PRUNING FRUIT TREES
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To many people the pruning of fruit trees is one of the most baffling of all orchard operations, probably because the final results may not be noticeable for several years. But pruning is not so difficult if one has a general idea of what should be done and why. There are essentially two objectives or purposes in pruning; first, to alter the shape or growth of the tree; and second, to influence the production and character of the fruit. However, the importance of these objectives has frequently been overemphasized. On a commercial basis, the only logical basis or reason for pruning is to secure a tree which will be capable of producing and carrying large crops of fruit without serious breakage of limbs or branches. The production of a beautiful or shapely tree is only incidental in orchard pruning.

Another consideration which should be kept in mind is that fruit trees are individuals, and that each tree is a pruning problem distinct in itself. As a result, definite rules on how to prune are not possible. Moderation should be followed in pruning. Many fruit growers have injured their trees seriously by pruning too severely. They have upset the natural balance between top and root and have definitely decreased the production possibilities of their trees. On the other hand, no pruning or too light pruning are just as undesirable. These latter practices give tall trees with very dense heads which cannot produce good fruit. The most desirable pruning is that based on a knowledge of what pruning does to a tree.

There are several principles of pruning which have been
developed by a study of orchard pruning and its effects. First, pruning is dwarfing as far as the branch pruned or the tree as a whole is concerned. This can readily be seen when one considers that the growth of a tree is limited by the leaf area which it bears. Any practice which reduces leaf area naturally reduces total growth. On the other hand, pruning will stimulate lateral growth on the branch cut. Reduction of the number of growing points, or buds, will tend to make these laterals grow faster. The increase in leaf surface on these larger growths, however, seldom is sufficient to offset the loss from buds removed in pruning. The net result is a decrease in total growth of the tree. On this basis, it is evident that heavy pruning will dwarf a young tree and will lengthen the time required to bring that tree into bearing.

Another point which should be considered is the fact that narrow angles between branches or between branch and trunk give weak crotches. Branches which form relatively wide angles will be much stronger.

Finally, the net results of pruning are definitely local. A pruning cut will stimulate twig growth near the cut but will show no effect on other branches. This indicates that a few large cuts are less desirable than a larger number of smaller cuts. It also suggests that annual pruning is a good practice.

There are two periods in the pruning of a fruit tree. The first is during the time the tree is coming into bearing. This is the period of training when the tree is being shaped to give the desired framework. When a tree is first set out, vegetative growth is the only function desired. The tree must reach an
approximate size before it can begin to bear. Since all pruning is dwarfing, it is only reasonable to reduce all cutting during this growth period to the minimum needed to produce a tree of the type desired. It is possible to delay the age at which an apple tree will come into bearing as much as five or six years by pruning alone. Since the tree before it begins to produce fruit is a liability and not an asset, the logical procedure is to prune as lightly as is possible to secure the desired results.

The second stage of pruning begins when the tree has reached the beginning of its productive life. It is now starting a more complicated existence. In addition to producing fruit and fruit buds, it must make sufficient growth to maintain its vigor. One of the main reasons why old or neglected trees are not productive is that they lack vigor.

During this early bearing period, light pruning should be continued. It should consist mainly of thinning out thick parts of the top and the removal of interfering branches.

After the bearing habit has become well established, it may be necessary to increase the severity of the pruning, especially if the trees have been lightly pruned for several years previous. In general, such pruning should thin the tree sufficiently to permit the penetration of light into the center of the tree. This thinning out should be largely confined to the removal of small branches around the tree, rather than the cutting away of a few large branches. In addition, it should include the heading back of unruly branches, preventing the formation of weak, narrow crotches, and keeping the fruiting wood well distributed and functioning throughout the tree. This type of pruning is
often called "maintenance pruning."

In any pruning, it should always be the rule to leave close, clean cuts. This is especially important where large limbs are removed. By "close" is meant that the cut should be made close to the point from which the branch arises. Stubs of branches should never be left. They can not heal over properly, and they are always a source of disease infection. All pruning cuts should be made at an angle corresponding to that of the branch.

There is no ideal time to prune. In general, the main part should be done during the dormant season, that is, some time after the leaves have fallen in the fall, but before growth starts the following spring. In most parts of Colorado it can be done at any time during the dormant season when the weather will permit such outside work. However, in the parts of the state where winter conditions are very trying, it is probably a better policy to do the work after the severest of the winter is over.