

PRUNING MATURE TREES

A major objective of pruning mature trees is to keep them producing high yields from year to year by renewing and maintaining fruit wood. Other reasons are to adjust potential crop size, remove interfering branches and contain tree height and spread while maintaining adequate vigor. Methods vary between species because of differences in fruit-

ing habits, desired cropping levels, and acceptable tree size.

To prune selectively for crop load it is important to know the age and type of wood that is fruitful for specific species. For instance, almonds, apricots, plums (European and Japanese), prunes and sweet cherries bear most of their crops laterally on spurs (Figure 35). Spur wood is short-shoot growth that

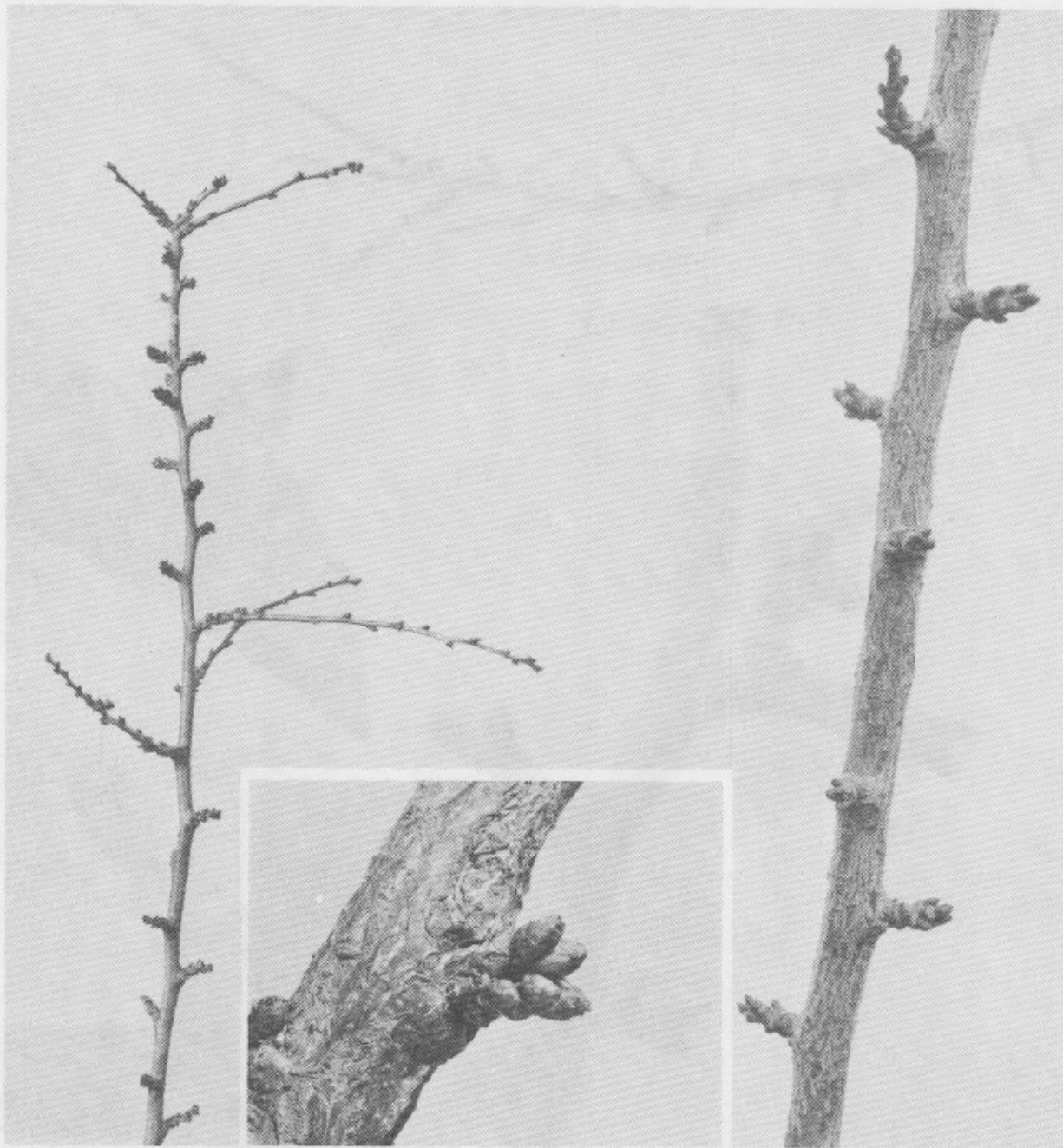


Figure 35. Almond, apricot, prune, plum and sweet cherry trees bear fruit laterally on spurs. The center bud is vegetative and continues the elongation of the spur as it grows. Note the concentration of numerous flower (fruit) buds on a single spur.

grows less than four inches per year. Flower buds are produced laterally on spurs and these give rise to fruit the following season. In contrast, apples, pears and mature walnuts and pecans produce most of their fruit terminally on spurs (Figure 36).

Peaches, nectarines and some figs are fruitful on 1-year-old shoots that are 6 to 24 inches long (Figure 37). Other fruits like persimmon, pomegranate, quince and figs bear fruit on current season's growth.

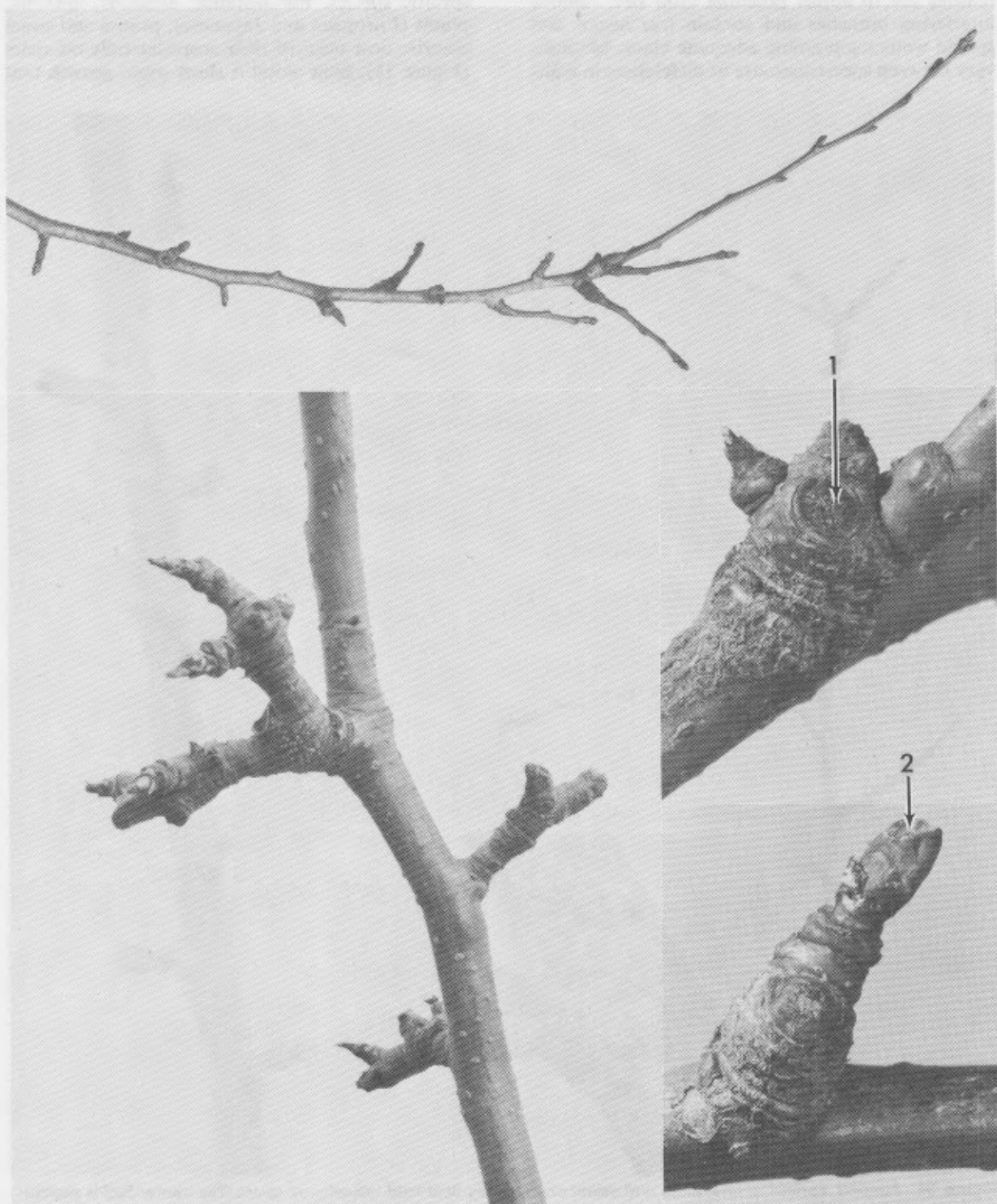


Figure 36. Apple and pear trees produce fruit terminally on spurs. Note inserts that show (1) a fruit scar (where fruit was produced last year) on a spur and (2) a bud that will flower in the coming season.

At times, large limbs have to be removed from fruit trees. Such cuts should be avoided, if possible, because of the danger of large cuts becoming infected with wood rots, especially on apple trees. When they must be made, however, the limb

should be removed completely with a flush cut at the point where it originates. To avoid splitting the bark below the limb, first undercut the limb about one-third the way through and then finish the saw cut from above.

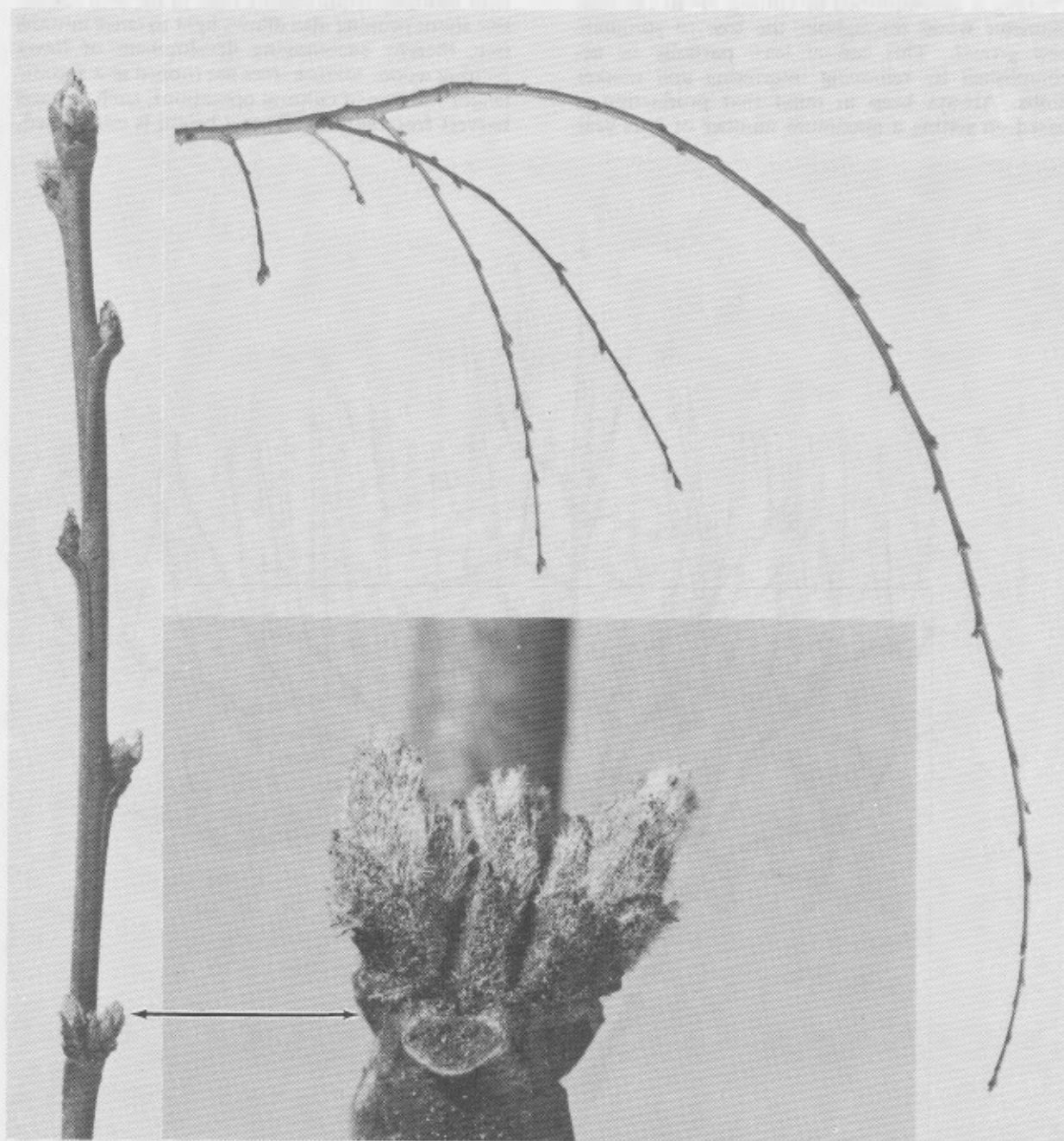


Figure 37. Peach and nectarine trees bear fruit on 1-year-old shoots. Note presence of three buds at a node (insert). The narrow middle bud is a vegetative (leaf) bud while the plumper side buds are flower (fruit) buds.

Fruit Produced Laterally on Spur Wood

Almond trees are grown to produce as many nuts (fruits) as possible. Since nut size is not important, there is no need for crop adjustment at pruning time. Almond trees bear most of their fruit laterally on spurs that live about 5 years. Thus, it is important to do sufficient pruning to stimulate enough new shoot growth to renew about one-fifth of the fruiting wood each year. Water sprouts can be used as renewal wood if they are located where needed. Pruning is accomplished by cutting $\frac{1}{2}$ - to $1\frac{1}{2}$ -inch diameter wood throughout the tree to stimulate new growth. This can at least partially be accomplished by removing interfering and weaker limbs. Always keep in mind that production is based on setting a maximum number of nuts year

after year. It is therefore important to continuously renew fruit wood each year rather than to prune severely every fourth or fifth year. Almond trees are not topped to contain tree height.

Apricot trees produce relatively short-lived spurs that usually die within 3 years. For this reason it is very important to remove lateral branches throughout the tree to cause initiation of renewal spurs. Removing some spurs and shoots reduces flower buds and potential fruit set; this, in turn, lessens fruit thinning requirements later in the year. Selective shoot pruning also allows light to enter into the tree, thereby encouraging development of lower fruiting wood. Mature trees are topped at a specific height for ease of cultural operations, such as hand harvest from ladders. Once a height is established,

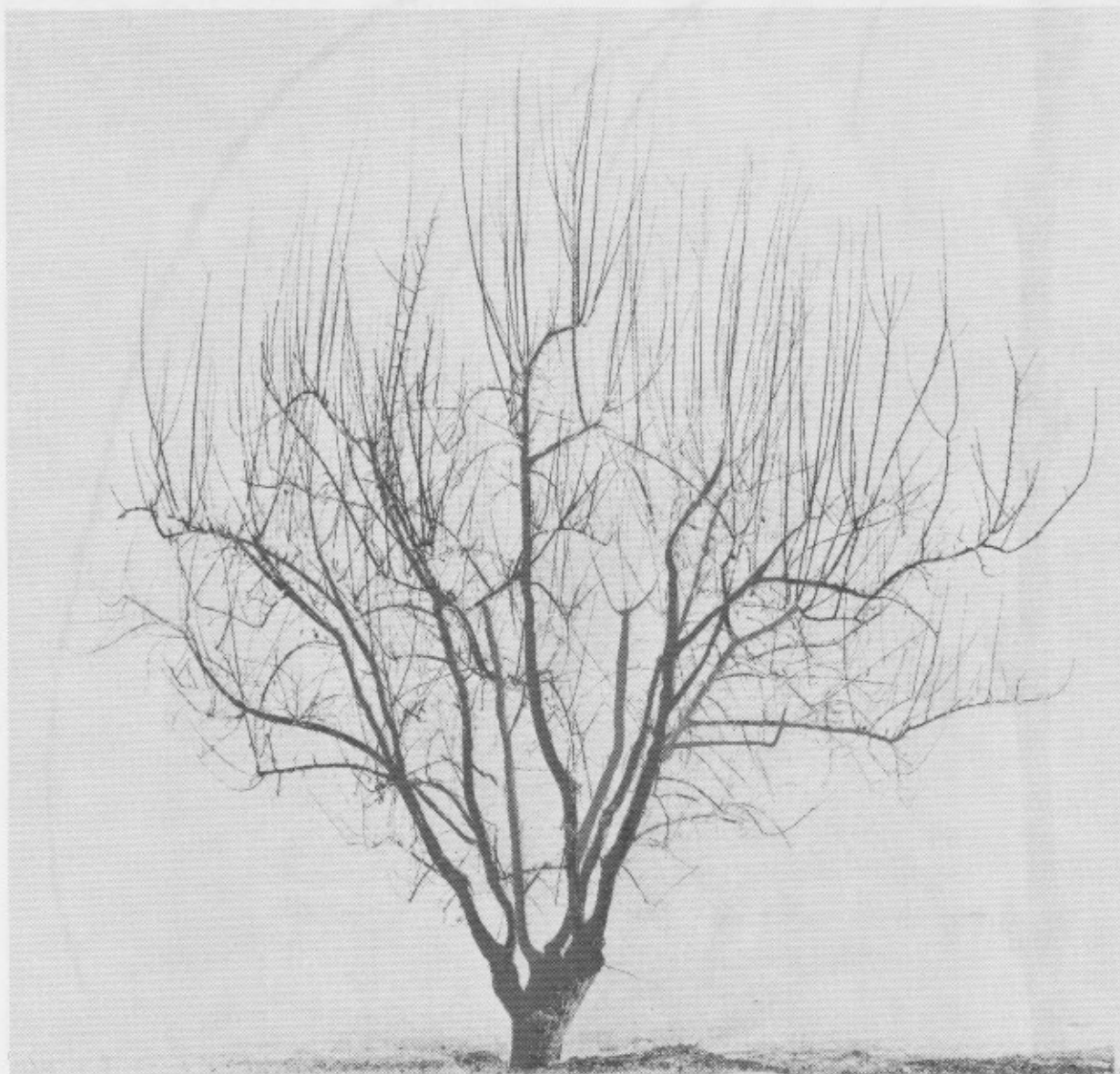


Figure 38. Pruning in mature Japanese plum trees consists mainly of removing the 1-year-old shoot growth. Some

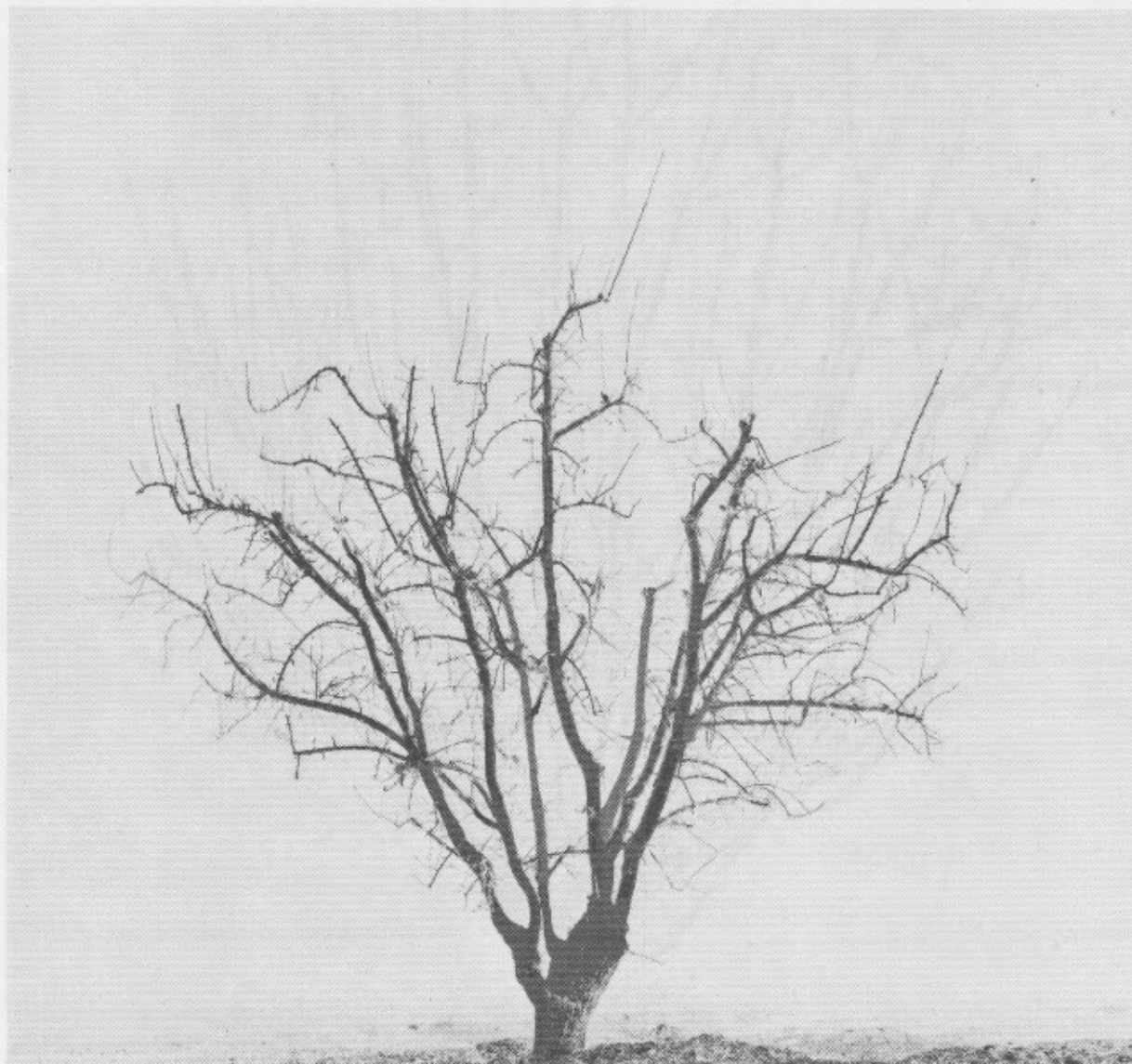
all lateral upright shoots arising at that point are cut back each year as closely to their point of origin as possible.

European plums have fairly long-lived spurs. Pruning involves only moderate thinning of lateral fruiting wood and results in a brushier appearance than Japanese plums or apricots. European plums tend toward alternate bearing, and growers often prune lightly following a heavy crop and more heavily following a light crop. Some upright growing varieties, like President, are topped each year while less vigorous varieties, like Standard, are not.

Prunes are European plums that are produced mainly for drying. The French variety is the most important and it should be pruned regularly by thinning out a few fairly large lateral branches to encourage upward and outward growth and to re-

place older fruiting wood. Broken or interfering limbs, frequently a problem, should be removed.

Japanese plum varieties vary widely in crop set. Some varieties set very heavy crops and require extensive pruning of spur wood each year to reduce cropping. Horizontal lateral branches are often headed back after extensive spur growth has developed. Other less fruitful varieties do not require as much fruit wood removal, but thorough pruning throughout the tree is still necessary. Replacement spur fruit wood is obtained by leaving unheaded 12- to 18-inch shoots that develop spurs in their second and third years (Figure 38). Later these can be reduced in length as described previously. Tree topping is always practiced at a constant height by cutting back upright shoots without leaving stubs.



1-year-old wood is left to develop spurs, while some of the old, weak spur wood is removed.

Sweet cherry has very long-lived spurs that remain fruitful up to 10 years. Annual (but minimal) pruning is required to provide some renewal of fruit wood. It is frequently necessary to remove interfering vigorous, upright shoots (Figure 39). Cherry

trees grow very upright, and it is important to leave spreading, lateral branches wherever possible. The topping height of cherry trees may be somewhat higher than some other trees because of the growth habit and height of the fruiting area.

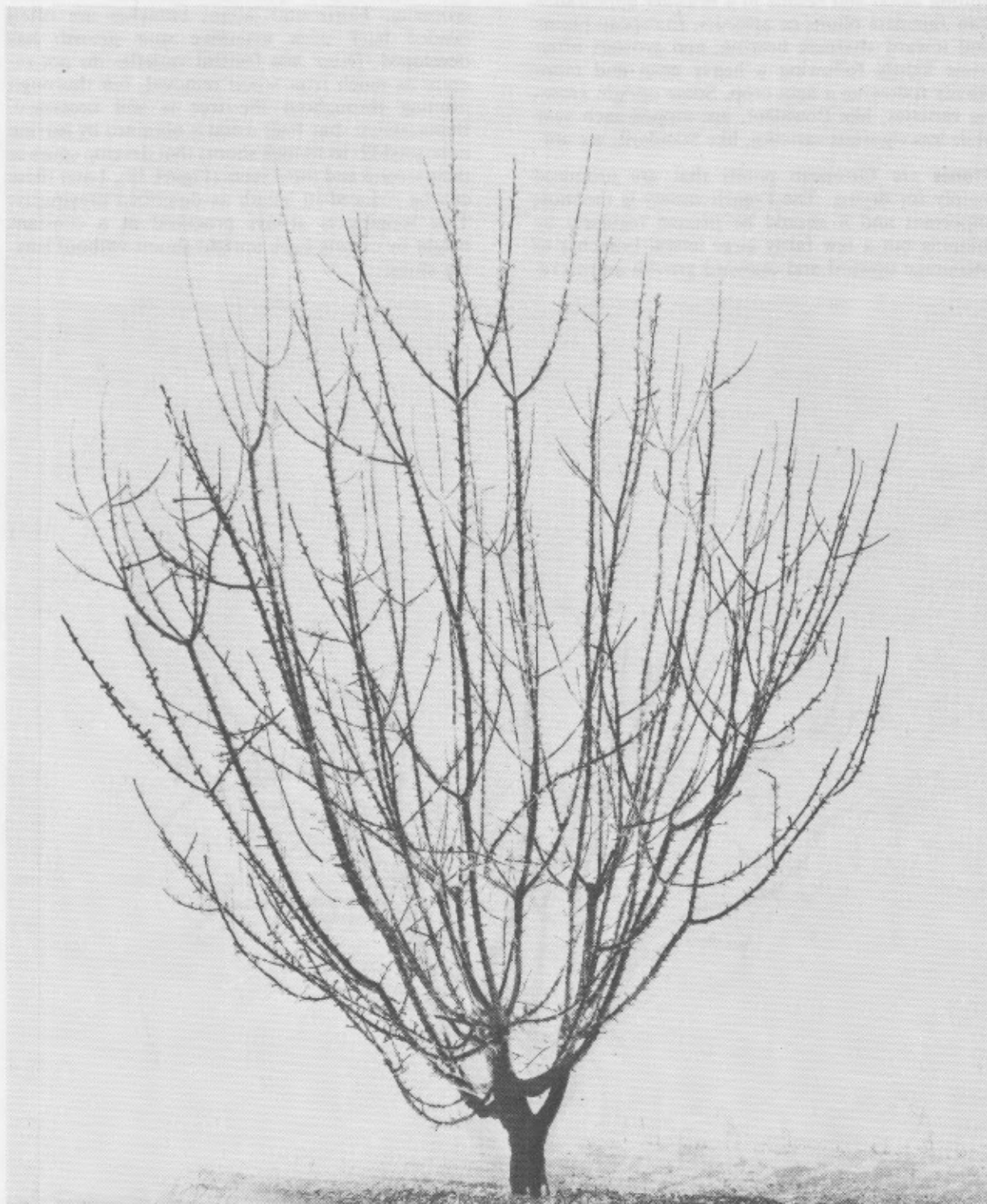


Figure 39. This mature sweet cherry tree was pruned by removing a few interfering

Fruit Produced Terminally on Spurs

Apple trees produce most of their fruit terminally on spurs located on wood 2 years old and older. Spurs are productive for 5 to 8 years. Branches, especially weak and unproductive ones, should be thinned out to allow sunlight throughout the trees for spur development, regular bearing and devel-

opment of fruit color on red fruited varieties (Figure 40). Since some apples tend to alternate bear, older spurs should be rejuvenated by cutting back, especially following light crop years. Thus, apple trees are pruned to maintain tree vigor, regulate crop and reduce alternate bearing tendencies. Tree height is contained by cutting back upper branches to shorter laterals.



Figure 40. Two examples of mature apple trees after pruning are shown above. Note the upright main scaffolds with

...the ... of the ...
... the ... of the ...
... the ... of the ...
... the ... of the ...
... the ... of the ...

... the ... of the ...
... the ... of the ...
... the ... of the ...
... the ... of the ...
... the ... of the ...



horizontal fruiting branches spreading from them. Fruit wood or spur growth is spaced along these branches.

Pruning mature **pear** trees consists of removing weak wood and upright shoots while thinning branches throughout the tree (Figure 41). Upper branches should be cut back to laterals but lower branches may be weakened if cut. In addition to thinning of shoots and branches, the spurs should be thinned out and older ones renewed by removing older parts of some branched spurs in years when

fruit spurs are numerous. In years of low fruit spur production (following heavy crops) leave terminal spurs on short shoots and lateral spurs on longer branches. Pear trees are topped annually to maintain a constant height by cutting back to laterals.

Most **walnut** and **pecan** trees bear terminally on spurs, especially older walnut varieties like Fran-

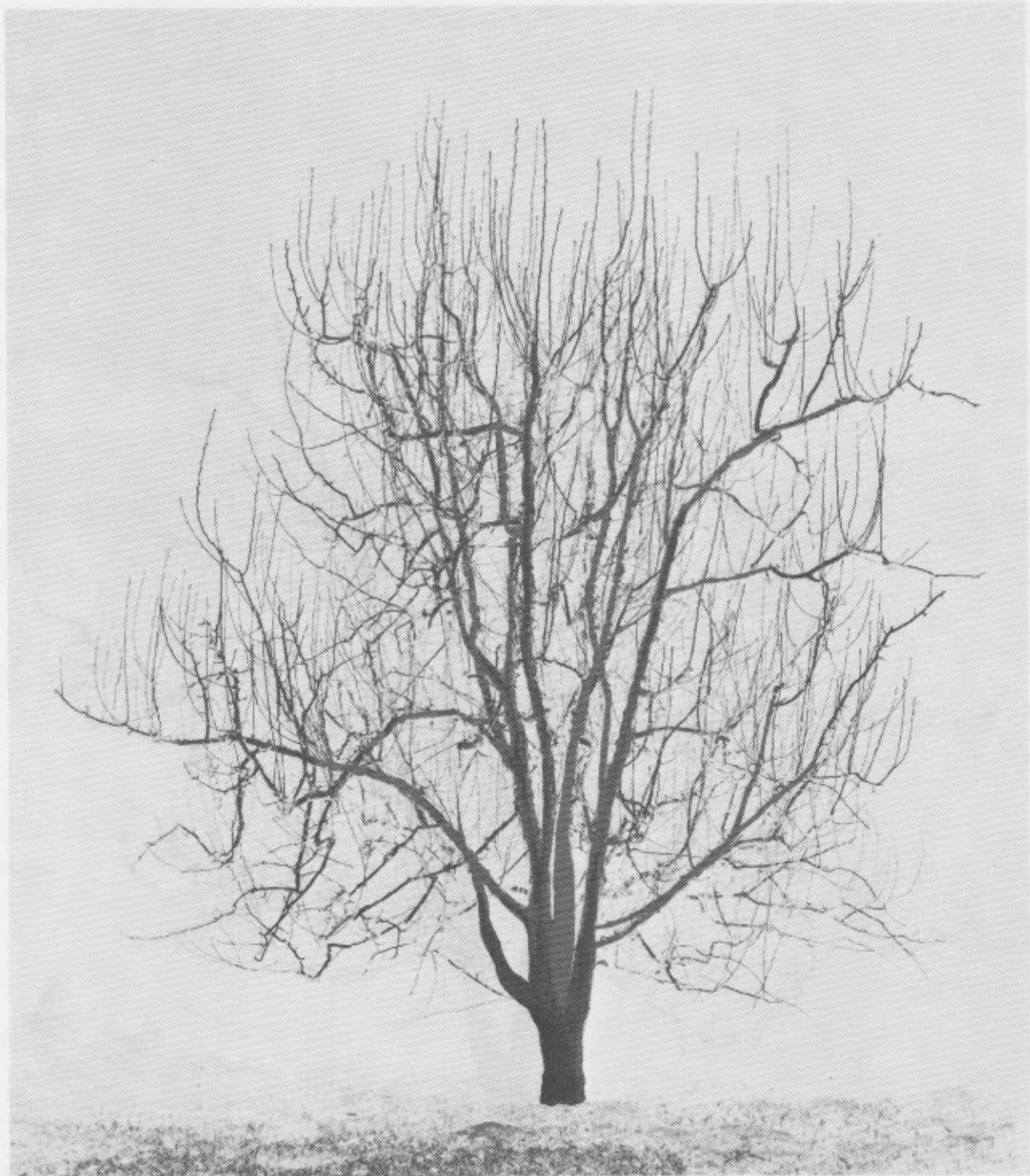
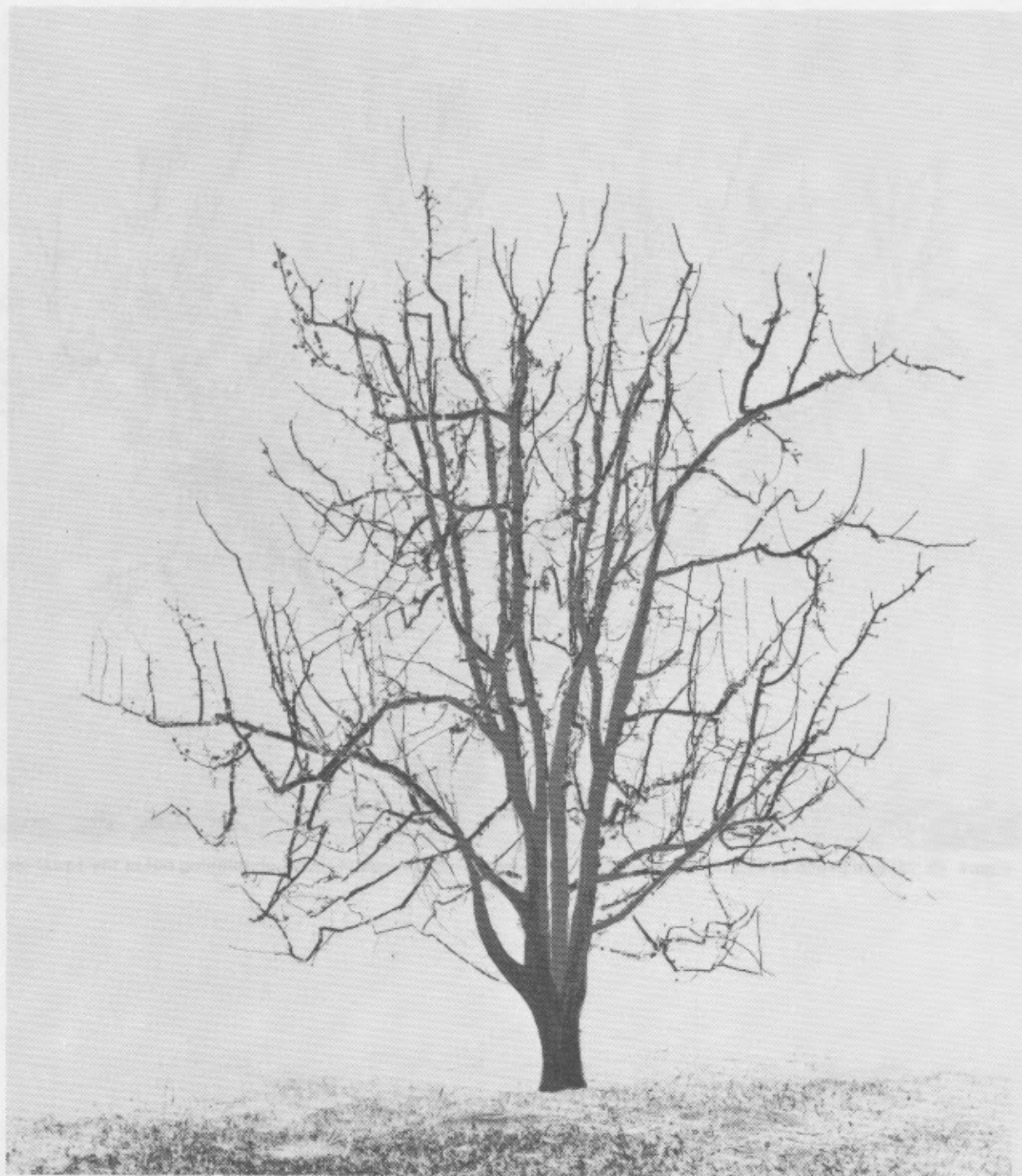


Figure 41. Because pears bear on long-lived spurs, this mature pear tree was pruned by removing much of the 1-year-old

quette and Hartley and mature trees of more recently developed varieties. However, with these newer varieties, young trees produce vigorous shoot growth and nuts are born from lateral buds on these long shoots. These trees are usually very fruitful as young trees and it is important to maintain vigor and keep these trees growing in an upward and outward direction. This can be accomplished

by heading back shoots to remove 25 to 50 percent of the previous season's growth, depending on variety. Older varieties need not be headed back unless limbs are too flat or growing in the wrong direction. Fruiting branches up to about 1½ inches in diameter should be thinned out annually to invigorate new growth and promote greater light penetration into the tree.



shoot growth. Note that tree height is maintained to facilitate hand harvest from ladders.

Fruits Produced Laterally on Shoots

Peaches and **nectarines** have identical fruiting habits. Varieties produced for fresh shipment are very responsive to proper pruning. Detailed pruning of processing varieties is less critical but still a very important cultural practice. Flower buds and fruit are produced along shoot growth. Shoots

must be thinned and spaced to reduce crop and stimulate shoot growth (fruit wood) for the succeeding crop. Lower shoots are easily shaded out, if light does not reach them. Thus, pruning must allow for sunlight to reach lower fruiting areas without sunburning exposed sections of major scaffold limbs.

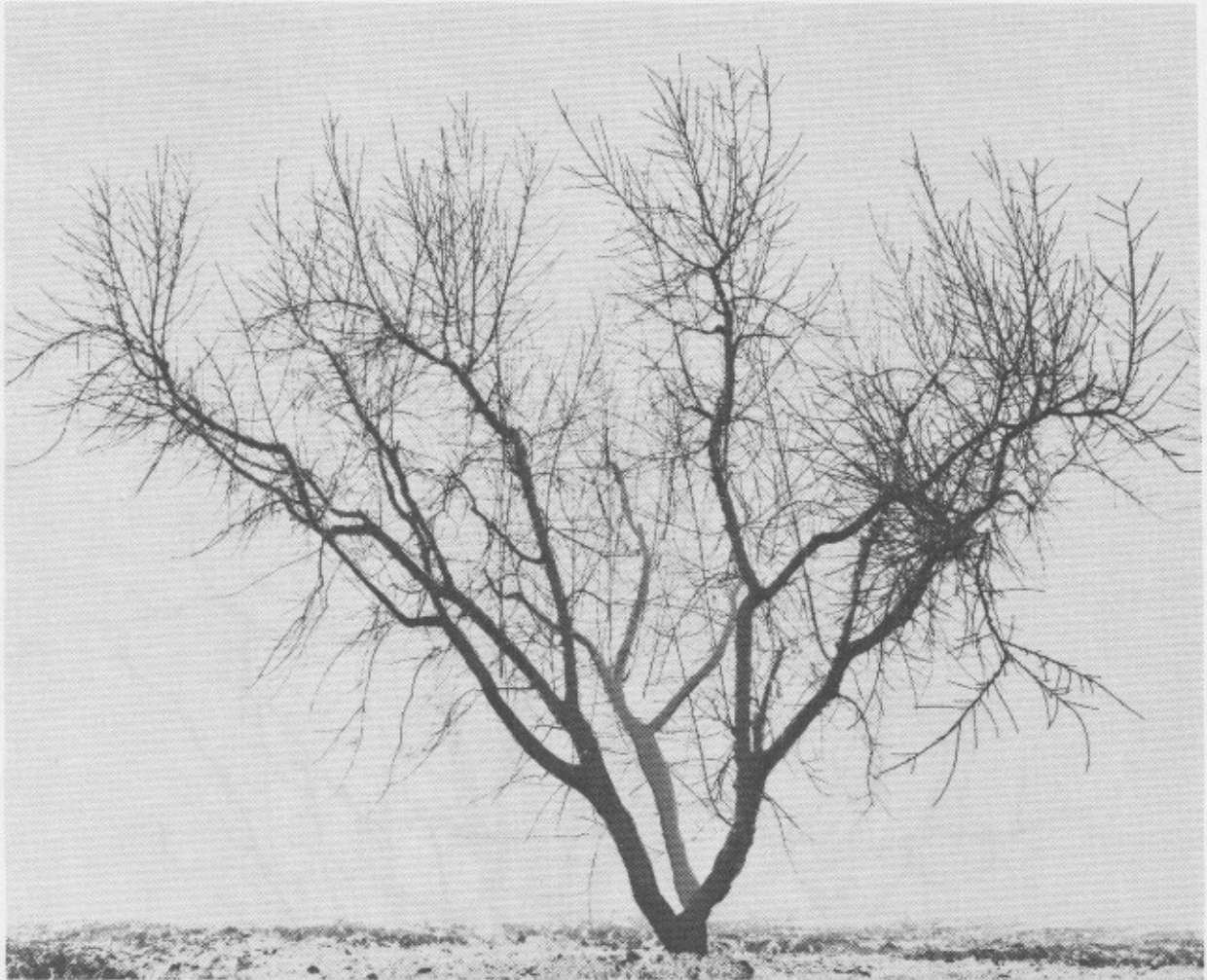
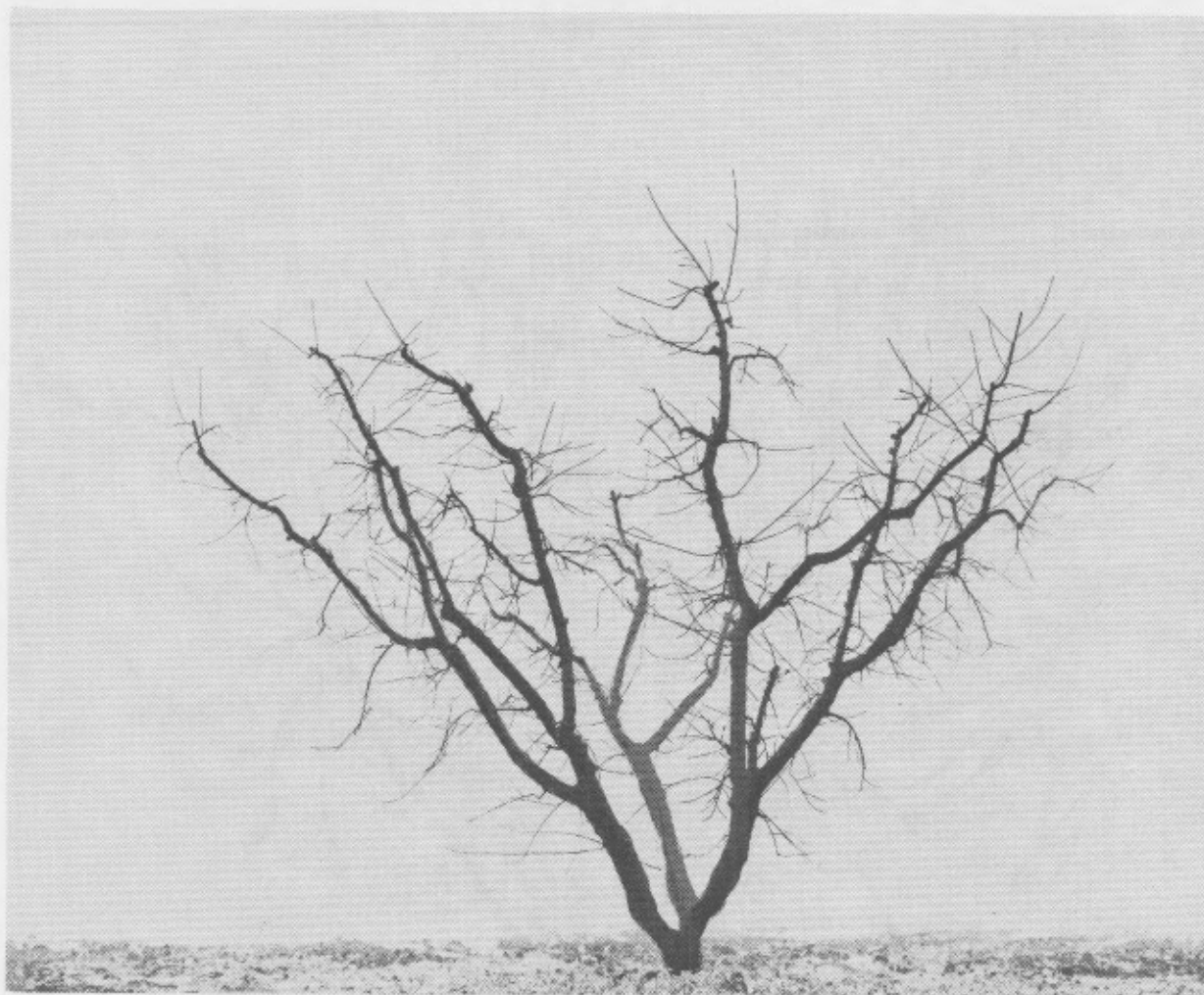


Figure 42. Mature peach and nectarine trees (fresh shipment varieties) require thorough thinning out of the 1-year-old

Some fruiting wood should be thinned out by cutting back to lateral branches, while other shoots are completely removed to provide well spaced and evenly distributed fruiting wood along scaffold limbs. Upright, vigorous shoots are also completely removed (Figure 42). Clingstone peaches are often

allowed to develop more shoots and branches, called hangers, than are freestone peaches (Figure 43). This less severe pruning results in shorter shoot growth the following year. All peaches and nectarines are topped every year to maintain tree height.



(bearing) wood. More fruit wood is removed from early maturing varieties than from those maturing later in the season.

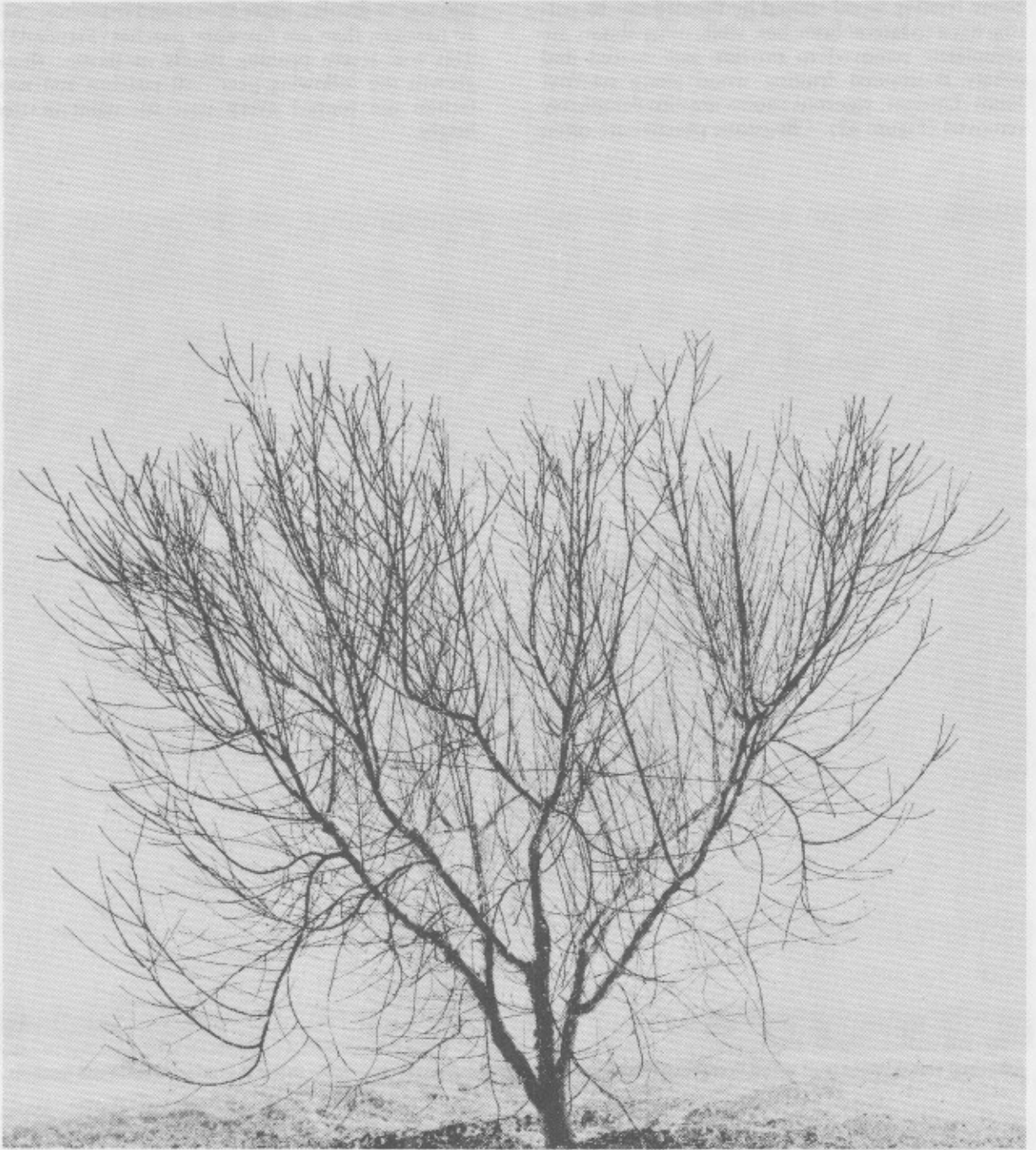


Figure 43. Clingstone peaches ripen later in the season and will therefore size more fruit than many freestone varieties.



More 1-year-old wood is left in the clingstone tree top and more hanger limbs are allowed to develop.

Pistachio trees bear their crops laterally on 1-year-old wood. Some pruning is required to produce adequate shoot growth for next year's crop, but the type and severity of pruning is still being investigated.

Persimmon trees bear on the current season's shoot growth. Pruning consists mainly of thinning shoots

to promote growth for next season's crop. Heavy pruning and leaving stubs results in excessive shoot growth which is less fruitful. Upright shoots or water sprouts should be cut off completely from main scaffolds. Most persimmons are topped each year, but some are allowed to spread into an umbrella shape.

Fig trees bear mainly on current season's growth, but a few varieties, like Black Mission, produce a first crop on 1-year-old wood. Pruning figs for dried fig production consists of thinning out interfering limbs and some heading back of long branches to maintain growth in an upward and outward direction (Figure 44). Long branches that bend down with the crop tend to sunburn. If shoots are headed back on varieties like Black Mission, the first crop is lost or severely reduced.

Figs raised for canning, such as Kadota, are severely headed back with each shoot that grew the previous season having as little as one or two buds left. This stimulates long shoot growth and each shoot produces 10 to 15 figs.

Quince fruits are produced on current season's shoots arising from 1-year-old wood. Even though quince trees bear without much care, it is desirable to stimulate 1 to 2 feet of new growth each year.

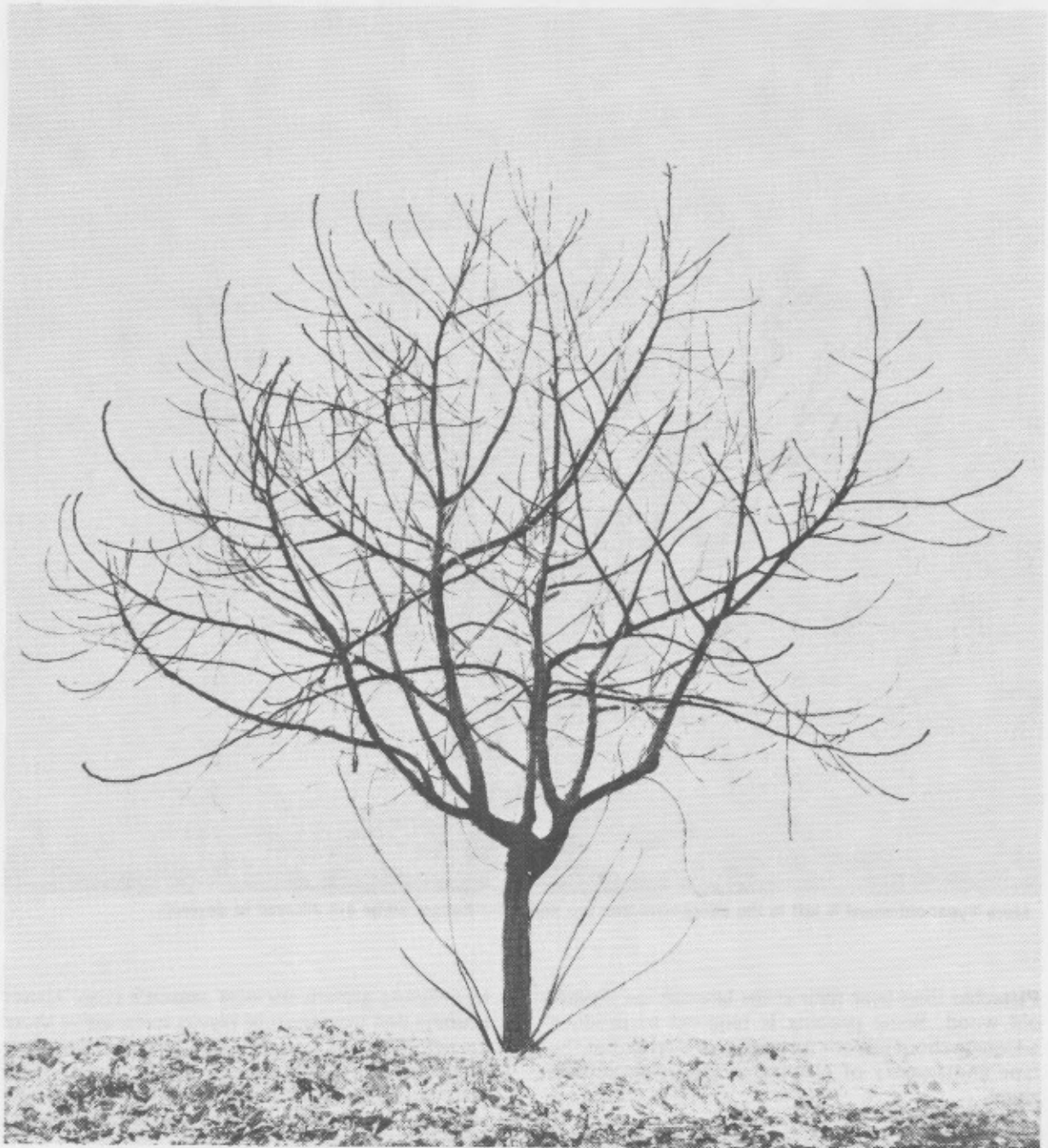


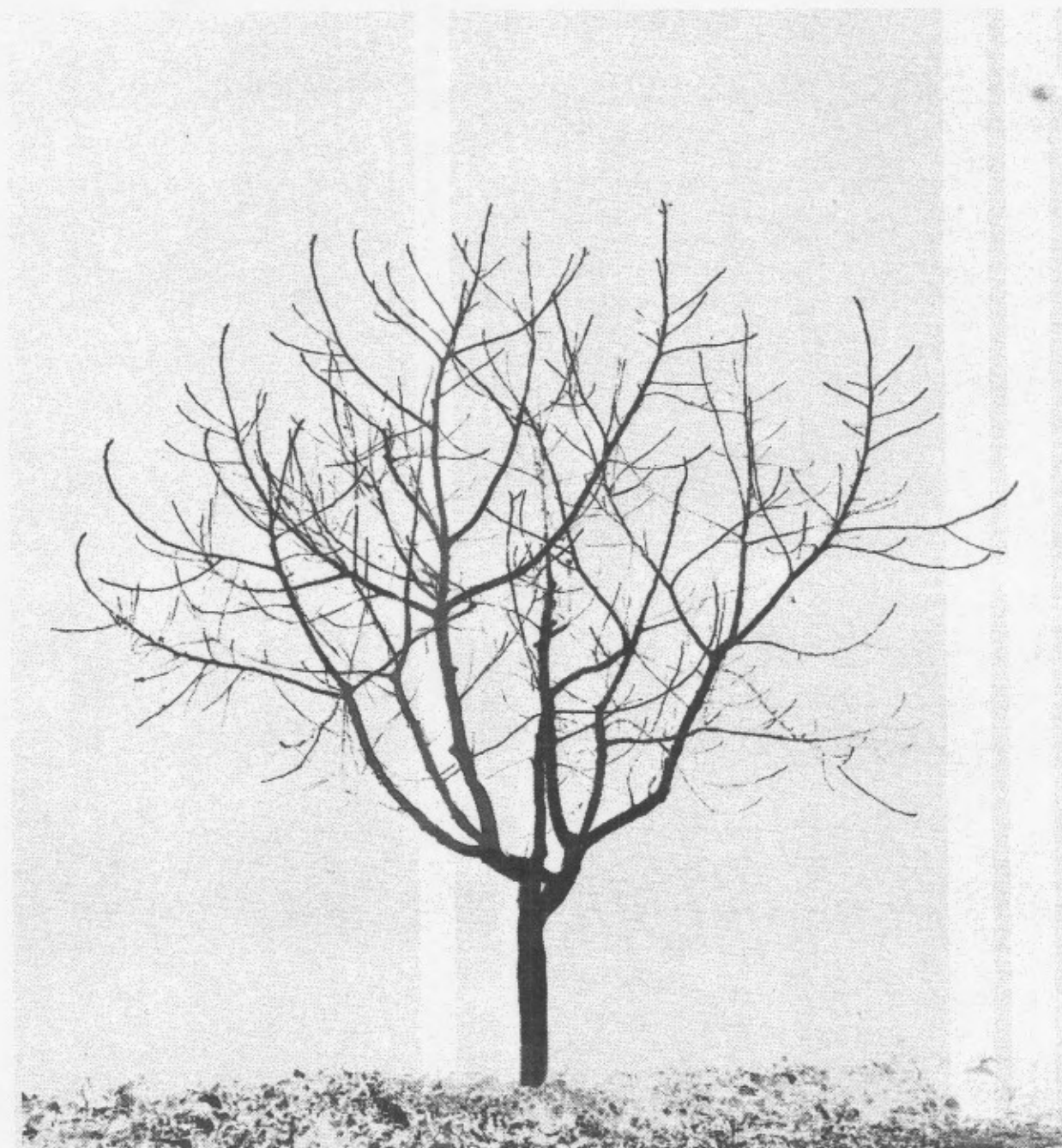
Figure 44. The mature fig tree is pruned mainly by a

This is accomplished by thinning out and heading back last season's shoot growth.

Pomegranates should be pruned by removing suckers, interfering branches and branches bent down by the previous season's crop.

Olive trees are evergreen and do not drop their leaves in winter. Olives usually bear fruit laterally

on the previous year's shoot growth, so pruning is done to encourage new fruit wood for next year's crop and to remove unfruitful wood. Pruning is often done in years of potential heavy crops after fruit set in the spring or early summer to reduce alternate bearing tendencies. Summer pruning also helps avoid disease problems. While thinning fruiting branches to encourage natural spreading and maintain light penetration into the tree is necessary, severe pruning should be avoided.



light thinning out of interfering branches and removal of suckers.