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THE PRUNING OF FRUIT TREES

By H. R. POWELL, B.Sc. (Agric.), Superintendent of Horticulture

PART 3 (contd.)—DECIDUOUS FRUIT TREES (PEARS)

THE commercial varieties of pears grown in Western Australia consist of Bartlett's (W.B.C.), Packhams, Kieffers, Josephine, Comice, Beurre Bosc, and Winter Nelis. The annual production of pears (approximating to 130,000 bushels) is relatively small compared with that of other fruits.

The general principles of framework pruning were discussed in Part 2 of this series of articles (May-June, 1953) and this applies to pear trees as well. However,

special attention must be paid to spreading the trees, otherwise they will be too narrow (see Fig. 35). If they are neglected they resume vertical growth as can be seen in Fig. 3. Illustrations Figs. 5, 100, 101 show the excellent results which can be obtained by training the naturally strong erect growth of these trees into well-spread and balanced orchard trees.

The usual methods of spreading the leaders on young trees are by spreaders (Figs. 14, 16 and 19) and pruning to outside laterals on the more upright shoots (Fig. 19). Spreading can also be obtained



Fig. 100.—An example of excellent framework pruning. The tree is a B. Bosc, 27 years old, grown on the orchard of Mr. W. De Pledge, Kendenup. The fruiting wood, laterals and spurs are evenly distributed

Fig. 101.—A row of Comice pears, 26 years old on an orchard in the Mt. Barker district. Although unpruned for the last few years, the trees show the results of previous sound framework pruning.



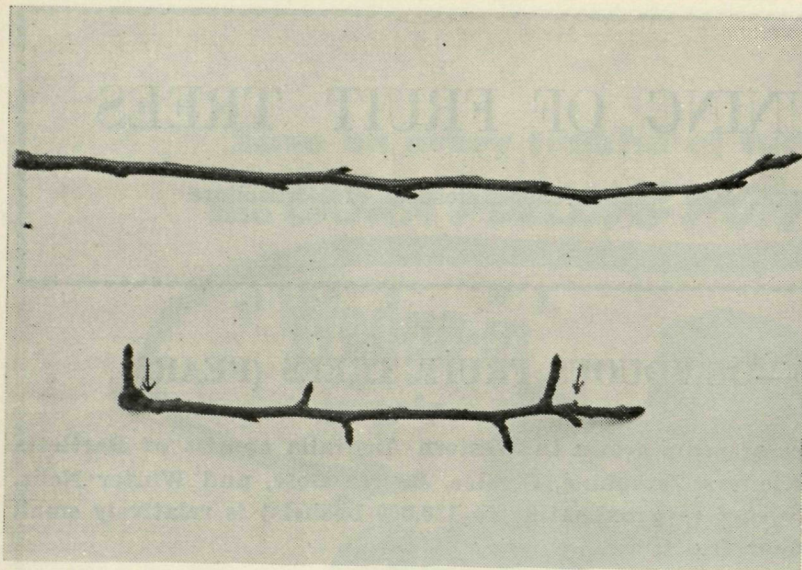


Fig. 103.—The topmost lateral (Bartlett) shows three years growth. The short basal piece is three years old and it will be noted that the spur set fruit the previous season and continued its growth by a new spur on the right.

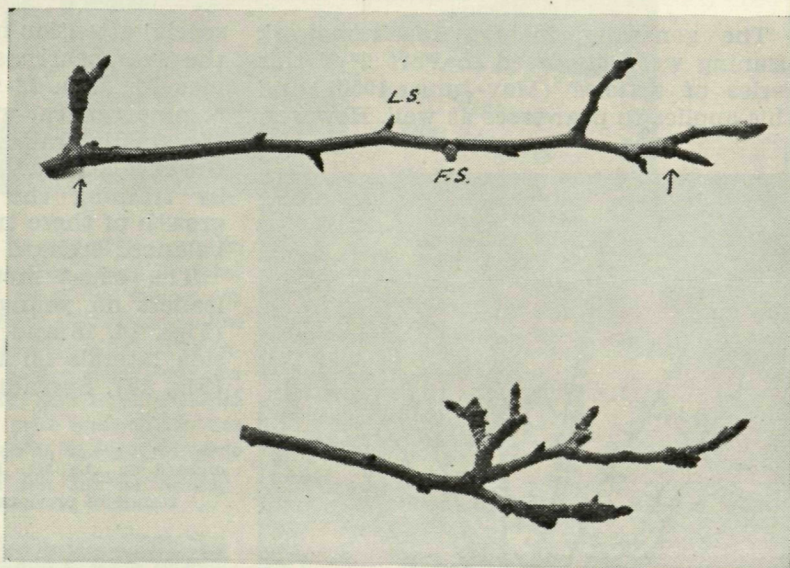
The middle portion is two years old; one fruit spur and leaf spurs which are thin and pointed have developed; of the topmost buds, the terminal bud in all probability flowered and as a result vegetative growth was continued by two somewhat elongated spur like shoots, the topmost ending in a fruit bud; a similar shoot emerged from a leafbud just behind the terminal extension.

No pruning treatment is suggested unless fresh lateral growth is required to replace weakened fruiting wood. If this is necessary the lateral could be shortened back to the fruit spur on the two-year wood, or to the basal spur as the case may be. The lower example, also Bartlett, depicts the onset of spur ramification. As each fruit spur flowers, its vegetative growth is continued by one or two similar growths, which can behave likewise the following year. In time a much branched system can be created. Spur ramification usually denotes decreasing vigour and should be closely watched. See Figs. 94 and 114

by leaving the growth in the centre of the trees for several seasons, provided it is well controlled, by being shortened back each winter below the height of the outer branches. When the desired results have been obtained the centre portion can be removed. However, care would be necessary during the following growing season to rub off all growth from below the pruning cut which could develop into strong water-shoots.

Provided sufficient spread of the leaders can be obtained, pear trees respond particularly well to the retention of untipped leaders. With strong growing trees this is illustrated by Fig. 29. Occasionally the trees may make uneven growth and this can often be controlled by pruning back the stronger leaders, and leaving the weaker ones untipped (see Figs. 12, 14, 71).

Fig. 102.—Laterals—the uppermost is a one-year lateral—variety Bartlett. The plump terminal and side buds are fruit buds. The smaller buds at the base are leaf buds. These laterals where not too numerous or badly placed, should be retained untipped. This applies particularly to the warmer districts. The one beneath is a two-year-old lateral of the same variety. Spurs have formed from side buds and from the terminal bud—marked with arrows. These laterals are valuable fruit-producers, particularly in the colder districts. At this stage no pruning treatment should be necessary. However, when it is necessary to reduce the expected crop, the lateral could be shortened back to the junction of one-year and two-year wood, or further back to a fruit spur if necessary.



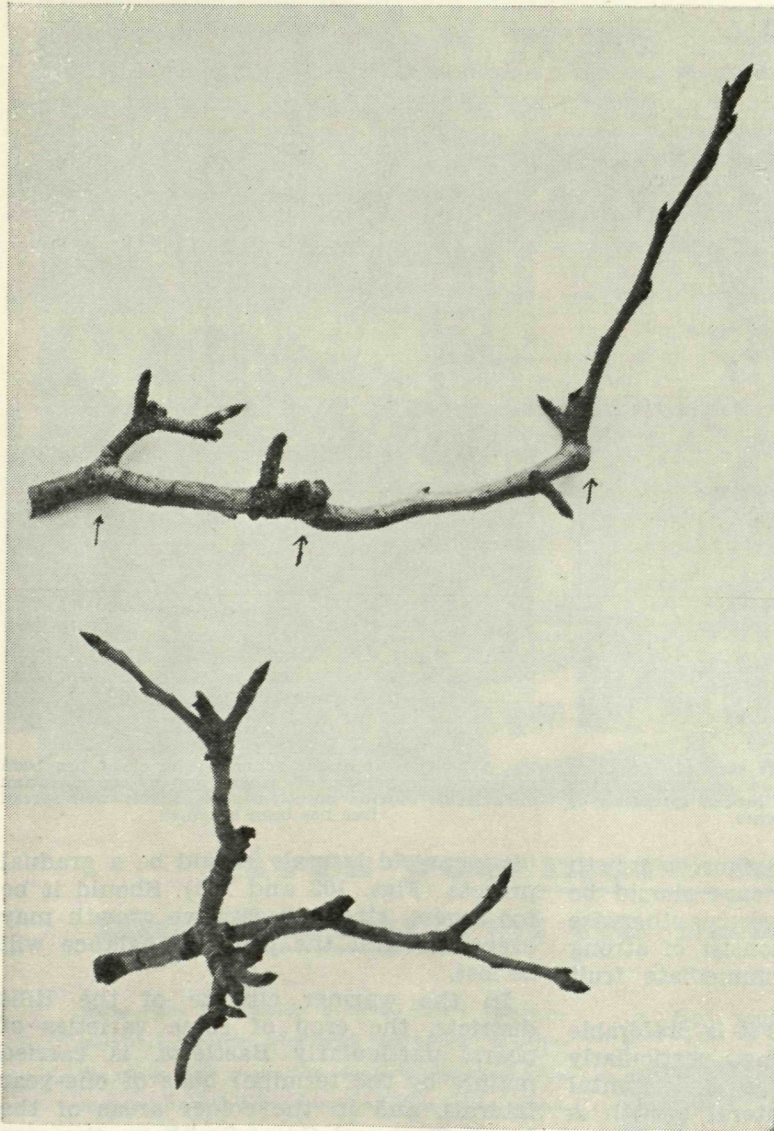


Fig. 104.—The topmost illustration—variety Packham—shows the effect of shortening back each annual extension—this has been done over the last three years. It is considered that better results could be obtained by leaving the original lateral growth untipped and subsequent shortening back when necessary. No pruning is necessary now but shortening back will probably be necessary next winter.

The lower example—Packham—shows the beginning of spur ramification. In this instance the system could be reduced by at least the lower third. See Figs. 94 and 114.

The number of leaders retained on a mature pear tree varies, usually between 12 and 18, but with more erect growth the number would be less.

THE ANNUAL WOOD GROWTH

The annual wood growth consists of water-shoots, wood-shoots, laterals, fruit spurs, leaf spurs, fruit twigs and leaf twigs. A general description of these parts was given in Part 1, and the treatment of wood-shoots and water-shoots was outlined in Part 2.

The more detailed description given in the section dealing with apples can also be applied to pears. The characteristics of growth and fruiting of both types of trees are similar, the main difference being that pear trees being more vigorous make larger trees and thus tend to be treated by growers in extremes, either too lightly (Fig. 103), or too severely (Fig. 108).

TREATMENT OF THE ANNUAL WOOD

The general recommendations made for the treatment of the annual wood of apples also apply to pears. Due allowance



Fig. 105.—A six-year somewhat stunted Packham carrying too many leaders. The crowding in the centre of the tree has however, caused spreading of the outside branches



Fig. 106.—The same tree pruned. The effect has been to reduce the number of leaders, and by concentrating on suitable outside branches a reasonably well spread tree has been obtained

must be made for the more vigorous growth of pear trees and great care should be taken not to prune too severely, otherwise the annual growth will consist of strong wood-shoots useless for immediate fruit production.

On strong-growing trees it is preferable to leave the laterals long, particularly those which are growing in a horizontal or downward position. Lateral growth is often strong, particularly on grafted trees, or on trees which have been pruned too severely (Fig. 107). In these instances they can be kept up to approximately 3 ft. in length. On occasions the more vertical ones can be tied down to reduce the possibility of further strong growth.

An advantage in leaving the laterals untipped is that the terminal bud is often a fruit bud; should fruit develop from these buds, as frequently happens, the weight of the fruit will force the fruitful laterals downwards and thus reduce the possibility of further strong growth.

The treatment of laterals generally is similar to apples. The shortening back of

two-year-old laterals should be a gradual process (Figs. 102 and 103). Should it be too severe, strong vegetative growth may eventuate and the previous balance will be lost.

In the warmer climate of the Hills districts, the crop of some varieties of pears, particularly Bartletts, is carried mainly by the terminal buds of one-year laterals, and in the colder areas of the South West and Great Southern, the crop can be obtained from the spurs on the older laterals. However, even in the colder districts the terminal buds on one-year laterals should be conserved, particularly in years following heavy crops, as they can often change a very light crop from the spurs to a medium crop from the laterals. Josephine is a variety which can well be lateral pruned under the above circumstances.

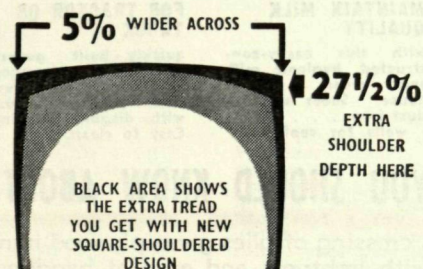
With age, growth diminishes and unless stimulated by pruning, fruit and leaf spurs tend to ramify and the tree becomes more inclined to biennial bearing (Fig. 113).



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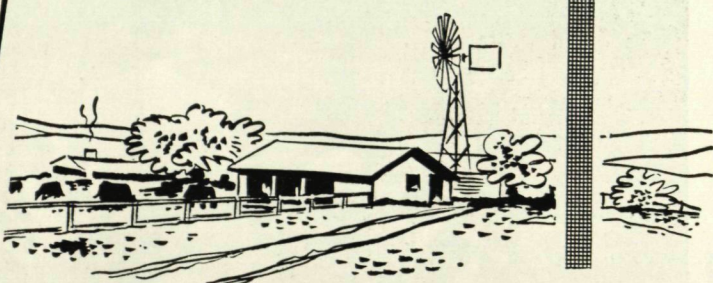
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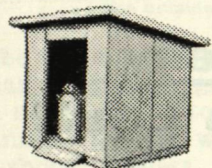
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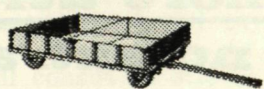
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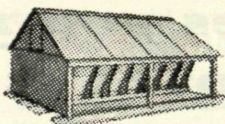
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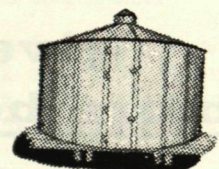
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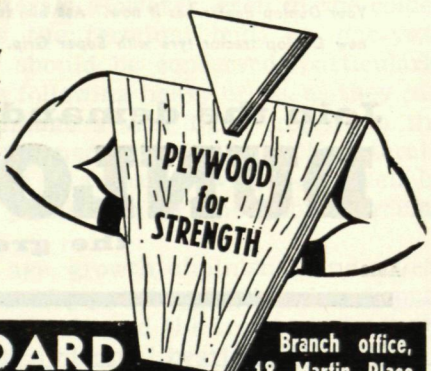


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Fig. 107.—Six-year Packham grafts on Josephine. Due mainly no doubt initially to the over severe heading back of the Josephine when grafted, difficulty has been experienced in bringing the new tree under control. Hard pruning has added to the confusion

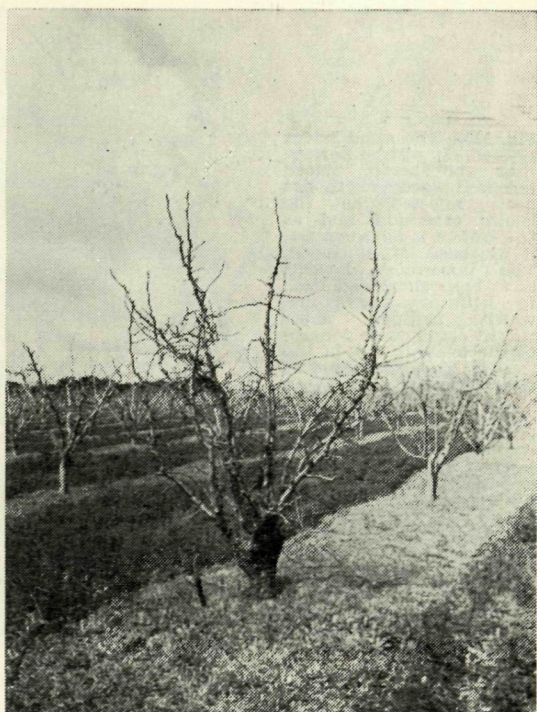


Fig. 108.—The same tree purposely overpruned to show the treatment of long laterals. Those in a near horizontal position have been retained unpruned, whilst others have been tied down
A more sympathetic treatment would have included the definition of the leading shoots leaving them untipped and thinning out and shortening back the the overcrowded lateral growth particularly in the centre of the tree



Fig. 109.—An unpruned Packham leader of a mature tree. In the previous pruning, the stronger laterals were shortened back and a few of the weaker and more horizontal ones were left untipped

Fig. 110.—The same leader pruned. It will be noticed that the better placed terminal wood growth has been selected as the leader extension and as the growth is not vigorous, it has been left untipped. The uppermost laterals have been shortened back to prevent cropping, which through sheer weight could cause damage to the weakest part of the leader. The stronger vertical laterals have been shortened back. At the same time the two-year laterals have been shortened back to suitable sub-laterals or to fruit spurs. See Figs. 102, 103 and 104

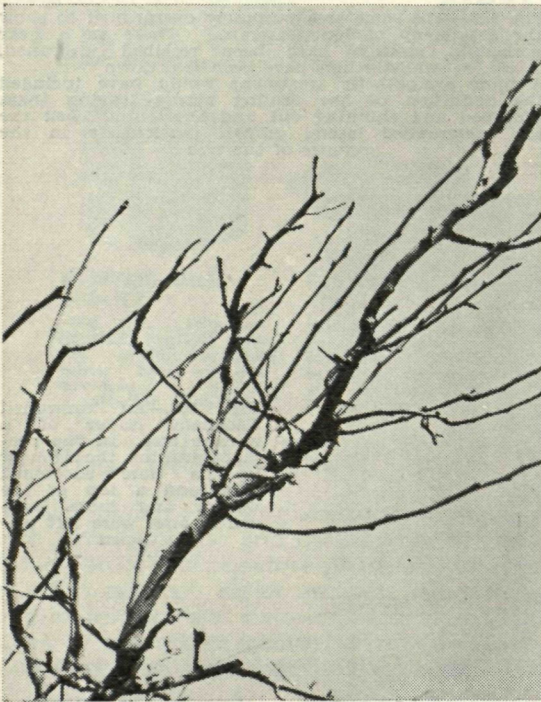


Fig. 111.—A portion of a Bartlett leader, showing the system used by a Hills grower to obtain satisfactory crops through the terminal buds of one-year laterals. The method used is to shorten back each lateral growth. The result from a cropping point of view has been satisfactory, but the older parts of the trees have become overcrowded with spindly growths

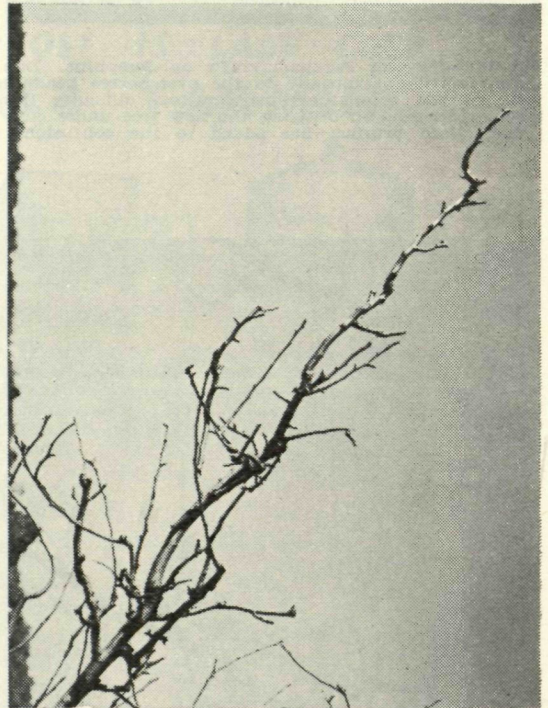


Fig. 112.—The portion of the Bartlett leader shown in Fig. 111, pruned. In this example, an attempt has been made to regenerate new growth closer to the leader, and some productiveness for the next season has been lost

Where possible, one-year laterals have been retained untipped, and in others cuts have been made to well developed spurs on the older wood—generally in the Hills districts most of the crop is carried by the one-year laterals

Fig. 113. — Portion of Comice, which has not been pruned for four years. Total growth of the tree has increased, by the cessation of pruning, but the maze of uncontrolled growth has weakened the shaded inner branches and spurs and made spraying for scab control more difficult

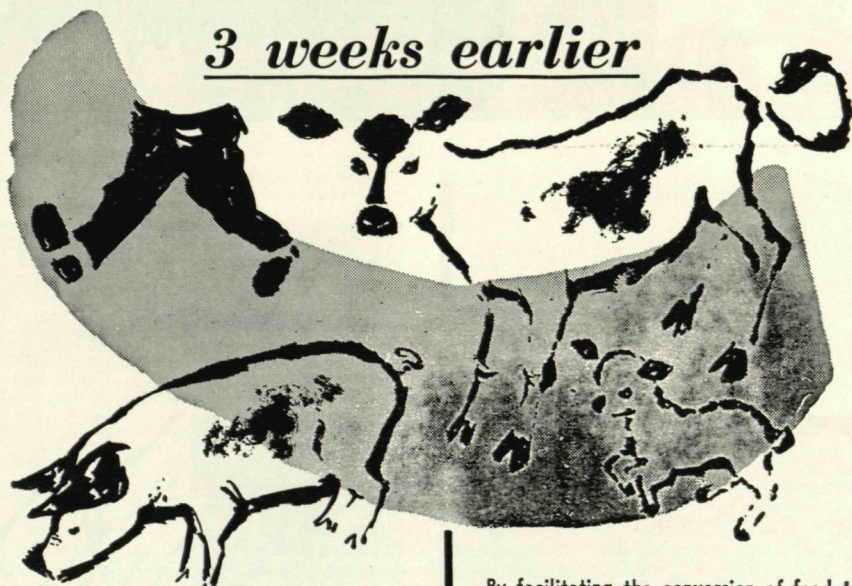


Fig. 114.—The same portion of a Comice leader shown in Fig. 113, pruned to show the spacing of laterals, and spur reduction

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