THE PEAR IN NEW YORK

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BULLETIN No. 495

THE PEAR IN NEW YORK

H. B. TUKEY

INTRODUCTION

The material presented in this bulletin is based partly upon the researches carried on at this Station in the preparation of the monograph on the *Pears of New York*, and partly upon more general studies of pear growing in this State. Since the *Pears of New York* must of necessity be limited to a very restricted circulation, it was felt that a bulletin of this sort would serve a useful purpose in informing fruit growers of approved practices in the growing of pears, and imparting some information regarding the more desirable standard varieties of pears.

THE DEVELOPMENT OF THE PEAR

One of the outstanding characteristics of the pear is its exacting requirements as to soil and climate. Until it found a congenial home in the cool, moist climate and clayey and chalky soils of Belgium, its improvement had been slow and desultory. Here, in an environment conducive to the production of pears of the highest quality, and under the painstaking care of the Belgians, the modern *pear* had its beginning. In 1805 French literature recorded but 120 varieties; by 1867 the number had leaped to 900.

Nicholas Hardenpont (1705-1774) a priest of Mons, Belgium, is credited with beginning the era of pear breeding. His success stirred his neighbors until in the forepart of the eighteenth century the origination of new pears became the chief aim of the horticultural world. Thousands of new sorts were produced by these enthusiasts led by the Belgian pharmacist, physicist, and physician, Jean Baptiste Van Mons (1765-1842), who at the height of his career had eighty thousand seedlings in his “Nursery of Fidelity” at Louvain. With the name of Van Mons stand those of Espéran, Bivort, Grégoire, Bouvier, De Jonghe, and De Nelis.

This period of pear development in Europe was reflected in America. Previous to 1825 most of the pears grown were of indifferent quality—
seedlings sprung from the seeds brought by colonists from their European homes. Some of these trees planted by the French and English explorers and settlers of over two centuries ago are still in existence, marvels of size and vigor. But it was not until the importation of European varieties that the pear became of much interest in America. Coxe in New Jersey, the pioneer importer, was followed by William Kenrick of Newton, Massachusetts, and Robert Manning of Salem, Massachusetts. To the thoro and careful work of the latter, especially, who imported most of the new sorts developed by his zealous European contemporaries, American horticulture owes much. Robert Manning, Jr., followed the example of his illustrious father, while A. J. and Charles Downing, Marshall P. Wilder, and Patrick Barry are others recorded as leaders in pear culture in America.

Still another step in pear development was the advent of the Oriental, Chinese, or Sand pear some time before 1840. Now began the hybridization of this species with the common pear, resulting in the Le Conte in 1846, the Kieffer in 1873, and the Garber about 1880. Dozens of hybrids have since been produced—boons to middle-western and southern pear growing sections.

THE MORE IMPORTANT SPECIES OF Pears

The species of the pear may be divided into occidental and oriental pears, one coming from Europe and northwestern Asia, the other from eastern and northeastern Asia.

Of the occidental group there are several species of which only one, or possibly two, may be considered of importance: Pyrus communis, the common pear; and Pyrus nivalis, the snow pear. The latter can be dismissed with a word: It is a native of eastern Europe and Asia Minor, having small roundish fruit which is used extensively for perry making. The former is the species to which belong the thousands of varieties cultivated in the temperate regions of Europe and America, the pear of history, of the Greeks and the Romans. Its native home is in a region free from temperature extremes; and pure varieties of the species do best in cool, moist, and rather heavy soils.

The oriental pears supply several species of growing importance, chief among which is the Sand pear, Pyrus serotina culta, with its cultivated varieties, Sha Lea, Gold Dust, and Daimyo. It is readily distinguished from the common pear by its broad ovate leaves, long-pointed and, sharply toothed; by flowers that appear before the
leaves; and by fruits with deciduous calyces, often apple-shaped, russeted, and long-stemmed. To this species, crossed with the common pear, we owe the group of hybrids characterized by Kieffer, Le Conte, and Garber, valuable because of their ability to withstand heat and drouth.

ADAPTATION AND DISTRIBUTION

No pear is native to this country. In its European home the pear is possibly the most popular tree fruit, while in this country it is of major importance in but few sections and is cultivated not much more than the cherry and plum. This difference is due to a number of factors, chief among which is the fact that the climate of Europe, in which the pear reaches its greatest state of perfection, is more equable than ours. Shortage or excess of moisture, extreme heat, extreme cold are all detrimental to the pear. The regions in North America where commercial pear growing has reached importance are those tempered by adjacent bodies of water and favored by uniform moisture supply. With the advent of hybrid pears, pear growing has been greatly extended, but pears of the European stock are still grown only in favored localities.

This limited distribution of pear growing is illustrated by a comparison of the important regions in New York. In total number of trees, Niagara County leads all counties, not only in the State but in the entire United States as well, with a total of 620,743 trees. Next in order are Monroe County with 384,374; Orleans with 377,371; Columbia with 308,298; Wayne with 305,239; and Ulster with 304,158. Sixty percent of all the pear trees of the State are in these 6 of the 62 counties.

For years New York has been the leading pear-producing State in the Union. Within the past decade California has overtaken her, and the present indications are that she will be further outdistanced. In number of bearing trees New York is still in the lead, but a glance at the 14th United States Census indicates that even this supremacy will be short lived.

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<thead>
<tr>
<th></th>
<th>New York</th>
<th>California</th>
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<tbody>
<tr>
<td>Trees of bearing age</td>
<td>2,788,761</td>
<td>2,305,646</td>
</tr>
<tr>
<td>Trees not of bearing age</td>
<td>967,573</td>
<td>2,178,526</td>
</tr>
<tr>
<td>Total</td>
<td>3,756,334</td>
<td>4,484,172</td>
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</table>
CULTURE

LOCATING THE ORCHARD

Pear growing is not only confined to certain favored localities; but leaving out economic factors, such as proximity to markets, labor supply, and the like, certain sections of these localities are more suitable than others. Since it is naturally a deep-rooted tree, the pear requires a deeper soil than its relative, the apple. Unless it is in congenial surroundings, the tree does not do well, and the fruit is astringent, sour, gritty, or otherwise inferior. One of the reasons why Bartlett, Seckel, and Clapp Favorite are more popular than other varieties is that they do well under a greater number of conditions. For most varieties of pears the problem is to find the environment in which they are happiest. It is true that pears generally grow best on a heavy soil, but they may do well on other soils provided other conditions are right. Heavy soils are more retentive of moisture than light ones and since the pear is exceedingly insistent upon an equitable moisture supply, it can be seen why clay soils are more often better for this fruit. Hybrid pears, which withstand heat and drouth much better than varieties of the pure European species, often grow well on sandy or gravelly soils. Wet soils are to be shunned for all pears.

Soil for the pear must be fertile but not too rich. Rich land tends to produce green, vigorous growths which are susceptible to pear blight; yet because of the slow growth and weak stand that most pears make, the soil must not be so low in fertility that the trees will not produce good crops.

SECURING THE TREES

With no other fruit is good stock more necessary than with the pear. Trees in the nursery are very susceptible to blackheart, a form of winter injury. Trees with this trouble should be discarded as they never make good orchard plants. Stock with crown gall, or hail or insect injury, or dry or shrivelled stock is not desirable, nor are trees with large, soft, green tops. Well-ripened, two-year-old trees of short, stocky growth are to be preferred.

The pear is usually propagated on seedlings imported from Europe, tho it may be grafted on the quince as a dwarfing stock. But the planting of dwarf trees in commercial orchards has been discontinued in New York, because the trees are difficult to grow in the nursery
and demand too close attention in the orchard, and because they often strike root above the stock and become standards. For the amateur, they are worthy consideration, especially since some varieties do better on the quince than on pear roots. Varieties that make good dwarfs are Beurré d'Anjou, Duchesse d'Angoulême, Howell, Lawrence, Louise Bonne de Jersey, Elizabeth, and White Doyenné. Other varieties, like Bartlett and Seckel, grow much better on pear stocks, while still a third class, including Beurré Bosc, Sheldon, and Winter Nelis, usually fail on quince unless double-worked. In double-working, a variety that will take is grafted on the quince, and the resulting tree is later top-worked.

No stock in use at the present time is satisfactory. It was hoped that the vigorous hybrid pears would furnish a good stock but the results have been disappointing. Lately attention has been given to some of the oriental species as vigorous blight-resistant stocks, but none as yet have proved to be worth using in New York.

PLANTING THE TREES

In New York, spring planting is always better than fall planting. The distance apart to plant varies with the variety and the methods of cultivation and pruning. Ordinarily, pears are set 18 x 18 feet, or 20 x 20 feet; altho in the case of such strong-growing varieties as Kieffer, Beurré d'Anjou, and Flemish Beauty, they may well be set at a distance of 22 or even 25 feet. Broken roots should be trimmed before the tree is set, otherwise the less the root system is interfered with the better. The ground should be well prepared and the tree set slightly deeper than it stood in the nursery. One of the most common sources of failure is in not getting the soil packed firmly about the roots. It is not enough to firm the soil about the sides and tops of the roots; it must be packed under the roots as well. Too often an air pocket is left immediately beneath the crown, a constant menace to the life of the tree. With the soil firmly in place, a mulch of loose dirt on top completes planting.

PRUNING AND TRAINING THE YOUNG TREE

Since the root system has been greatly reduced, it cannot be expected to furnish the unreduced top with all the food materials that it needs. Consequently the top should be reduced in turn. For the most part this matter takes care of itself in the pruning necessary to proper heading and training. Pear trees are headed lower than apple
trees, as they are especially subject to sunscald and are generally up-
right in habit of growth. Twenty-four to thirty inches is a safe
height at which to start the scaffold branches, all shoots below this
being removed. With the more spreading Beurré d’Anjou, the head
ought not to be so low as for the upright Bartlett or Clapp Favorite.

Once the three, four, or five branches are selected for the frame-
work of the tree, as little cutting back should be done as possible.
Too much pruning induces a rank succulent growth susceptible to
fire-blight. Moreover, too great a reduction of leaf area is as bad,
if not worse, than too little. More often it will be found best to leave
the scaffold branches unpruned. The vase-formed pear tree has much
in its favor; for, if blight is severe, less damage is done by its attack
upon one scaffold limb than upon the central leader. But, on the
other hand, the close-centered tree is more easily managed and carries
more fruit, so that in the main it will be found to be the better.

CULTIVATION, FERTILIZATION, AND COVER CROPS

Clean cultivation is the rule in the pear orchard. Pear trees are
none too certain of life, and anything that helps to conserve moisture
and increase the supply of available plant food—yet not over supply
it—should be carefully observed. In most orchards, intercropping
with such cultivated crops as beans, cabbage, and tomatoes is per-
missible for the first four or five years and often desirable, while
grain crops and grass should never be planted. When trees are
making a poor growth, fertilizers—usually some form of nitrogen—
are necessary. The amount of nitrogen added should be small at
first, as it is easier to increase the amount another year than to check
a succulent woody growth. For most orchards, clean cultivation
and cover crops keep up soil fertility sufficiently.

The cover crop seed is sown at a time when there is promise of
plenty of moisture for its germination and is covered the last time
the orchard is cultivated. Buckwheat, oats, rye, wheat, clover,
vetch, all make good cover crops. Cover crops add humus to the
soil, lessen the loss from leaching, and help to ripen up the wood of
the trees and put them in better shape to go into the winter, an im-
portant consideration in pear growing. Early the next spring, or
late the same fall, the crop should be plowed under.

PRUNING

As a rule, young trees are pruned too much, and more often than
not, bearing trees are over-pruned. It must be kept in mind that pruning is for two purposes: (1) To train the tree, and (2) to regulate fruit production. Training the tree is coming to be more and more regarded as the sole object of pruning. It is being recognized that the more the tree is allowed to grow in its natural way the more fruit it will produce. It must be remembered that fruit is borne on the spurs found on two-year-old wood, and in the case of the pear these spurs branch and rebranch and bear fruit over a considerable period of years. Removing them, or lessening the opportunities for their formation, is so much loss. The main object in pruning, then, is to give these spurs the most favorable conditions in which to develop.

With the young tree it is often advisable to shorten the long one-year-old growth so as to hasten the formation of spurs. But more often than not, more harm than good is done by this treatment, for the removal of too much wood induces wood growth at the expense of spur formation. On the other hand, some growers feel that it is better to remove all suckers and shoots arising from the main limbs as a matter of insurance against blight. They say that it is better to cut away some fruit than to run the risk of blight running down a young shoot and infecting the main branches of the tree. The loss of a few young shoots is not to be compared with that of a large limb. So far as the trunk is concerned, there is no question that all young growth should be removed at once, and most shoots that arise from vulnerable parts of mature large limbs should also be taken off. But if the tree is properly trained when young, this danger is obviated.

In short, then, if the attention of the pruner is paid to removing blighted branches and those that interfere and cross, and to shortening those that are much out of proportion, he will find that his pruning problem has been solved for the most part.

In some sections it is the practice to prune Kieffers and other vigorous, upright growers almost as severely as grapes, cutting the one-year growth back to 10 or 12 inches. The resulting tree is small, easily picked, and easily sprayed, but it is a question whether the ease of handling makes up for the loss of fruit.

POLLINATION

The subject of pollination is of especial concern to growers of pears, not because there is more self-sterility in pears than in other fruits, but because the varieties most grown are commonly self-sterile. Bartlett, Beurré d’Anjou, Clapp Favorite, Lawrence, Winter Nelis
are all reported mostly or completely self-sterile, while Seckel and Kieffer are often in the same class. A variety may be self-fertile in one locality and self-sterile or partially so in others. In fact there are solid Bartlett orchards on record apparently self-fertile. That is to say, climate, soil, insects, weather at blossoming time, and general health and vigor of the tree play a large part in self-sterility.

There is evidence that even the self-sterile varieties are benefited by cross polination, so that in setting an orchard two or more varieties should be planted for cross pollination. Some growers prefer to plant a pollinizer, that is a variety that blooms at about the same time as the variety in the orchard, at the center of each group of eight trees so that each tree in the orchard is immediately adjacent to a source of pollen for fertilization.

**HARVESTING AND MARKETING**

The quality of no fruit is more dependent on time of picking than is that of the pear. The early and main crop varieties demand nearly the same careful handling as do the stone fruits, while the proper time to pick is if anything more important. Most varieties of pears, if ripened on the tree, develop soft cores and a mushy texture and may be wholly worthless, even tho apparently sound. They should ordinarily be harvested when, upon lifting the fruit, the stem snaps from the branch. Winter pears can be left on the trees longer than earlier sorts, as winter varieties demand a very long season in which to mature.

For the market, the packages for pears range from the apple barrel for Kieffer to the grape basket for Seckel. Main crop varieties are most often shipped green in bushel baskets or large-sized Climax baskets. Pears usually receive too little attention in grading. If more attention were paid to grading, and if the fruit were carefully packed in boxes and put into cold storage until they had begun to turn, they would command a much higher price. Where the product is disposed of to canners, as much of it is, these items are not of much importance.

**PESTS**

It is impossible in a discussion of this length to treat any but the common diseases and insects attacking the pear. Information of a particular or more detailed nature may be had from the Station.
DISEASES

Of all diseases common to fruit trees, pear blight (*Bacillus amylovorus* (Burr.) Trev.) has been more discussed, with less progress in its control, than any other. It is notorious as the first plant disease to be recognized as caused by bacteria. Because of its infectious and virulent nature, it is extremely difficult to control. It is familiarly known as fire-blight, a name which characterizes its terrible ravages. It is doubtful if there is an orchard of any extent in New York that has not been attacked by this dread disease at one time or another. Altho it attacks blossoms, twigs, leaves, branches, and fruit, it is most common on the new, succulent growths. Here it is recognized by the dried and blackened leaves and the discolored wood. On older wood it forms dark, sunken, cankered areas.

In the spring of the year when nourishment from the new sap reaches these cankered areas they become active, and bacteria ooze thru cracks and broken-down lenticels. Insects attracted by the gummy exudate are drawn to it and become carriers of the disease to blossoms and twigs. Any wound or abrasion may afford the bacteria an entry, but most frequently it enters thru the blossoms.

The remedies suggested are thoror and systematic cutting out of infected twigs and branches immediately blight appears, making the cuts at least 6 inches below the signs of infection; cultural practices that induce hard, mature growth, not easily susceptible to the disease; and disinfection of wounds and pruning tools with bichloride of mercury and carbolic acid. It is claimed that an organized effort will control the disease, but under practical conditions it is most difficult, especially on older trees. All varieties are susceptible but some, like Bartlett and Clapp Favorite, are more so than others, such as Kieffer and Seckel.

Tho similar in appearance to apple scab, pear scab (*Venturia pyrina* Aderh.) is by no means the same disease. The symptoms and methods of control, however, follow closely those for apple scab. It attacks the leaves and fruit as does apple scab, but differs in that it is common on the twigs. The fungus winters over on leaves and twigs and early in the spring discharges spores which are carried by wind, rain, and insects to opening buds. Pear scab is controlled by applications of lime and sulfur, 1 to 50, made (1) a few days before the blossoms open, (2) after the blossoms have fallen, and (3) two weeks later. Plowing under the dead leaves and paying some attention to
infected twigs when pruning will help to control the trouble. Flemish Beauty and Summer Doyenné are especially susceptible, while Kieffer is rather resistant.

Mycosphærella, or ashy leaf-spot (*Mycosphærella sentina* (Fr.) Schröt.), a fungus attacking the leaves, often does considerable damage by causing premature defoliation and consequent checking of growth. Occasionally new growth is started which, failing properly to mature, goes into the winter in a dangerous condition. The spots on the leaves are recognized by their grayish-white centers and distinct, angular margins. In the spring these spots on the old leaves discharge spores which are carried by the wind to infect the new leaves. Spraying with lime and sulfur, 1 to 50, (1) after the blossoms have fallen, (2) two weeks after the first application, and (3) four weeks after the first application, will control the disease.

Leaf-blight (*Fabrea maculata* (Lev.) Atk.) is distinguished from leaf-spot by the more circular outline and reddish color of the spots. It is caused by a fungus which winters over either on infected twigs or fallen leaves and which attacks the leaves, twigs, and fruit. Spraying with lime and sulfur as recommended for pear scab will hold the disease in check.

**INSECTS**

San Jose scale (*Aspidiotus perniciosus* Comstock) is one of the worst insects attacking the pear. It is found on both tree and fruit, in severe cases encrusting the branches and twigs of the former with a gray-ash material and malformed the latter badly. The myriads of minute insects responsible for the damage are found beneath round, shield-like scales. They reproduce rapidly during the summer, and, since summer spraying is unsuccessful in controlling them, they gain a strong foothold by fall. Thoro spraying with lime and sulfur, 1 to 8, either in the winter, or just as the buds are swelling is the recommended means of control.

The codling moth (*Carpocapsa pomonella* Linnaeus) is destructive to the fruit of the pear. Two or three weeks after the trees have bloomed, the larvæ hatch from the small eggs laid by the mother moth. The young worms crawl to the calyx end of the small fruits and enter. Control measures, then, are directed toward a thorö application of lead arsenate at the rate of 2 or 3 pounds to 50 gallons about the time the petals have fallen. Where a second brood develops, usually in late July or August, an application may be necessary in time to cover the fruit before the worms begin to hatch.
In the Hudson River Valley the pear thrip (*Taniothrips pyri* Daniel) causes much damage to blossoms. The insects pass the winter in small earthen cells 3 or 4 inches underground, from which they emerge as adults early in the spring just as the buds are breaking and tear and rasp the tender parts and suck their juices. The eggs which they lay hatch in three or four days, and after feeding for two or three weeks, the larvae fall to the ground to take up their winter quarters. The damage is especially severe upon the pear because the blossoms are in clusters. Control measures consist in spraying with nicotine sulfate, 3/4 pint to 100 gallons to which 3 to 5 pounds of soap have been added, as the first buds are opening, followed by a second application for the nymphs when the blossoms have fallen. It will be recognized at once that one of the best control measures is directed at the cells in the soil. Consequently plowing and cultivating will do much to check the thrips.

The pear psylla (*Psylla piriola* Förster) is one of the most difficultly controlled insects attacking the pear. The adult has been likened to a diminutive cicada in its appearance and to an aphid in its sucking habit. The winged adults hibernate in crevices in the bark or under old leaves and trash, and in the spring come from their places of shelter and lay eggs on the twigs and developing buds. The young nymphs, almost indistinguishable, cluster about the emerging flowers and leaves and suck their juices, exuding a sticky substance called honey dew. This honey dew is an ideal medium for the growth of the sooty-blotch fungus and soon the infected parts have a blackened appearance, often the first intimation the grower has that the insect is present. Control measures are directed against both the adult, the eggs, and the nymphs, as indicated in the accompanying spray schedule.

**Spray Schedule**

In most localities, barring local epidemics of certain diseases and insects, pear troubles may be held in check by regular and systematic cultural and spray practices. Clean cultivation, plowing under of leaves, proper pruning, all make decided contributions to the chances of freedom from pests, and since many troubles are controlled by the same treatment, a combination of sprays outlined in a spraying schedule will help materially. No single schedule will meet the needs of each individual grower, but each should make out a spray program for his own conditions. It is only as a basis from which to work that the following schedule is offered.
Ordinarily a delayed dormant spray of lime and sulfur, 1 to 8, is advisable as general insurance against scale and as added protection against scab. A second spray of lime and sulfur, 1 to 8, should be made for psylla eggs, scale, and scab just as the cluster-buds are separating. A third spray of lime and sulfur, 1 to 50, with nicotine sulfate, \( \frac{3}{4} \) pint to 100 gallons and lead arsenate 2 or 3 pounds to 50 gallons, should be applied, just after the petals fall, for codling moth, psylla nymphs, and scab. In some years a fourth spray of lime and sulfur, 1 to 50, for scab two or three weeks following the third application will be found advisable. For summer applications many growers are adding 30 to 40 pounds of hydrated lime per 100 gallons of diluted spray.

**VARIETIES**

**BARTLETT**

This variety is the one by far most commonly grown in New York. It needs no description. Its popularity lies largely in its adaptability to diverse soils and to its ability to bear early, regularly, and heavily. Its tendency to overbear must be guarded by thinning, otherwise the tree will be dwarfed and the fruit small. The fruit is esteemed both for dessert and canning, and has the added advantage of not shrivelling when picked green. Unfortunately the tree, an upright grower, blights easily and is tender to cold.

**BEURRÉ D'ANJOU**

Tho having a vigorous, spreading tree and one somewhat more hardy and more blight resistant than others, Beurré d' Anjou, or Anjou as it is more commonly known, is not widely planted. The fruit is of good size, regular in shape, fair in color, and good in quality—altogether one of the best late fall and early winter pears. It is owing largely to its unreliable manner of bearing that this variety has not been more extensively planted. This fault is serious, for in many cases the tree not only bears lightly but often fails to bear at all.

**BEURRÉ BOSC**

Beurré Bosc is one of the standards in quality. Its large size, attractive shape, beautiful bronze color, and superb quality mark it one of the finest of pears. It has never been extensively planted, partly because it is a poor grower in the nursery and nurserymen therefore dislike to grow it. More recently some nurseries have at-
tempted to get a more vigorous tree by double-working the variety. It is slow to take hold in the orchard, but once it is started it is a vigorous and free grower. It bears early, regularly, and well, tho it has no tendency to overbear, and the fruit hangs tenaciously. The tree is very subject to blight, a serious handicap. As a home fruit it is one of the best.

BEURRÉ CLAIRGEAU

This variety is characterized by a particularly fine tree. It is large, vigorous, upright, with strong, healthy foliage, ordinarily quite free from blight, and bears large crops early and regularly. But it is not wholly without faults; for unless the fruit is thinned it is apt to overbear, and the fruit does not hang well, especially in dry years. The fruit is of good size and shape, and of pleasing color, but lacks in quality. Nevertheless, it is one of the standard sorts for late fall and winter markets.

BEURRÉ GIFFARD

Beurré Giffard has medium size, clear, attractive color, and good quality to recommend it at a season when pears of this character are at a premium. It is a summer pear, ripening several weeks before Clapp Favorite and could well be grown more extensively than it is. Like most summer pears it softens rather quickly at the core. The tree is a spreading, scraggly grower, vigorous, rather hardy, and does not blight badly. It carries good crops of uniform-sized fruit annually, beginning early in its life.

CLAPP FAVORITE

Clapp Favorite heralds the pear season with its large, shapely, attractive fruits which ripen a week or ten days before Bartlett. It has every mark of a good market fruit and is of very good quality besides. The tree is vigorous, upright, a strong grower and bears abundantly and regularly. Yet it is so subject to blight that it cannot be grown in many localities, while in others it is unprofitable. If blight can be controlled, it is a desirable sort; otherwise, not.

DANA HOVEY

This little pear with its attractive yellow coloring and sweet, delicious flavor, is rated one of the best of all pears. The fruit is small, tho usually larger than that of Seckel. As a winter sort it should be in every home orchard and in more commercial plantings. Were it
not that the tree is only moderately productive and is prone to blight, Dana Hovey would be more extensively grown.

DOYENNÉ BOUSSOCK

If some of the excellent tree characters of this variety could be combined with quality fruit, Doyenné Boussock would be one of the leading sorts. The tree is large, exceptionally vigorous, upright-spreading, a heavy annual bearer, and nearly free from blight. The fruit, too, is healthy, for it is free from most disease and insect troubles. But the pears, altho of good size and appearance, are of only mediocre quality and soon soften at the core. Nevertheless, they are desirable for local markets.

DUCHESSÉ D'ANGOUËLÈME

This variety is more commonly dwarfed by grafting on the quince than any other sort. In fact, it is not infrequent that commercial dwarf orchards of it are found, tho less frequently now than formerly. Either as a standard or a dwarf it bears early, annually and regularly, good crops of large fruit—often enormous. The quality is no more than average yet this pear is not displeasing as a late autumn fruit.

ELIZABETH

Elizabeth, with its neat regular lines, bright yellow color, and lively red cheek, is one of the most attractive of the summer pears. Its very good quality is perhaps marred by a flesh somewhat coarse and a flavor lacking in richness. Moreover, the fruit is small. The trees, besides being vigorous and producing heavy crops annually and early in their lives, are not especially subject to blight. Elizabeth is well worthy of a place in both the home and commercial orchard.

FLEMISH BEAUTY

This variety is perhaps the most easily disfigured by scab in both tree and fruit of all pears. Moreover, the tree, tho large and a vigorous grower, is very susceptible to blight. These qualities have practically eliminated Flemish Beauty from commercial orchards. The fruits are large, symmetrical, and attractively colored; the flesh melting and juicy; the flavor sweet and aromatic with a slight musky flavor; and the quality very good.

KIEPFER

It is doubtful if any pear has been condemned as freely and yet
praised as often as the Kieffer. Those who have decried it have compared it with the finer dessert sorts, while those who have praised it have considered it from a money-making view point. There is no question that it is not the best for dessert; but, on the other hand, it is very good for culinary use and cans well. Moreover, the trees are especially vigorous, bear prolifically, resist blight and scale, and endure heat and drought well. For sections where these factors are most important, Kieffer has a place, but where other sorts can be grown, it has none.

LAWRENCE

Lawrence deserves recognition as a winter pear of good quality for the home orchard. The fruits are below medium in size, clear yellow, shapely, and in season in November and December. The size is much against it as a commercial sort. The tree is only moderately vigorous but is a regular and productive bearer and is reputed to be especially long lived.

LOUISE BONNE DE JERSEY

This variety is one which grows as well or better on the quince than on the pear and is consequently particularly esteemed by the amateur. It is an attractive yellow fruit with a red cheek, of good size, high quality, and the strictly an autumn pear keeps well into the winter. The trees are subject to blight and not overly hardy, but they are good croppers and vigorous growers.

SECKEL

Seckel is the standard in quality in America and justly so. The fruit tho small, is perhaps the most delicious of all pears and with its trim shape and bronze color is a favorite wherever grown. The tree further recommends the variety, for it is blight resistant, shapely, easily trained, vigorous yet not a rampant grower, and bears early, annually, and abundantly. It is third in importance in New York and should be in every orchard whether home or commercial.

SHELDON

Sheldon is another high quality fruit, characterized by its apple-like shape and bronze color. It matures at about the same season as Beurré Bosc, a fact which has had much to do with its apparent disregard. The tree, a vigorous, upright grower, blights somewhat and bears irregularly. Still, because of its excellent quality, Sheldon commands attention for both home and commercial plantings.
TYSON

Were the fruits of Tyson larger and more attractive, they would be one of the leading kinds seen in the market. Moreover, the tree is about as blight proof as a tree can be and is a vigorous, upright grower bearing annually and abundantly. The quality of the fruit is "very good" and the season a little earlier and a little longer than that of Clapp Favorite. It should be in every home orchard.

VERMONT BEAUTY

This is one of the most attractive of pears, with its clear, glossy, brilliant red cheek. The fruit is not of large size nor of highest quality, yet it is good enough. The tree is hardy, vigorous, upright-spreading, and an abundant and regular bearer, but somewhat subject to blight. It is recommended as a variety to follow Seckel.

WILLER EARLY

Wilder Early might be likened to an early Bartlett in size, color, and shape, tho often more highly colored. It matures early, before Clapp Favorite, and ships and keeps well. The tree is large, vigorous, upright, and a heavy cropper. It would seem that this variety merits greater consideration as an early commercial kind.

WINTER NELIS

Size and appearance are against this pear, yet it is perhaps the most esteemed winter variety, and where the market is familiar with it, is profitable commercially. Its season is December to March, and it ranks among the best in quality. The tree is a poor grower in the nursery, but becomes moderately vigorous in the orchard, a good regular bearer, and holds its fruit well. It is characteristically spreading with straggling and crooked branches. No commercial or home orchards should be without Winter Nelis.

WORDEN SECKEL

Why Worden Seckel has not met with more favor is puzzling unless it be that it is not yet well enough known. Tho not quite as delicious as Seckel, the fruit is larger, more attractive, and keeps longer. The tree on the other hand is not quite so good as that of Seckel, being not quite so vigorous and a little more subject to blight. Where the market has been educated to it, it is profitable; otherwise, not.