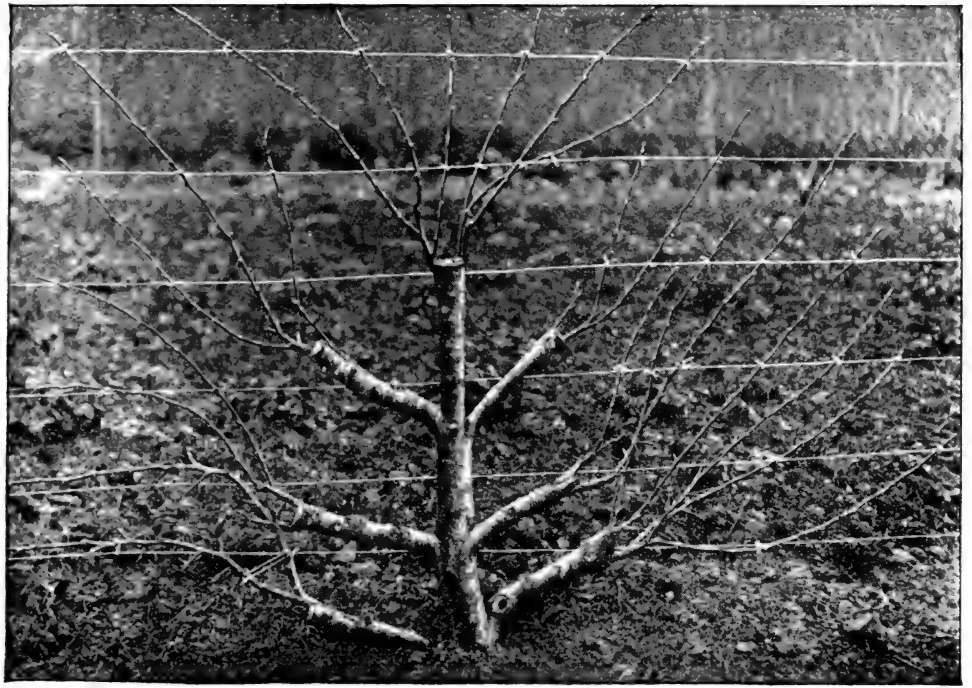
In the case of bush trees the main growths are shortened as already described, and the side shoots are pruned back to three buds from their base to encourage the formation of fruiting spurs. The procedure is the same every year until the space at disposal is filled. At that time it is well to leave a shoot about 18 inches below the end of each branch when summer pruning, and in winter cut back to this. By this means young shoots are kept in the trees, and an accumulation of spurs at the ends of the branches, brought about by constant and hard cutting back, is avoided.

Certain varieties of Apples require special treatment; Irish Peach and Cornish Gilliflower are good examples. The fruits are chiefly produced at the ends of the branches, consequently the growths must not be shortened back, but merely thinned out, some of the longest and most ungainly shoots being cut out. These varieties may be pruned fairly hard for the first two or three years and then allowed to grow fairly freely. Worcester Pearmain also crops much better if not pruned too hard, and is most satisfactory grown as a free bush.

The pruning of cordons and espaliers is not difficult; the leading growths are cut back to about 12 inches in length

Trained Apple Tree cut back and grafted

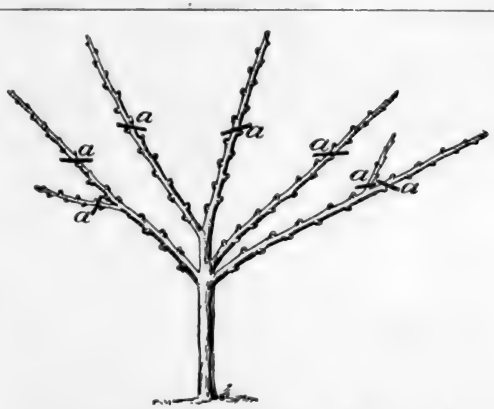
Trained Apple Tree showing grafts covered with clay



Apple Tree one year after being grafted

each year until the space at disposal is filled, and the side growths are pruned to three buds from the base to encourage fruit-spurs.

The summer pruning of Apples deserves careful attention, as it helps the fruit by admitting sun and light, and assists the development of fruit-buds and the ripening of the shoots. Summer pruning should not be done too early, or secondary growths will form, and this is not desirable. The ideal time is during



Apple Tree two years old. Prune at *a*

late July and early August, but in late seasons vigorous trees might be left for another week or so with advantage. At this pruning the side growths are cut back to five leaves from the base, and the leading growths are just shortened a little. In the case of young trees it is often necessary to leave additional growths to form branches, but this must be done judiciously to avoid overcrowding. It is very important to keep the branches thinly disposed, so that the sun can shine right through them and reach the fruits on the inside branches. Due regard must be paid to this matter when pruning and forming the trees.

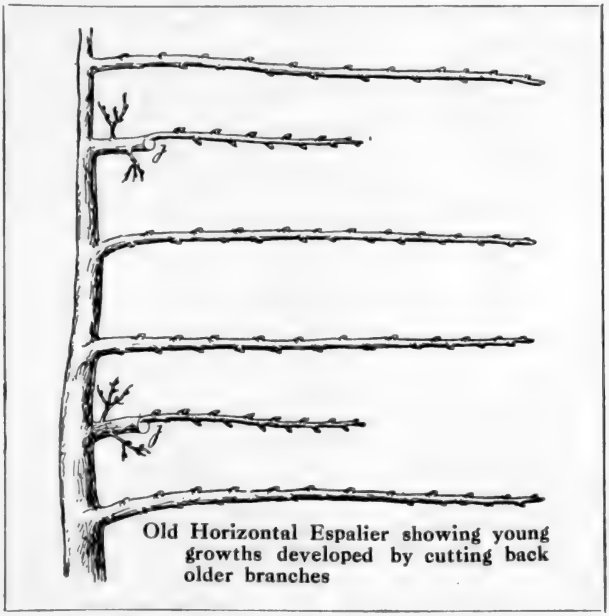
When fruit trees have been pruned too severely, and, as a result, have made a quantity of vigorous shoots that produce little fruit, the best plan is merely to thin out the growths by

Apple Lane's Prince Albert

Apple King of the Pippins

cutting away those that can best be spared, and shortening the remainder by one-third of their length. If this is done and the trees are carefully root pruned in autumn, they will probably commence to bear good crops.

When Apple trees are heavily laden the fruits should be thinned in June. A crop of large Apples is then obtained, but if the fruits are left in clusters many of them will remain small



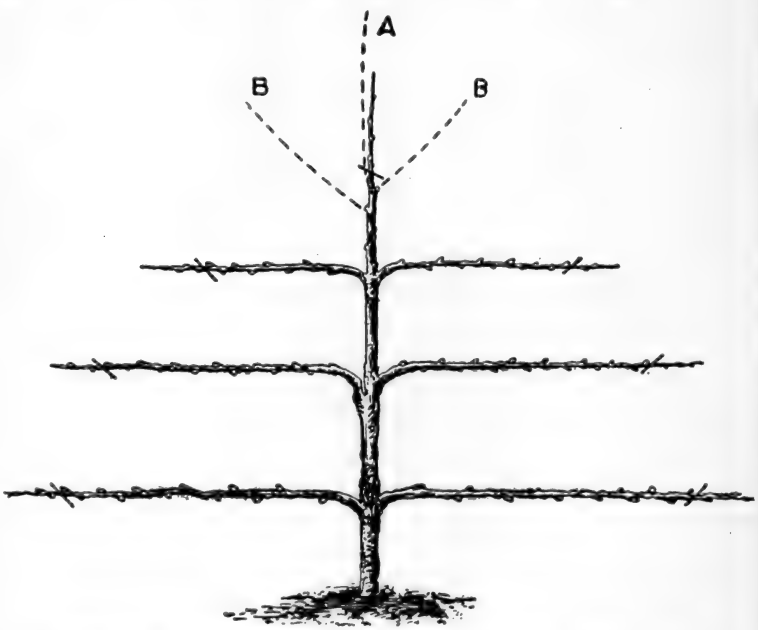
Old Horizontal Espalier showing young growths developed by cutting back older branches

and be of little value for home use or for market purposes. Such trees derive much benefit if thoroughly watered with liquid manure, and the fruits will be improved. If a mulch of short manure is given it helps to conserve moisture in the soil ; freshly planted trees should be mulched after planting or in spring.

Spraying in February is a preventive against insect pests. Many old orchards in which the trees are covered with moss and lichen would derive much benefit from such treatment, and if the work was repeated once in three years the trees would

be kept in a far more healthy and productive condition. Caustic Alkali winter wash is recommended for use in this case, and if carefully applied so as to reach all parts of the trees it will kill the moss and lichen and destroy all insect pests that it touches. Attention to this matter will well repay the grower for his trouble.

Varieties of Apples are very numerous, but a comparatively small number of the best will maintain a good succession of fruit. Mr. Gladstone is a good dessert variety ready for use at the end of July and early in August; the fruits are of medium size, sweet and juicy, and marked with crimson; the tree is a free bearer. Next we have Langley Pippin, a really good early Apple of comparatively recent introduction; the fruits are of



Typical trained Apple Tree, suitable for espalier or wall. Prune at cross lines. A, B, B show lines of future branches

good size, sweet, and striped with red. Beauty of Bath is an even, round fruit, ripe about the same time ; the quality is good, and the trees crop well.

Worcester Pearmain never fails to please ; its free cropping qualities and fine appearance make it popular, though the flavour is not first rate. James Grieve is ripe in September and October ; it is an Apple all should grow. It crops freely, is a vigorous grower, and the rich yellow fruits are crisp and juicy. King of the Pippins ripens in October, and remains fit for use for many weeks. This variety crops well, and the somewhat conical fruits are dull yellow flushed with red ; the flavour is good.

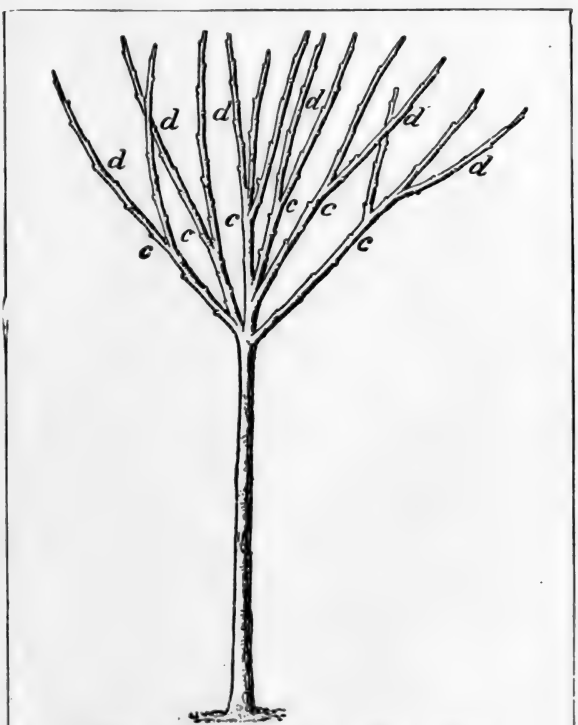
Cox's Orange Pippin is perhaps the most richly flavoured of all dessert Apples ; it is at its best in November and December, although it often keeps in good condition until March. It is a fair cropper, of medium size, and well grown fruits are very handsome. It deserves a south wall, where it should be grown as a cordon.

Allington Pippin is a useful variety and a good bearer. The fruits are of medium size, pleasantly streaked with red, and are inclined to be " sharp " in flavour. In Adam's Pearmain we have a very valuable late Apple, fit for use at Christmas and onwards. It is conical in shape, marked with red on the side next the sun, and is particularly sweet and crisp. Claygate Pearmain is a fine Apple of handsome appearance, and the flavour is first rate. Court Pendu Plat is a useful late variety, with round, slightly flat fruit. It blossoms quite ten days later than most other Apples, and usually escapes the spring frosts. Sturmer Pippin is ready for use in February, and will keep until May. The fruits are of medium size, marked with crimson, and are brisk and sweet in flavour.

Among cooking Apples Lord Suffield is particularly good for early use. It is a very regular cropper, and the fruits can be gathered at the end of July. In some soils it is rather liable to canker. Lord Grosvenor is a free bearer, and should be grown where Lord Suffield fails. The fruits are large and pale yellow. Grenadier should be included in every collection ; it is large, cooks well, and crops very regularly. It is in season during August and September. Stirling Castle is a full bearer, and usually requires much thinning. The fruits are round, greenish yellow, and are ready early in October. Warner's King is still a necessary Apple in its season, October and November. The

Stone's Apple or Loddington Seedling; a good cooking variety

fruits are very large, and cook well. If it cankers in certain soils, Tower of Glamis should take its place. Bismarck is a very fine fruit, large and richly coloured, while it bears well, and cooks splendidly. Rev. W. Wilks is a particularly fine Apple, and is good as a cordon or bush tree. It bears very regularly, and the fruits are large. Blenheim Orange is suitable for cooking and dessert, and is a fine Apple when at its best. Standard trees are long in commencing to bear fruit, but bushes on the Paradise stock fruit much more quickly.



Young Standard after a year's growth: *c c*, where pruned after planting; *d d*, young shoots doubled in number

Lane's Prince Albert rarely fails to produce a crop of fine fruits; the latter are flushed with red on the sunny side, and are fit for use from November to March. Bramley's Seedling will keep even later, and it makes a splendid standard, or a free bush. Established trees crop freely, and the fruits are large and handsome. In Newton Wonder we have a particularly fine Apple, it will keep until May, and cooks unusually well. All should grow this variety; its large fruits are produced freely on young trees. Annie Elizabeth also merits a place, and it will keep as long as the foregoing. The tree is vigorous and hardy, and the large fruits are flushed with deep crimson on the exposed side.

CHAPTER X

The Cherry

FEW fruits are more appreciated than Cherries, and they can be grown successfully in small gardens, as they lend themselves to various methods of training. Cherries prefer loamy soil that is naturally well drained; land that is fairly rich in lime is suitable, though this material can be added in the form of lime rubble. In the case of heavy, clayey soils it is advisable to add a good dressing of basic slag and old lime rubble when preparing to plant the trees.

Bush-trained Cherries are suitable for small gardens; this fruit may also be grown as a standard and espalier. One advantage of the latter type of tree is that it can be grown by the side of a walk and takes up very little space. Probably the best fruits of dessert varieties are grown on walls, and the trees succeed on almost any aspect. In favourable localities those on north and east walls are a great success

Morello Cherries are nearly always grown on a north wall, and a better tree for the position cannot be found. Fan-trained trees are the best for walls, and may be planted from 15 to 20 feet apart. Early autumn planting is to be preferred, and the trees should be pruned the following February. Cut back the growths fairly hard the first year, taking care to cut to a plump wood bud on the upper side of the branch. Train the lower branches out horizontally on each side, and allow the others to rise gradually upwards; but do not have a central stem; if the trees possess one cut it out, the centre will fill up in a year or two.

The Pruning of established trees is best done early in winter, as the buds are not then so likely to be injured and gumming will be less probable. In the case of sweet Cherries shorten back the leading growths by one-third of their length, and prune the side growths to three or four buds from the base of each. Morello Cherries are treated differently, as they bear fruit on the

growths made the previous season; consequently, it is essential to keep the trees furnished with such growths. They should be trained at 6 inches apart all over the tree; superfluous shoots and worn-out branches should be cut right out at their base.

Standard trees of both Morello and sweet Cherries are best cut back fairly hard for two or three years; subsequently, when well-formed heads have been developed, little pruning is required beyond a judicious annual thinning of the branches. Young trees that grow with undue vigour should be carefully root pruned in the autumn.

The summer pruning of sweet Cherries is done early in July. In the case of trees on walls and bushes in the open, cut back the side growths to five leaves from their base, and just shorten the leading shoots a little. Black fly frequently attacks Cherries, and the trees should be syringed with quassia extract in May to check this pest. It is often necessary to repeat the spraying to ensure the foliage remaining clean and healthy. Do this in the evening after the sun is off the trees, and syringe them well with clear water the next morning.

Trees bearing full crops need to be frequently watered in hot weather, especially those growing against walls, and in most gardens it is necessary to net them when the fruit is ripe for protection against birds.

Good Varieties.—There are a number of good varieties, and of these Early Rivers is one of the first to ripen; the fruits are black, sweet and tender, and are often ripe at the end of June. Elton follows a little later; the fruits are pale yellow and freely produced. Governor Wood is a sweet and juicy Cherry, ripe in July; the fruits are yellow, mottled with red. May Duke is a large red Cherry, ripe at the same time—an abundant bearer. Black Heart is a very popular variety, and makes a good standard or bush. Bigarreau is a fine Cherry, ripe late in July; the fruits are red, and richly flavoured; it is a suitable Cherry for market purposes. Bigarreau Napoleon is a large fruit, firm and juicy, and is a good variety for orchard planting. Late Duke is a large red Cherry; it ripens in the middle of August. White Heart is a popular variety; the fruits are sweet and pleasantly flavoured.

Of early varieties Black Tartarian is one of the best to grow on a wall, where it is often ripe at the end of June.

Morello Cherries are chiefly used for cooking purposes; they usually crop very freely, and are ready for use from August until October.

The Morello Cherry succeeds as a standard as well as against a wall. This fruit is one of the comparatively few that may be grown with great success on a wall facing north; amateurs possessing walls of that description cannot plant them more profitably than with the Morello Cherry. Fan-trained trees are best. It is rarely that this Cherry fails to bear a satisfactory crop, and the fruits, while liked by some as dessert, are invaluable to all for culinary purposes.

CHAPTER XI

Red, White, and Black Currants

RED and White Currants need similar treatment, so they may be considered together. They are usually grown as bushes in an open part of the garden, or as cordons trained against a wall facing north or east, or against a trellis in the open. These Currants are especially useful as cordons, and in this form are strongly to be recommended to the amateur. They are convenient to attend to, and bear fruit freely. Red and White Currants thrive in ordinary soil; bushes should be planted 5 or 6 feet apart. October and November are the best months for planting.

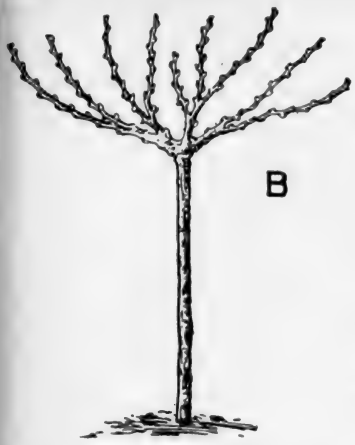
When they are grown as cordons it is advisable to practise summer pruning, which consists in pinching off the ends of the side shoots in July, at about 5 inches from the base. Winter pruning is performed by cutting back the side shoots to within one or two buds of the base. When the Currants are grown as bushes, summer pruning is rarely practised, but it is nevertheless advisable.

The bushes derive considerable benefit from a mulching of manure forked into the soil in spring. Otherwise they need little attention except that the ground must be hoed frequently to keep down weeds.

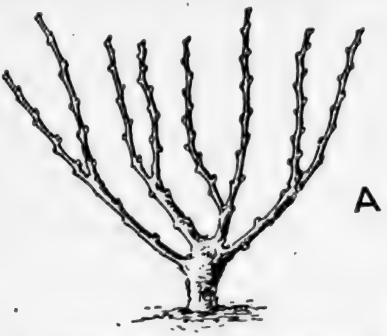
Birds often play havoc with the fruits, and the only way to prevent their attacks is to net the bushes. Obviously it is far more convenient to protect a row of cordons than a plot of bushes, and this is an additional recommendation for growing the Currants in that form.

Good varieties of Red Currants are Champagne Red, Raby Castle, and Fay's Prolific. White Currants to be recommended are White Dutch and White Transparent.

Black Currant.—This is an accommodating bush, and will thrive in a somewhat partially shaded situation if no better can be found for it. Nevertheless, providing the ground is

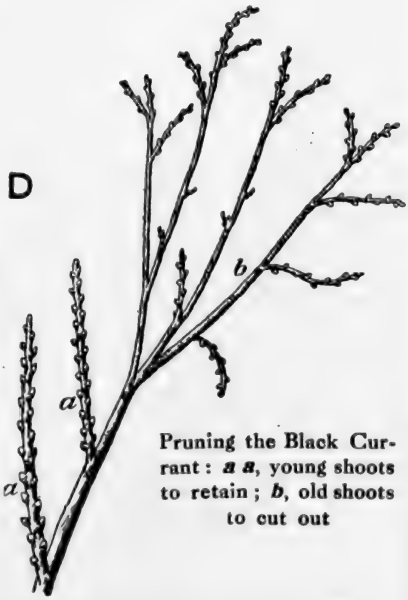


A standard of Red Currant is figured at B



A typical Red Currant Bush is shown at A, the branches thinly disposed

Bush of Black Currant at D. Young shoots are encouraged to grow from the base



Pruning the Black Currant: *a a*, young shoots to retain; *b*, old shoots to cut out

Pruning Red Currant: prune shoots as at *i*; prune leading shoots as at *j*

Black Currant two years old: *e e*, where to prune; *f*, bush after pruning

deep and loamy, the Black Currant may be grown to perfection in the open. In light soil and a sunny spot it is liable to suffer from drought and is then unsatisfactory.

The Mite or Big Bud has proved one of the most serious enemies of the Black Currant during recent years, and it is of the greatest importance, in purchasing bushes, to ensure that they are free from this pest. Early autumn is the best time for planting, and the bushes ought to be not less than 6 feet apart.

The pruning of the Black Currant is different from that needed by the Red and White Currants; the branches must not be cut back to form spurs. The finest fruits are produced by the shoots of the previous year's growth, and pruning should be directed to cutting out the old stems to make room for the

Red Currant two years old: prune at *g*; *h*, clean stem to height of 12 inches

fresh ones, the tips only of the latter being cut off. Many amateurs scarcely ever prune their Black Currant bushes, with the result that growth becomes weakly and the bushes get crowded with useless shoots; the crop of fruit then is meagre and the fruits are small.

One of the finest varieties of Black Currant is Boskoop Giant; other good ones are Naples, Seabrook's Black, and Mammoth.

CHAPTER XII

The Fig

To be successful in the cultivation of Figs it is necessary to keep the trees furnished with sturdy short-jointed growths, and this can only be done by growing them in a border where the roots are restricted. If Fig trees are allowed an unlimited root-run they will make growth freely, but fail to produce a crop of Figs. This refers to trees under glass and in the open.

Supposing the trees are grown against a wall, which is the usual practice, a border 4 feet wide and 2 feet deep is sufficient in size for them. It should be enclosed at the bottom and front by stone slabs fixed in cement or concrete to keep the roots confined to that space. The bottom of the border ought to slope a little to the front to carry off excessive moisture, and a 3-inch drain pipe should be laid along the bottom to carry off the water to a convenient outlet. Over the stone place a layer of brickbats covering the entire bottom, and on these put old turves grass-side downwards. The bulk of the border should be made up of good loam, which has been cut and stacked for some months; this should be chopped up, old mortar rubble and coarse charcoal being mixed with it. If the compost is made firm and trodden well round the roots at planting-time, the trees will make sturdy growth, which is so essential to success.

Planting may be done in November or at the end of March; but in cold districts it is advisable to protect the tree in winter by thatching with straw or covering with sacking, which may be removed late in March or early in April.

Pruning.—Well-developed young trees will not need pruning the first year, and all that is necessary for some time is to remove those growths that would cause overcrowding. Old trees often present more difficulties, especially if they have been neglected. The object is to keep all parts of the trees furnished with young fruit-bearing shoots, and such should be trained

in about 6 inches apart, certainly not closer. When pruning, which should be done early in April, cut away as many old shoots—those that have fruited—as can be replaced by young growths. Always allow a certain number of young shoots to develop from the base of the trees. When growth has commenced, remove any young shoots that are seen to be superfluous and are not wanted for the furnishing of the trees, and, later on, fasten the remaining growths to the wall or trellis. As a general rule, it is not necessary to " stop " the growths of outdoor Figs during summer, but when the trees are inclined to be very rank in growth it is wise to pinch out the points when the shoots are 15 inches in length. If these matters are given every attention, very little winter pruning will be found necessary.

It should be understood that the growths must not be shortened at the winter pruning, but laid in full length ; those that are removed should be cut out close to the branch from which they grow. Outdoor Figs ought to be grown against a south or west wall. When they carry full crops, give them diluted manure water at the roots, and mulch the trees to keep the soil moist. When growth is vigorous and the trees fail to bear fruit, root-prune them carefully in the autumn, as this will check rank growth and induce fruitfulness. The most satisfactory variety for planting out of doors is Brown Turkey.

The Fig Under Glass.—Borders for Fig trees under glass are prepared in the same way, and the remarks about pruning hold good also. It is necessary to syringe the trees freely when they are started into growth, and a temperature of 55° is sufficient at night in the first place. Those grown for an early crop require very little air at first, but due attention must be given to watering, taking care to use water in a tepid state. Disbud superfluous growths as the shoots develop ; those that are retained should be " stopped " above the sixth leaf. This assists the development of the second crop.

Later on, more air may be given, especially when the fruits are ripening, and at that time syringeing must be discontinued. If red spider gains a hold on the leaves, syringe the trees with salt water after the fruits are gathered, and syringe regularly with clear water until the second crop comes to maturity. Do not allow the trees to suffer for want of water, and give liquid

manure to those carrying heavy crops. The growths must be carefully regulated and tied in during summer, but superfluous shoots should be suppressed to avoid overcrowding and to admit the light that is so essential to the development of a good crop and well-matured growths.

The Brown Turkey Fig is just as suitable for cultivation under glass as out of doors. Others to be recommended are Bourjasotte Grise, and White Marseilles, though neither is to be preferred to Brown Turkey.

CHAPTER XIII

The Gooseberry

THE Gooseberry is a favourite fruit with amateurs, and not without good reason, for as a rule it crops freely, is easily managed, and the fruits are useful both in a green state and when ripe. The bushes thrive in ordinary soil that has been deeply dug and with which some yard manure is mixed. November is the time to plant; the bushes ought to be at least 5 feet apart. Deep planting should be avoided; if the uppermost roots are covered with about 2 inches of soil, that is sufficient. It is necessary to make the soil thoroughly firm about the roots.

Pruning.—The Gooseberry bears fruit both on spurs and on shoots of the previous year's growth. Spurs are short, stunted growths that develop when side shoots are pruned to within one or two buds of the stems each winter. Some growers prune all the side shoots of the Gooseberry in this fashion, but it is a mistake to do so. Whenever there is room, some of the best shoots of the previous year's growth ought to be left two-thirds or three-quarters of their full length; they will, as a rule, bear fruit freely, and, moreover, the fruit so obtained is of fine quality.

The branches must be kept well apart from each other, at such a distance that the hand may be passed through them conveniently. Unless the branches are sufficiently wide apart to allow air and light to reach the buds, the bushes are not likely to thrive. One often sees Gooseberry bushes that are so crowded with shoots that the work of gathering the fruit becomes a matter of difficulty. In pruning, care should be taken to remove branches that are so low that when laden with fruit they will drag on the ground and so render the fruit useless.

It is usual to defer the pruning of Gooseberries until early February, owing to the damage done to the buds by birds. Useful protection is afforded during winter by tying the branches together with stout string, making bundles of them into which

the birds cannot penetrate. Sprinkling slaked lime and soot on the branches while they are moist also helps to keep away the birds, while some gardeners stretch black cotton between the branches.

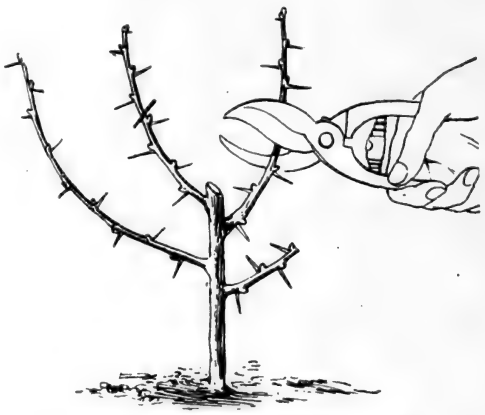
Cordon Gooseberries.—Gooseberries are admirably adapted for cultivation as cordons, and in this form may be trained against a wall facing east or north, or planted against a trellis in the open. They are easily attended to, pruning is simple, and the fruits can be netted and gathered without difficulty. Summer pruning can then be practised with ease. This consists in pinching off the ends of the side shoots when they are about 5 inches long. At the winter pruning the shortened shoots are still further pruned to within one or two buds

Making a Gooseberry Cutting

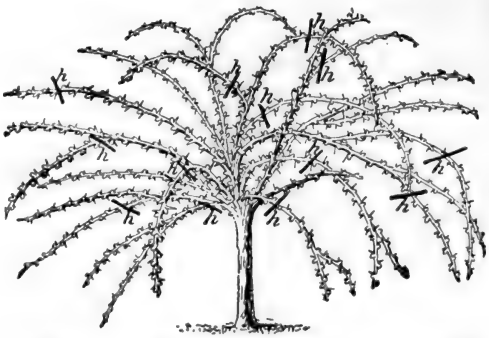
Forming a Double Cordon Gooseberry

of the base, as in pruning the bushes. I am sure amateurs would find this a most profitable way of growing Gooseberries, and a large number of plants can be accommodated in a small space.

During the summer months the ground between the bushes ought to be hoed frequently. In spring, after pruning, it should



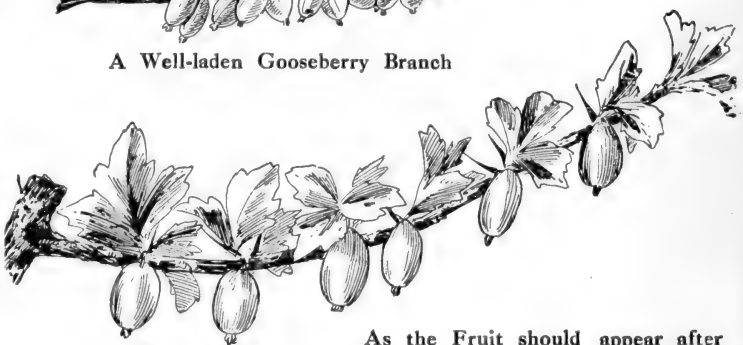
Pruning a Young Gooseberry Bush



Gooseberry Bush of Drooping Growth : prune at *h*

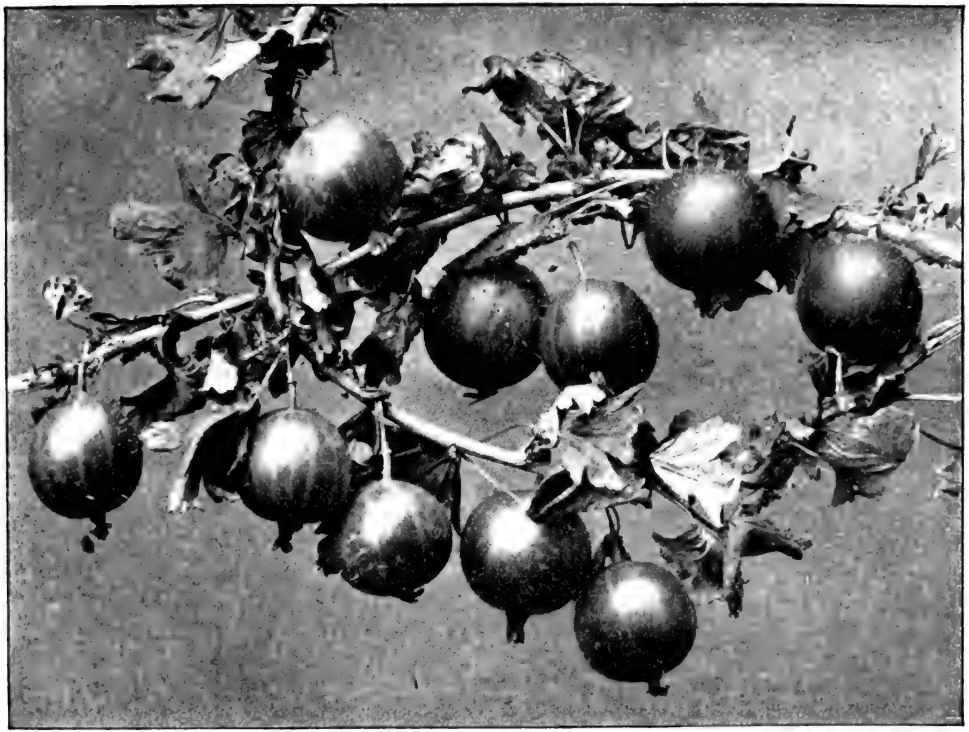
Gooseberry Keepsake (yellow)

A Well-laden Gooseberry Branch



As the Fruit should appear after Thinning has been practised

Increasing the size of Gooseberries by means of a saucer of Rainwater



Gooseberry Gunner (yellow)

be well forked over, and a dressing of manure may then be given with advantage.

A rather novel way of obtaining a few extra fine Gooseberries is to stand one or more saucers of rainwater on an inverted box or pot of suitable size so that the selected berry or berries can be arranged to allow the tips to dip in the water. Each branch containing the selected berries should be secured to and steadied by a stake. The berries will feed on the rainwater, which will assist swelling and development. Gooseberries, particularly when ripe, are best gathered when they are quite dry.

Gooseberry trees must be kept free from caterpillars by hand-picking or by dusting the bushes with lime or soot, which causes the insects to fall to the ground.

Gooseberries in Pots.—The Gooseberry bush bears fruit freely even when small, and thus may be grown in tubs or large flower-pots—those 12 inches wide at the top are suitable. The plants should be potted firmly in good loamy soil, a little basic slag and bonemeal being mixed with the compost. A few pieces of broken flower-pot must be placed over the hole in the base of the tub or flower-pot to ensure proper drainage. October and November are the best months for the work. Both during winter and summer it is advisable to plunge the pots to the rim in ashes for the sake of protection from frost and to prevent the soil becoming dry quickly in summer. Careful attention to watering is required during summer; it is important to keep the soil moist. During winter the rains will, of course, supply all the moisture necessary.

Good Varieties.—There are innumerable varieties of Gooseberries of different colours to select from, and both small- and large-fruited sorts. The following form a selection of the best sorts having small fruits. *Red:* Ironmonger, Keen's Seedling, Red Champagne, and Warrington. *Yellow:* Champagne Yellow, Yellow Sulphur, and Golden Gem. *Green:* Greengage, Green Gascoigne, and Langley Gage. *White:* Whitesmith. Large-fruited sorts.—*Red:* Crown Bob, Dan's Mistake, Lancashire Lad, Speedwell, and Whinham's Industry. *Yellow:* Keepsake, Langley Beauty, Gunner, and Leveller. *Green:* British Queen and Plunder. *White:* Antagonist, Careless, Shiner, and Transparent.

CHAPTER XIV

The Loganberry and other Berried Fruits

DURING recent years the Loganberry has become very popular, and has been widely planted. This is scarcely to be wondered at, for it is particularly easy to grow and invariably bears a good crop of large berries. Though some people like them as dessert fruits, most of us prefer them when cooked or made into jam. The Loganberry is a hybrid between the Raspberry and the Blackberry; the fruit is similar in appearance to a large Raspberry, but, unlike this fruit, the Loganberry does not part cleanly from the core. The aim of raisers of new berried fruits has been to do away with the hard core of the Loganberry, and this has been accomplished.

The latest, and possibly the best, of the comparatively new berried fruits is called the Laxtonberry. This is the result of a cross between the Loganberry and Superlative Raspberry, and the fruits may be pulled off as clean as those of the Raspberry. The raisers describe it as an enlarged Raspberry, with the flavour of the Raspberry and the vigour of the Loganberry. Other modern berried fruits to be recommended are the Lowberry, Newberry, King's Acre Berry, and Hailshamberry.

Then there is the Parsley-leaved Blackberry, a splendid kind which bears regularly a heavy crop of large Blackberries of excellent flavour. Even the common Blackberry is worth growing in the garden, providing a good form of it is obtained. The fruits are much finer under cultivation than in the hedgerow.

All these fruits need similar treatment so far as their cultivation is concerned, and that is of the simplest. The best crop and the finest fruits are produced by one-year-old stems; that is to say, by those that developed during the previous summer. Pruning therefore takes the form of cutting out the old branches, those that have borne a crop of fruit, as soon as the fruit is gathered; the fresh stems of the current season's

growth are tied in to take their places. Fresh growths are produced abundantly each summer, so freely, in fact, that it is usually necessary to remove some of them. No other pruning is required, except that in spring it is advisable to shorten the fresh stems very slightly if they are weak or soft at the tips.

All these berried fruits thrive in ordinary soil, and are most accommodating as to position. They may be grown in out-of-the-way corners, wherever there is support for the branches, or against a shed or rough trellis, but they are so prolific and so valuable that it is worth while giving them rational cultivation. They do very well if planted in the open garden against a trellis of wire or wood on which the long branches may be trained. When grown in this way the gathering of the fruit is facilitated. They may be trained over an arch or arbour or pergola, and then are both useful and ornamental. In fact, these berried fruits may be grown in the same way as rambling roses and other vigorous climbers and in similar positions, except that it is not wise to plant them against a warm wall; this is far too valuable a place for them, and, moreover, they do better in the open garden.

CHAPTER XV

Melon Growing

MELONS are among the most delicious and refreshing of summer fruits, and are appreciated by everyone in hot weather. Very good Melons can be grown in a frame, with but little trouble and at small expense, by anyone who will carry out the simple directions in this chapter.

A hotbed should be prepared in April, and should be composed of equal parts of strawy stable manure and leaves, preferably those of the Oak. Mix well together and make up the hotbed in a position fully exposed to the sun; the frame is then placed on the top. The hotbed ought to be large enough to extend for 18 inches all round outside the frame; it should be quite 3 feet deep at the back and just over 2 feet deep in front.

Insert a thermometer in the hotbed, and when the temperature has declined to 90°, sow the seeds separately in 3-inch pots and plunge the latter in the frame.

Raising the Seedlings.—As soon as the young plants appear, syringe them lightly with tepid water in the morning and afternoon. At this early stage very little air is needed, and none should be admitted to the frame unless the temperature exceeds 80°. In the meantime prepare the soil for the plants; this should consist of 3 parts of old turf loam, chopped into pieces about the size of a pigeon's egg, and 1 part well-decayed manure. About two barrow loads to each frame-light will suffice at first, and this should be placed in the form of a ridge in the centre, with just a little to cover the rest of the hotbed.

When the plants are nicely rooted in the small pots, plant them out on the mounds, two beneath each light. After growth has commenced, and the plants are about 6 inches in length, pinch out the tips to encourage the formation of side shoots. These should be spread out and allowed to cover the surface

of the frame. When roots appear on the top of the soil, give a light top-dressing of loam, and press it down firmly. Do not allow the plants to suffer for want of water at any time; always use tepid water.

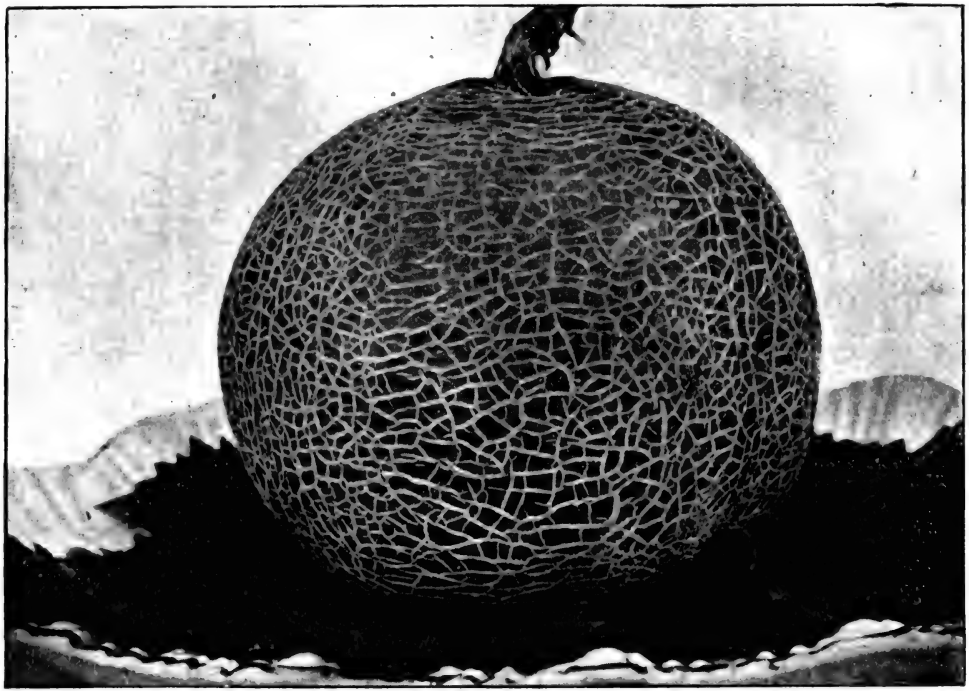
Ensuring a Crop.—Superfluous side growths must be pinched out when quite small; if they are allowed to grow and a lot of shoots are cut away at one time, it causes a check and is liable to do much harm to the plants. When the fruits form pinch the growths at the first leaf beyond the fruits; any further shoots that form should be removed. Always endeavour to set three blooms on a plant at the same time; if this is not done the fruits grow unevenly, and the later ones usually fail to swell satisfactorily. The blooms are "set" by fertilising the female flowers with pollen from the male flowers, and this should be done at midday when the atmosphere is dry. At this period the morning syringeing ought to be discontinued, but when four fruits have been set on each plant, continue to syringe twice daily.

Close the frame in the afternoon early or late according to the weather, but so that the temperature will rise to 95° shortly after the frame is closed. If the frame is shut half an hour or so before the sun ceases to shine upon it, and the plants are freely syringed, the fruits will swell rapidly. At this period of growth diluted liquid manure may be given the plants with great benefit twice a week; or a little artificial fertiliser can be sprinkled on the surface soil and watered in with clear water.

When the Melons commence to ripen admit rather more air, and as they turn colour less water should be given. It is, however, important to keep the foliage fresh until the fruits are cut, otherwise the flavour of the Melons is not so good.

Melons can often be grown in a frame without a hotbed if strong plants are obtained to plant out early in June, and every advantage is taken to close the frame fairly early in the afternoon, so that the temperature rises by natural warmth. Late crops ought to be grown in a frame heated with hot-water pipes; only in this way can the fruits be ripened properly.

Varieties for the Frame. Hero of Lockinge is one of the best Melons for a frame; the fruits are of good size, round, well netted, and have white flesh. The Peer is a fine variety with pale green flesh, and is of delicious flavour. Blenheim Orange is a scarlet-fleshed variety that can be highly recommended.



Melon Hero of Lockinge

Melon Growing in Glasshouses. The treatment of Melons growing in a glasshouse does not differ much in the essential details from that described for plants grown in a frame. A hotbed is beneficial, and upon this the border of loamy soil is made up. In this case it is preferable to use the turves intact, placing them on the hotbed in two layers and to a width of from 20 inches to 2 feet. Turves that have been cut for about six months are the best, and they should be about 4 inches thick. On the top place mounds of loamy soil, in which a little well-rotted manure has been mixed, to encourage free growth. When, in a few days, the soil has become warm, put out the Melons, which should be sturdy, young plants in 4½-inch pots. Let the plants be put about 18 inches apart.

The Melon plants are restricted to a single stem until the top of the trellis is almost reached, when the tip of each plant is pinched out. Side growths then form and bear fruit. The work of fertilising, stopping the growths at the first leaf beyond the fruit, and syringeing the plants, is carried out as described for plants in a frame. Admit a little air by the top ventilators when the temperature exceeds 80°, and keep the plants suitably supplied with tepid water at the roots, giving less as the fruits ripen.

Eminence will be found an excellent Melon for this method of cultivation. It is a large, oval fruit, beautifully netted, and has sweet and juicy white flesh. Superlative is a very fine scarlet-fleshed variety, and a handsome fruit.

If the plants are carefully grown there will be no trouble from red spider; but if this is detected on the leaves, spray the plants with weak salt and water.

Canker is not so easily dealt with, for there is no real cure. If the stem is attacked dust the diseased place with powdered lime. Plants frequently succumb if attacked near the base, and it will be found that the disease is more prevalent in some soils than others. The chief preventive is to build up sturdy, short-jointed plants; these rarely suffer from canker.

CHAPTER XVI

The Peach and Nectarine

ONLY those whose gardens are in fairly mild districts can hope to grow the Peach and Nectarine out of doors successfully and even there this fruit needs the shelter of a wall facing either west or south. Ordinary loamy soil is suitable. Before planting takes place the border ought to be deeply dug, lime rubble or basic slag being freely dug in. If the soil is at all poor, half-decayed yard manure may be used also; this, however, is not usually necessary. Young Peach trees generally grow too vigorously during the first few years after planting, and to make the soil rich is to aggravate the evil.

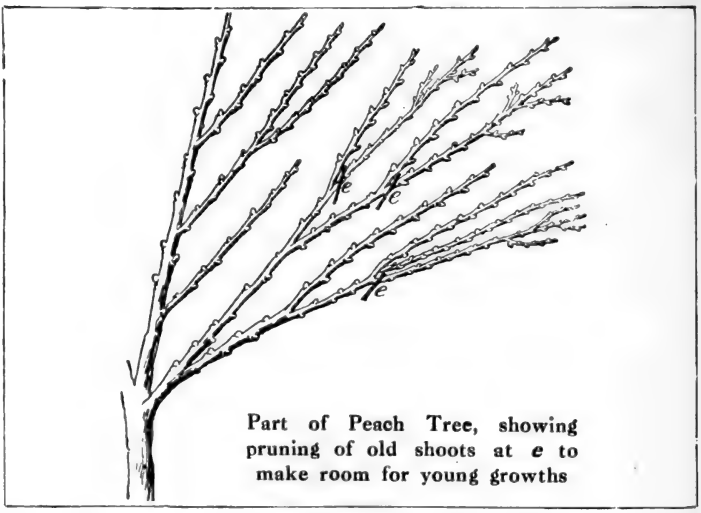
Planting is best done in October or early November; the roots must be spread out as much as possible, and the uppermost ones ought not to be covered with more than 2 inches of soil. It is wise to prepare the border a week or two before planting takes place, so that it may settle to its normal level. The soil must be made firm about the roots; it is fatal to success to plant fruit trees in loose soil.

Pruning.—The pruning of the Peach and Nectarine is perfectly simple. The fruits are produced upon the shoots or branches that formed during the previous year; in pruning, the old branches—those that have already borne a crop of fruit—are cut out, and the fresh shoots—those that will yield the following year—are trained in to take their places. The best time for pruning is as soon as the fruits are gathered.

Training is a matter of importance. The best form of Peach and Nectarine tree is that known as fan shaped, in which the branches radiate from the centre and low down in the tree. A well-shaped tree is not obtained—or at least retained—without some care, but it may be ensured if another important task, that of disbudding, is attended to.

Disbudding consists of removing superfluous shoots in early

summer. These arise upon the branches of the previous year's growth in such numbers that there is not room on the wall to accommodate them, and a large proportion must be removed. If the amateur realises that the young shoots allowed to remain will form the branches of next year, to replace those now bearing fruit, he will have an excellent idea of the way in which disbudding ought to be carried out. When the work is finished there should remain not more than two, or possibly three, fresh shoots on each of the older ones. All the others must be rubbed



Part of Peach Tree, showing pruning of old shoots at *e* to make room for young growths

off, though not on one occasion. Disbudding should be practised at intervals of a week or ten days, and is generally completed in about three weeks or a month. Care must be taken to leave a good shoot at the base of the old branch, or as near the base as possible, otherwise the lower part of the tree will get bare and unsightly. There must be another shoot at the top of the branch, and if there seems to be room for one more, another may be left towards the middle of the branch.

As the summer progresses the young shoots grow very rapidly

and often become branched, but all subsidiary shoots must be cut out so that only the original one remains.

As the fresh shoots grow they must be loosely tied to the trellis, to nails in the wall, or to older branches, purely as a temporary measure to prevent their being broken in high winds and to keep them straight, until they can be nailed to the wall to replace those bearing fruit; the latter will be cut out as soon as the crop is gathered.

Thinning the fruits needs attention, especially if the crop is a heavy one. It should not be practised too early, for probably many of the small fruits will fall off in due course. Let them be at least as large as Walnuts before the final thinning is given. The fruits ought eventually to be left in such numbers that there is about one to each square yard of wall area.

Watering is usually required during hot, dry weather, for as the trees are planted against a wall the soil there does not get the full benefit of rain that falls. Indeed, it often happens that when the open part of the garden is quite moist the soil at the foot of a wall is dry. Dryness at the root is often the cause of the fruits falling off in large numbers; it is also a contributory cause to attacks of red spider and thrips, two minute insect pests which do great damage to the foliage of the trees and seriously weaken them. When the fruits are swelling, watering once every ten days or so with diluted yard manure does much good. It is equally important to see that the trees do not suffer from lack of water in late summer and autumn; if this attention is neglected the buds may fall in spring.

To assist the fruits to ripen and to colour well it is a good plan to press back or to take off a few of the leaves that shade them. Peaches and Nectarines require to be gathered very carefully; if they are squeezed or roughly handled a bruise will soon show and decay will set in.

Good Varieties.—A few of the best varieties for amateurs are: Stirling Castle, Royal George, and Violette Hâtive. Good Nectarines are Early Rivers, Elruge, and Pineapple.

Peach and Nectarine Under Glass.—The preparation of the border is of great importance; it should be made in the same way as is detailed in the chapter dealing with the Vine. Care must be taken to make the soil thoroughly firm round

about the roots when planting, which is best carried out in October or November.

So far as disbudding and pruning are concerned, the advice given in connection with these fruits out of doors is applicable. As the shoots progress they must be tied down to the trellis, otherwise they will grow towards the glass, and may become scorched or bent. After the fruits are gathered, and throughout autumn and winter, the glasshouse in which the Peach trees are planted ought to be kept perfectly cool; the ventilators should be left open day and night, unless the weather is frosty.

When the trees are leafless an opportunity should be taken to cleanse them by syringeing with paraffin emulsion made by dissolving a pound of soft soap in a little hot water and adding sufficient hot water to make 2 gallons of liquid; a wineglassful of paraffin is then poured in. The mixture must be kept well stirred when in use, or the paraffin remains on top. It is a good plan to limewash the walls during winter; this helps to keep down insect pests.

While the trees are dormant, some time during winter, the branches should be taken down from the trellis, all old ties being removed. The branches are then well syringed with Gishurst Compound or paraffin emulsion. It may now be seen whether too many shoots were left when disbudding was carried out. When tied again to the trellis the branches ought to be about 4 inches apart; they should be tied as straightly as possible so that the tree may be made shapely. If some of the shoots are soft and thin at the ends they should be shortened, and any which tend to destroy the symmetry of the tree ought to be treated similarly.

Great care must be taken to cut the shoots immediately above a wood bud; that is to say, one that will produce a shoot. If the branch is shortened to a blossom bud it will die back to the nearest wood bud. A blossom bud is rounded, while a wood bud is pointed; the difference is marked and is easily noticed.

The border should be thoroughly well watered in autumn. If it is outside the glasshouse, no more is likely to be needed until spring; if inside, water may again be needed before spring. It is most necessary not to allow the soil to get dry at any time.

During hot weather in summer, when the trees are in full leaf, the border may need watering every ten days.

Peaches and Nectarines are grown successfully under glass without artificial warmth. The amateur should endeavour to maintain an uniform temperature. In spring, when growth starts it should be from 40° to 45° at night; as the season advances it will naturally increase. In mild or warm weather, admit a little air early in the morning and increase the amount later on. Late in the afternoon, about half an hour before the sun ceases to shine on the roof, close the ventilators and syringe freely. Keep the atmosphere moist except when the trees are in bloom and when the fruits are ripening.

CHAPTER XVII

The Pear

THE Pear as an orchard tree is long lived, though, if planted on the Pear Stock, as standard orchard trees are, many years pass before a full crop is obtained. For garden cultivation, in bush or pyramid form, the Pear ought to be on the Quince Stock; it then begins to bear fruit at an early age, and does not make such vigorous growth as trees on the Pear Stock do. This, then, is the form in which the Pear should be grown by amateurs with comparatively small gardens. The Pear thrives in ordinary ground, though with a preference for that which is rather light than clayey. It does not, however, do well in really light ground, as the Cherry, for example, does.

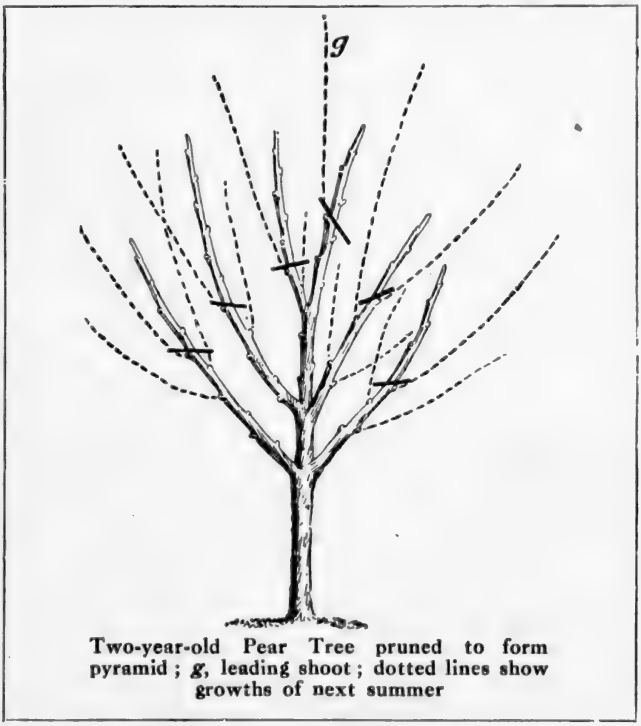
Although the Pear is most commonly grown in the open garden, it makes an excellent wall tree, and may be planted on a wall facing south, west, or east. It is perhaps not worth while to give up a south wall to the Pear, if Peaches and Nectarines are to be grown, but it may well find a place facing west or east. Even on a north wall the Pear does fairly well, and for training against an espalier in the open it is well suited.

As a trained tree the Pear is usually grown fan shape or as a horizontal espalier, in which the branches are in horizontal tiers some 18 inches from each other. In some old gardens the Pear has been planted to cover a semicircular wire trellis, the trees being planted on each side and trained towards the top, where they met. It thrives well in this way, and when the trellis is covered it is quite attractive. Moreover, the trees are easily attended to, for one can reach the top of the trellis from each side.

The Pear is suitable also for training as a cordon, and in this form may be planted against a trellis or wall. Pyramid Pears in the open garden ought to be put about 9 feet apart; fan-trained or horizontal espaliers against a wall should be 15 feet

apart, while single cordons must be 18 inches apart; double and treble cordons at greater distances.

Planting.—October and November are the best months for planting. If a group of trees is to be planted, it is a mistake to dig holes just where the trees are to be placed; it is



Two-year-old Pear Tree pruned to form pyramid; *g*, leading shoot; dotted lines show growths of next summer

far better to have the whole plot deeply dug. A little well-rotted manure may be mixed in towards the bottom of the holes, though this is not really necessary if the ground is fairly good. Basic slag is to be preferred; this may be scattered on the soil at the rate of 6 oz. to the square yard and then dug in. Bonemeal is also a valuable artificial fertiliser for the Pear and other fruit trees, and may be used in similar quantity at

planting time or in spring as a top-dressing, to be forked beneath the soil. Firm planting is essential, the soil being well trodden about the roots. It is a mistake to plant deeply; if the uppermost roots are covered with about 2 inches of soil, that will be sufficient.

Pruning.—The pruning of the Pear tree is simple. The first thing of importance is to keep the branches thinly disposed; they ought to be quite 18 inches apart, and preferably rather more. Summer pruning is important in Pear cultivation; in July, when the side shoots are about 8 inches long, they should be cut off above the sixth leaf; the leading shoots, those that extend the branches, must not be touched. Other secondary shoots will probably form a few weeks after the side shoots have been pruned, and they ought to be "stopped" as soon as they have made one or two leaves.

Very often side shoots form in such numbers that if all are left the branches will be crowded with growths. If there are too many they ought to be cut off; the fruit spurs, which eventually will be formed by the side shoots, should not be closer together than 8 inches or so. At the winter pruning, which is carried out in January, the side shoots are cut back to within one or two buds of the base, and the leading shoots, which were left untouched at the summer pruning, are shortened by one-third or, if weak, by one-half.

If during their early years Pear trees grow vigorously, forming strong branches upon which fruits do not form freely, root pruning or lifting ought to be practised, as detailed in another chapter.

In spring, after pruning is completed, the ground around and beneath the trees ought to be forked over; in early summer, after the fruits have set, a mulch of rotted yard manure is beneficial. Care must be taken that trees growing against a wall, and especially a warm wall, do not become dry in spring and summer, which they are very likely to do if not watered freely.

Varieties of Pears.—There are so many varieties of Pears that the amateur is likely, on consulting a catalogue, to experience difficulty in making a selection. One of the most satisfactory for amateurs is Conference; it is ripe in October, and rarely fails to bear a good crop. Other varieties to be recommended are: Beurré Hardy, October; Jargonelle, July, August; William's

Pear Conference, one of the best for amateurs

Bon Chrêtien, September; Louise Bonne of Jersey, October; Beurré Superfin, October, November; Emile d'Heyst, October, November; and Josephine de Malines, December, January.

If a warm wall is devoted to Pears, the following varieties may worthily be chosen: Fondante d'Automne, September; Marguerite Marillat, October; Louise Bonne of Jersey, October; Beurré du Buisson, December, January; Beurré Superfin, October, November; Doyenné du Comice, November; Durondeau, October; Marie Louise, October. November; Winter Nelis, December to February.

CHAPTER XVIII

The Plum

THE Plum is grown as an orchard tree in the form of a standard, and as a bush or pyramid in the garden. It is most useful also for planting against a wall facing west or east, and even on a north wall is fairly satisfactory. In preparing the ground for the Plum, which is best planted in autumn, lime rubble ought to be mixed in the soil freely; failing this, use basic slag at the rate of half a pound to the square yard. The ground should be prepared a few weeks in advance of planting, so that it may become moderately firm before the trees are put in.

Planting.—Young Plum trees are liable to produce very vigorous growths during the first few years after being planted; for this reason it is not advisable to mix any yard manure in the ground prepared for them. The soil ought to be made quite firm about the roots by means of treading; otherwise the tendency to make long and useless shoots will be aggravated.

Deep planting is to be avoided; the roots must be spread out well, and the uppermost ones should be covered with not more than 2 inches of soil. A mulch of yard manure on the soil above the roots in early summer is beneficial, because it keeps the ground moist.

A look out ought to be kept for suckers—shoots that arise from the stock upon which the Plum is budded, and spring up around the tree, sometimes at a considerable distance from it. They must be pulled up with as much root as possible. It is not sufficient to cut them off at the ground level; they will grow again in increased numbers.

Pruning.—The pruning of the Plum needs to be carefully performed. The trees bear fruit from spurs, short stunted growths that arise on the main branches, and they also fruit freely upon shoots of the previous year's growth. Whenever there is room, therefore, such shoots ought to be preserved and tied in. In time they will take the place of older branches.

In dealing with the Pear, one can safely summer prune all side shoots above the sixth leaf, and in winter shorten them to within about an inch of the base; but greater discrimination is necessary in dealing with the Plum. Summer pruning ought, nevertheless, to be practised, though good shoots of the previous summer's growth should be trained in, instead of being cut above the sixth leaf, providing they can be accommodated without crowding the tree.

At the winter pruning, the shoots which have been summer pruned are cut back to within one or two buds of the base in the usual way; but those that were tied in without being "stopped" are merely shortened by one-third. The leading shoots of the Plum, those that extend the branches, are not shortened at the summer pruning, but in winter one-third is cut off the end of each.

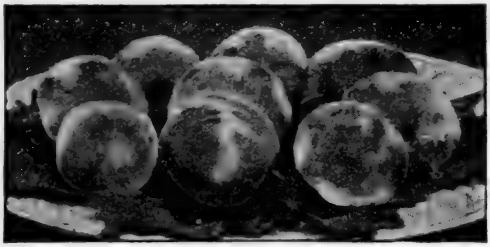
It is almost always necessary to lift and slightly root prune young Plum trees during the first two or three years following planting; otherwise they make such rank growth that the form of the trees is liable to be spoilt; moreover, such shoots do not bear fruit. The trees ought not to be kept out of the ground any longer than is really necessary, or the roots may get dry; all thick roots and those that have started to grow straight downwards should be shortened by half, and in replanting be laid nearer the surface. The soil must again be made thoroughly firm round about them. It is useless to attempt to restrict the vigorous growth of young fruit trees by cutting back the branches: this, in fact, merely aggravates the evil, and the trees will make more vigorous growth than ever.

If Plum trees are carefully managed during the first few years of their lives by treating them as advised, with the object of preserving a proper balance of growth, they are likely to prove satisfactory during later years.

Suitable Varieties.—The amateur may well rest content with a limited number of varieties; of these there are many from which to choose. For standards, bushes, and pyramids he might choose from the following. *Dessert varieties:* Bryanston Gage, greenish; Denniston's Superb, yellowish green; Kirke's, purple; Oullins Golden Gage, yellow; Reine Claude de Bavay, greenish. *Cooking varieties:* Belgian Purple, purple; Monarch, purple; Pond's Seedling, pink; President, dark

violet-purple; Rivers' Early Prolific, crimson purple; The Czar, dark purple; Victoria, pink.

The following are excellent for walls, all being dessert varieties: Coe's Golden Drop, orange with red dots; Denniston's Superb, greenish-yellow; Early Transparent Gage, yellow with brownish spots; Green Gage, greenish; Jefferson, yellow and green, with reddish spots; Kirke's, purple; Transparent Gage, greenish-yellow, with red spots.



Plum Kirke's, an excellent purple variety

CHAPTER XIX

The Raspberry

THE Raspberry is one of the most accommodating of hardy fruits; it seems to thrive in almost any soil and situation, and to bear crops regularly, even under apparently unfavourable conditions. It is a most profitable kind for amateurs if the large yield of fruit and the slight attention needed are taken into consideration.

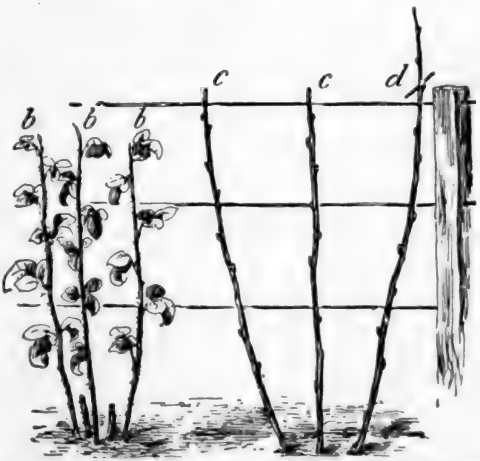
Although the Raspberry will succeed under haphazard methods of cultivation, the finest fruits are only to be obtained when proper attention is given to the plants. An open place is suitable, although a little shade is not inimical to the cultivation of the Raspberry, especially when the ground is light and liable to get dry quickly. Deeply dug land, which has been enriched with yard manure, is necessary if the plants are to be grown well. Planting is best carried out in October or November.

Pruning. The chief point to observe in growing the Raspberry is that the best yield of fruits is obtained from the canes or stems that grew the previous year. As soon as the crop is gathered, the old canes—those that have borne fruit—ought to be cut out, the fresh stems being trained in to take their places. On established clumps the new stems are usually produced so freely that it becomes necessary to remove some of them. Not more than six or eight should be left to each rootstock; then they mature well, and the crop will be satisfactory. No further pruning is required, except that in spring it is wise to cut off the tips of the stems if they appear to be soft. The same method of pruning is observed each year, the old canes being cut out and the new ones tied in to the supports.

The Raspberry is largely a surface rooting plant, and the gardener ought, therefore, to be careful not to dig among the plants with a spade, or many roots are bound to be damaged. The soil between the clumps should be forked over in spring, and a mulch of decayed yard manure is beneficial; it keeps the

If at the winter pruning the canes are cut to varying lengths there will be fruit from top to bottom.

In the spring following planting it is advisable to shorten Raspberry canes, as shown, either severely or moderately



Showing suitable support for Raspberries: *b b b*, fresh stems tied in to replace old ones; *d*, removing tip of stem as at *c c*

roots moist and cool in hot, dry weather. This is the orthodox treatment, though, as a matter of fact, one may plant the Raspberry in any odd corner and it seems to thrive.

The Raspberry is very free in the production of suckers, as those growths are called which come through the soil at some distance from the parent clump. If it is wished to have an extra number of plants, the suckers should be taken up with a few roots attached, late in summer, or, in fact, at almost any time, and used to form a fresh plantation. If no more are required, the suckers ought to be uprooted.

The Raspberry may be grown in clumps about 5 feet apart, three or four plants forming a clump; in this case the stems are tied to a central stake. Or they may be planted in rows, the stems being trained on wires fastened to strong posts. In pruning newly planted Raspberries some growers cut the stems to the ground in the spring following planting, with the object of ensuring strong canes which will fruit well the following year. This, however, is not really necessary with such a good-natured plant as the Raspberry; the canes may be left about half length and a crop of fruit taken. There will be sufficient fresh growths for next year's crop if proper care is taken of the plants so far as watering and mulching are concerned.

Good Varieties.—Good red Raspberries are Baumforth's Seedling, Superlative, the Devon, and Norwich Wonder. A yellow variety to be recommended is The Guinea.

Autumn-fruiting Raspberries.—These are just as easy to grow as the ordinary summer fruiting kinds; the only difference in the treatment required is in the pruning, and this is important. While the summer Raspberry bears its fruit on the canes of the previous summer's growth, the autumn Raspberry produces its crop on the canes or stems of the current year's growth. Pruning must therefore be carried out in February; at that time the old canes are cut down to within about 6 inches of the ground level, the object being to force the plants to make the finest possible fresh stems which will bear fruit in autumn.

Both red and yellow varieties of Autumn Raspberries are to be obtained; of the former, Hailsham and October Red are reliable, and of the latter October Yellow may be chosen.

CHAPTER XX

The Strawberry

THE Strawberry is one of the easiest of hardy fruits for the amateur to grow. It thrives in ordinarily good soil without much attention, and its requirements are few and are met without difficulty.

The best time to make a start is early in September. If a few plants are then obtained, and are planted on ground that has been deeply dug and manured, they will produce Strawberries for three summers. The best arrangement is, I think, to have the rows 2 feet apart and to put the plants 1 foot apart. After the first crop has been gathered, alternate plants in the row are pulled up, and all will then remain at 2 feet apart. It is necessary to plant firmly and to put the plants at such a depth that the crown or heart will be showing just above the soil.

The finest fruits are obtained from the first crop, providing the plants are put out on good ground not later than early September; many growers plant in August. The second year there will be a heavier crop of good fruits, while the third season the fruits will be small but very abundant.

General Hints.—The Strawberry plants need no attention during autumn and winter, except an occasional hoeing to keep down weeds and to ensure that the surface soil is loose. In spring, before the Strawberries come into bloom, it is usual to mulch between the rows and round about the plants with "long" or strawy manure; the "feeding" properties of this are washed down to the roots and the strawy part, which will remain, serves to protect the fruits from being spoilt by soil splashed up during wet weather.

If the amateur is unable to apply a mulch of this kind, he should take steps to keep the fruits off the ground, or many of them will be spoilt. This is accomplished by supporting the bunches of fruits by means of small forked sticks,

or even placing panes of glass or wood under them. The prospects of a crop are sometimes ruined by late frost when the plants are in bloom. If frost threatens when the flowers are open it is well worth while to take steps to protect them, especially if the plantation is a small one, by scattering straw, bracken, or any other similar material over them for the night to prevent them being ruined.

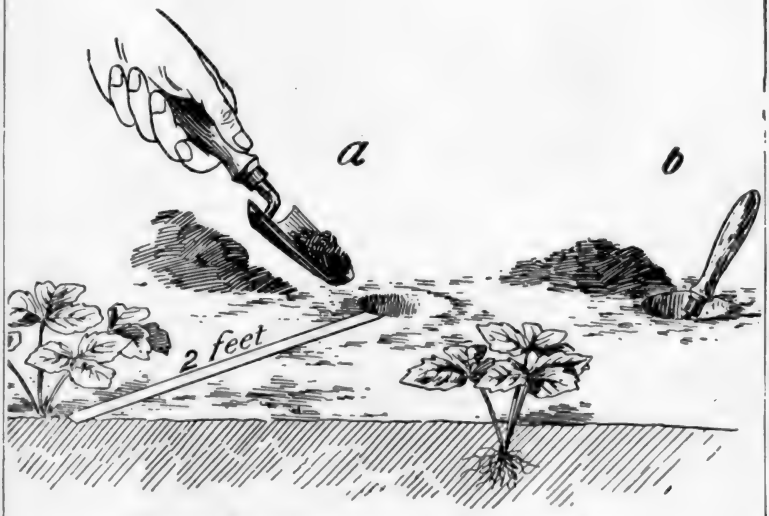
Layering.—Late in June layering must commence, if it is wished to increase the stock; in fact, this ought to be done every year so that there shall be fresh plants to replace those that are pulled up. Needless to say, it is advisable to make the fresh plantation on different ground from that on which the old plants were grown. This, like most other crops, benefits from fresh ground.

The actual process of layering is well shown in the accompanying sketches, and is quite simple to perform. Several little plants will be found on each of the runners or stalk-like growths that are produced by the old plants. It is wise not to layer more than one on each stalk, and that nearest the parent plant is usually the best. A watch should be kept for those known as "blind" runners; that is to say, those having a defective centre; the centre ought to be firm and full of embryo leaves. Having selected the runners to be layered, it remains only to peg down each one in a small pot filled with sandy soil. For this purpose, small wooden pegs are commonly used, though hairpins will do, or pegs may be dispensed with altogether, merely a stone being placed upon the stalk of the runner to keep it on the soil. Instead of layering into small pots the gardener may peg the runners into the ground or in pieces of turf.

The little plants will soon form roots if they are kept moist, and in three or four weeks will be ready to remove. The stalks attaching the runners to the parent plants are severed, and the Strawberries may be at once planted out to form a new bed as already described.

Growing Strawberries in Pots.—If it is intended to grow the plants under glass for the purpose of obtaining early fruits, the rooted runners are repotted into flower-pots 6 inches wide, and are kept out of doors until late autumn. A suitable compost for this purpose consists of good turfy loam with which a little decayed manure and bonemeal are mixed. At the approach

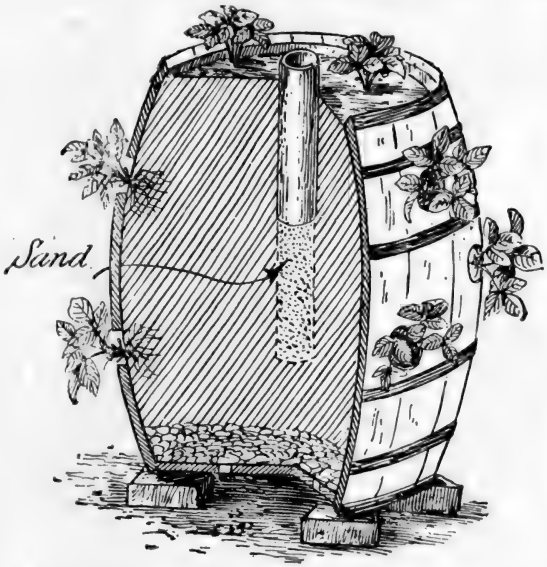
Right ways of Layering Strawberries



Planting Strawberry plants: *a*, the correct way;
b, the wrong way

An old, delicious Strawberry, Dr. Hogg

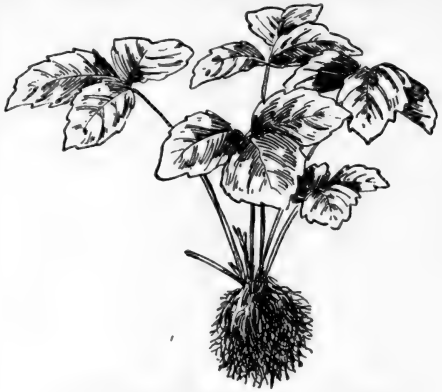
of cold weather they are brought into a greenhouse or frame, and in January or February may be placed in slight warmth if early fruits are wanted. The temperature ought not to exceed 50° until the fruits are set, and while the plants are in bloom as much air as is possible at that season should be admitted.



Showing how Strawberries may be grown in a barrel

The fruits will not form freely in a close, warm atmosphere. As soon as the Strawberries begin to increase in size the plants may be grown in a temperature of 60° or 65° to bring them on quickly, but when the fruits show colour they must again have cool, airy conditions.

It will thus be seen that the veriest amateur can scarcely fail to grow Strawberries, and it remains only to select suitable varieties. Probably for general usefulness there is none to excel Royal Sovereign, though there are plenty of better flavoured



A young Strawberry plant ready for planting

How to turn young Strawberry plants out of the pots in which they have been layered

Strawberries. The amateur would do well to rely chiefly upon this variety, but he might with great advantage try a few other sorts also. Sir Joseph Paxton is an old though excellent Strawberry; Waterloo is a large, very dark fruit; Louis Gauthier is nearly white; Dr. Hogg and Countess are old varieties of excellent flavour; Bedford Champion is a large, handsome fruit; and King George is a good new variety.

Perpetual-fruiting Strawberries. — These are strongly to be recommended to the amateur gardener, for they take up less room than most of the ordinary varieties, and they bear fruit from July until autumn. The plants need only to be put 12 inches apart.

All flower stems that show before late June should be pinched off, then the plants will continue to fruit as stated. These Strawberries may be increased in the same way as the ordinary sorts, namely, by means of layers; they may be raised from seed sown in warmth in early spring, and will then fruit the same year. It is best to propagate annually or biennially, for young plants are more satisfactory than old ones.

Of the several varieties one called St. Antoine de Padoue, having red fruits of quite fair size, is to be strongly recommended.

CHAPTER XXI

The Vine

It is the ambition of most amateurs, sooner or later, to grow their own grapes. This is not a matter of great difficulty, providing proper attention is paid to the needs of the Vines. He who starts the work in a haphazard fashion must expect nothing but disappointment; the Vine will probably become a prey to mildew and other maladies, and to the attacks of insect pests, and the bunches of Grapes will not be worth eating.

Good Grapes may be grown perfectly in a greenhouse that is in a sunny position and can be freely ventilated; no warmth is required unless it is necessary to obtain an early supply of fruit. It is, however, certainly an advantage in a dull, wet season to be able to heat the greenhouse for the purpose of keeping the atmosphere dry when the Grapes are ripening. Nevertheless, in an average season it is possible to bring the crop to maturity without the aid of artificial warmth.

Making a Vine Border.—The Vines must be planted in a properly prepared border. It does not matter whether the border is inside or outside the greenhouse. The existing soil, unless it is really of good quality, must be excavated to the depth of from 2 to 3 feet. In the bottom of the hole thus formed a layer of broken brick or clinker is placed to ensure perfect drainage, and upon this is put a layer of old turves, grass side downwards. The remaining space is filled with a prepared compost, consisting of old turves, each chopped into six pieces with a spade, together with a sprinkling of bonemeal, soot, basic slag, and wood ashes. This may seem to be an elaborate preparation to make, but one has to realise that the Vine lives to an old age, and cannot well be replanted when once established. The usual plan in forming a Vine border is to make it 3 feet in width, and to enlarge it every few years as becomes necessary, until the border is 6 feet wide. This is better than making it the full width at first, because one is able to provide

fresh soil for the roots just when they need it. In two years' time the border may be widened to the extent of another 2 feet, and again, at the end of a similar period, it should be enlarged to the full 6 feet.

Planting should take place in autumn, a few weeks after the completion of the border; this will allow time for the soil to settle to something like its normal level. The uppermost roots ought not to be deeper than 2 inches or so beneath the surface, and all roots should be spread out as much as possible. It is a great mistake to plant the Vine just as it is turned out of the pot, without disentangling the roots. The soil should be made thoroughly firm about the roots, and when planting is completed the border must be watered. Take care that the roots are well watered the day before planting.

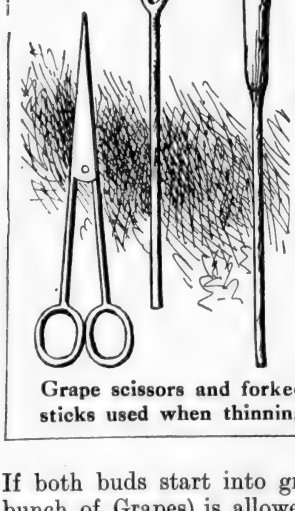
Initial Pruning and Training.—If the Vine is one year old only, it will be necessary to prune hard, to within 6 or 8 inches of the base, late in January of the year following planting. One or two of the buds, at least, will start into growth as spring advances, and if it is intended to restrict the Vine to one stem, the weakest of the shoots is rubbed off. Great care must be taken of the remaining shoot, for this will form the stem of the Vine. It should be tied to a stake for support, and, as it progresses, be tied to the trellis fixed some 15 or 18 inches below the roof. As soon as the new stem is 6 feet long the end should be pinched off.

The following spring the Vine is pruned back to within 4 or 5 feet of its base. Numerous buds will start into growth, and all those between the bottom of the trellis and the ground ought to be rubbed off, thus giving the Vine a clear stem from the soil to the trellis. Some of the shoots on the upper part of the Vine must also be removed. The object is to encourage lateral or side shoots on each side of the stem at about 15 to 18 inches apart, those on one side alternating with those on the other.

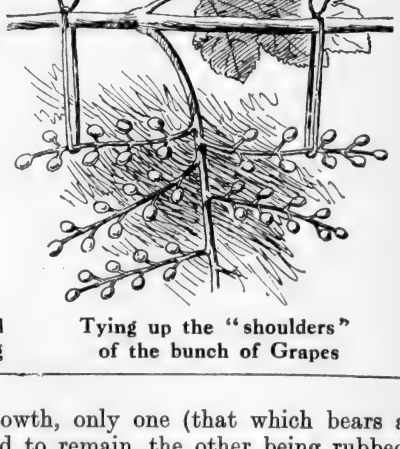
The amateur must choose the most likely shoots for the laterals, allow them to develop, and rub off those in between. The uppermost bud will continue the stem of the Vine, and must be allowed to grow 6 or 8 feet in length before the end is pinched off. The lateral shoots, on the contrary, ought to be "stopped" at the first or second joint beyond the bunch, or, if no bunch shows, when they are about 12 inches

long. Not more than two or three bunches are allowed to remain on the Vine in its first year of fruiting.

The following January the leading shoot—the continuation of the stem—is shortened to within 5 or 6 feet of its point of origin, and the stem of the Vine thus becomes 11 or 12 feet long. Further lateral or side shoots will form, and they must be regulated in the same way as those of the previous year, which are now shortened to within one or two buds of the base.



Grape scissors and forked sticks used when thinning



Tying up the "shoulders" of the bunch of Grapes

If both buds start into growth, only one (that which bears a bunch of Grapes) is allowed to remain, the other being rubbed off. Further laterals will form on the new part of the stem, and they must be regulated in the same way as those of the previous year; that is to say, they must not be closer together than 15 or 18 inches. In this way the Vine stem increases at the rate of 5 or 6 feet each year until it reaches the top of the vinery. Subsequently growth is restricted to the lateral or side shoots. We may now consider the annual pruning of an established Vine.

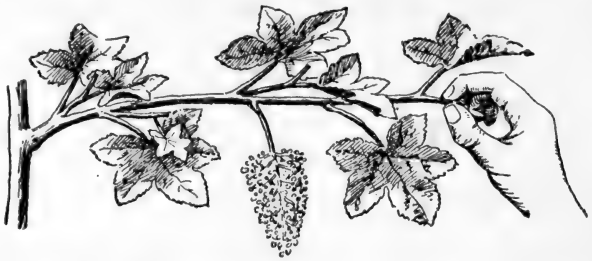
Annual Pruning.—In January the side shoots which produced the crop of Grapes the previous summer are cut back

to within two buds of the base. This is drastic treatment, but it is the correct procedure. If the two buds grow, only one is allowed to develop; if neither shows fruit, the stronger of the two is retained. The shoots will make quick progress as the summer advances, and in due course their points must be pinched off; those bearing a bunch of Grapes are "stopped" at one joint beyond the bunch, those bearing no fruit are "stopped" when they have grown about 12 inches in length. In due course, further shoots, termed sublaterals, will form; they must be "stopped" as soon as they have formed one joint, and any further shoots that form must be treated similarly. The object is to prevent the trellis becoming crowded with secondary shoots, so that the primary growths may have room for full development. All weakly shoots that continue to form as the summer advances ought to be cut out or "stopped" as soon as one leaf has formed.

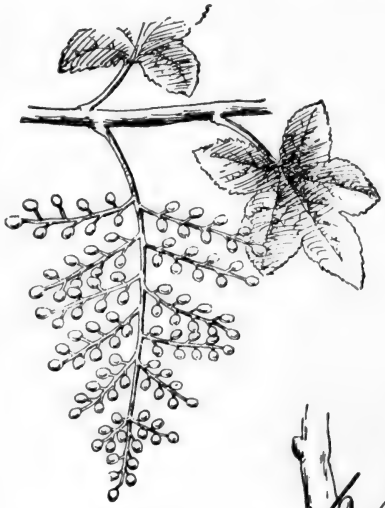
If this work is attended to frequently the small shoots can be removed as soon as they develop; but if it is neglected there will be a good deal of foliage to remove, and to do this on one occasion is harmful. By cutting out the small shoots as soon as they have formed growth suffers no check, as would be likely to happen if much foliage were removed at one time.

In autumn, after the fruit is gathered, the laterals—those that have produced the Grapes—may with advantage be shortened by half; this has the effect of assisting the development of the buds at the base of the shoots. In January the shortened shoots are hard pruned, one or two buds only being left, and in spring only one shoot on each lateral is left to grow.

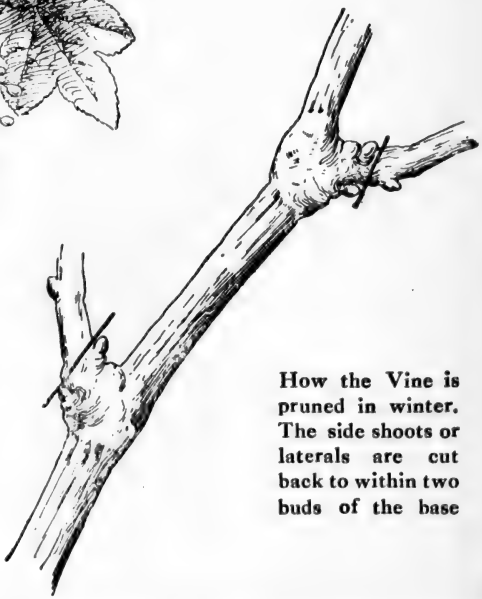
General Hints.—If the Vine is in an unheated greenhouse it will commence to grow in March. Throughout the winter and until growth begins the vinery ought to be aired freely, the ventilators being left open night and day. If tender plants are grown there, this treatment cannot, of course, be given, and the Vine will suffer correspondingly. It is of real importance that the Vine be kept quite cool during winter, and the ventilators may be left open always, except during frost. The amateur should aim at maintaining a regular temperature in the vinery, in spring, say, from 45° to 50° at night, with a corresponding rise during the day. When the thermometer registers 55° a little air ought to be admitted by the top ventilators, and if



Stopping the Vine shoot at two leaves beyond the bunch

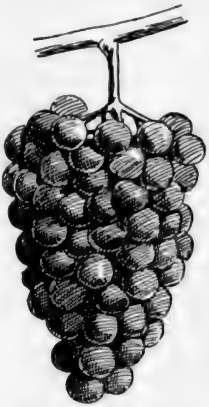


Bunch of Grapes as it appears when thinned

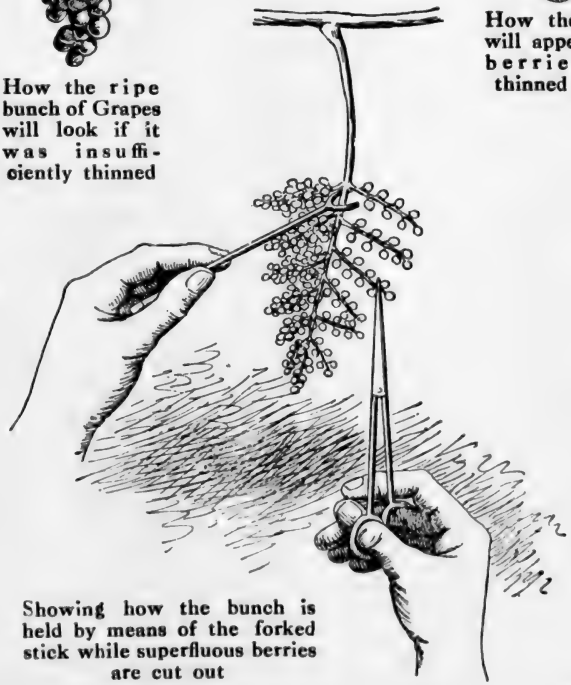


How the Vine is pruned in winter. The side shoots or laterals are cut back to within two buds of the base

How the ripe bunch of Grapes will look if it was insufficiently thinned



How the bunch will appear if the berries were thinned properly



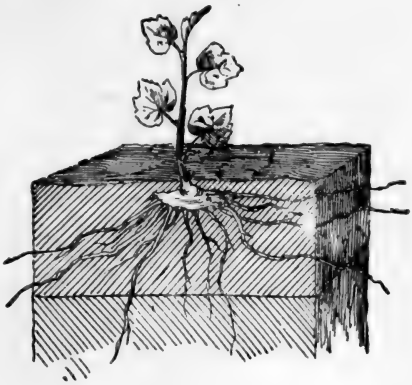
Showing how the bunch is held by means of the forked stick while superfluous berries are cut out

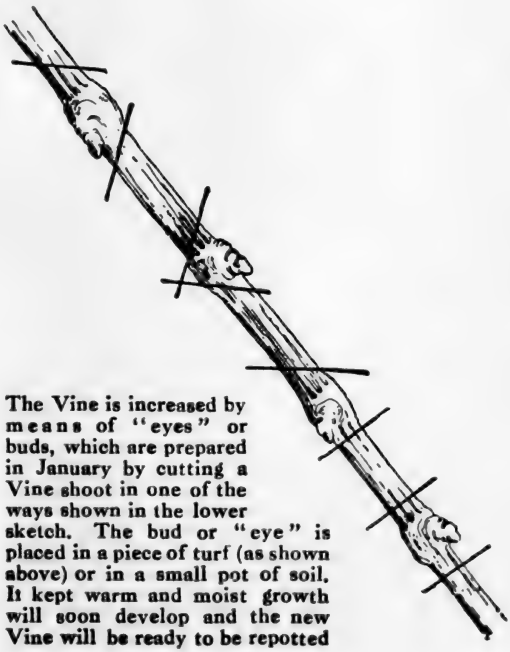
the day becomes hot and the thermometer continues to rise, more air must be admitted.

Ventilation of the Vinery.—It is not wise to open the front ventilators until early summer, if the greenhouse can be kept sufficiently cool by means of the top ventilators. Cold winds are prevalent in spring, and it is important to avoid draughts. If the amateur remembers that the ventilators should be opened to prevent the temperature rising too high, and not for the purpose of lowering it, he will have solved the difficulty experienced by many in this direction. The rule is to increase the amount of ventilation while the natural warmth continues to increase, and to lessen the amount of air as the out-of-door temperature declines. In practice the ventilators may be left partly open all night in summer, opened wide in the morning, and partly closed in the evening. During spring greater care and more precise attention are required, for the shoots of the Vine are tender and the wind is often cold and the weather changeable. If the weather is mild, a little air ought to be given early in the morning, the amount being increased later on; in the afternoon the ventilators should be partly, and in the evening finally, closed. The chief points at which to aim are to avoid creating a draught, so to regulate the ventilation that the temperature will rise gradually, and, above all, to aim at maintaining as uniform a temperature as possible.

When the Vines are in bloom the ventilators ought to be opened wide if the weather is favourable. When the Grapes are about the size of small marbles they pass through what is known as the stoning period; at that time it is particularly necessary to maintain a regular temperature.

Thinning the Grapes is a task that calls for attention when the berries are about the size of small peas. A pair of grape scissors, having long, tapering blades, is necessary, and a small forked stick with which to hold the stem of the bunch is also required. All small, seedless berries are cut out first; then those from the centre of the bunch. The berries at the ends of the branchlets must not be cut away, or the symmetry of the bunches will be spoilt. The gardener should try to picture the bunch as it will be when the grapes are full grown, and cut out the small and ill-placed ones to such an extent that the remainder are about ½ inch apart.





The Vine is increased by means of "eyes" or buds, which are prepared in January by cutting a Vine shoot in one of the ways shown in the lower sketch. The bud or "eye" is placed in a piece of turf (as shown above) or in a small pot of soil. It kept warm and moist growth will soon develop and the new Vine will be ready to be repotted

During hot summer weather the floor and walls of the vinery should be syringed several times a day to keep the atmosphere moist. Vines should never be shaded, except sometimes to preserve the fruit or to help those planted in spring to become established. When, in spring and early summer, the ventilators are closed late in the afternoon to encourage growth, the Vines and their surroundings should be syringed freely. The gardener must take care that the border does not suffer from want of water; nothing is so likely to lead to failure as dryness at the root. When the border is watered let it be thoroughly moistened. Diluted liquid manure applied once every ten days or a fortnight is of great benefit when the Grapes are swelling.

During winter it is advisable to syringe the Vines well with paraffin emulsion; loose bark, likely to serve as a hiding-place, should be removed, and it is beneficial to brush the stems with Gishurst Compound for the purpose of killing insect pests. Care should be taken not to damage the buds.

The best black Grape for amateurs is Black Hamburgh. Alicante and Madresfield Court are also to be recommended. Of the so-called white Grapes the reader is advised to grow Foster's Seedling.

CHAPTER XXII

Storing Fruits

THE only fruits that can be kept for any considerable period in a natural state (with the exception of Nuts) are Apples, Pears and Grapes, and of these the Apple is of chief importance. Care in gathering is necessary: even in dealing with a comparatively hard fruit like the Apple, bruises will show quickly if the fruits are roughly handled.

A simple way of ascertaining when Apples are ready to gather is to cut open one or two fruits and examine the pips; if these are black, it may be assumed that the fruits are ready, but if they are still white, gathering ought to be postponed. Another plan which enables the gardener to come to a decision on this point is to lift the fruit gently upwards, to find out whether or not the stalk parts easily from the branch. If it does the fruit may be considered ready, but if it does not then the fruit should be left longer on the tree.

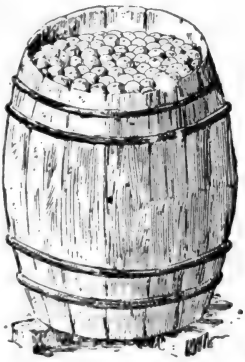
Apples ought to be gathered when they are dry, if possible. Only sound fruits are suitable for storing; those which have been damaged by wasps or birds, or show signs of having been bruised, should be set aside for immediate use. If stored with sound fruits they will be liable to spoil them. If Apples are to be stored in bulk, in layers one on top of another, it is of importance first to spread them out for a week or two. If this is done it will be noticed that the fruits become quite moist to the touch: they are then said to "sweat." If stored in bulk before "sweating" has taken place, they are not likely to keep well.

Apples are best stored in a cool and somewhat moist place, such, for example, as a cellar or shed having a north aspect. A thatched fruit room with proper means of ventilation is, of course, ideal, but unfortunately all fruit tree growers are not able to build such a store-room. Apples do not keep well in a dry, airy loft, though that is just the place in which they are often placed. They may be stored in deep boxes or barrels, kept in a

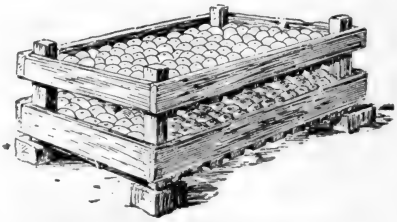
Canvas bag on long handle for gathering fruit

The fruit is raised gently when being gathered

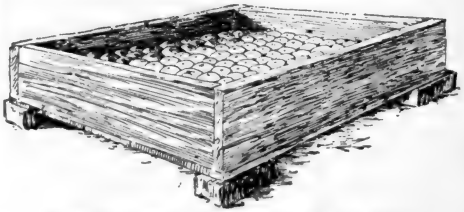
A convenient form of ladder



Barrel containing Apples: it is raised on bricks



Shallow trays with lath bottoms



Apples stored in box raised on bricks

cool place, providing they were first spread out as already advised. It is, however, preferable to have them on shelves in single layers, for they can then be examined conveniently and damaged or decayed ones removed. Special trays are now made for the purpose of storing Apples, and they are very convenient, for quite a large number of fruits can be arranged in a small space. They are made for placing one on top of another, but in such a way that there is space between each tray. It is not a difficult matter to make a tall frame into which shallow boxes or trays will fit.

Pears are best stored in single layers, and the flavour is better if they are kept somewhat warmer than Apples. Very late Pears are not, I think, of much value to amateurs, for under the best conditions their flavour deteriorates.

Grapes may be left on the Vine until quite late in autumn. If it is found necessary to store them, they should be cut, each with about 6 inches of stem. The stem is placed in the neck of a bottle of water, and the bottles are fixed at an angle of about 45°, in a special framework, or by other simpler means, so that the bunches of Grapes hang clear. If in a room facing north, some Grapes, such, for example, as Alicante and Lady Downes, can be kept for many weeks.

Although such fruits as Cherry, Strawberry, Plum and Gooseberry cannot be stored, a succession is obtainable by planting in different aspects: those on a north border or against a north wall will provide a supply of fruits weeks later than those planted in a warm position.

It is unwise to store Apples on a shelf covered with hay or straw

CHAPTER XXIII

Bottling Fruit

THE practice of bottling fruit is one of considerable importance to every possessor of a fruit garden, for by this means he is enabled to prevent waste and to preserve the surplus for future use. There are many ways of preserving fruit in bottles, but all are similar in principle, though they vary in detail.

Simple Recipes.—Fruit to be bottled ought to be perfectly sound and not too ripe; further, it must be handled carefully so as to avoid bruising. Ordinary wide-mouthed bottles are suitable. Probably the simplest of all methods is to fill the bottles with fruit pressed down firmly, and to pour boiling water on them until the bottles are filled to within an inch of the top. Hot melted mutton fat, to the depth of half an inch, is then poured on. When the bottles of fruit are cool, covers, preferably of bladder, are tied tightly over them.

Another plan is to place the bottles of fruit in a warm oven, and leave them there until the fruits begin to crack, which may take half an hour or more, according to the heat of the oven. It is important to take care that the bottles do not touch each other. The bottles are taken out of the oven, and boiling syrup is poured in until it reaches to within about an inch of the tops of the bottles. Then comes a layer of melted mutton fat. When cool, the bottles are covered with bladder covers tied down tightly, and are stored. The syrup is made by mixing sugar in boiling water at the rate of half a pound of sugar to a quart of water, the solution then being brought to boiling point; this ought to be done while the fruits are in the oven, so that it may be ready for use as soon as required.

Still another plan is to pour cold syrup on the fruits when the bottles are full, and then to place the bottles in a large pan containing sufficient depth of water to reach to the necks. The pan is placed on the stove and allowed to remain there until the water boils. It is then removed and subsequently the bottles

are taken out, sealed with melted mutton fat, and covered as already directed.

Bottling Large Quantities of Fruit.—Those who wish to bottle large quantities of fruit would do well to obtain a proper sterilising pan and special bottles. The latter have grooved necks in which rubber rings fit, and metal caps which are kept tightly in position by means of springs. The method of working is quite simple. In addition to the sterilising pan and bottles, a kettle, a piece of tubing, and a small oil stove are required. The bottles, having been filled with fruit, and sufficient water or syrup poured in to cover the latter, are placed in the pan, the rubber rings being fixed in position, and the metal caps put on loosely. Care should be taken that the bottles do not touch each other or the side of the pan; some people place hay among them with the object of ensuring that they are separated. The kettle is filled two-thirds full of water, placed on the oil stove, and brought to boiling point by the time the fruits are ready for sterilisation. A piece of rubber tubing is previously fixed to the spout of the kettle and inserted in a hole made for the

Bottle filled with fruit and lid fastened with spring clip

purpose in the side of the sterilising pan: this is for the purpose of conducting steam to the pan and so bringing about sterilisation.

Sterilising Apparatus.—One who has bottled large quantities of fruit by means of a steriliser such as this, thus describes the subsequent procedure: Heating proceeds somewhat slowly, about 1° a minute is the usual rate—so it takes about ninety minutes to reach a temperature of 155°, as shown by a thermometer, which will fit into an opening in the steriliser. When this temperature is reached the lamp flame is lowered, the tubing disconnected, the lid of the steriliser is removed, and the cap of each bottle is fixed by means of the spring clip. This should be done without removing the bottles from their position, by bending back the spring in both hands, and fitting it over the top of the lid, being careful that both sides catch under the ridge of the neck of the bottle, not under the rim of the lid itself, and that it presses on the centre of the lid. Close the steriliser again, connect the tubing, and start the water boiling. In about ten minutes 155° will be reached again, and in eighty minutes from this the operation will be completed; during this time the temperature should be allowed to reach 160°, but must be prevented from rising higher by regulating the flame of the stove. Remove the bottles at once to a cool window sill or similar position, and on the following day the clips may be removed, when it will be found that, owing to the cooling and contraction of the contents, and the consequent reduction of the interior pressure, the lid is kept firmly fixed in position. Care ought always to be taken to press the fruits down firmly so that the bottles are properly filled, for they shrink somewhat. It is a good plan to dump the bottles gently on the table several times while filling them with fruits so that the latter may be made to settle down well.

Fruits Suitable for Bottling.—Of small fruits the most satisfactory for bottling are Gooseberry, Raspberry and Cherry. Strawberries are not generally satisfactory. Pears, Plums and Peaches are well suited to bottling. Pears should be peeled, halved and cored; Peaches also ought to be halved and the stones removed.

The accompanying illustrations will help to make clear the method of bottling fruit by means of the special steriliser.

The following recipes for bottling fruit with little or no sugar,

Showing the kind of bottle used, together with lid and spring clip

Apparatus for bottling fruits. The bottles of fruit are placed in the steriliser (on left) and steam is introduced from the kettle through the tube

which were contributed to *The Gardener* by Mr. Dipnall, will, no doubt, prove of interest:—

Bottling Blackberries (no sugar).—Fill bottles as full as possible, place in a steamer till fruit looks cooked; or in a saucepan with hay at the bottom in cold water; bring to the boil and boil for five minutes. Take out bottles one at a time, fill at once with boiling water, and cover with bladders or screw-on tops. Other fruits may be similarly treated.

Bottling Fruit (a little sugar).—Dry the bottles, fill with fruit, add 2 oz. white moist sugar to each, and one wineglassful of cold boiled water. Tie down with two pieces of white paper. The underpiece of paper must be smeared with salad oil, and put on oiled side uppermost. Do not fill the bottles so full that the fruit touches the paper. Place the bottles in the evening in a tin in the oven when it is cooling down, and leave there all night.

Bottling Plums, an old Surrey recipe (a little sugar).—Choose ripe Plums, prick all over with a fork, put in bottles with a little sugar, leave uncovered till sugar is dissolved, then seal with melted mutton fat. The fruit when used tastes as if brandied.

Bottling Fruit (no sugar).—Thoroughly warm bottles in oven, fill with quite sound ripe fruit, return bottles to oven till fruit begins to discolour (about 15 minutes in a moderate oven), take out and fill with boiling water, leaving room for a 2-inch layer of melted mutton fat, which, when cool, seals fruit.

CHAPTER XXIV

Winter Washes for Fruit Trees

DURING November and December fruit trees and bushes which have been infested with pests in the past season should be treated with a strong wash of some kind, and even as a preventive against infection the action is fully justified. A good strong wash at this time is often sufficient to eradicate pests entirely, so that better-conditioned and more prolific trees are the result. Those mentioned below are easily made, efficient, and economical. In all cases the quantities given are for making about 5 gallons of the wash.

Lime-Sulphur Wash.—Place 1 lb. of quicklime in a dish of some kind, add a very little water, and stir it up until the bottom of the dish is covered with the paste; now add a like quantity of fine sulphur and enough water to give a liquid of creamy consistency, and again stir up until the violent boiling shows that the lime is slaking. Let this mixture stand for a day, stirring it occasionally; then add sufficient water to make 5 gallons, strain through a fine sieve and spray on the trees. In France, where this liquid is widely employed on Vines, Roses, and fruit trees, the lime and sulphur are boiled together in a pot of water for half an hour, and the material diluted when cool. This preparation does not scorch the foliage, and it may be used in summer; it has a whitewashing effect on the branches.

Caustic Wash.—Various kinds of caustic washes are used in horticulture, but the following possesses the merit of acting at one time as a fungicide and as a powerful insecticide. Stir ½ lb. of bluestone or sulphate of copper into ½ gallon of hot water, then add ¼ lb. or so of quicklime to 4½ gallons of cold water; stir up and let both liquids stand overnight in the separate dishes. Pour the sulphate solution into the lime water, stirring all the time, then add two large cupfuls of paraffin oil and stir or churn the whole together. Now dissolve 1 lb. of

washing soda, or, better, caustic soda, in a little hot water, pour it into the emulsion, and stir thoroughly for five minutes. The preparation is then ready for application, and it should be sprayed on the trees as a fine mist; protect the hands, and do not let any fall on the face.

Paraffin Emulsion.—This wash is easy to make and to apply, as all the ingredients are completely soluble or in liquid form; it is very serviceable for killing insects or insect eggs Dissolve 1 lb. of soda, washing or caustic, in 4½ gallons of water along with ¼ lb. of soft soap, then add ¼ gallon of paraffin oil and emulsify the lot until a greyish liquid is obtained. It is to be recommended where small quantities are required, and the cost is about 3½d. per 5 gallons of wash.

Bordeaux Mixture.—Place ¼ lb. or a good handful of quicklime in 4½ gallons of water, and stir it up; dissolve ¼ lb. of copper sulphate crystals in ½ gallon of hot water, and let both liquids stand all night. Pour the blue solution into the lime water, stirring all the time, then apply it to the trees as a fine spray. This fungicide is the most efficient of all yet discovered in horticultural science, and it is an invaluable remedy for mildew, rust, and like pests. It can be given strong insecticidal properties by mixing 1 oz. of the poisonous Paris Green with every 5 gallons of the fungicidal wash. Some writers advocate the use of copper sulphate alone in winter as a preventive remedy for fungoid pests; if this is preferred, dissolve 1 oz. of copper sulphate in every 1½ gallons of water, and spray it on the trees from a brass or copper syringe or in some other way. No iron vessels must be used with this solution.

Proprietary preparations can be had in concentrated form, very handy and convenient for use; the advertisement columns of the gardening papers enumerate many.

CHAPTER XXV

Insecticides for Amateurs

INSECTICIDES have come to be recognised as a necessity in present-day fruit growing, and the beginner has not long made his debut as a practical worker before he sees that they are essential commodities. Insects abound in countless myriads from the opening of the bud until autumn. Eradication is impossible, but the gardener who sets his mind to a difficult task can, by repeated efforts in the use of substances that "kill," diminish the number of pests, hamper their activity, and, by a sort of guerilla warfare, greatly diminish their powers.

Insecticides are employed to kill the insects either by direct contact or by poisoning their food supplies, but certain preparations possess a kind of antiseptic power in so far as they ward off the pests in some way; all preparations used in summer, however, must be employed with caution, for soft tissues of active growth are susceptible to exterior irritation, and harm can be done by too drastic measures adopted by annoyed gardeners.

Soapy Liquids adhere to insects and eventually stifle them. Soap of any of the common kinds, but preferably soft soap, dissolved in warm water (at about 90° to 110°) at the rate of 1 to 2 oz. per gallon, is quite a good substance to use for aphides, greenfly, blackfly and the like, and recent experiments have proved that what are called disinfectant soaps—Carbolic, Naptha, Cyllin, Kerol, Klensol, and other kinds—are even more efficacious than the commoner brands. Insecticides of this nature, too, are cleansing agents that brighten up the foliage. To prove effective, soap should actually cover the insect with a thin film, but as this is rather difficult, scientists often advise the admixture of petroleum or other oil with it; petroleum, however, has deleterious effects on all vegetation unless in a very attenuated form, so that it must be thoroughly mixed with the soapy water in order to be at once effective and not dangerous. For summer use I should not advise more than

one dessertspoonful in 1 gallon of soapy water, containing at least 1 oz. of soap. Petroleum or paraffin emulsions, as they are called, seldom " keep unless they are repeatedly churned up or squirted out of the syringe back into the pail.

Quassia and Tobacco Solutions.—Another preparation of a similar nature which I have found highly destructive of insect life is made by dissolving 1 oz. carbonate of ammonia (rock ammonia) and 5 to 8 oz. of soap in 5 gallons of water. Quassia solutions are old and good remedies; boil ¼ lb. of the chips in a little water and add this to 2 or 2½ gallons of soapy water (an ordinary pailful), or else get the concentrated quassia extract and use it as directed. Tobacco water, another old remedy which renders the foliage distasteful to insects much as quassia does, is made by boiling 2 to 4 oz. of tobacco in 1 gallon of water; cigar ends, cigarette stumps, pipe residue or black tobacco will prove best for this. Many readers may not know that the Tobacco plants (Nicotiana) which are grown as annuals can be utilised to make insecticidal solution. Hang them up to decay in a moist atmosphere, then boil them for a time in water. Hot water at from 100° to 120° is quite a useful insecticide that will do no harm to plants.

Leaf-eating Caterpillars such as live on Gooseberries succumb only when their food supply, the leaves, is poisoned. Hellebore powder dusted over the bushes acts well, but that is rather a wasteful process; arsenic poisons, such as Paris green and arsenate of lead, are much better, and they can be applied as a spray when thoroughly stirred into tap water or lime water at the rate of 1 oz. to 4 or 5 gallons. Arsenic solution must be repeatedly stirred up; arsenate of lead will be found best. Soot, the household chimney variety, which has lain aside for some time, is the best deterrent for such pests. Lime is not of much value as an insecticide, though it can be used when no others are available. Arsenic solutions are excellent for fruiting trees and bushes of all kinds, but every gardener will recognise the fact that the bushes must be syringed with clean tepid water a few days later in order to remove traces of the poison from the fruit. Ordinary sulphur stirred into water containing some treacle keeps off red spider when sprayed over their haunts; borax is nauseous to ants and cockroaches.

Using Insecticides.—Trees or bushes which have been infested at any time with destructive pests are liable to suffer

from a recurrence of the trouble, so that preventive measures are justified even though no sign of the enemy is apparent; indeed, many gardeners consider the use of insecticidal solutions advisable just to make sure that no trouble comes. Apply powders when the foliage is a little damp. Practically all insecticides, solid or liquid, should be used when the sun is not shining brightly. If rainy weather follows the application it may be necessary to repeat it, but at all events one spraying is seldom satisfactory, for few insecticides can kill the vitality of eggs not yet hatched. Syringe lightly and often, rather than hope for immunity by one drastic course of treatment.

The aim in using insecticides is to cover all parts with the preparation. Dust the powders through a muslin bag or tin perforated with tiny holes, and syringe liquids in such a way that a fine white mist falls on the leaves like dew. Syringe from below; in fact this is even more important than from above, for many pests hide on the under surfaces of the leaves, and are only reached by liquid sprayed upwards; keep going round the plant, too, and syringe from all sides. Stir the liquid up now and again, squirting some back into the pail occasionally to ensure uniformity of composition by continual agitation of the liquor.

CHAPTER XXVI

Insect Pests of Fruit Trees

UNFORTUNATELY for the gardener, the cultivation of hardy and tender fruits is interfered with to a considerable extent by the attacks of insect pests, which, if not destroyed, do great and often irreparable damage to the crops. It can scarcely be emphasised too strongly that well-grown trees are less liable to suffer severely from pests than those that are indifferently attended to; it is invariably the weakly ones that are chiefly affected. Fruit trees growing against a wall suffer to a greater extent from certain pests than those in the open garden, and they are often predisposed to attack by the fact of their being allowed to get dry at the root. Trees planted against a wall do not benefit much from rain; in early summer, and as long as hot weather lasts, it is essential that the soil be kept moist by watering frequently. It is astonishing how dry the ground is near a wall, even in wet weather. Dryness at the root is often the cause of small fruits falling in large numbers in spring.

Preventive measures against insect pests should be taken early. In fact the fruit grower ought always to endeavour to prevent attack rather than wait until the trees are infested.

American Blight or Woolly Aphis is a pest which is recognised by the woolly covering or cotton-like growth with which the insects cover themselves on the trees. Apple and Pear trees are attacked, and the insects pierce the bark and suck the sap, the result being that affected branches become weak and unhealthy, and, if the blight is allowed to remain, ultimately wither away. Steps to exterminate the pest should be taken immediately its presence is observed. Scrape off and burn the woolly growth and loose bark, and afterwards coat the affected plants with a strong soft soap lather to which a little paraffin has been added. Leave this on for a few days and then scrape it off, and afterwards wash and syringe the affected parts of the tree with a solution made by boiling ½ lb. of soft soap in ½ pint of

water for half an hour and then stirring in ¼ pint of paraffin. Dilute with water to 2 gallons before use. Repeat the washing and syringeing two or three times and all traces of the pest should have disappeared.

Bark crevices in which the pest has become established may be touched with a painter's brush dipped in paraffin. A simple home-made wash consists of a wineglassful of petroleum in a pail of water kept constantly agitated with the syringe while being used. This pest also attacks the roots of the trees. To get rid of these remove the soil and destroy as many as possible by means of a brush dipped in the soft soap and paraffin solution. The ground may then be watered with a wash made by dissolving one ounce of soft soap and one tablespoonful of household ammonia in a gallon of water.

Aphis, or Fly.—The young shoots of fruit trees, especially of Cherry and Plum growing against a wall, suffer from the attacks of greenfly very considerably, and unless the pest is checked, it increases to such an extent as to ruin the growth of the trees. It is important to take measures to kill the aphis as soon as it is noticed. The tops of shoots already badly infested ought to be cut off and burnt, and the trees should be syringed with the following solution: Dissolve 1 lb. of soft soap in a little hot water and make up to 2 gallons with further hot water: then add a wineglassful of paraffin. The mixture must be kept well mixed when in use by returning a syringeful to the can occasionally; otherwise the paraffin remains on the top. This mixture is most effective when hot water is used; it will not harm the trees, for by the time the spray reaches the leaves it will have lost some of its warmth. Aphides cannot be got rid of by the use of in ecticide on one occasion only; the spraying or syringeing must be carried out two or three times at intervals of two days or so. Too much stress can scarcely be laid upon the necessity of keeping the trees moist at the root in summer; those that suffer from drought seem predisposed to an attack from aphis. The trees derive great benefit during hot weather if they are forcibly sprayed with the hose once a week or so.

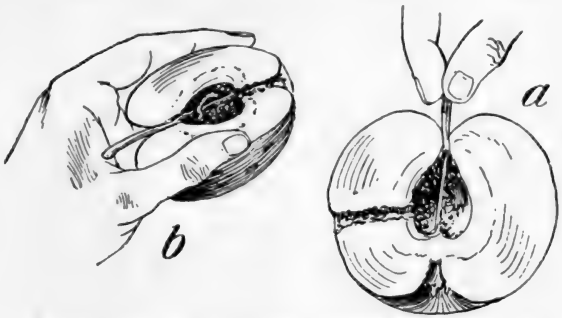
Apple Sucker.—Nearly everyone nowadays knows something of this pest, but those who have not yet experienced its ill effects upon their trees may one day wonder why the trusses of bloom on the trees have turned brown and have set no fruit, and they may be surprised to find the flowers come

away in their hands from the trees when touched, as though dead. When these symptoms are found an examination will most probably disclose a number of whitish-yellow insects clustered around the footstalks of each flower, and from these exudes a sticky fluid. The grower will then realise that his trees are suffering from a serious attack of Apple sucker. Spraying has been advised to kill the egg-depositing females in the autumn.

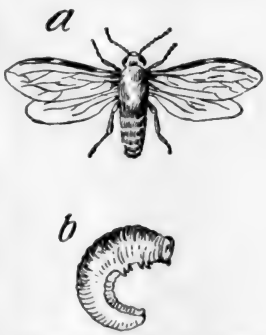
There are one or two washes on the market which if used at the proper strength and unsparingly applied are quite efficient against Apple suckers. Nicotine wash is deadly against this enemy of fruit growers, but is extremely expensive. Still, for a small number of trees the expense is not such a serious matter. Used at proper strength nicotine has been found harmless to fruit blossoms when open. If avoidable it should not be used at that stage when there are bees working. If trees have been seriously attacked a spraying of nicotine just before the blossoms open and another immediately the petals have fallen will be found to do more towards cleansing the trees than several sprayings later when the insects are numerous and have probably done serious damage. It is wise to use a caustic wash in winter.

Apple Sawfly.—The larvae of the Apple sawfly often make sad work amongst crops of Apples, the loss of fruit in some cases being very considerable. This pest is not always easily recognised, as the injury caused by it to a great extent resembles that resulting from the presence of the Codlin moth. The eggs of the sawflies are deposited on the Apple blossom, and after an interval of a few weeks young larvae hatch out, bore their way into the fruit, and eat the inside. The larvae of the sawflies enter the fruit from the side, whereas the larvae of the Codlin moth enter through the eye and bore through the core. After a month or six weeks the grubs become fully fed and leave the fruit and tree, and spin cocoons in the soil. The attacked Apples rarely grow to any size and invariably fall off. All fallen fruit and also fruit on the trees which is seen to have been attacked should be destroyed, whilst the pupae resulting from the cocoons in the ground should be also destroyed by the application of a soil fumigant. It is also advisable to dig and work the soil under the trees to enable birds readily to get at the pupae which may be exposed. A dressing of kainit will often be found to do good.

Apple Blossom Weevil.—The grub of the Apple blossom



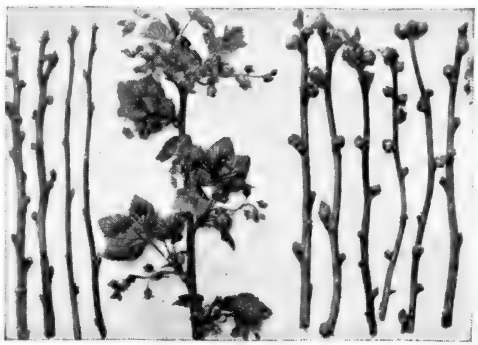
Fruits Damaged by Apple Sawfly as at *a*; and Codlin Moth at *b*



Apple Sawfly (*a*) and Larva (*b*)

American Blight

weevil often plays great havoc in gardens. The egg of the weevil is laid in the flower bud and the blossom is destroyed by the larva or grub. The larva pupates within the bud, and subsequently the beetle emerges through a hole made in the side. The weevils pass the winter on the trees, hiding under rough bark and in other likely places, and many may be killed by spraying the trees with a caustic wash, the formula for which will be found on another page. All weeds round about the



When Shoots are attacked by the Black Currant Mite the Buds become enlarged as shown on the right, and are rendered useless

base of the tree must be removed, and a slight sprinkling of gas lime in autumn, on the soil near the tree, is advisable.

Black Currant Gall Mite.—This causes big-bud disease of the Black Currant, which has been known in this country for seventy-five years, and within the last twenty-five years has spread all over the country; and the damage done has been so great in some districts that Black Currant growing has ceased. The disease is caused by the presence in the buds of mites of the species Eriophytes ribis. As a result of the irritation caused by the presence of the mites and the punctures of the young leaves by the mandibles of mites in their feeding, the buds swell greatly and become rounded in shape. If the buds are badly infested by the mites then neither leaves nor

flowers develop. The buds remain unopened, and after retaining their green colour for a time, dry up and become brown. Buds containing a smaller number of mites may burst at the proper season, but the shoots and leaves and bunches of bloom are dwarfed, and growth is weak.

The mites feed and shelter in the buds over winter. In a forward season and from buds that may have been only partially infested, the mites may leave their hiding-place in March and infest other buds. The real migration commences about the middle of April and is over by July. These migratory mites are adults, and, entering new buds, make their way inwards. Then the females proceed at once to lay eggs. The eggs hatch in due course, and the buds show at the end of August and in September the characteristic swollen appearance. Egg-laying during the winter is practically nil, but eggs have been found in all the months of the year.

The mites are practically unassailable in the buds, therefore the migratory period is the time when treatment, to be successful, should be given. Hand-picking the swollen buds during winter may keep the pest in check. Hard pruning followed by the removal of large buds has given fair results in some cases. Dusting or spraying with a mixture of lime and sulphur, known as Collinge's treatment, is advised. This consists of a mixture of 1 lb. of quicklime, 1 lb. of flowers of sulphur, and 20 gallons of water. Slake the lime and add the sulphur, forming into a paste as quickly as possible; add the water and stir into a "milk" of lime and sulphur, making up to 20 gallons and straining before use. Alternatively may be used one part of unslaked lime and two parts of flowers of sulphur, mixed together. The bushes should be sprayed with the fluid when they are dry, or dusted with the lime and sulphur mixture when they are wet, three times—at the end of March or the beginning of April, again at the middle of April and again in May. The quicklime and sulphur in dry form is liable to scorch the leaves to some extent.

Codlin Moth.—Considerable damage to Apple crops is often caused by the caterpillars of the Codlin moth. The moths appear towards the end of May, and the females, as they fly about from tree to tree, deposit their eggs on the blossoms or in the "eyes" of the fruit. Caterpillars hatch out and soon commence to bore their way towards the centre of the fruit, where they feed upon the pips. Affected Apples either fall prematurely or rapidly

decay when gathered and placed in the store-room. When fully fed the caterpillars bore their way out of the Apples, make their way to the ground, find a suitable hiding-place, and spin cocoons about themselves, afterwards turning into pupae from which other moths ultimately emerge.

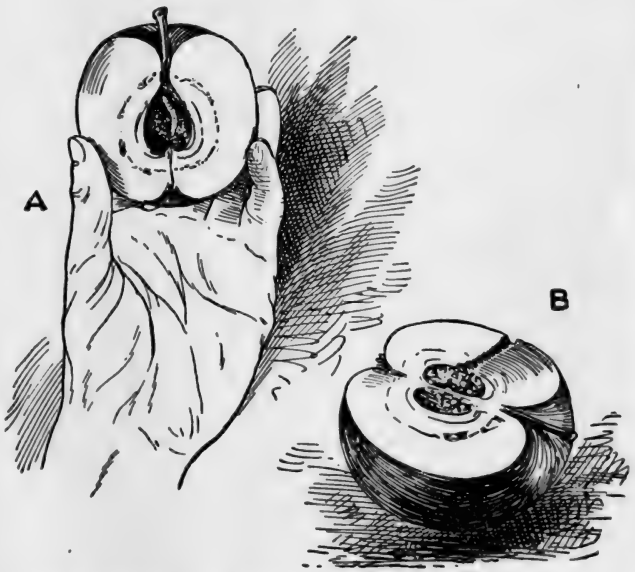
All fallen fruit should be cleared away as soon as possible, and also rubbish, leaves and dead wood lying about the ground. Oilcake bags and sacking made into bands and bound round the tree stems near the ground in July form serviceable traps, as ascending and descending caterpillars hide in them, and when caught should, of course, be destroyed. Spraying the trees with arsenate of lead after the blossom has fallen, but before the tiny fruits have turned down, is another remedy which should be tried where the pest is known to be troublesome.

Ermine Moth.—The small Ermine moth is another cause of damage to Apple trees. The eggs of the moths are deposited in patches on the trees during July and August, but the caterpillars which hatch out do not do any damage until spring, when they bore into and feed on buds and leaves, with the result that affected trees are considerably weakened and rendered unhealthy. The caterpillars live together in numbers in webs spun by themselves amongst the leaves and shoots; these should be diligently searched for and be cut out, then being either crushed or burnt to destroy the pests. Depositing the webs and caterpillars in a pail of insecticide kept handy for the purpose is another simple way of destroying them.

Gooseberry Sawfly.—The Gooseberry sawfly is very troublesome in Gooseberry plantations and gardens, and it also attacks Red Currant bushes. In many cases the leaves are quite cleared off, together with the young fruit, and unless the plague is checked it is sure to be renewed in succeeding seasons. The colour of the caterpillar varies at different stages. At first it is greenish-white with a black head and a few black spots, later green with numerous black spots, and in the final stage light green with spots.

The adults appear in April or early May. The females lay their eggs on the under sides of the leaves close to the veins. They are very numerous and inserted in slight incisions, sometimes at the edges of the leaves and fastened with an adhesive substance. The eggs hatch in about six days, and the caterpillars feed on the leaves. They soon spread over other leaves and shoots,

Codlin Moth (A) and Caterpillar (B)



Apple Infested by Caterpillar of Codlin Moth at A; at B is seen section of Apple showing how the Grub has made its exit

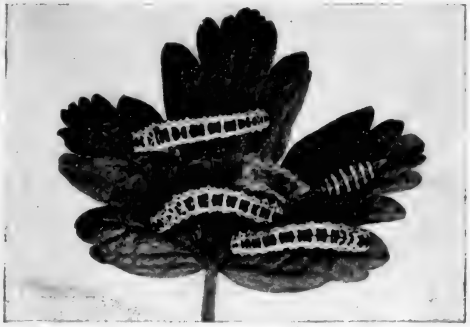
and feed for about a month. Then the cocoons are spun, generally upon, or just beneath, the surface of the soil under the infested bushes; the cocoons of the first brood are occasionally found upon the twigs and even leaves, as shown in the illustration. In about three weeks the adults issue and proceed in turn to their egg laying. There may be three generations in the year; the cocoons of the last brood of the year are found deeper in the ground than those of the earlier broods, and the caterpillars lie sheltering in them until the next spring, when pupation takes place.

It is advisable to remove a few inches of the soil from beneath infested bushes in winter and to replace with fresh. The branches should be sprinkled with hellebore powder in early summer, but in this case the fruits ought not to be used in less than five or six weeks, for this powder is poisonous. Spraying with paraffin emulsion might well be substituted. Many may be destroyed by hand-picking.

Lackey Moth.—The caterpillars of the Lackey moth form a very destructive pest, and of cultivated fruit trees they attack Apples most frequently. The moths are on the wing during the latter part of summer, and the caterpillars result from eggs deposited in rings round the shoots of the trees. The caterpillars are hairy and rather prettily coloured. They live in webs spun amongst the leaves and shoots, and the best time to catch them at home is during wet and dull weather. As soon as observed, all webs, together with the caterpillars in them, should be destroyed; as the rings of eggs invariably result in the production of a large number of caterpillars, it is most important that a sharp look out be kept—particularly at pruning time—all found being destroyed. Shoots cut out of infested trees should be burnt.

When the leaves have fallen it is a good plan to give fruit trees which appear unhealthy a good coat of limewash. The limewash should be fairly thick, a good handful of sulphur being added to each pailful. In addition to destroying insect and fungoid pests in the cracks and crevices of the bark, a wash of this description will remove lichen and mossy growth, but as their presence may be due to faulty drainage, all defects must, of course, be remedied before a complete cure can be effected.

Pear Midge.—The larvae of the Pear Midge do much damage early in the year, ruining large numbers of fruits while they are small. The presence of this pest is easily recognised



Caterpillars and Pupa of the Magpie or Currant Moth

Web of Caterpillars of the Small Ermine Moth

by the appearance of the infested fruits, which are much larger than normal ones. The eggs are laid in the young flowers, and the maggots hatch out inside the embryo fruits and ruin them. It is important to gather and burn all infested fruits, whether on the tree or fallen on the ground, to prevent the escape of the grubs. The best preventive measures are to remove two or three inches of the soil beneath the tree in winter, and to replace it with fresh. The old soil ought to be buried deeply in another part of the garden. An application of kainit to the soil in autumn is also recommended.

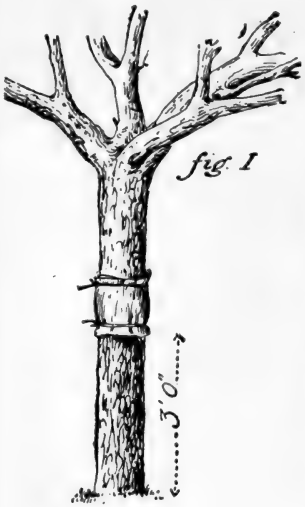
Lime-washing Fruit Tree to kill Insects

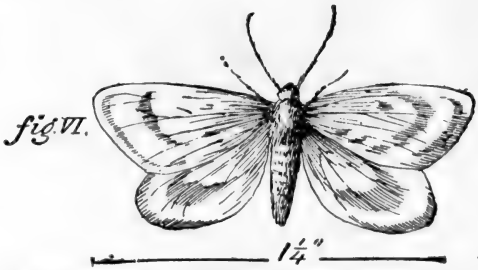
Red Spider.—This is a pernicious little pest which plays havoc with the leaves of fruit trees, more especially of those under glass or in a hot position out of doors, as, for example, against a south or west wall. When attacked by red spider the leaves lose their deep green colour and become pale and sickly. The simplest remedy is salt and water, used at the rate of 1 oz. of salt to 1 gallon of water. The solution must be directed to reach the lower surface of the leaves where the pest is usually found. Red Spider dislikes moist conditions, therefore is less likely to attack trees which are kept thoroughly moist at the root during summer, and of which the branches are sprayed or hosed frequently.

Scale.—This insect sometimes infests Peach and other fruit trees; it clings to the branches and shoots, and is most easily removed by means of a stiff brush dipped in Gishurst Compound, Fir tree oil insecticide or paraffin emulsion. The latter is made by dissolving 1 lb. of soft soap in a little hot water and adding sufficient hot water to make 2 gallons. A wineglassful of paraffin is then mixed in the solution which must be used while hot.

Lackey Moth (A), and Caterpillar (B)

Eggs of the Lackey Moth deposited in rings on Shoots of Apple Tree





Greasebanding fruit trees as a protection against winter moth. 1 and 2. Bands of grease-proof paper tied round the stem : two bands are required if the tree is staked. 3. How not to secure the band of paper. 4. Caterpillar of winter moth. 5. Female winter moth. 6. Male winter moth

Thrips.—A minute pest which does much damage to the leaves of fruit trees, more particularly those under glass or on a hot wall. The affected parts have a rusty, withered appearance. Spraying or syringeing frequently with water tends to prevent attacks, while Abol insecticide, paraffin emulsion, quassia solution or nicotine solution are useful remedies.

Winter Moth.—The larvae of the winter moth do a great deal of damage in gardens generally by feeding on the buds and young shoots. The moth lays her eggs on the trees during winter, and in spring the larvae hatch out and attack the fresh growths. When fully grown, the caterpillars lower themselves to the ground by means of threads and pupate in the soil. As the females are unable to fly, they may be caught when ascending the trees in autumn and winter, by means of greasebands placed round the stems about two feet from the ground level. The simplest way of preparing these is to obtain grease-proof paper, which is tied round the trunk of the tree, and is then well smeared with cart-grease, which must be renewed occasionally during winter. The bands ought to be examined sometimes and the insects destroyed. The bands must be tied top and bottom, otherwise the moths will crawl beneath them. A patent preparation known as Tanglefoot is an excellent substitute for cart-grease.

This compound, weight for weight, is much dearer than grease, but it is far more efficient; it does not require working up and renewing two or three times during autumn and winter, and except for very young trees is quite innocuous, and therefore does not require paper bands. Moreover, it can be applied in lesser quantity than grease. A 2-inch band applied as thinly as it can be put on will be found to stop the moths from getting above into the branches. The importance of having these bands kept in a sticky condition for some time after they are placed in position will be realised when it is known that the moths are coming out of the ground and ascending the stems of the trees from October until mid-winter. The bands should be from 18 inches to 3 feet from the surface soil.

CHAPTER XXVII

Various Fruits

Apricot.—This delicious fruit can only be grown with success upon a wall facing south or south-west. It is not to be recommended to the amateur who wishes to develop the resources of his fruit garden to the utmost, for the crop of fruit is often poor. Fan-trained trees are usually employed, and planting is carried out in well-dug, loamy soil, with which lime rubble is mixed freely. The soil must be made thoroughly firm about the roots, and those nearest the surface should be covered with not more than 2 or 3 inches of soil. It may be necessary to lift and slightly root-prune the trees each autumn for the first two or three years after planting to prevent too luxuriant branch growth.

The fruits of the Apricot are borne on spurs, and on young shoots which ought to be trained in when space can be found for them. Summer pruning is of importance; the side shoots should be "stopped" in July immediately above the sixth leaf, and in winter they are shortened to within about two buds of the base. Some disbudding in spring is usually necessary, otherwise the fruit spurs will become crowded. The Apricot comes into bloom early, and if frost threatens, the trees must be protected by means of canvas or a double thickness of fish netting. One of the most satisfactory varieties of the Apricot is Moor Park.

Medlar.—Few people appear to plant the Medlar nowadays, yet it is a picturesque tree, beautiful when in flower, and the fruits make delicious jelly. It thrives in ordinarily well-tilled land, and what little pruning is required is directed chiefly towards thinning out the branches when they tend to become crowded. One disadvantage of the Medlar is that it does not usually bear good crops until the tree is of fair size. October is the month in which to gather the fruits, which are not ready for use until the flesh has become soft, a process known as

"bletting." Of the few varieties in general cultivation, The Dutch or Monstrous is to be recommended.

Nut, Cob, and Filbert.—These fruits are commonly grown in the form of bushes, having a clear stem of 15 or 18 inches; they thrive best in loamy soil, but even on light ground may be depended upon to give a good return. It is usual to restrict the number of branches to from eight to twelve, keeping them thinly disposed; in pruning during the early years of growth, when the branches are developing, always cut to a bud pointing away from the centre so that the bushes will be cup-shaped. The Nut fruits freely on spurs, on which the small crimson female flowers are produced; the catkins, which appear earlier, must not be cut off, otherwise the female flowers may fail to "set" fruit. Winter pruning must be carried out as directed for the Apple and Pear. Suckers often appear freely, but should not be allowed to grow. The grower must take care to cut out old shoots whenever they can be replaced by young ones, and to keep the branches well apart from each other. The distinction between Cob-nut and Filbert is that in the former the fruit has a short husk, while in the latter the husk is longer than the fruit. The Kentish is one of the best Filberts, and of Cob-nuts Kentish Cob is to be recommended.

Quince.—If only for appearance sake, and the beauty of its blossoms and fruit, every garden might well possess a Quince tree. It is never happier than when planted by the side of a stream, for it needs a moist place; it is not likely to be a success on light land and in a dry position. While the tree is developing the branches must be kept well apart, then in future years little attention to pruning will be necessary, though the vigorous side shoots must be pruned.

Fruit Trees in Pots.—The cultivation of fruit trees in pots is full of interest, and not without profit to the grower, providing the work is well done. The best time to start is in October, and suitable kinds of fruit to grow are Apple, Pear, Cherry, Plum, Peach, and Nectarine. A light and airy greenhouse is required if the trees are grown to supply crops of fruit in advance of those out of doors. The work of potting the fruit trees is of first importance; pots 10 or 12 inches wide are large enough at first, but as the trees increase in size still larger ones may be required. The pots having been cleaned, a few crocks are placed over the hole at the bottom to ensure per-

fect drainage and are covered with some rough turf soil. The tree is then put in, and should be at such a depth in the pot that the uppermost roots are within from 1 inch to 2 inches of the rim. Prepared compost is filled in and made thoroughly firm by means of a wooden rammer; the trees will not thrive unless the soil is made firm.

When potting is finished the trees are placed out of doors, the pots plunged to the rims in ashes. The soil must be kept moist though not saturated. During the following season it is not advisable to force the trees, therefore they may remain out of doors until they are in bud. In future years they may be placed under glass in January if an early crop is needed. In that case they must be kept quite cool; fire-heat ought not to be used except in cold weather, for a temperature of 40° to 45° is quite high enough before the trees have started growth. As spring advances the minimum temperature of the glasshouse will increase naturally, but air must be admitted freely in favourable weather with the object of keeping the growth of the trees sturdy and short-jointed. When the trees are in bloom, and throughout the summer, the ventilators ought to be opened widely. Peach and Nectarine may be forced to some extent after the fruits have "stoned," by closing the glasshouse in the afternoon before the sunshine has left the roof, and moistening the floor and walls, but cooler conditions again become necessary when the fruits are fully developed. Apples, Pears, and Plums cannot be forced; they will, however, ripen considerably earlier than those in the open.

Disbudding is an item of importance in the cultivation of fruit trees in pots; it is far better to remove superfluous shoots early than to allow them to grow, and be obliged to cut them off later. All shoots not required for extension purposes are summer pruned, and are again shortened in winter, except in dealing with the Peach and Nectarine.

CHAPTER XXVIII

Diseases of Fruit Trees

Apple.—Two of the most alarming diseases affecting the Apple are Apple Scab and Brown Rot. Apple Scab disfigures the

fruits by scabs and spots. Preventive measures are to spray with Bordeaux Mixture when the fruit is set, and again three or four weeks later. Dead and diseased shoots and branches must be carefully cut out at the winter pruning. Trees on which the fruit is affected with Brown Rot should be similarly treated, and, in addition, all the fruits which turn dark brown or black and remain on the tree ought to be gathered and burnt. Those that fall should also be disposed of.

Pear.—The Pear Scab often disfigures large quantities of fruit, and the trees must be dealt with in the manner advised for preventing Apple Scab.

Plum.—The silver leaf disease of the Plum is apparently increasing; it is far more noticeable in gardens now than it was a few years ago. The Victoria Plum seems peculiarly liable to attack. The presence of this disease is easily recognised by the silvery-grey appearance of the leaves on infected branches. There is no known cure at present, though some good is done by cutting off and burning diseased branches and by an application of sulphate of iron to the soil about the trees in autumn.

Peach and Nectarine.—Chief of the diseases affecting these fruits is Peach Leaf Curl or Blister, the effect of which is to raise reddish blisters on the foliage and seriously to affect the growth of the tree. Spraying with Bordeaux Mixture in spring, after the fruit is set, is recommended, and badly diseased shoots are best cut off and burnt. A preparation called Medeola is said to cure Peach Leaf Curl. Mildew is often troublesome to the grower of Peaches and other fruits. The trees ought to be sprayed occasionally with liver of sulphur solution, $\frac{1}{2}$ oz. to 1 gallon of water, in spring and early summer after the flowers have faded.

Gooseberry.—Gooseberry mildew is one of the most troublesome diseases of fruit trees. It is important to cut off and burn badly affected shoots, to gather and burn fallen leaves in autumn, and to spray with liver of sulphur solution in early summer; several sprayings should be given every two or three weeks.

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