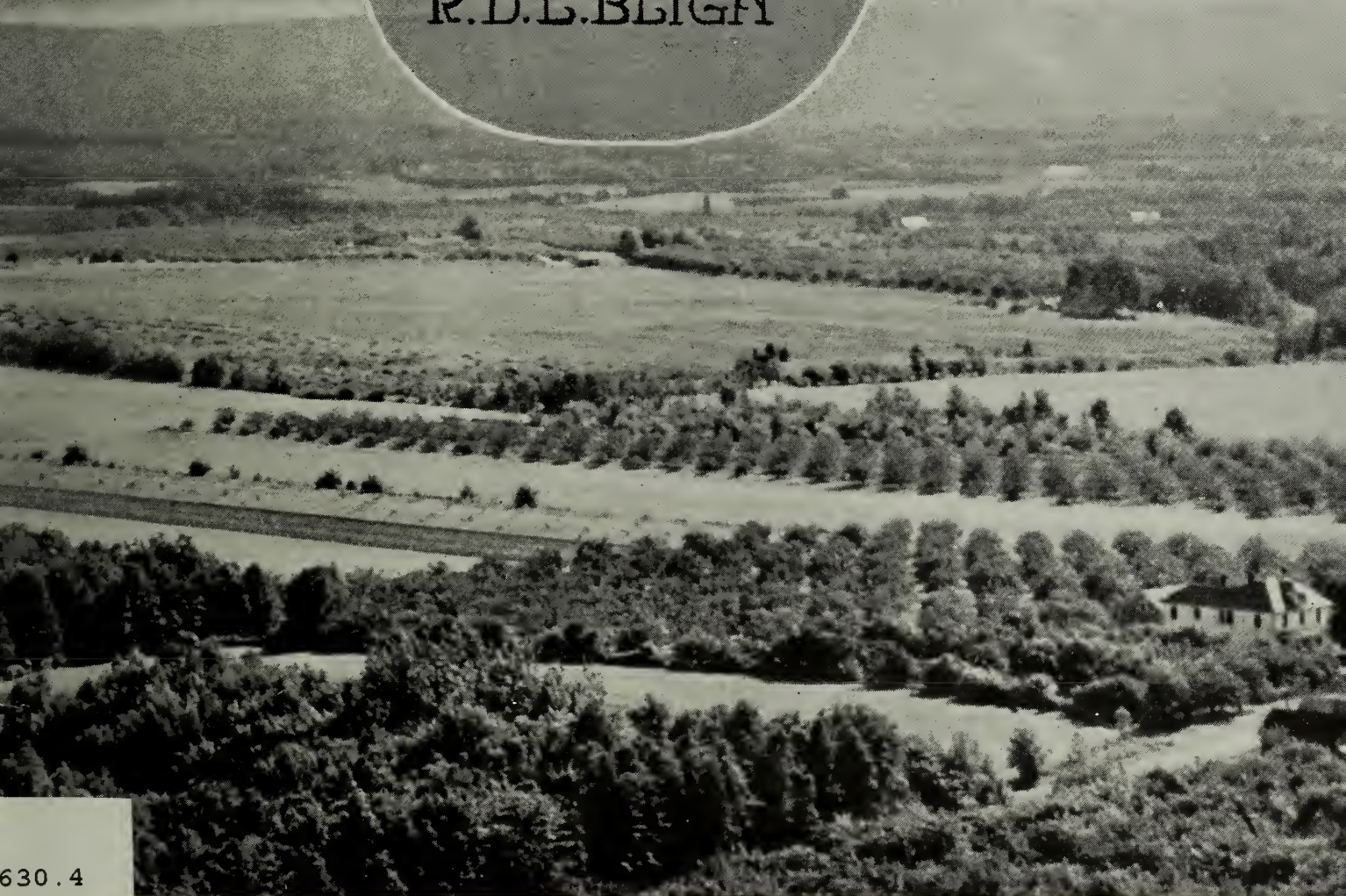


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PEAR GROWING

IN THE
ANNAPOLIS VALLEY

BY
R.D.L. BLIGH



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P 824
1949
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EXPERIMENTAL FARMS SERVICE
DEPARTMENT OF AGRICULTURE, OTTAWA, CANADA
PUBLICATION 824 FARMERS' BULLETIN 156

AUGUST, 1949

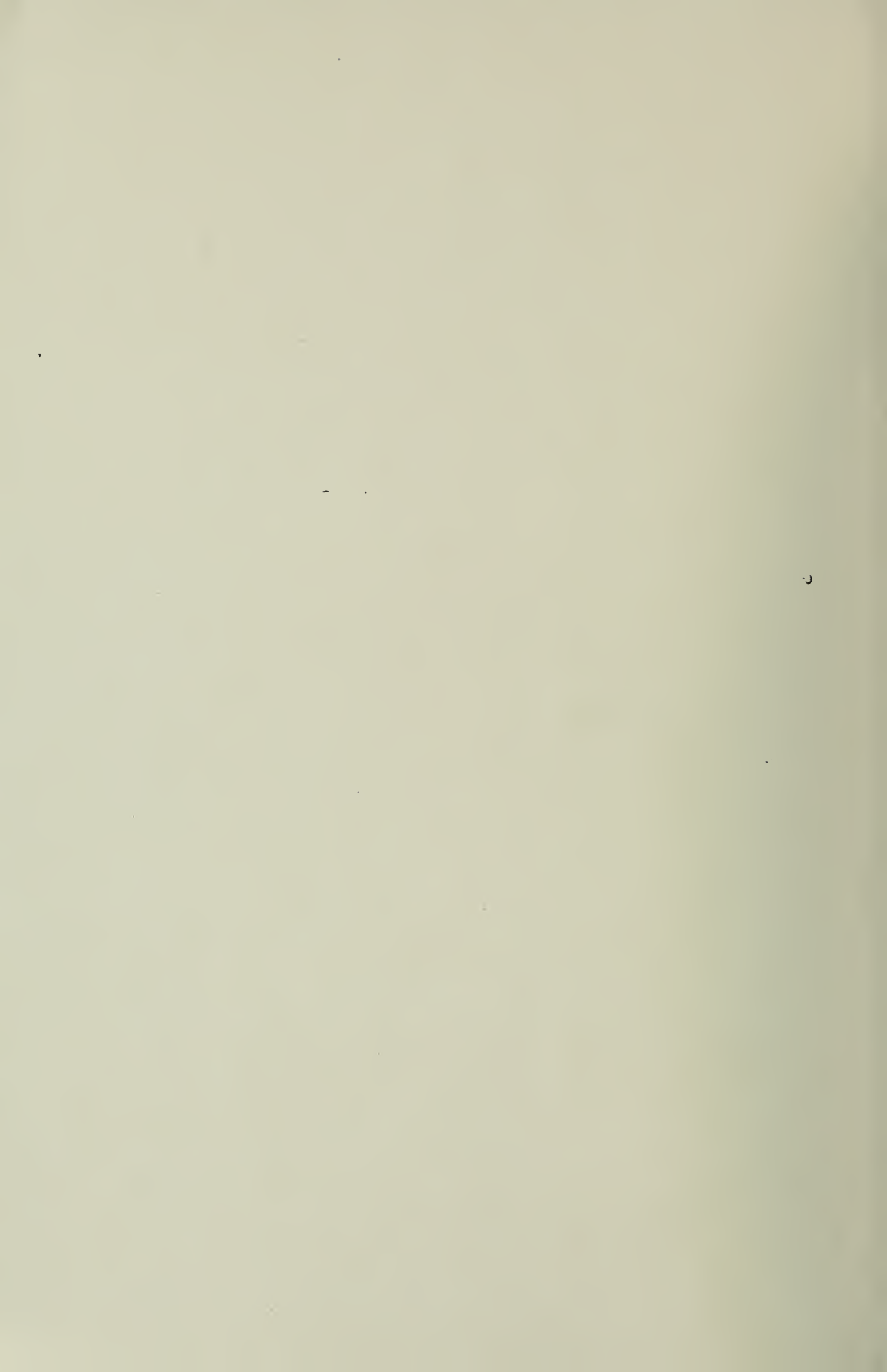
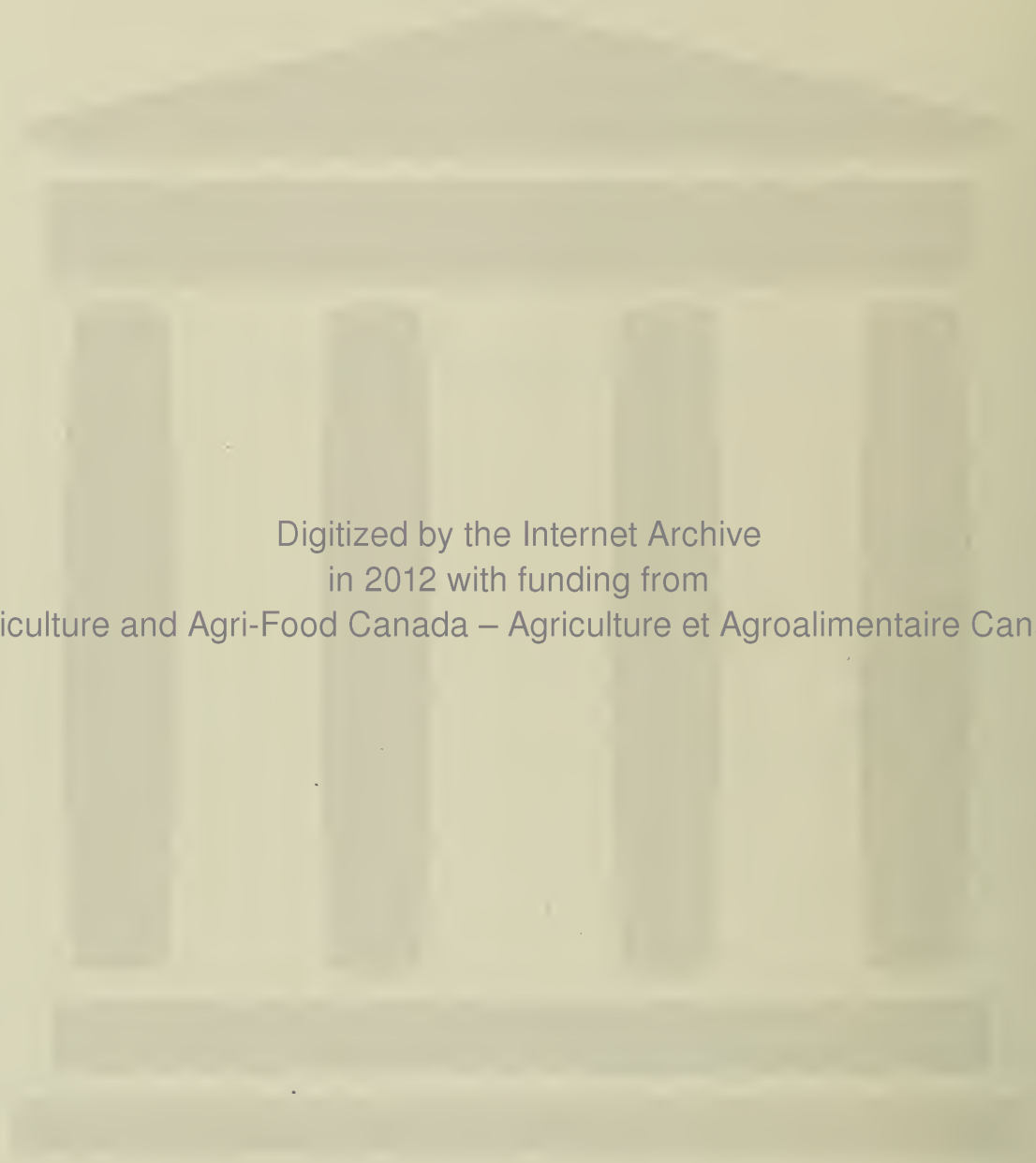


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PEAR GROWING IN THE ANNAPOLIS VALLEY

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The pear is an exotic tree in the Annapolis Valley. The ideal climate for a cultivated plant is one in which the plant thrives as an escape from cultivation, wholly independent of the care of man. Apples are commonly found in this wild state, but the pear only rarely. Both of the chief constituents of climate-temperature and rainfall—are determinants of pear-growing regions. Pears cannot be grown profitably where the winter temperatures often fall lower than fifteen degrees below zero. Young trees are often ruined at ten degrees below zero, and unless the early growth of vigorously growing young trees is checked by cover crops and their wood thoroughly matured, they are likely to be injured by any zero or near-zero temperature.

In its European home the pear is possibly the most popular tree fruit, while in America it is of major importance in but few sections. This difference is due chiefly to climate. It is in England, Belgium and Northern France, with their frequent rainfalls, fogs and cloudiness, that the pear finds conditions most congenial for its proper development: cool, moist, cloudy weather without much variation in temperature, very like that of the Annapolis Valley, where the maximum daily temperature gradually increases from the setting of the blossoms in late May or early June until the pear is nearly fully formed towards the end of August. It is because of this relatively low summer temperature (as compared with other pear-growing districts of America) that Fire Blight (*Bacillus amylovorus*) is unknown in the Annapolis Valley.

The mean monthly temperatures of the growing season, rather than winter minima, determine the varieties of both apples and pears that can be grown successfully in the Annapolis Valley. Although Winter Nelis and Kieffer are listed as relatively hardy, it is questionable if the growing season is long enough or its temperature quite high enough for their fruits to mature properly and attain the quality they do in the longer seasons of the warmer pear-growing districts of America.

The debt to France for early horticulture in America rests largely in tradition but unquestionably the first pear plantings were made by the French following the establishment of their forts and settlements in Nova Scotia at Port Royal (now Annapolis Royal) in 1604. These plantings demonstrated that pears could be grown in America, and undoubtedly from this beginning the pear was carried ever westward by the settlers that followed in the wake of the early explorers. Ever since that time the pear has been cultivated in the Annapolis Valley. The early English

settlers also introduced their favourite pear varieties when their settlements were established. From these early European introductions and later ones, from their cross-bred seedlings and mutations, have been developed many of the favourite pear varieties of today. It is thought that Clapp Favourite developed in this manner.

Through this long transitional period the pear in the Annapolis Valley has remained little more than a garden fruit for dessert and home canning, with the surplus going to nearby local markets. Only recently have apple growers realized that the pear as grown in the Annapolis Valley has a rightful place in the fruit production industry.

A pear of a good variety, well grown, picked at the right stage of maturity and properly ripened, compares in quality with the finest fruit grown.



FIGURE 1—Clapp Favourite, the standard early autumn pear of the Annapolis Valley.

General Considerations

Pear production may be materially increased in the Annapolis Valley because of the following:

1. The climate is adapted to its production.
2. Where the soil is suitable, sites along the elevated slopes between the water's edge and the escarpment of the North Mountain, such as occur at Blomidon and Delhaven on the Minas Basin, and again at Bridgetown, the Granvilles, etc., adjacent to and around the Annapolis River Basin, would be ideal for pear orchards.

The deep, fertile and arable soils adjacent to the Minas Basin, as at Medford, Canning, Canard, Starrs' Point, Port Williams, Wolfville, Grande Pre, Hortonville, Hantsport, Falmouth and Windsor would also be suited to pear culture.

3. Clapp Favourite, the standard early autumn pear, is a hardy, vigorously growing, productive tree, while its fruits attain a delectable quality and firmness that is not equalled by this variety in any other pear-growing district of America.
4. The fresh fruit markets of the Maritimes are as yet only partially supplied with Annapolis Valley fruits, particularly pears. The outlet for pears as fresh fruit through these channels could be increased enormously by the merchandising of strictly first-grade pears by a well planned, orderly, large-scale distribution.
5. The demand for pears by the canning industries would take care of surplus stocks at good prices for some time to come.
6. Fire Blight (*Bacillus amylovorus*), a malignant bacterial disease, very contagious and destructive to the pear tree in other Canadian and American pear-growing regions, is practically unknown in the Annapolis Valley. The non-existence of this disease alone favours an increased planting of pears.

Rootstocks

Standard Stocks

The great commercial crop of pears in America is borne on standard stocks, and their superiority for quality production is undisputed. By standard stock is meant the common European stock, *Pryus communis*, which is reasonably hardy and produces vigorous trees. Clapp Favourite and Bartlett seedlings belong to this group, and have proved to be satisfactory stocks at Kentville.

Dwarf Stocks

Dwarf pears are produced by grafting or budding the pear on the quince root. This type of stock is losing favour except where small trees

are required in home and suburban gardens. All pear varieties are not compatible with the quince. Those that are require more care in the nursery, and after planting in the orchard require coddling and close attention if they are to be successful. The quince-rooted dwarf pear trees are shallow rooted and should never be considered under poor, shallow or arid soil conditions; they require a rich, fertile, clay loam soil, well supplied at all times with moisture.

Planting and Care of the Pear Orchard

Location

It is true that very cold winters will injure pear trees and spring frosts may kill the bloom of pears that blossom earlier than the apples. The former cannot be controlled, but the latter can be avoided by selecting sites that are normally free of frost at blooming time. The pear is somewhat less hardy, generally, than the apple, although the blossoms and the embryonic fruits of the pear are more resistant to freezing temperatures than are those of the apple. This was observed generally over the Valley during the season of 1945. During the very cold winter of 1933-34 Clapp Favourite, Bartlett and Clairgeau pears were not injured, while adjacent Crimson Gravenstein apple trees, on a slightly lower site, 40 feet away, were killed outright. The varieties Clapp Favourite, Flemish Beauty, Anjou, Clairgeau and Kieffer are hardy, while Bartlett is generally conceded to be a little tender.

The pear blooms early, fully a week before the apple. This must be considered in choosing the site for a pear orchard. *Shun any low, frost-frequented area.*

Soils

The pear thrives on a great diversity of soils, but *they must be deep* for proper root-run. The pear is averse to sands, gravels and light soils in general, hence the sandy area in the centre of the Annapolis Valley from Kentville to Middleton is precluded from the culture of pears because of soil conditions and frost hazard. Only under very special conditions should any fruit tree be planted in a soil in which the roots cannot penetrate freely to a depth of 2½ to 3 feet in humid soils, and to a depth of 5 or more feet in semi-arid soils. Soils that will permit greater penetration are preferable. Shallowness of soil, hardpan or plough-sole close to the surface, impervious subsoil and poor drainage are interrelated factors which check vegetative growth, reduce yield, size, quality and grade of fruit, favour irregular bearing and may lead to numerous physiological troubles, the diagnosis and treatment of which are difficult. In general, the pear succeeds best in rather heavy, deep, fertile soils, well supplied with moisture but not water-soaked. The soil must be well prepared prior to planting the young trees.

Planting

For most pear varieties, particularly Bartlett, a planting distance of 20 by 24 feet apart is satisfactory. For the varieties Clapp Favourite and Flemish Beauty, where the mature tree is larger, a distance of 28 feet between the rows and trees is recommended. Pollination is provided by planting more than one variety and at least 12 per cent of the total trees set should be of a pollinating variety. Clapp Favourite, Bartlett, Anjou and Sheldon are all compatible, and where any two of these are planted in close proximity no other pollinating variety is necessary.

Pruning

Select the scaffold branches and central leader at planting time. Afterward practise only the necessary corrective pruning, eliminating any adventitious scaffolds and balancing those selected. Little, if any,



FIGURE 2—Prune to select your scaffold branches and central leader at planting time. Afterward practise only the necessary corrective pruning, eliminating any adventitious scaffolds and balancing those selected. A young Covert tree.

more pruning should be necessary until the tree attains full bearing. At this age, growth moderates or terminates. If the annual terminal growth is reduced to 2 or 3 inches, the trees are likely to fall off in production or become biennial in fruiting habit, bearing a heavy crop of under-sized fruits the "on" year and little or no crop the "off" year. This biennial bearing cycle will continue until growth conditions are improved. Increased new terminal growth is the remedy — 6 to 12 inches annually should be the growth objective for pears. This objective may be achieved by any one or any combination of the following: (a) improving the orchard soil by better cultural practices, (b) pruning judiciously and at the same time thinning out the trees by removing some of the weaker or fruited-out smaller branches, (c) applying larger quantities of commercial fertilizer per tree. The danger of stimulating by this means a luxuriant terminal



FIGURE 3—The pear is very exacting about its care during its early life in the orchard. The soil must be deeply worked, with clean cultivation and cover crop culture. A young Ovid tree.

growth that might later be winter-killed on pear trees of full bearing age is remote. However, as a precaution the fertilizer applications should be made early in May.

Fertilizers

Young trees in good soil that are making 12 to 15 inches of new terminal growth, and bearing trees making 6 to 10 inches without fertilizer, do not need to be fertilized. Use only enough fertilizer to assist in making the required new growth—no more. The vigour of each individual tree should be the guide and should determine the quantity of fertilizer it will receive.

Cultivation

The pear is very exacting about its care during its early life in the orchard. The soil must be deeply worked and well prepared prior to



FIGURE 4—Health and vigour in the young pear tree are essential to early production.
A young Ewart tree.

planting the young trees. Clean cultivation with cover crops should be practised. Sod cover should never be used in young pear orchards and rarely in older ones. No young fruit tree is less self-assertive and lacking in internal "push". If neglected after planting, the trees fall an easy prey to insect pests, particularly the buffalo tree-hopper, and also to scab fungi, and become moribund, linger a while and then die. *The young trees must be well cultivated and cared for. They cost too much to be neglected after planting.* They must be well cared for—in fact, more or less coddled—if they are to make good growth from the start.

Newly planted trees get away to a better start if cultivated for the first few years. This cultivation need only be a narrow strip along the rows, and should be commenced as soon as the soil is workable in the spring and cease the latter part of June, when a cover crop should be sown. Annually, as the trees grow, the cultivated strip (if this method is practised) is widened until eventually the whole area between the trees is cultivated and cover-cropped.

After a 5-year period of cultivation and cover-crop culture in the young pear orchard, mulching of the orchard may be advisable. Should a mulch system be used, protection against mice, rabbits and fire must be provided.

Handling the Crop

Spraying

The control of buffalo tree-hopper and scab in the young trees, and pear psylla, scab and codling moth in the bearing pear orchard is an absolute necessity if success in pear growing is to be assured.

Thinning

When the set of fruit is heavy, thinning is the cheapest way to improve size and grade, as well as to bring about a uniform maturity of the tree's crop.

Picking

Pears are picked at the "mature green" stage of maturity. If allowed to ripen on the trees the fruits mature too quickly, become soft at the core and often are mealy or gritty. Picking too early reduces the volume of the crop because it results in a smaller percentage of pears in the larger sizes; it also reduces the sugar content and causes the fruit to be tough and leathery in texture.

Handling

Because the fruit is firm and hard when picked there is no excuse for rough and careless handling of pears in the orchard or at the grader. Injury from rough handling is apparent when the pears ripen, and results in considerable loss to the grocer or housewife who buys them.

Recommended Varieties

Clapp Favourite is by universal consent the standard early autumn pear to precede Bartlett. Bartlett is highly esteemed for both fresh fruit and canning purposes, and is the most popular commercial variety in America today. There is a limited local demand for Flemish Beauty, Clairgeau, Anjou, Seckel, Sheldon, Dana Hovey and Bosc. There is virtually no demand for other varieties.

Clapp Favourite.—Picking date, Sept. 1-10. As an early autumn pear Clapp Favourite has proved its value as a commercial variety in the Annapolis Valley. It is hardy to cold, a vigorously-growing tree, annual in bearing and enormously productive. It is a favourite on the fresh-fruit markets, and, as grown under Annapolis Valley conditions, it acquires a texture that makes it a desirable pear for commercial canning. Care must be exercised to have it harvested carefully when mature green, or approximately 10 days before it ripens on the trees, then immediately stored in a cool cellar or cold storage until packed and marketed. This is necessary in order to avoid serious loss from the fruit going soft at the core. This variety is recommended for commercial planting and for the home garden.

Bartlett.—Picking date, Sept. 10-15. This is undoubtedly the best known and most popular pear variety. It is widely used in general markets, fruit stores, canning factories and home canning. The tree has proved to be hardy here. It is moderately vigorous, an annual and heavy bearer. It does not, however, attain either the tree size or the productiveness of Clapp Favourite. The grade of fruit is often improved by thinning. It also must be picked mature green, handled and stored carefully. It has a longer storage and marketing life than Clapp and can be shipped to more distant markets. Recommended for commercial planting and for the home garden.

Flemish Beauty.—Picking date, Sept. 15-20. A hardy, vigorous, large-growing tree, annual in bearing and unusually productive, but slow in coming into bearing. Its season immediately follows Bartlett. When full grown the fruit is very handsome and nearly perfect, but it must attain full size, pick easily and develop the characteristic blushed cheek. If picked prematurely it wilts readily, loses its flavour and is poor in quality. Unfortunately the fruit is very susceptible to scab fungus, and unless a thorough spray program is carried out, the fruit will be scabbed, blackened, cracked and malformed. The fruits should be marketed immediately after harvesting.

Clairgeau (Beurré Clairgeau).—Picking date, Oct. 5-10. Trees of this variety, while hardy, are dwarf, slow-growing, upright and stiff, but productive. The fruits are handsome, but of mediocre quality, this being a canning rather than a dessert pear. The fruits are large and heavy, and easily blown off. Season, November to December.

Anjou (*Beurré d' Anjou*). — Picking date, Oct. 15-25. This is a late autumn and early winter pear, pleasing in appearance and of good quality. The tree is hardy, a vigorous grower, comes into bearing slowly and is not always a certain cropper, being biennially inclined. The pears are smooth, of good shape, have greenish-yellow skin dotted with russet, faintly blushed, and have a short, thick stem. Will keep in common storage until December. Worthy of trial.

Sheldon. — Picking date, Oct. 7-15. Considering the fruit itself, this is one of the best of all pears. The pear is large enough for a good dessert pear, is pleasing to the eye, of round, uniform-truncated shape, and distinctively russeted with a coloured cheek. Few pears surpass it in quality and flavour. The fruit keeps, ships and sells well. Its season is late November. The tree is hardy, vigorous, attains a large upright size, is reluctant in coming into bearing, niggardly in production, and the fruits, being heavy, are subject to losses from winds. Sheldon cannot be considered as a commercial variety, but definitely has a place in the home garden.

Bosc (*Beurre Bosc*). — Picking date, Oct. 20-25. Bosc is grown commercially in all the pear-growing regions of America. The variety is of questionable hardiness. It is doubtful if the growing season in the Annapolis Valley is generally suited to its proper maturity. When well grown it is a handsome, high-quality pear. The colour should be a dark, rich yellow, overspread with a cinnamon russet, giving it a beautiful appearance. Under Annapolis Valley conditions this colour is not usually attainable, and the fruit remains a dull green and often shrivels in storage, a sign of immaturity. The trees are difficult to propagate, and make poor growth in the nursery. They are exacting as to soil and climate after being set out, are slow growers and come into bearing late. Once established in good soils they are productive. This variety should only be planted in favourable sites and good soil. Where it can be well grown, its beautiful appearance, with a firm, fine-grained, juicy, sweet fruit of excellent quality, makes it very popular at the Christmas season.

The following new varieties have been fruited at Kentville, and are reported on as follows:

Cayuga. — Picking date, Oct. 10-20. This is a seedling of Seckel. The tree is hardy, healthy, upright-spreading, early, annually and abundantly productive. The fruits are attractive, larger than Bartlett, are slightly more elongated, taper to the stem, and have an attractively blushed cheek. Harvesting date mid-October, ripening early December. The flesh is firm, tender, fine in texture and of Bartlett quality. A promising new pear.

Gorham. — Picking date, Oct. 10-20. The tree is hardy, healthy, vigorous and annually productive when young, but becoming niggardly in production as the tree grows older. This variety is a good pollinator for Bartlett. The fruits resemble Bartlett in size, are longer and more tapering, but

show less blush, and are duller greenish-yellow colour upon maturity, which is about three weeks after Bartlett. The flesh is white, very juicy, sweet, richly aromatic in flavour and of good quality. It does not get soft and mushy when overripe as does the Bartlett, and equals if not surpasses that variety as a canning pear. A promising pear to extend the Bartlett season.

Pulteney (*Winter Nelis* × *Russet Bartlett*). — Picking date, Oct. 5-10. The tree is moderately vigorous, hardy, healthy, annually productive. The harvesting date is approximately two weeks after Bartlett. The fruit, of the Bartlett type, is smaller and is obovate, acute-pyriform in shape, with a long, slender stem. The skin is smooth, dull green with numerous small conspicuous russet dots. Upon maturity the dull green changes to greenish yellow. The skin is tender; the flesh, while juicy and finely grained, is astringent and of only fair quality at Kentville. It is, however, meeting grower acceptance in New York State.

Phelps (*A sister cross of Pulteney*). — Picking date, Oct. 20-25. The tree is hardy, vigorous, healthy and productive. The fruit grades smaller than Bartlett, is roundish, pyriform in shape, of uneven surface, dull green changing, to greenish yellow. The flesh is tender, juicy, astringent, and poor in quality, which may indicate that the climatic conditions in the Annapolis Valley are unsuited to its proper development. Not recommended.

Conference. — Picking date, Oct. 1-10. A recent English origination, *Conference* is widely grown and popular in England, much publicized in America. The tree is a moderate grower, upright-spreading, and healthy. The fruit is smaller than Bartlett, is variable but generally of the Bartlett shape. The skin varies from greenish-yellow to yellow, overlaid with varying amounts of russet, and is not very attractive. The flesh is yellow, with a pinkish tinge, juicy and of medium quality. Its harvesting and marketing period just follows *Flemish Beauty*. Although still on probation here, it possesses few attributes that would recommend it over standard varieties of its season.

Ewart. — Picking date, Oct. 1-7. The young trees are vigorous, healthy, come into bearing early, and are productive. The fruits are medium to large, of the Bartlett type, greenish-yellow in colour, widely overspread with fine russet. This variety ripens about a month after Bartlett. It is more attractive than *Conference*, and of good flavour and quality. Deserves trial.

Satisfaction. — Picking date, Sept. 5-15. This variety, of English origin, was recommended here as a pollinator for *Comice*. The tree is reportedly a strong grower. The fruit produced here from grafts was of medium size, of *Bosc* shape, lemon yellow with delicately blushed cheek and handsome skin; the flesh tender, dry and inclined to mealiness, lacking quality. Ripens immediately after *Clapp Favourite*. There are better pears of its season.

Maxine. — (Originated at Ohio Agricultural Experiment Station; grown at Kentville from grafts.) Grafts strong, healthy and vigorous, fruiting early and abundantly. Harvesting season, mid-October, ready for market November to December. Fruit medium to above in size; shape variable, oblong-obovate to roundish, with obtuse tapering neck. Skin smooth, thin, tough, clear, light lemon yellow with numerous tiny inconspicuous dots. Flesh yellowish white, coarse, granular, moderately juicy, of poor quality. There are better pears of its season.

Covert. — The young tree is hardy, vigorous and comes in bearing early, and is a prodigious cropper. The fruits resemble Bartlett in colour and shape but are much larger and heavier and drop readily near harvest. The season is supposed to be two months later than Bartlett, but it has ripened with us about mid-November. The fruit is firm and handles well, and canning tests indicate the product is near Bartlett quality and much better than the Kieffer canned product. It is meeting with enthusiastic grower acceptance in New York State. Worthy of trial.

Wilder Early. — Picking date, Aug. 15-25. This variety, despite all the virtues of tree and fruit in habitats that favour its proper development, is hardly known in the Annapolis Valley. The tree is large, moderately vigorous, healthy, hardy, well shaped and prodigiously productive, but the fruits are small with a very small core, usually only slightly larger than Seckel. The skin is tender and bruises easily. The flesh also is tender, moderately juicy, fine grained, sweet, rich and mildly aromatic. Under our climatic conditions it does not take on its characteristic colour, a bright lemon yellow with a bright-red cheek, but remains generally a dull greenish yellow. Not worthy of trial.

Dana Hovey. — Picking date, Oct. 11-20. This delicious little late-autumn or early-winter dessert pear, although scarcely known in the Annapolis Valley, is recognized by pear growers generally as a veritable sweetmeat because of its firm, fine-grained flesh and juicy, sweet, rich flavour. The tree attains medium size, is low, compact and well shaped, hardy, and fairly productive, with a tendency toward biennial bearing. A heavy set on the crop year necessitates heavy thinning if desirable size is to be attained. The fruit is small, averaging slightly larger than Seckel. Its colour is an attractive rich gold, strewn with russet. It has a rather large core for its size. The flesh is firm, very juicy, sweet, rich and aromatic. Its season is late November to January, a season when pears of dessert quality are scarce.

Seckel. — Picking date, Oct. 7-20. If its fruits were larger Seckel would challenge the world as a pear for the markets, which it now does as a pear for the garden. It is more generally grown in America than any other pear, except Bartlett and the disreputable Kieffer. The tree is hardy, of medium size and vigour, low, compact and broadly round-topped with stout branches, bearing its crop in clusters at their ends. It is fastidious

as to soil, thriving best in deep, fertile loams, but allergic to heavy clays. It is often reluctant to begin fruiting, but once fruitful it continues to bear regularly. The fruit is small but attractive because of its clean, trim contour and its bronze colour with a highly coloured cheek. The flesh is tender, juicy, perfumed and exquisitely and delicately flavoured, much of its spicy, aromatic flavour being located in the skin, which should never be discarded when eating. It is also highly esteemed for pickling. Its blossoms are self-fruitful. The fruits, because of small size, are costly to harvest and are too small for commercial canning. They are rather susceptible to scab, but to a less marked degree than Flemish Beauty. If well grown, its high quality commands a fancy price on all markets despite its size.

Beurré Giffard. — Picking date, Aug. 20-Sept. 1. At this Station this is the best summer pear for the Annapolis Valley. Its vinous flavour, with crisp, tender, juicy flesh is particularly refreshing. The fruits are larger than those of its contemporaries, ripening ten days ahead of Clapp, when good pears find a ready market. Its colour is dull greenish-yellow, not too attractive. It has a very small core and keeps well for a summer pear. The trees are moderately vigorous and of good average size. They are hardy and have a tendency toward annual bearing.

Howell. — Picking date, Oct. 15-25. An autumn pear following Bartlett in season. "Faint praise is no recommendation", and this adage is true of Howell. Its fruits are pale lemon yellow, not particularly attractive nor of high quality. Its only redeeming attributes are its uniformity of size, shape and quality, and its resistance to scab. These traits make it an estimable variety for garden planting where extensive cultivation and thorough spraying cannot be given. The tree is hardy, bears early, annually and abundantly.

Ovid. — Picking date, Oct. 15-20. Another Bartlett seedling originated at the New York Agricultural Experiment Station. It is a late-autumn or early-winter pear. Although yet young, the trees on test at Kentville give promise of vigour and hardiness. It is a little slow in coming into bearing. The fruit is of good size, resembling Bartlett in shape but with russet patches on the skin. The fruits are fine-grained, tender, sweet, pleasant-flavoured and of good quality. This variety gives promise of being a good late pear.

Willard. — Picking date, Oct. 15-20. A later pear than Ovid, although resembling Bartlett somewhat in shape it is more irregular, with uneven surfaces. As it has developed here on young trees it does not mature sufficiently during the growing season to attain high quality when ripened after storage.

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MINISTER OF AGRICULTURE

REPRINTED IN CANADA (1949) EDMOND CLOUTIER, C.M.G.,
B.A., L.Ph., KING'S PRINTER AND CONTROLLER OF STATIONERY, BY
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