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Horticulture in the Prairie Provinces

The Canadian Horticulturist

AUGUST, 1907

Volume 30, No. 8

TORONTO

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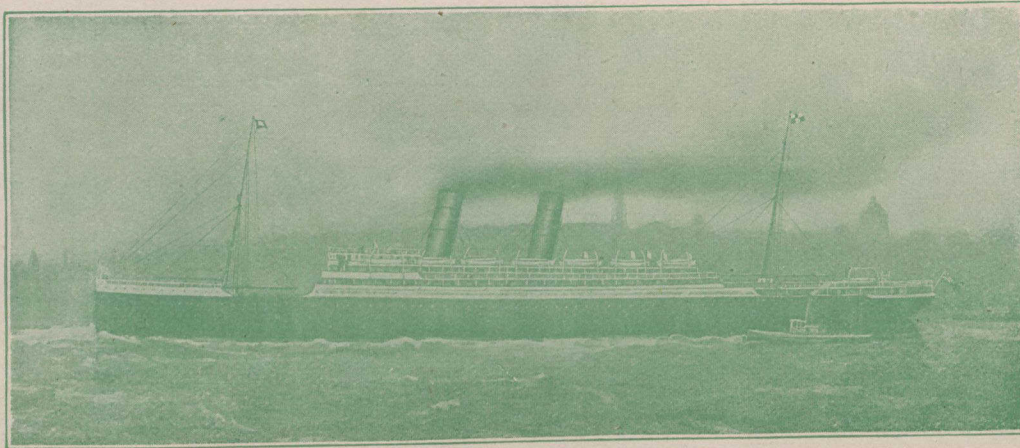
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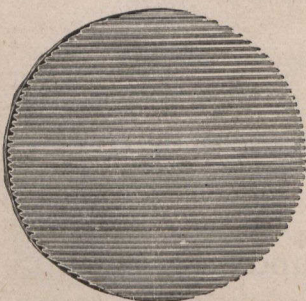
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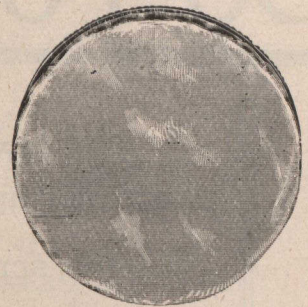
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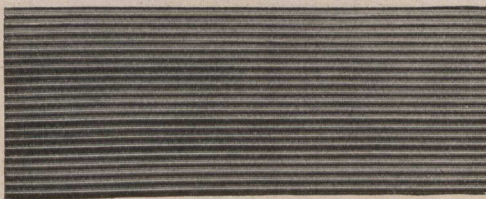
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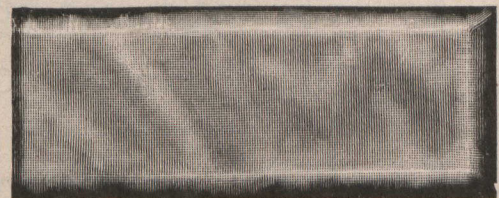
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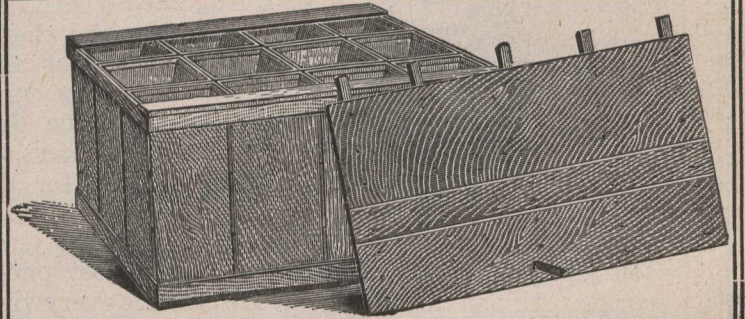
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The Canadian Horticulturist

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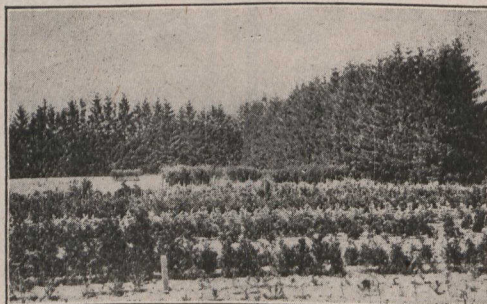
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The Canadian Horticulturist

Vol. XXX

AUGUST, 1907

No. 8

Outlook for Horticulture in the West

F. W. Brodrick, B.S.A., Horticulturist, Manitoba Agricultural College

MANITOBA is essentially an agricultural province. Agriculture has been her most important industry in the past. Agriculture is to be her mainstay in the future. Her broad, fertile acres, which have awaited for years the touch of man to make them yield forth their untold riches and feed a hungry world, will furnish homes and a livelihood for thousands in years to come. That her soil is phenomenally rich no one can dispute who has ever seen the mighty fields of waving grain. Besides, it takes such fertile fields as these to produce the "No. 1 hard," by which she is known the world over.

Naturally, in a country which is so large, so rich, and so sparsely settled as this country is, extensive agriculture would be the system most largely followed. Farms ranging in size from three hundred and twenty to six hundred and forty acres are the rule rather than the exception. The man who farms but a single quarter-section is but a small farmer indeed. On these large farms the largest machinery obtainable is procured and everything is done on an extensive scale. It is imperative in farming these big farms that the work be done in the quickest manner possible, as the growing season is short and the grain must have time to mature.

Wheat has been and still is the principal crop grown by the Manitoba farmer. Fields have been sown to wheat for four and five years in succession, summer-fallowed and sown to wheat again. The only attempt at rotation has been the summer-fallowing and the occasional introduction of one of the coarser grains. This continual growing of wheat is bound in time to deplete the soil of its fertility, and the system of farming eventually will have to be changed.

Evidence is already to be obtained in some of the older parts of the province that the soil is losing its old-time fertility, and that the system of continuous wheat growing is no longer profitable. The final outcome will be that the farms will become smaller, farming will become more intensive, a better rotation will be

followed, and a greater variety of crops grown. With the advent of the day of mixed farming, people will begin to take more interest in the production of the luxuries of life rather than the mere necessities. Fruit and vegetables will be grown more extensively and more attention will be paid to home improvements than at the present time.

Fruit growing has never been carried on in this western province on a very large scale. This in a great measure is due to the fact that money could be made more easily out of the growing of wheat, and that as yet comparatively

Many farmers throughout the west aim to have each year a well-kept garden, from which they can supply their household with fresh, appetizing vegetables. Nevertheless, in many western homes vegetables are rarely seen on the daily bill of fare. This absence of one of the most wholesome classes of human food is due largely to the amount of time required for the preparation and care of the garden, but the effort expended in the care of a garden will be well repaid in the increased health and happiness of the household.

The matter of home adornment, for many good reasons, has not received the attention throughout the west that the subject merits. The pioneers who first broke the prairie had more urgent things to attend to than the making of fine lawns and the planting of flowers. They had first to provide a home and the necessities of life. Happily, in the older parts of the country, these days of pressing need are over and people have more time to devote to the improvement of their homes. In passing through the country, one is struck with the number of fine, comfortable farm buildings that are to be seen on every side. Effort is also being expended to decorate these places and make them more homelike and attractive by the planting of shade and ornamental trees and shrubs, and by the planting of flowers. In no place in Canada will better returns be obtained from the labor expended in the planting of trees and flowers than on the western prairie. They serve to give a touch of natural beauty to the home picture which greatly relieves the bareness of the surroundings.

The foregoing will serve in a slight way to show the importance of horticultural work in the west and the need of more instruction on horticultural subjects. Therefore, one can easily understand the important place that the Manitoba Agricultural College will take in this spread of agricultural information. It will be in the forefront to give the people of Manitoba and the west all that is newest and best in the line of agricultural instruction; while its aim

For All Canada

I am pleased to note the improvement that is being made in THE CANADIAN HORTICULTURIST. It keeps in touch with the horticultural interests of all Canada. May it meet with continued success.—F. W. Brodrick, B. S. A., Horticulturist, Manitoba Agricultural College, Winnipeg.

little is known about the fruit growing possibilities of the country. That fruit can be grown with fair success is every year being demonstrated at the experimental farms and by a few pioneer growers scattered throughout the west. Careful attention has to be given to the care and cultivation of the fruit and a rigorous selection made of varieties to ensure success in this department of agricultural work. Nevertheless, a vast field is thrown open along horticultural lines throughout the west. Much will be done in the future in testing varieties and improving varieties already grown.

A splendid field is also open in the west in the line of vegetable growing. The possibilities for growing truck and vegetable crops on a commercial scale throughout the country are especially good. Numerous classes of garden vegetables may be grown with good success. Besides, a splendid market is afforded in the western towns and cities for larger quantities of garden vegetables than are grown at the present time.

will ever be to foster a greater love for the noblest of all professions.

The department of horticulture and forestry will be more particularly interested in the spread of horticultural knowledge than the other departments, which will be interested in the spread of knowledge concerning animal husbandry, dairying, field agriculture, and so forth. This information will be given

out in various ways. The most important phase of the work will be the instruction given to the students during the college course. The various subjects pertaining to horticulture, including fruit growing, vegetable gardening, landscape gardening and floriculture, will be given due prominence in the college curriculum, while advantage will be taken of opportunities afforded to discuss horticultural problems at farm-

ers' institute meetings and similar gatherings held throughout the country. As the country is rapidly developing, the various departments of the college will necessarily develop with corresponding rapidity to meet the demands for more instruction in all branches of agricultural work, as the people of the west demand all that is newest and best in every department of human endeavor.

Larger Orchards, Smaller Trees

A. McNeill, Chief, Fruit Division, Ottawa

ALL orchard practice is relative. Whether we shall plant thirty apple trees or 100 apple trees to the acre, is a question intimately related to varieties to be planted, the skill of the planter and the methods of his orchard practice. Personally I believe that the practice of the future will be more trees per acre, but the trees will be smaller.

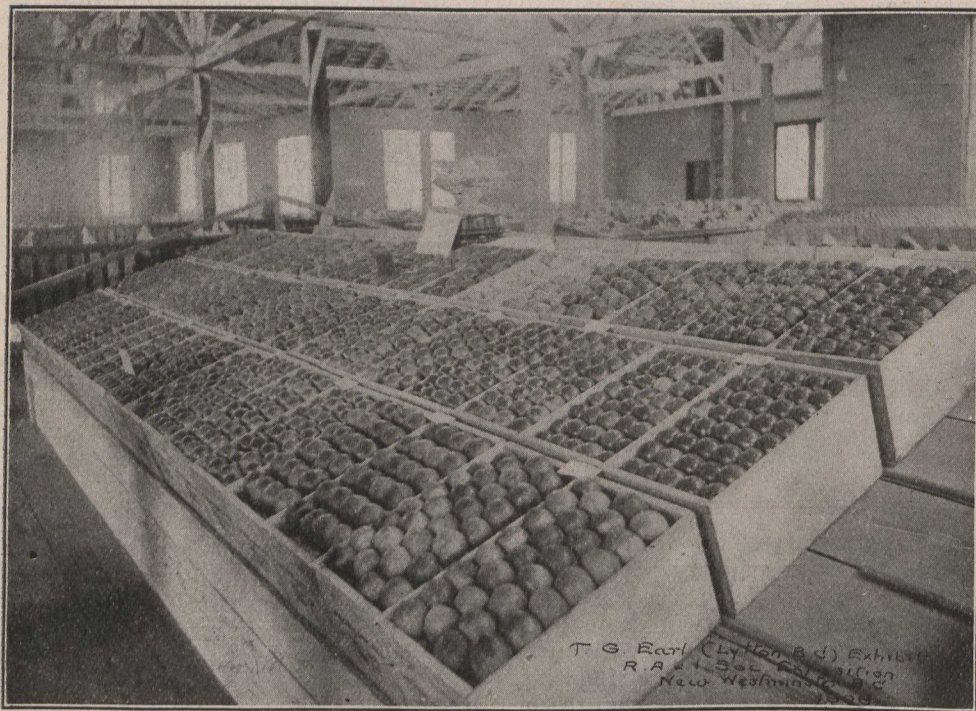
till his trees yield him little or no profit. The man that has less than five acres of apple orchard is responsible for much of the poor fruit that disgraces the Canadian apple trade at the present time. With five acres or more of orchard a grower finds it worth while to provide himself with tools suitable for the work in hand. He appreciates the fact that

must be calculated at so much per tree; but ultimately all expenses should be reduced to the cost of growing, per barrel or per box.

Which yields the greater net revenue, the larger tree or the smaller tree? We arrive at a conclusion in this way: The ground rent and cultivation is practically the same for either large or small trees, and amounts to somewhere in the neighborhood of twelve cents per tree, presuming that there are fifty trees per acre. The operations of pruning, spraying and picking, not to speak of thinning and hand-work in either lines, amount to at least twenty cents per tree if properly done. The three operations of spraying, pruning and picking are almost twice as expensive on big trees as on small trees yielding the same in the aggregate. In addition to this, the small tree is not so readily affected by the wind. The "drops" are of more value as a waste product and the trunk of the tree is much healthier. On the other hand we might say with reference to spraying of large trees, that not only is it more expensive to do the work, but in many cases it is absolutely impossible to do it well. The tips of the branches are at such unmanageable distances that they do not receive their share of the spraying liquid.

I examined an orchard infested with San Jose Scale this spring that had been well sprayed with lime and sulphur, except at the extreme tips of the branches. An examination of these showed that there was a sufficient number of scale left behind nearly every fruit bud to re-infest the fruit if any should set. It is probable that ninety-nine-hundredths of the insects were killed, but the one-hundredth part was left just where it would do the most injury. As far as this season's crop was concerned, the owner, unless he was a careful observer, would conclude that spraying was a failure; though in all probability it should have been pronounced a great success.

A small tree requires more skill to train and prune, but the best results cannot be looked for except this skill is acquired. Smaller trees and larger orchards are undoubtedly in the lead.



A Splendid Display of Apples Grown in British Columbia

I also believe that the number of acres in one orchard will be increased. The tendency seems to be larger orchards and smaller trees.

This is the direct result, partly of competition among ourselves and with other apple growing countries, and partly the extraordinary increase in insect and fungus enemies. Competition requires better fruit; insects and fungi make it more difficult to get it. The owner of a small orchard is too busy with other things to acquire the necessary skill to grow good fruit. He thinks he cannot afford an expensive outfit for spraying and in any case, other work is pressing when spraying ought to be done. Of course, it is only a few years

a day spent in spraying may yield him returns ten to twenty times the value of the wages for the time occupied. If he puts the same time on his oat field he can hope for little more than simply good wages at best. A large orchard stimulates a man to read books and horticultural journals, and attend fruit growers' meetings. The larger orchard yields the profits.

Smaller trees are also the result of these changed conditions. The expenses of an orchard may be roughly divided into two classes: First, the expense of tilling the soil; this is calculated by the acre; and second, other expenses pertain to the individual tree, such as pruning, spraying, picking, etc., and

Fruit Growing in the West

D. W. Buchanan, Director, Buchanan Nursery Co., St. Charles, Manitoba

A GOOD measure of success has already been attained in the growing of some kinds of fruit in the west, and the outlook is more and more promising as the years go by. In the early days there were many failures in growing grain crops, simply because the new settlers did not know how to farm to suit the peculiarities of our soil and climate. It did not take many years to learn that different methods must be followed here in order to achieve success in growing grain crops, compared with methods followed in other countries. What is true of grain applies with even greater force to fruits.

Professor Green, of Minnesota, perhaps the best known fruit authority in that state, says: "It would be better that a man should know absolutely nothing about growing fruit, than that he should undertake to grow fruit in Minnesota on the same principles as are followed in the east." The exact words used by Professor Green are not here given, but the meaning is the same. What he has said of Minnesota applies with even greater force to Manitoba and other prairie provinces. The one who would grow fruit in Manitoba must study the conditions and conform to them. When this is done, growing fruit here will be a much easier and more successful undertaking than most people suppose. It is true that there have been more failures than successes in growing fruit here, but that is because the conditions under which attempts were made were such as to make failure a certainty from the start.

In the first place the stock used was entirely worthless for this country. Most of the stock planted in this country has been entirely worthless and altogether unsuited to the climate. Even yet, with the experience gained in the past as a guide, thousands of dollars' worth of worthless stock is annually imported. Much of the stock brought in will not succeed in the northern portions of Ontario, say, for instance, the lower valley of the Ottawa, so that it could hardly be expected to thrive here.

Many people, after attempting the impossible with worthless nursery stock, come to the conclusion that fruits cannot be grown here, and by vigorously asserting this belief they create a false impression. Others, by a careful selection of varieties and proper modes of cultivation, are succeeding where many have failed. Through the efforts of the few successful pioneer horticulturists, we have learned much that will enable any intelligent person to succeed in growing many varieties of fruit, if the proper varieties are secured and proper methods of cultivation are followed.

Of the small fruits, strawberries are generally considered the most uncertain crop here. One will meet thousands of persons who will state most positively that strawberries cannot be grown successfully in these provinces. They are quite certain, because they have tried and failed, but all the same, strawberries can be grown here successfully—just as successfully as any other crop. It is simply a matter of following a system of cultivation adapted to the country. The proper system has been worked out with great success, and has never been known to fail. Therefore it does not do to bank on what even a great number of people declare to be a fact.

advantage. Raspberries seldom suffer damage from spring frosts, and proper attention to cultivation and mulching will tide them through any ordinary drouth that we are likely to have. Most varieties require winter protection of the fruiting canes, if a really good crop is desired.

In tree fruits, we must admit that only a measure of success has been attained, and that within certain areas. There are certain sections of the country where a fair measure of success has been reached in growing standard apples. Only trees grown here are worth planting, and it is simply folly to send away to the states for tree fruits. Trees



A Busy Scene in Ontario at Raspberry Time

Currants of many varieties may be grown in almost any part of these provinces with good results, and there is no good reason why every settler should not have an ample home supply of this healthful fruit, if common sense and ordinary care is used in growing them.

In gooseberries, the range of varieties adapted to the country is more limited, but several good varieties may be depended upon. In our own grounds we have been more successful with gooseberries, perhaps, than with any other fruit crop, that is, when care in cultivation, and so on, is taken into account. Gooseberries have invariably been a heavy crop in our grounds.

Raspberries, especially a number of the red varieties, may be grown to

propagated from specimens that have stood our climate for years, are the only ones worth planting. This applies to apples, crabapples and plums. When this fact is understood by our people, there will be fewer failures and many more successful attempts to grow tree fruits in the three species named.

The outlook for tree fruits in at least a considerable part of these western provinces, is quite encouraging. The fact that some good orchards, numbering up to hundreds of trees, have been successfully established, gives great hope for the future. It is simply a question of planting only the best stock, propagated from the hardiest trees that have stood our climate for years, combined with originating new varieties here.

Apple Growing in Manitoba

A. P. Stevenson, Nelson, Manitoba

APPLE trees of sufficient hardiness to withstand the dry, cold winter of Manitoba are difficult to obtain. Thousands of dollars are spent annually on fruit trees that are worthless; they not only increase the size of the brush pile the season following, but they make our growers discouraged. My first trees were planted in Manitoba in 1874. Since then I have been experimenting, and now realize that a man must pass through great tribulation and possess tireless energy and perseverance in order to be a successful experimenter here.

One of the first essentials to success in the growing of apples on the prairies is a good shelter belt. This is comparatively easy to obtain since to the Dominion Government's cooperative tree-planting scheme, which in recent years has done much for the prairie settler in furnishing him with planting material, and expert advice as to its management free of charge. Sixteen years ago a large consignment, consisting of 500 trees of eighty varieties of so-called hardy Russian apple trees, were planted. At the end of the first year only twenty varieties were alive. These consisted of one or two specimens each of varieties of which thirty trees had at first been planted. From these individual hardy specimens our present orchard has been largely grown.

The question is often asked: How do our apples compare in size and quality with those grown in Ontario or farther east? Our summer and fall apples are equal in size and quality to the eastern product; our winter varieties, while equal in size and color, are not equal in quality to Spy, Greening, Baldwin and others for dessert use, but are excellent for culinary purposes. The trees are grown on high latitude principles; that is, headed low, or grown in bush form. The apples are much more easily picked from trees grown in this way.

One of the chief troubles is sun scald in March. This is a drawback on southern exposures. In order to reduce the danger from this trouble the trunks of the trees are wrapped from the ground to the limbs with old sacking. Canker is the next worst enemy ("cancer" would be a better name for it). It gradually works its way round the limb, finally killing it. Cutting it out to the sound bark and then painting the wound sometimes removes the trouble.

We have had little trouble so far with insects of any kind. Our trees have never been sprayed, but I have no doubt this will require to be done in the near future. Thorough cultivation is practised all summer. The land is heavy clay loam and perfectly level. On the north, the orchard is protected by heavy

woods, and on the south by a few rows of Scotch pine. It is composed of 500 trees. A considerable number are young trees. Two barrels from one tree was our largest yield. A good crop was harvested last year, and the apples sold readily at four dollars a barrel. There are several young orchards coming into bearing in this vicinity. The day will come when we will be able to grow enough apples to supply Manitoba.

Cover Crops at Guelph

A few notes on some of the most satisfactory cover crops tested in the orchard at the Ontario Agricultural Col-



A Scene in British Columbia

lege, Guelph, were prepared for THE HORTICULTURIST by H. S. Peart, B.S.A., of the Horticultural Department. Hairy vetch has given excellent results as a ground cover and, with the exception of the past two winters, has always come out fresh and green in the spring. It should be sown at the rate of thirty to thirty-five pounds an acre if a good cover is desired. Light sowing has given very indifferent results. The high price of seed is a slight drawback, but as the demand increases, no doubt the seed may be secured somewhat more cheaply.

Among the clovers, red and mammoth are about equal in value. Both are perfectly hardy and form a heavy mat of herbage when sown at the rate of twenty pounds an acre about the middle July. Crimson clover makes good autumn cover, but does not winter well, except in the southern sections of the province. Where crimson clover does not kill out during the winter, it is one of the most satisfactory crops that can be grown. As the seed is larger than that of red clover, more must be sown.

Alfalfa is one of the most satisfactory crops we have tried. It makes an abundance of top in the autumn, is perfectly hardy on well-drained soils, and has the desirable characteristic of beginning growth early in the spring. From twenty to thirty pounds an acre will be required for best results.

Winter rye, the old time favorite for an orchard cover, is undoubtedly the best non-leguminous crop. It may be grown on soils that will grow an indifferent crop of clover, and after one or two crops of rye have been plowed under, clover may be successfully raised. From one to one and one-half bushels of seed an acre will give a heavy crop of foliage to turn under in the spring.

Rape, although largely grown, has many disadvantages. It does not stand the hardships of winter, and as a consequence is not so desirable as rye or clover. The tall, heavy tops hold the rains and dew till nearly night, making picking rather unpleasant. Where the fruit is harvested early, a crop of rape will give a great amount of green manure to plow under in the fall, and if left until spring the stalks will hold a considerable amount of snow. Six to eight pounds of seed sown broadcast or two to three pounds sown in drills is sufficient for a good stand.

Grass peas, Soy beans, and turnips all have a place among orchard crops, but are not so valuable as the others mentioned. It is usually advisable to follow a rotation. By sowing a part of the orchard with each of three or four crops their individual value for local conditions can be accurately ascertained.

Fruits for New Ontario

Chas. Young, St. Joseph Island

For success and profit, with quality as a second consideration, I would recommend the following varieties for planting in new Ontario: Apples, summer, Yellow Transparent, Duchess, Red Astrachan, Charlamoff; fall, Alexander, St. Lawrence; winter, Wolf River, Wealthy, Scott's Winter. Pears cannot be grown successfully and are poor in quality here. Cherries—Richmonds, Montmorency, English Morrello. Plums—Glass Seedling, Lombard, Moore's Arctic. Japan plums are somewhat hardier but the quality is poor.

Most varieties of strawberries will do well, particularly Clyde, Haverland and Glen Mary. The same may be said of currants, among which Saunders, black; Versailles, red, and White Grape are the best. In gooseberries, Pearl, Downing, Red Jacket and among the English sorts Crown Bob, Whitesmith and Industry, The best red raspberries are Loudon, Marlboro and Cuthbert. Blackcaps are not a success nor are they saleable. We are too far north for blackberries, but Eldorado does fairly well.

Varieties for the Prairie Provinces

MANY varieties and kinds of fruit and ornamental trees and shrubs can be grown with success in the west. In some parts, certain varieties of fruits have been and can be grown to perfection. If western growers will select hardy varieties and grow them in suitable conditions and in those localities where the climate is not too severe, and where the season is long enough for a full maturity of wood and bud, the trees will be healthy and give good results.

In past years, considerable stock has been planted, but in many cases a poor selection of varieties was made. Peach trees have been sold and planted in the west, also tender varieties of plums, grapes, apples, pears and small fruits. The grower who selects these classes of fruits might just as well burn his money. Recently a change has taken place. Growers are learning that only certain varieties will do well. Most of those that are grown successfully in the east are not adapted to western conditions, but there are others that are suitable. That this is so is evidenced by the following letters:

GROWERS' EXPERIENCES

"My crabapple trees nearly all bore fruit last year, some of which was as large as the best grown in Ontario," wrote Mr. David Alexander, of Oakville, Man. "The great secret in their culture is proper cultivation for the first two years at least, and to place fertile soil around the roots when planting." In a letter from Mr. N. Jamieson, of Lidstone, Man., the following information is given: "I am growing several varieties of gooseberries, including Downing, Industry and Pearl. All came through the severe winter of last year, unprotected, and did not winter-kill. My Cumberland black-caps came through with a slight protection, by covering the canes, and last year they bore a heavy crop of berries." Mr. T. A. Scholes, of Killarney, Man., writes: "I have been growing the Shaffer raspberry and some varieties of black-caps for some years with success." A letter from Mr. Jno. Osborne, of Winnipeg, states: "Raspberries, currants, gooseberries and plums do well. They stand our winters all right." Mr. Max D. Major, of Winnipeg: "The Loudon raspberry has proved hardy; Marlboro, also, has done well."

The following is taken from a letter written by Mr. Jas. Quinton, of Cardston, Alta.: "My experience has proven that trees will grow and bear fruit in Alberta." Mr. Wm. Hutchison, of Lloydminster, Sask.: "My raspberries, gooseberries and black currant bushes have done well." Mr. J. Leslie, Swan River, Man.: "Eastern raised soft-silver

maples planted here have done well. They are such fine-looking, ornamental trees that they command the admiration of all who see them." For the benefit of the readers of *THE CANADIAN HORTICULTURIST* in the west, the following

No. 1227), Hare Pipka (Russian No. 202), Hiberna (Russian No. 378), Northwest Greening, Ostrekoff (Russian No. 472), Patton's Greening, Russian Transparent, Repka Kistaga, Simbrisk No. 1, Silvus No. 1, Wealthy.



Lord Suffield Apple Tree in British Columbia. Fourth Year from Planting.

Photograph furnished by R. N. Palmer, Victoria

lists of varieties of fruits and ornamentals has been compiled from the recommendations of the western experiment stations, western nurserymen and horticulturists:

APPLES

Anisim (Russian No. 427), Anis (Volga), Antonofka (Russian No. 236), Anisette (Russian No. 185), Blushed Caville, Cross (Russian No. 413), Charlamoff (Russian No. 262), Duchess of Oldenburg, Glass, Gipsy Girl (Russian

CRABAPPLES

Gen. Grant, Hyslop, Transcendent, Virginia, Whitney Siberian.

CHERRIES

Compass, Litham, Lutovka, Ostheim, Vladimer.

PLUMS

Aitken, Cottrell, Cheney, Desota, Don, Early Roscoe, Forest Garden, Hawkeye, Odegard, Surprise, Stoddart, Wolf, Weaver, Wayland, Wyant.

GRAPES

Beta (the only variety that has done well).

RASPBERRIES

Columbian, Cuthbert, Cumberland, Golden Queen, Gregg, Hilborn, King, Loudon, Marlboro, Miller, Shaffer.

CURRANTS

Cherry, Fay's, La Versailles, Lee's, Moore's Ruby, White Grape.

GOOSEBERRIES

Downing, Houghton, Industry.

ORNAMENTAL TREES AND SHRUBS

Aspen, Siberian almond, alder, green ash, cut-leaved birch, common white birch, sand cherry, cottonwood, dogwood, Siberian dogwood, variegated Siberian dogwood, American elm, honeysuckle Alberti, honeysuckle flava, larch, linden (bass-wood), lilacs, Manitoba maple, Asiatic maple (*Acer Tartaricum*), soft maple, mountain ash, scrub oak, balsam poplar, Carolina poplar, Russian poplar, silver poplar, *Pyrus baccata*, sumach, snowball, syringa, *Spiraea Van Houttei*, weeping willow, golden willow, laurel leaf willow.

EVERGREENS

American arbor vitæ (needs protection from wind), Jack pine, dwarf mountain pine, black spruce, balsam fir, blue spruce, *Juniperus sabina*, Virginian Juniper, Scotch pine, stone pine, Norway spruce, white spruce.

HEDGE PLANTS

Buckthorn, cottonwoods, Russian poplar, *Populus laurifolia*, *Populus Noletii*, Russian willow, soft maple, ash-leaf maple, American elm.

ROSES

Banshee, Clio, Henry Martin, Marshall P. Wilder, Madam Plantier, Magna Charta, Persian yellow, *Rosa rugosa*, Salet Moss, Sweet Briar, Scotch Yellow, Ulrich Brunner.

SHRUBS

Buffalo berry, purple barberry, *Berberis Thunbergii*, bittersweet, *Caragana arborescens*, *Caragana frutescens*, flowering currant, Chinese matrimony vine, cotoneaster, *Clematis ligusticifolia*, *Clematis recta* (herbaceous), *Clematis Virginiana*, traveller's joy (*Clematis Vitalba*), Russian olive, *Hydrangea paniculata*

(needs winter protection), Russian honeysuckle (*Lonicera media*), American ivy, pæonias, southernwood, red snowberry, *Spiraea Billardii*, *Spiraea arguta*, golden spiræa, *Spiraea Thunbergii*, *Spiraea Douglasii*, high bush cranberry, *Viburnum opulus*, *Viburnum Lentago*, *Viburnum Lantana*.

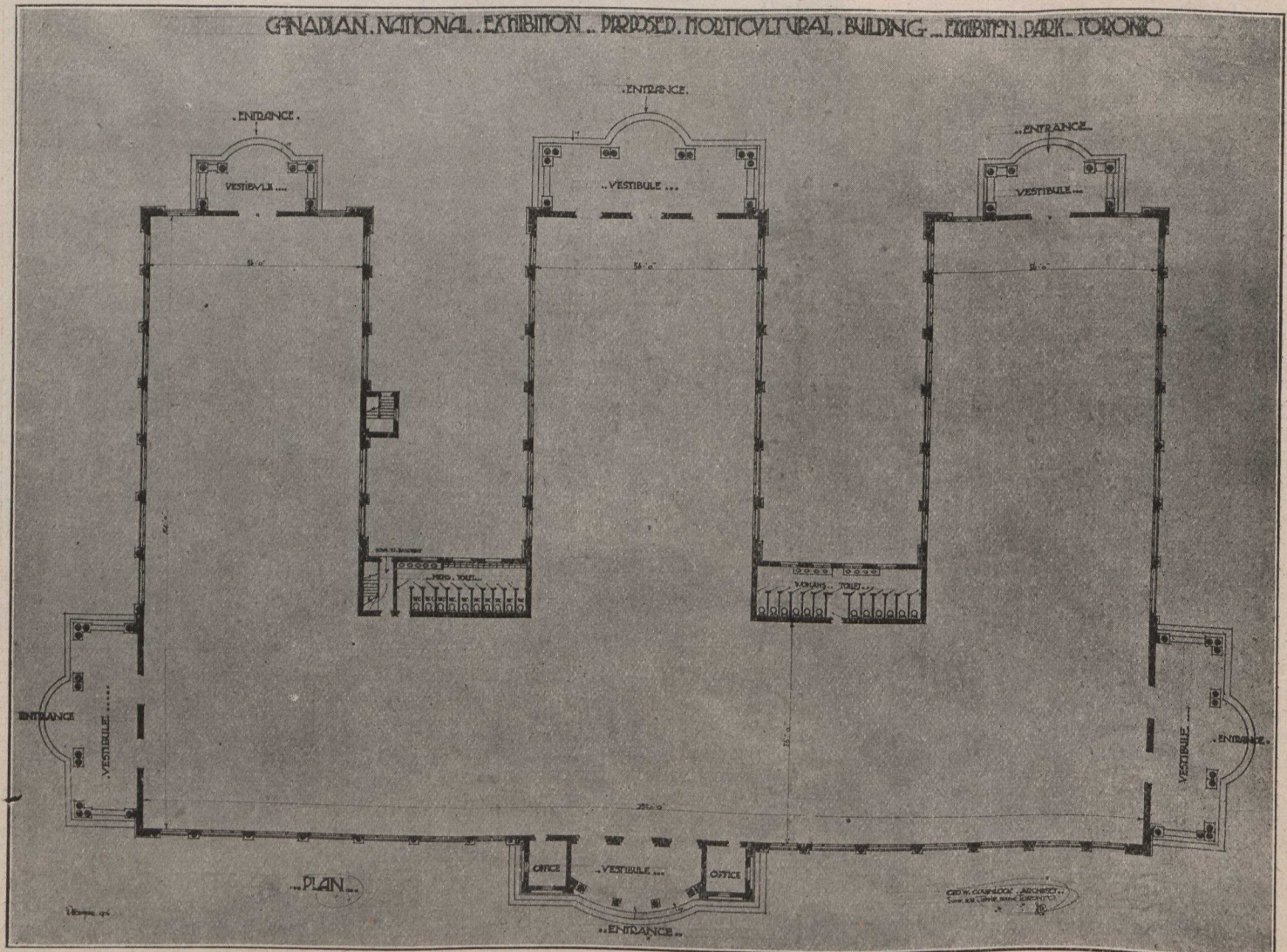
Harvesting Apples

G. N. Gordon McKeen, Gay's River, N.S.

When harvesting apples, it is best to wait until the dew of the night has disappeared, as apples keep best when picked dry. Remove them at once in barrels to a cool house or shed. If not to be marketed or exported at once, place them in a frost-proof cellar before frost comes.

When packing for market, do so in an attractive manner and pack honestly. All apples in the barrel or box should be equal in value and size. The proper package is the bushel box, as it holds a quantity convenient for family use. When the box takes the place of the barrel, many more apples will be used.

Cool the fruit before shipping.



Ground Floor Plan New Horticultural Building, Canadian National Exhibition.

The wings are designed to accommodate in order from left to right, fruit flowers and vegetables respectively.

Perennials: The Backbone of Manitoba Gardens*

Dr. H. M. Speechly, Pilot Mound, Manitoba

IN busy Manitoba, where so few can spend all the time they would like in the engrossing pleasure of cultivating flowers, it is easy to make good

fellow-gardener and yourself, so that each has the benefit of the other's garden.

The object of this paper, then, is to

exhibit the fine qualities of some of our

standard perennial plants

as early bloomers, as

hardy bloomers, and as

free, generous bloomers. It

will enable us to handle the

subject a little more plainly

if we consider perennials in

two classes—the first being

the bulbs or bulbous-rooted,

and the second being the fibrous-

rooted perennials. It must

not be supposed, however,

that this paper aims at being exhaus-

tive in its treatment of the subject. Far from it. Rather the aim of the present writer is to be suggestive and stimulative, so that others who have not taken much interest in these fine plants may be induced to pay some attention to them.

BULBOUS-ROOTED PERENNIALS

Taking then first the bulbs and bulbous-rooted, we may readily recall that the earliest wild flowers on our prairies are those of the bulbous-rooted *Anemone patens*. It is not surprising, therefore, that amongst the most satisfactory of our perennials are just such plants. Earliest of all seems to be the Siberian squill, a dark, reddish-purple bulb, which may be planted out-of-doors in October either in a flower-bed or, better still, in the sod of your lawn, where early in the following May, or even in late April, its green spike will push through the sod, open, and push forward its sky-blue hanging bells well in advance of the leaves. I am trying the grape hyacinth to see if it can equal the squill in earliness of bloom. The depth at which these bulbs should be planted is from three to four inches. It is well to put them where you will not need to mow the grass too soon in the spring, so that the flowers may seed and the leaves come to full maturity. Then the squill will naturalize, especially if the spot is sheltered from the wind, which



A Beautiful Garden Spot in Manitoba

the claim that perennial plants form the backbone of our gardens, especially if we are amateurs. It is surprising, indeed, after all that has been written on this subject in the farming papers, that so few perennials are to be seen in farm gardens, where the house-wife is usually the gardener and nearly always has plenty of domestic duties as well. For, indeed, quite apart from the cheapness, the hardiness, and durability of perennials, there is another most valuable characteristic about this class of plants in the fact that amongst them are found some of the earliest bloomers that we can raise in this climate. Therefore, if we can grow plants which are hardy enough to live for years and yet will give you flowers as early as May and June, surely they are the very plants we need. Moreover, many of these plants will easily divide at the roots so that you can multiply your stock without further expense; and better still, you can give roots away to your friends so as to start them in the good, old-fashioned cult of gardening. A great part of the pleasure of gardening lies in the friendly habit of giving away some of the results of your care and labor. Often, too, a mutual exchange will take place between a



A Corner of Dr. Speechly's Garden in Pilot Mound

The hedge is Manitoba Maple, *Negundo aceroides*

*A portion of a paper read at the last convention of the Western Horticultural Society.

is a greater enemy of the cultivated garden than frost. After the squill has come well into bloom it is quite usual to find that the dwarf dark blue iris, *Iris reticulata*, beats the early tulips by coming into flower the first or second week in May.

DWARF HARDY IRISES

The elevation of Pilot Mound is 1,550 feet above sea level, and, therefore, such places as Winnipeg and Morden, and all bush-sheltered spots, produce flowers a little earlier in the season, often two weeks earlier. This dwarf blue iris is a miniature "flag." Its little sword-like leaves push upwards, but, before they have pushed more than an inch or two, up come the flower buds three or four inches high, which stand frost quite hardily—not so the fully-opened flowers, which may turn black with any sharp, untimely frost. I suggest that there are other dwarf hardy irises which would be an addition to our early blooming perennials, such for instance as the pale blue *Iris stylosa*. The best collection of these dwarf kinds is grown by Messrs. Barr, of King St., Covent Garden, London, Eng. Now that so many Manitobans run over to the Old Country and back, how would it be if some of them could remember to bring over a few dormant roots of these or any other perennials? I refer to such kinds as are not listed in our local catalogs, which should always be patronized in preference to those of outside growers. We Manitoban gardeners ought to support the efforts of our home horticulturists; but in order to avoid being merely provincial ourselves, let us keep our eyes wide-awake. It will do our home professionals no harm if they know that the amateurs send for the catalogs of the leading horticulturists of the Old Country and the United States, and as a rule the home horticulturists have the pull over all others in the matter of hardy roots and shrubs.

THE TULIP IN THE WEST

But to get back to our bulbs, we come to the important tulip epoch in our gardener's year, which commences about May 15 at this elevation. How beautifully the early Duc van Thol scarlets blaze, how golden the yellow of the Chrysolora tulip, and how dazzling are the late tulips named after old Gerner, who waxed enthusiastic about them 450 years ago! The tulip is a perennial of great value. It also belongs to the "aged class" when one considers that the average bulb is seven years old as sold commercially. This information startles those ingenious folk who are so anxious for you to "save them some seed." Tulip bulbs will last more than a year, especially if they are of the "Old English" type, but you must not disturb their roots much; it is better to leave them where you first plant them,

and protect them well each fall with straw, leaves, or brush, so arranged that the wind cannot blow the protective material away. Even supposing you want to plant annuals in the same bed, you can easily manage that.

When you put them in some time in October—the earlier the better—plant your tulips six inches deep and six inches apart; that is easy to remember. A tulip should be put in not less than four inches deep, preferably six inches, because that depth suits this climate better and because, when you come to plant your annual seedlings into a tulip bed, you can do so without interfering with the bulbs beneath. The result is very satisfactory, provided the bed has been thoroughly prepared in the fall. The power of bulbs to stand frost and drought is a very curious faculty. Think of the prairie lily bulb, which is usually found three or four inches below the surface. One-half of the year it is frozen solid, and the other half it is alternately wet and then dry as a bone externally. Tulips seem to approach the prairie lily in hardiness, but do not bloom as well the second season as the first.

THE BLEEDING HEART

So much for tulips. In June you may look for the blooming of that splendid, fleshy-rooted, almost bulbous-rooted plant, the bleeding heart—we used to call it "duck's bill" when I was a boy. It is a noble plant, rising two or three feet above the ground in graceful sprays of leaves spreading from its fleshy red stalks. Grow your bleeding heart where the wind cannot tear it; allow it lots of room in a partially shaded spot with a fair allowance of moisture; but beware of letting greedy growers like the achillea compete with it or you will find that in the struggle for existence they will bleed your bleeding heart.

I am not wishing to use the scientific names of plants more than I can help, but it is here necessary to mention that this beautiful plant is known botanically as *Dicentra spectabilis*. There is a miniature relative of the bleeding heart which has no popular name, but is known as *Dicentra eximia*. It has this advantage that, though it is smaller and less handsome than its larger relation, it blooms quite two or three weeks earlier and is perfectly hardy.

In some catalogs you will be attracted by the boasted earliness of three bulbs, the snowdrop, the crocus, and the glory-of-the-snow, *Chionodoxa*. It is stated that their flowers follow close on the disappearance of the snow. Well, snow in Manitoba goes any time from the end of March to the third week in April, and whenever I have planted these bulbs they never flower earlier than the last week of May, and usually come out a little later. In this climate and at

this elevation these three irregular, uncertain bloomers, quite unlike tulips, which are certain starters undeterred by frost. They are quite desirable when they do come to maturity, but they bloom during the tulip period which lasts six weeks if you plant earlier, middle blooming and late tulip bulbs.

All bulbous and bulbous-rooted plants, and, in fact, nearly all perennials, are the better for a good covering of snow in the winter and a light covering of straw or strawy manure in the fall to prevent their springing too early in the dangerous time all through April. At that time, after a hot, mid-day sun, keen frosts blacken the growing crown or spike of any precious plant.

IRISES IN VARIETY

Coming now to the tall iris tribe, it is satisfactory to be able to recommend all the varieties of this handsome class, whether English, German, Spanish, or Japanese. Our French friends sometimes style them "*les fleurs-de-lis*," and quite often they are known as "flags." Bravely do they brandish their sword-like leaves against whatever winds may blow; but the graceful jointed flower stems are too tall to stand very strong blasts. More delicate still are the lovely veined and bearded flowers which are blackened and curled if knocked about by heavy winds. Therefore, they do better when protected by shrubs and hedges, especially if planted in moist places. In warmer climates one often sees irises doing well with roots half showing, but here it is well to have them an inch or two below the surface.

THE VALUE OF THE PEONY

Another fleshy-rooted perennial of the first importance is the peony, which comes into bloom just as tulips are going out of fashion at the end of June. There is nothing course about the modern peony; its flowers are large, numerous, glowing with color, and often sweetly scented, while its glossy green leaves are ornamental long after the flowers have blown. It is a plant as simple to grow as it is hardy. Treat it just as a careful gardener treats good rhubarb, exactly the same except as to position. The peony should have a place of honor, but do not let it be grown on a wind-swept spot or its large, heavy blooms will be spoiled. When your peonies bloom, you want to have calm, sunny days with showers interspersed, so that the tightly packed knobby buds may unwrap until they become white balls of petals centred red, or globes of brilliant crimson or oddly-striped rosettes swinging out of the abundant leafage.

A driveway well sheltered with trees and ornamental bushes is an ideal spot for planting peonies, but they will do well in beds where they have lots of room. After moving peonies, you must not expect them to flower until at least

the second year after planting. From the third year onward, however, the flowers come royally if the roots are well supplied with well-rooted manure. I would give a clump of peonies plenty of room because they will not stand competition with the roots of shrubs.

LATE SUMMER BULBS

Of the later summer bulbs, of which the hardiest and easiest to grow is the

tiger-lily. Treat all hardy lilies well and they will respond handsomely about mid-August. First dig a hole a foot deep, then put about four inches of well-rotted sod and cow manure, and finally sand this an inch deep with good sand. Lay in your bulb on the sand and cover it firmly with black loam. I am trying the following lilies: *Lilium rubrum*, *Lilium auratum*, *Lilium longiflorum*, and *Lilium candidum*, all hardy in the east.

Like tulips, they need to lie in a well-drained bed.

For those who like day-lilies, the various kinds of hemerocallis are useful additions to the really hardy growers. Personally I like flowers that will last more than a day; it is so disappointing to see a fine flower curl up and shrivel forever almost before one realizes its beauty.

(To be continued in next issue)

Lawn and Garden Hints for August

MIDSUMMER garden work is the lightest of the season, but one can find plenty to do. However, much extra work can be avoided by systematic

and what changes or improvements should be made next year.

Many bad weeds will be trying to go to seed. When a weed matures seed, it

bounds. Weeds are best killed by working when the sun is hot, as no one will doubt who has tried it. For conserving moisture, however, a cooler part of the day is preferred, as after sunset. Such things may seem to be of little importance, but those who have had experience find that these trifles help to make a good garden.

THE KITCHEN GARDEN

There is so little planting to be done in August, that it is apt to be overlooked. Nevertheless, it is of importance if full value is to be obtained from the garden.

Several varieties of beets grow quickly. If planted the first of the month, they will be large enough for the table before cold weather. Lettuce may still be sown if the young plants are shaded with cheese-cloth. Early varieties of bush beans will produce a crop for fall use, but they should be planted in a place not subject to early frost or where they can be protected if necessary. Sow late kale at once.

Did you make a cold frame as suggested in this column last August? If so, please favor THE CANADIAN HORTICULTURIST with a brief letter, stating your experience in making and caring for it. If not, make one at once, as it is an easy method of securing home-grown vegetables in late fall.

THE FLOWER GARDEN

In the out-door garden, dahlias should be fertilized once a week while the buds are swelling. These plants are gross feeders. Try putting in some cuttings of the finest dahlias. Grow in pots until late in fall and then put them in some place where there is no danger of freezing until time to start them in the spring.

Keep the flowers picked off of all kinds of plants as soon as they commence to fade. By this means, the blooming period may be extended.

Pansies may be grown from seed. For April bloom, sow now in cold frames. English daisy may be grown similarly.

The seeds of hollyhock, delphinium, aquilegia, campanula, coreopsis, gailardia, papaver, and many other herbaceous perennials may be sown this



With the Elderberries in Nature's Garden

planning. If this is done, by the time August rolls around, we can tell pretty well just where our plans were faulty,

produces a lot of them. Constant clipping or spudding on the lawn and hoeing in the garden will keep them within

month and transplanted to the border late in the fall or early next spring, to furnish bloom for next season. If transplanted in the fall, care should be taken not to injure the roots or the small seedlings, or allow them to wilt. They should be protected when transplanted and afterwards against severe freezing weather.

Many of the best annuals are in flower. If one wished to improve the size and color of such varieties as they are growing, they may do so by seed selection. Mark and save the seed from such flowers as meet your ideal. In a few years, one may have a strain of seed much superior to any that can be purchased.

An interesting feature of an amateur garden may be made by budding several varieties of roses into the same stock and training it into tree form, or rose-buds may be put into apple, pear or other trees with fair success. The operation is not a practicable or commercial one, but is a novelty worth trying by amateurs.

THE INDOOR GARDEN

All who intend to have a window garden this winter should get things started this month. Decide upon the plants you want to have and make all necessary preparations for them.

The narcissus should be planted in August if wanted for Christmas bloom. Rich, porous soil should be used and the bulbs should be set deeply. Place bulbs in a cool place and where it is dark, so that they will not start into growth. In about six weeks they may be brought into the light. The season of bloom may be lengthened by bringing only a few pots into the light at one time.

Bermuda lilies wanted for Christmas should be planted early this month. Supply plenty of drainage and use clean pots. Place them outside on a bed of ashes to avoid trouble with worms which might crawl into the pots. A covering of hay or straw will be needed to prevent too rapid drying out.

Pot some freesias for early flowers. Place eight or ten bulbs in a five-inch pot. Be sure to use plenty of drainage material. Place them away in a shady place, give water sparingly until growth begins to show. Bring to a lighter place after growth is well started.

Put in cuttings of geraniums, heliotrope, coleus and so on for winter bloom or display. Pot begonias, cyclamen and primroses for winter flowering. Most of the plants intended for the winter garden will now need re-potting. Those out in the garden should be gone over and prepared for lifting in a few weeks.

A week or two before pansies are wanted for a show, give a watering with some weak liquid manure twice a week.—E. F. Collins, Toronto, Ont.

Shipping Flowers

Most amateur gardeners have occasion at some time or other to send flowers by post, express, or other conveyance. What is more annoying to both sender and recipient than to have the flowers arrive in a somewhat damaged condition? The causes are various. The flowers may have been too far developed, or perhaps, were cut at mid-day, when much of their freshness has been lost. Unsuitable receptacles, such as thin cardboard boxes, which are very easily crushed, or paper alone should not be used.

Whatever receptacles are used they should at all times be shallow, or the flowers will be injured by their own weight. Baskets are very well for short distances, and if well lined with paper give satisfactory results. Always allow the paper to extend beyond the ends and sides, as it can then be folded back over the top. Ship flowers that are just opening, and they should be gathered in the early morning, as they are then quite stiff and fresh. Should it be preferred to gather them in the evening, they should be placed upright in water in a cool store-house, ready for the following morning for packing. Forced flowers and ferns should be favored with the same temperature as that they have been grown in.

It is a bad plan to pack too many layers of flowers in one box. Foliage may be used at the bottom, and light greenery such as *Asparagus Sprengeri*, smilax, and fern, may be used between the flowers and the lid. Flowers should also lie in small bunches as they are gathered. Start at one end of the box, and lay them in regular order, their heads all pointing one way, and one bunch deep, having these a little farther back so as to avoid the flowers of the second row pressing on those of the first. Should it be necessary to pack more than one layer in a box, use a layer of soft tissue paper between them. Firm packing is very essential, rendering movement impossible, but the pressure must be so slight that crushing is avoided.

Care of the Lawn

R. L. Canning, F.C.C., R.H.S.E., Davenport, Ont.

The care and treatment of a lawn is a subject that should interest both the amateur and the professional alike. It is not simply the mowing of the grass that makes or mars a lawn, it is the attention that is given it in the early stages, in its preparation, and in the springtime of each year. Watering and mowing will not make good grass if the grass is not there in the first place.

In the making of a lawn see that it is level, that the drainage is good, and that the depth of soil is sufficient to insure good root action. When the

ground is fit to receive the seed, select a mixture of grasses that will stand hard wear and usage. Sow thickly, roll well and evenly, cover the seed with the back of a wooden rake, or better still, a brush stuck between two boards, and draw this over the ground and crossways, which will insure an even distribution of seed and a fine surface. When the seed has germinated and is about an inch high, roll well and persistently. Watch for bare spots. Should these appear, sow more seed and roll well.

Be very careful when mowing in the early stages. See that the knives are not too low and do not mow too often. If dry weather sets in, water when convenient and with judicious management. As regards leaving the grass on the lawn when cut there is only one answer: "Don't do it." Collect it, or better still, use a machine with a box attached. During the summer, roll as often as good rains permit and where circumstances allow.

In the springtime a dressing of some kind should be given to every lawn, either of fine soil or of light manure or a dressing of soot, sown when rain is near at hand. Sulphate of ammonia is a splendid top-dressing, but it must be sown very sparingly and even all over and watered in, or sown when rain is falling or just previous. It is surprising what it will do in making a bright sward. Roll well and level any obstacles or worm hills after the winter has passed away and make a solid turf for the ensuing summer. As to weeds they can be kept in check by attention, such as hand weeding, which is, after all, the most effectual and satisfactory.

Aconitum.—Monk's Hood.—The aconitums vary in height from three to four feet. They also vary in color from white to dark purple, and are hard to surpass for color in the border. They resemble very much the Delphiniums, and as cut flowers for large vases they are excellent. Unfortunately people are afraid of them because they are poisonous; but so are laurel, arbutus, fox-glove, oleander, *Primula obconica*, and others. The aconitums flower from July to October, and the best varieties are as follows: *Aconitum barbatum*, *Aconitum fischeri*, *Aconitum autumnale* and variety bicolor. This last one produces blue and white flowers, and is very beautiful.—Roderick Cameron, Niagara Falls South.

Not only are beach plums, *Prunus maritima*, valuable for their fruit, but the bush itself is an excellent one for planting near the sea. It delights in such a situation, the soil and air being just to its liking.

The one important item in working clay land is timeliness.

An Attractive Flower Garden

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

THERE is a garden in the city of Ottawa which, probably, has more bloom in it during the summer months than any other private garden



Eremurus Robustus in Mr. Lewis' Garden

in Canada. It certainly has more bloom than any private garden in Canada with which the writer is acquainted. The garden referred to is that of Mr. J. B. Lewis, Dominion Land Surveyor, and occupies about two acres, or more than twelve city lots. Mr. Lewis became enthusiastic about flowers five or six years ago. Beginning with a lot or two, he has gradually increased the size of his garden to what it is to-day. Mr. Lewis began gardening with little knowledge of plants or their culture, but he was determined to spare neither money nor work to acquire both.

Obtaining the catalogs of the best English seed firms he ordered some of

practically everything in this catalogue. He also ordered large collections of herbaceous perennials, roses, azaleas, rhododendrons, ericas and such other ornamental shrubs and trees that took his fancy. The result was an enormous amount of material. Naturally he had many failures, but he has been able to get many things to succeed that had been considered too tender for this district.

Not content with getting plants, he determined to learn as much about them as possible, and so began a collection of books on horticulture, the result being that he has to-day the best private collection of modern horticultural works that the writer knows of in Canada. His library includes Sargent's Sylva. He also has as complete a set as he could procure of the Reports of the Royal Horticultural Society of England. Such works as Bailey's Encyclopedia of American Horticulture and Nicholson's Dictionary of Gardening, may be found among scores of other books on horticulture.

To return to the garden: Mr. Lewis' garden is quite unlike most gardens. Beginning to develop it with comparatively little knowledge of the plants he was using, there resulted a delightful, unconventional style, which charms everyone who loves a garden with the

fast becoming more favored in Canada. When the writer visited it in early July, there was a perfect wilderness of bloom, if one may use such an expression. Foxgloves which had, in many cases, apparently seeded themselves, were in evidence everywhere. Campanulas of many kinds, but especially the graceful *C. persicifolia*, were there by the hundred, and Canterbury bells in great profusion. Mr. Lewis had bought seed of all the best varieties and strains of pinks which he could procure from several seed houses, and mixed them together before sowing. These were in full bloom and the walks which wind about in delightful and maze-like ways were bordered by these sweet-scented and attractive flowers which almost obscured the paths in their wild profusion.

The larkspurs, which have always been a feature of Mr. Lewis' garden, he having obtained the best that could be bought, were beginning to make themselves noticed as their dazzling blue flowers opened. In contrast with these was the yellow *Coreopsis grandiflora*, one of the best hardy perennials there is, and on account of its graceful appearance it seemed particularly adapted to this garden. Many other biennials and perennials were in bloom, but one cannot refer to them here at any length. The old-fashioned sweet William seemed at home and was apparent almost everywhere in many shades of color.

The peonies were about over, but some of the long-spurred columbines, of



A Small Part of Mr. Lewis' Garden—Iris, Lupinus, Pinks, and so on in Foreground

least possible appearance of artificiality about it. To have part of the garden of this character is now very popular in England and the United States, and is

which Mr. Lewis has some very fine ones, were still in flower. Oriental poppies and German iris had faded, but the Japanese iris were just beginning to

bloom. There were many other uncommon and interesting plants in flower. Mr. Lewis is justly proud of his fine collection of azaleas, which were a perfect blaze of color during the spring. He has also been successful with rhododendrons. His collection of ericas is fine. Climbing roses were beginning to bloom in one part of the garden and gave promise of soon making a fine show.

Mr. Lewis kept a man until this year, but he found that the latter had not that fine sense of discrimination be-

tween cultivated plants and weeds which is essential to successful gardening, so now he is adopting a new method and is letting the garden look pretty much after itself, he and a lady assistant merely keeping the faded flowers cut off and pulling out the prominent weeds. There are so many beautiful flowers in this garden that weeds have little chance to grow and if there were weeds they would seem insignificant in comparison with the thousands of blooms to which the attention is compelled.

broken and backset, or old land must be fallowed. With new land, the breaking should be done before, or early in, June, and shallow, and the backsetting in August, or as soon as the sod has rotted, which usually takes six weeks after being broken. After the backsetting, any cultivation that will leave the surface fine and smooth should be done, to give the vegetable seeds, when sown the following spring, a fair chance to germinate. To prepare old land for vegetables, it should be plowed as deep as possible before the June rains are over, cultivated two or three inches deep during the growing season, and plowed four to six inches deep and harrowed before frost sets in.

Obviously, a settler, to have a garden near his house (where it should be for the sake of convenience) must prepare the land either by summer-fallowing (after it has been broken and backset and one crop taken from it), or, as the great majority of gardens are prepared, by plowing or digging in the fall or just before sowing or planting in the spring. The fallow preparation will ensure a good return every year. The latter preparation is the cause of failure throughout the province, and will continue to be so, so long as the seasons remain as they are.

The chief cause of failure is want of moisture. A second cause is lack of time to prepare the soil at the proper season. Both are overcome by fallowing the land the year before sowing or planting.

Two plots are therefore necessary: one being prepared, the other growing vegetables, year about. These plots may be large or small, according to the household, and winter storage capacity. They should be long and narrow, to permit of horse cultivation, otherwise the pigweed will continue to ripen, and the vegetables to die.

A Planet Jr. cultivator, an Iron Age, or some other of equally good make, is one of the vegetable garden requisites. For horse cultivation, all vegetables should be sown or planted in drills. For potatoes, carrots, beets, parsnips, radish, lettuce, onions, and so forth, the drills should be thirty inches apart; for cabbage, cauliflower, pease, beans, and corn, thirty-six inches apart.

CULTIVATION

It is useless trying to grow vegetables without cultivation after they are above ground. Deep cultivation is not necessary, but shallow is, and it should be repeated often, especially during the last of July and all of August. While the rains are falling in June and early July, the soil is better without being stirred, but when dry weather sets in, and the top starts to bake or crack, it should be gone over to break up the evaporation. One or two inches deep is sufficient.

A Western Method of Growing Celery

S. Larcombe, Birtle, Manitoba

MY present method of growing celery is by far the simplest, easiest and the most successful that I have ever tried. I have abandoned raising plants in hot-beds or boxes, and sow the seed in open ground. I choose a plot of good deep soil with an even texture. This is thoroughly enriched with well-rotted manure, ploughed deeply and well cultivated in order to procure a thorough mixing of the manure with the soil; this is one of the essentials to success.

A plot with a slope either to the north or to the south is best; at the bottom of the slope I grow the celery. It is sown crossways, using about twenty-five per cent. of the plot. This in most seasons will give plenty of moisture, which is necessary for successful celery growing.

Sow in rows about six feet apart, and use a Planet Jr. drill for sowing. Sow on the flat, not in a trench. One ounce of seed will sow 600 feet. Bake or otherwise destroy sixty per cent. of the seed, then thoroughly mix destroyed seed with good seed; even in this way celery will come up plenty thickly in the row.

From May 4 to May 12, according to the season, is a good time for sowing. As celery seed is slow to come up, I put a stick at the end of each row to mark them, then if weeds appear I draw a line from stick to stick, which gives me the whereabouts of the celery and enables me to hoe and keep clean from row to row.

As soon as the plants are, say, an inch high, thin to single plants. When four inches high thin to about five inches from plant to plant, then let them grow from twelve to fourteen inches in length, when they should be watered thoroughly; hill up the next day, if plants are dry. Never hill up when plants are wet, as it will produce rust; keep hilling, say about every two weeks or as long as the celery keeps growing. By following this method I rarely have a plant run to seed, and can grow good celery from thirty to thirty-four inches in length, and with less than one-half the labor necessary for the older and earlier methods. As to varieties, White plume and Paris Golden are the best varieties for the west; both being early and of good quality.

The Vegetable Garden in Saskatchewan

Angus Mackay, Supt., Experimental Farm, Indian Head

NOTHING is more apparent to visitors, or any one travelling through Saskatchewan, than the absence of even fair vegetable gardens. Mile after mile may be passed of splendid wheat, or other grain crops, but a minute inspection about the farm buildings has to be made, to determine whether the little patch not in grain is pigweed, left to ripen, or vegetables dying a lingering death from want of care. It is true, here and there a creditable garden is seen, and it is well known that both soil and climate cannot be surpassed to produce in abundance the finest of vegetables in quality and size.

Admitting that farmers have plenty of work elsewhere than in the garden,

yet this need be no excuse for neglecting one of the necessary branches by which, not only can money be saved, but the health, comfort and happiness of the family be assured. Every settler should have and can have, year after year, potatoes, cabbage, turnips, beets, parsnips and onions the year round. He can also have in their proper season, cauliflower, celery, pease, beans, tomatoes, radish, lettuce, cucumber, citron, squash, and so on; and, in addition, every garden should have rhubarb and asparagus growing in it from year to year.

PREPARATION OF LAND

To insure success each year, irrespective of the seasons, new land must be

Some Fungous and Bacterial Diseases of the Potato

Douglas Weir, B.S. A., Biological Department, Macdonald College

(Continued from last issue)

PROF. L. R. JONES, of the Vermont Agricultural College, Burlington, has recently published the results of some interesting experiments with the fungus rot (18th report, Vermont Agricultural Experiment Station) and as the climatic conditions of Vermont and

profusely and the results of the experiment were consequently well marked. The following are the yields recorded in pounds: Soil sprayed—sound tubers, 60.2; rotten tubers, 12.5. Soil unsprayed—sound tubers, 13.5; rotten tubers, 57.9.

DISCUSSION OF RESULTS

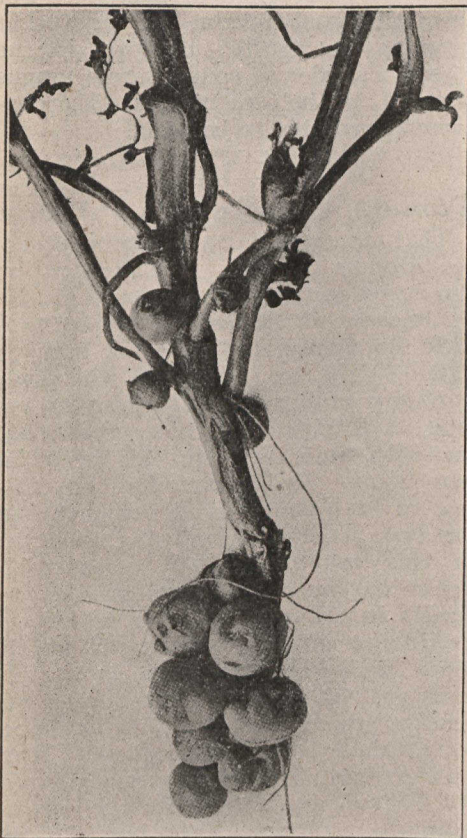
Professor Jones writes: "The results of the two trials are in general agreement in showing, not only that the disease passes from leaf to tuber, but that the main channel at least is through the soil rather than through the stem." The professor, in concluding, informs us that the rot appeared in spite of the spraying, and in view of this fact *all* the infection cannot be explained by the sporulation from the leaves or the passing of the fungus threads through the stem; but undoubtedly some spread occurs from tuber to tuber in the soil. Professor Jones fails, however, to state whether the potato sets used in his experiments were free from blight when planted. Some of the questions that would naturally present themselves to the potato grower in this connection are:

tribute the consequent infection to spores, blown from diseased plants, effecting an entrance through tuber or leaf, or to spores from decayed tubers or stems already in the ground.

If the sets were gathered at random, some would undoubtedly be infected. If, however, they were known to actually contain the dormant hibernating mycelium of the phytophthora blight at the time of planting, we would have a clearer basis to work on and the results of the experiment would be more comprehensive. At all events, Professor Jones proves that, after the plant is infected the further spread of the fungus is largely by the leaf spores (conidia) falling to the ground and being carried by rains to the tubers as previously mentioned.

AN EXPERIMENT

Another experiment conducted under the direction of Professor Jones, with a view to ascertaining whether the fungus spreads from tuber to tuber in the soil, proved this to be the case. Professor Jones states that "upon digging at different times and places during the last



"Little Potatoes," Rhizoctonia

Formed on stem or branches above the point of injury. (From Bulletin No. 70, Colorado Experiment Station.)

Quebec are similar, his experiments may perhaps deserve our attention.

Professor Jones selected Delaware potatoes which were planted in the early part of June in a heavy, moist, clay-loam. On August 2, the surface of the soil immediately under and surrounding the potato plants was sprayed, with Bordeaux mixture (copper sulphate 6 lbs., lime 4 lbs., water 40 gals.), care being taken to prevent the mixture falling on the foliage. Spraying was repeated on August 18, and up to this time no phytophthora blight had been seen. Soon after the second spraying, however, the blight appeared and developed rapidly throughout the rows during September. The final spraying was given on August 28, so that after spraying had been concluded, one-half the plants had been treated three times and the other half remained untreated for comparison. As September was a wet, warm month, the blight developed



Tomatoes Grown in Alberta—See Next Page

(a) Were the potato sets experimented with free from phytophthora blight?

(b) Were they gathered at random?

(c) Did they actually contain the hibernating mycelium and show the characteristic markings?

If the sets were free from the fungus when planted, we would naturally at-

tribute the consequent infection to half of the month (Sept., 1905), the fungus (phytophthora) was frequently found growing in tufts from the surface of decaying tubers; and such tufts were always richly covered with spores. Moreover, the soil conditions were favorable for their development and for further infection of tubers, as was shown by the fact that some of these

spores were found in process of germination, *i.e.*, zoospore formation (swimming spores); moreover, the fungus threads or mycelium were found ramifying through the interstices of the soil for one-fourth to one-half of an inch from the surface of such decaying tubers and there sporulating abundantly." These facts would seem to prove conclusively that the spread of the fungus from tuber to tuber actually occurs.

GENERAL RESULTS OBTAINED

Summarizing the results obtained, both by Professors Masee and Jones, we note that there are several ways whereby this phytophthora blight is disseminated.

(1) Infection of tubers by means of spores, the latter being conveyed by rains and so forth to the tubers.

(2) Infection of tubers by spores from adjacent decaying tubers, particularly in moist soil.

(3) Infection of tubers of same plant, by mycelium extending from diseased tubers through the stem into adjacent tubers.

(4) Infection of the plant by mycelium, through planting diseased sets, in which case the fungus threads develop with the plant, sporulating on the leaves and under favorable conditions the tubers.

(5) Infection of host plant, by means of spores, blown from neighboring diseased plants, obtaining entrance directly or through the leaf stoma.

Considering these various ways of infection, it is clear that the long-practised method of spraying with Bordeaux mixture should be persistently continued so that the blight may be controlled in its preliminary stages and the fungus spores either destroyed or kept well in control. If these spores infect the tubers and the infected sets are planted the following spring, the fungus would develop with the plant, maturing even more rapidly and producing sufficient spores to infect the whole neighborhood.

THE POTATO SCAB

The term scab refers to the irregular rough areas on the tubers, and is caused by the fungus *Oospora scabies*. This fungus was widespread throughout the State of Maine during 1905-6, but is successfully controlled by treating the tubers before planting with either corrosive sublimate or formalin.* As this precaution is commonly in vogue there is no good reason why this disease should prove destructive. Quebec was comparatively free from this fungus.

THE FUNGUS WET ROT

There are several forms of wet rot, some being due to fungi, and others to

bacteria. Of the parasitic fungus forms, the one which seems to have caused the most recent damage is *Rhizoctonia solani*.

This fungus is found parasitic upon the potato tubers and occasionally gives rise to a series of adventitious tubers upon the stem. It may attack the plant at or beneath the surface of the ground, and by girdling the stem, prevent the development of tubers. In severe cases a wet rot occurs, resulting in the death of the plant; but, in milder forms, it simply girdles the stem.

Dr. Nelson (Bulletin No. 71, of the Wyoming Experiment Station) informs us that this disease was particularly



Rhizoctonia

Showing the result of sowing infected seed potatoes.
(From Bulletin 70, Colorado Experiment Station.)

destructive in the middle west and in the Rocky Mountain states during the past few years, and as reports of its occurrence have been received from Ontario (Huron County) and New Brunswick, it is quite possible that it may be far more widely prevalent than heretofore supposed.

Prof. F. M. Rolfe, of the Colorado Experiment Station, after exhaustive investigation, observes that there are three characteristic stages of the disease. These he designates: *The Rhizoctonia stage* where only the fungus threads are present; *The Corticium stage*, where minute spores borne upon short lateral threads appear, and *The Sclerotium stage*, where compact masses of fungus threads are observed on tubers and stem. This is the hibernating stage of the fungus over unfavorable weather conditions and it is in this form that the disease is carried over winter, the

sclerotia germinating following spring. It seems probable that this disease, in affecting an entrance to, and injuring the potato tuber, prepares a condition suitable to the growth of bacteria which enters the tuber and gives rise to a bacterial wet rot. No specific instance can be given to prove, in this case, that there is any special symbiotic relationship between the fungi and bacteria; at the same time, it would appear that the tubers, ramified with fungus threads, are more susceptible to bacteria. For this additional reason, we urge that spraying be resorted to early in the season, in order to control these fungus diseases and help to minimize the conditions favorable to bacteria.

(To be continued.)

Tomato Growing in Alberta

That tomatoes can be grown successfully in Alberta is evidenced by the accompanying illustration. Mr. W. P. Reeves, of Edmonton, an enthusiastic horticulturist who has been in Canada only two years, and who made a hobby of general gardening in the west of England for many years, has met with much success in this line at his new home. Mr. Reeves does not profess to be a professional gardener, but his first attempt at growing tomatoes in this country created considerable notice on the part of professional gardeners in the west. Owing to his experiencing different conditions of climate than accustomed to in the old country, his efforts have not yet reached the perfection that he hopes to attain. To THE CANADIAN HORTICULTURIST, Mr. Reeves recently wrote:

"The plants shown in the photograph were obtained from both English and Canadian seeds. They were raised in an open hotbed, but I intend starting them, in future, as they should be, in a frame. The seed should be sown in the latter part of March, and the plants transplanted to the open in May, when they should reach 8 or 9 inches in height and be in the first bloom. The custom, as far as I have seen in this country, is to allow the side-shoots and undergrowth to grow. These should be trimmed to the main stem in order to allow more nourishment to be thrown to the fruiting spikes. The plants should be well watered. The soil here is a black loam with a sandy sub-soil. The latter is not as advantageous as a heavier sub-soil, as it requires more fertilizing."

Bandaging Trees.—I am a thorough believer in bandaging trees to prevent the onslaught of insects. The large number of insects I have found in the bands around my trees are all the proof I require of the advisability of bandaging. —Adolphus Pettit, Grimsby, Ont.

*Two ounces corrosive sublimate dissolved in two gallons hot water; then make up to fourteen gallons. Leave seed potatoes for one and a half hours. Allow potatoes to dry before cutting or planting. Half pint of formalin to fifteen gallons water, soak potatoes two hours, then dry and cut.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of *The Horticulturist* are invited to Submit Questions on any Phase of Horticultural Work

Budding Fruit Trees

Which month is best for budding fruit trees?—C. H., Winona, Ont.

The usual time for budding is in August or the early part of September. Budding may be done at any time during the growing season, when the bark peels easily, but in Canada, late work is necessary to prevent the buds starting into growth in the fall and subsequently being winter-killed.

Cut Worms in Gardens

I am sending a box of insects. Could you tell what they are and how I can get rid of them. They have eaten all my carrots, beets, turnips, parsnips and flower seedlings, biting the heads off when an inch high. I have tried lime, wood ashes, and Paris green without success. I have also a great many brown caterpillars in the earth round the plants. Is there anything I can do for them besides hand picking?—S. B., Ile d'Orleans, Que.

The specimens of insects submitted are the young of grasshoppers. As these do not give much trouble in gardening, it is probable that our correspondent has not sent the insects that are doing the damage. The many brown caterpillars that were to be found in the earth around the plants are the fellows who made the trouble. They are cut worms and may be dealt with by using a poisoned bait. Use bran at the rate of about ten pounds to four ounces of Paris green. Mix thoroughly when dry, then water, lightly sweetened with sugar, should be added until the whole is wet, but not sloppy. Scatter the bait along the rows. Ten pounds will do for an acre. It is probable that, by this time, the cut worms will have reached the pupa stage, when they are no longer troublesome.

Ivy Geranium

What can I put on an ivy geranium plant to kill small green spiders or lice? I do not know whether they are spiders or lice.—A.S., Aylmer, Ont.

It is probably the green aphid or green fly attacking the ivy geranium. A strong solution of tobacco water sprinkled on the plant where the insects are, or brushing them off with a small brush on to a sheet of paper and destroying them, are the best remedies. Tobacco solution can be made by pouring boiling water on tobacco stems or leaves sufficient to cover them. Cover up the solution until cold and apply without diluting with water. About a half a pint of boiling water poured on to a broken up cigar and allowed to cool, makes a good solution for green fly.

Plug smoking tobacco will also make a solution, but not as good as those before mentioned.—Answered by Wm. Hunt, O.A.C., Guelph.

The English Violet

What is the best method of growing and caring for the hardy English violet?—M.A.T., Queensboro, Ont.

The English violet is best raised from seed sown in April, May, or early June, in the place they are to grow permanently if possible. Violets like a fairly moist position and partial shade during the hottest part of the day. I sowed a few seeds in 1897 on a piece of lawn partially shaded by trees for a few hours at noon-day. For the last three or four years the piece of lawn—nearly a quarter of an acre in extent—was a sheet of blue violets for several weeks in early summer, the perfume from them being most delicious, scenting the air for a long distance around. The few seeds first sown had reproduced themselves and spread over the whole lawn. A too sunny or a very dry position does not suit the English violet.—Answered by Wm. Hunt, Ontario Agricultural College, Guelph.

Protection for Perennials

Last winter I had a large number of my perennials winter-killed. Among them were hollyhocks, shasta daisies, larkspurs, Canterbury bells, and phlox. They were protected by a few inches of leaves, kept in place by the stocks of the plants grown the previous summer. (1) Would they have done better without any protection? (2) What is the best method of protecting perennials in winter?—M.A.T., Queensboro, Ont.

1. It is questionable if the perennials mentioned would have survived the past winter without protection. The frequent alternate thawing and freezing experienced last winter and spring was very hard on border plants. Plants that were properly protected last winter came through the best with us. Possibly too much material was applied to the plants mentioned.

2. There is no better method of protecting low-growing, tender border perennials than by first placing some coarse, brushy trimmings, such as the tops of coarse growing perennials or some small pieces of brushwood or raspberry trimmings on or over the plants first. Then shake over these a few leaves or strawy manure barely sufficient to cover the brush. This collects and holds whatever snow falls, the last named being the best plant protector we have. Avoid putting a large quantity of leaves or manure close down on the plants, as this

oftentimes induces an ice crust to form over the plants and smothers them by the total exclusion of air. Pine boughs alone make good protective material for border plants in winter. Answered by Wm. Hunt, Ontario Agricultural College, Guelph.

Poppies in Winter

Do perennial poppies need protection in winter?—M.A.T., Queensboro, Ont.

Perennial poppies do not require any protection in winter as a rule, except to leave their own foliage on them. In fact, it is best to leave the old foliage on all perennials until spring. It is their own natural protection.

Cutting Elm Trees

What is the best time of year to cut elm trees to keep them from sprouting again?—T. R., Chatham, Ont.

The time to hurt the sprouts most is in August, when the tree has made its growth and has not had time to recover. If cut at this time, the sprouts will be feeble and most easily killed.

Harvesting Onion Sets

Give some information on harvesting onion sets. Is it necessary for the tops to die completely before the bulbs can be taken up?—H. L., New Westminster, B.C.

Harvest onion sets when the tops begin to die down. They may be raked together in windrows or lifted out with a set of attachments that are usually furnished with a Planet Jr. or Iron Age wheel hoe. Leave on the ground two or three days to cure. Then put under shelter and spread on a dry floor. Watch them, and if necessary, move every two or three days to prevent heating. When thoroughly dry, clean them at leisure, removing the top and the few remaining roots. The adhering soil and sand may be removed by running the onions through a fanning mill. Determining the size of the bulbs to be used as sets is best accomplished by the use of a grain sieve; all bulbs that will not pass through a three-quarter inch mesh are too large for sets, and should be sold in the fall for pickling onions. To keep the sets through winter, they should be stored in a cool, dry place. Store in shallow, open crates and protect them in extremely cold weather by covering with old carpet or blankets. Remove these in moderate warm spells and ventilate the room thoroughly. Cool, dry air circulating among the bulbs dries out the moisture and prevents sprouting.

The Canadian Horticulturist

Published by The Horticultural
Publishing Company, Limited

The Only Horticultural Magazine
in the Dominion

Official Organ of British Columbia, Ontario, Quebec
and Prince Edward Island Fruit Growers'
Associations and of the Ontario Veg-
etable Growers' Association

H. BRONSON COWAN,
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1. THE CANADIAN HORTICULTURIST is published on the 25th day of the month preceding date of issue.
2. Subscription Price in Canada and Great Britain 50 cents a year, three years \$1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage. Foreign subscriptions, \$1.00 a year, including postage.
3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than \$1.00.
4. Discontinuances—Responsible subscribers will continue to receive THE HORTICULTURIST until the publishers are notified by letter to discontinue, when all arrearages must be paid.
5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.
6. Advertising Rates quoted on application. Sworn circulation 6,800. Copy received up to the 18th. Responsible representatives wanted in towns and cities.
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ANOTHER CONFERENCE NEEDED

The need for the holding of another Dominion Fruit Conference next year is so pronounced, and the desire that it should be held is so great, it is to be hoped that nothing will occur to prevent one being held. It is important that these conferences should be held at regular intervals. Every year, questions of more than provincial interest have to be dealt with by the growers in each province. These matters are disposed of in different ways in the various provinces. At a Dominion conference the various lines of procedure that have been adopted are considered, and uniform action agreed upon. The sizes of packages is a case in point. When a long period is allowed to elapse between conferences, it is more difficult to secure harmony of action and time is lost by the delegates in getting acquainted with each other.

We trust that Hon. Sydney Fisher will recognize the importance of the questions that require consideration, as outlined in this issue by Sec. Hodgetts of the Ontario Fruit Growers' Association. They do not cover the field, but in themselves are of sufficient importance to warrant the holding of another conference next year. This is another of those matters in which the fruit growers of the Dominion would have greater confidence that their desires would

be complied with were the fruit division of the Dominion Department of Agriculture under a commissioner responsible only to the Minister of Agriculture.

AN EASTERN STATION REQUIRED

Since our remarks in the August issue respecting the establishment of an inspection and fumigation station near the eastern border of British Columbia, for the handling of nursery stock from eastern Canada, many letters have been received from growers who emphasize the importance of such a move on the part of the Government of that province. By the present state of affairs, the British Columbia fruit grower is excluded from the benefit of the competition between nursery firms, of eastern nurseries, and when he does import eastern trees he has to pay a much higher price than he otherwise would. Such a law as that in force in British Columbia might almost be considered a direct violation of the Confederation Act. It means that the nurserymen of the province of Ontario cannot ship goods to the province of British Columbia under as favorable conditions as nurserymen in two states in a foreign country.

In the case of customs, the port of entry is always where the goods are entered, and if the goods are not examined there, they are sent through in bond to a local custom house officer. All means are taken to facilitate the importation of nursery stock from the states. In this case, however, the port of entry is at the back door of the province. It is the same as saying that goods from the province of Quebec consigned to growers in Eastern Ontario had first to go through and be examined at Windsor. Besides these arbitrary measures, eastern nurserymen are required to put up a \$2,000 guarantee bond before they are allowed to sell stock in the province of British Columbia, and their salesmen are obliged also to pay a license fee of \$5.

The control of these matters seems to be in the hands of the Board of Horticulture at Victoria, some of whose members appear to be determined to freeze out all eastern nursery concerns. The inspection and fumigation station, also, is under the control of men who have some singular occurrences to account for. A few seasons ago an Ontario nursery firm shipped some trees that were perfectly healthy, but had a few hail marks. The inspectors treated the hail marks with acid, for San Jose scale, and not being exactly sure what was the matter, forwarded them to the Central Experimental Farm at Ottawa. The Ottawa officials identified the injury as hail marks. Some of these inspectors, through their lack of knowledge of varieties, have been known to condemn trees of a variety which naturally is a poor grower, but which may be first-class trees of their own kind, although only third-class of another variety, more vigorous and thrifty.

An argument of the British Columbia government against the importation of eastern trees is based on the question of injurious insects and fungous diseases. They contend that eastern trees are more liable to be infested with pests than those grown in the coast states. Direct evidence proves this contention to be erroneous. An excellent illustration was furnished this spring. In fifteen cars of trees imported from the western states, about 35,000 were condemned, or 2,333 trees in each car. In two cars from Ontario, 523 were condemned, or 261 in each car. An ordinary car, twenty-six feet long, will hold about 16,000 trees. Calculated on this basis, fourteen per cent. of the United States trees imported are condemned, and only two per cent. of those from Ontario. This shows that eastern trees are the most free from pests.

It is encouraging to find that leading publications in the fruit centres of British Columbia, such as *The Inland Sentinel*, of Kamloops, are outspoken in favor of a change in the present arrangement. Once the fruit growers of British

Columbia realize fully the handicap they are laboring under they will demand and secure the needed reform.

WILL VISIT THE WEST

No better evidence that THE CANADIAN HORTICULTURIST is a national publication in every sense of the word, is afforded than by the fact that its circulation extends from the Atlantic to the Pacific. During the past year the circulation of THE CANADIAN HORTICULTURIST has grown more rapidly in the outlying provinces than it has in Ontario, the province of publication.

The greatest proportionate increase has taken place in British Columbia, where the circulation of THE CANADIAN HORTICULTURIST has increased more during the last six months than during the previous thirty years. Our western advertising has increased in proportion. These facts are only an evidence of the great development that is taking place in the fruit and horticultural interests of the west. Desiring to keep in close touch with western horticultural interests, arrangements have been made by which a member of our staff will visit the west, including British Columbia, during September. Our representative will tour the principal fruit centres, and later will contribute a series of articles to our columns dealing with conditions in the west, and with the prospects for further development, as he finds them. It is our desire to establish THE CANADIAN HORTICULTURIST on broad national lines, and we hope that the results of the proposed articles will assist in bringing the fruit men from one end of Canada to the other into closer touch with each other.

Fruit growers in the western provinces should be cautious about buying from nursery firms that they do not know. There are some United States firms operating in the west who represent their stock as grown at Calgary, or elsewhere in the west as the case may be. The fact is that the stock is grown in the states, and in some cases in the south, and imported from there into Canada and distributed from a central point in the west to western growers. It is folly to expect such stock to do well. As a rule, it is too tender to withstand the rigorous climate of the west. Besides, it is delayed at the border for fumigation and inspection and, as a consequence, arrives late and much impaired in vigor. A letter from one grower in the west states: "Out of five hundred trees that I bought from a firm of this kind, only three or four are alive." It would be well for western fruit growers to purchase their trees from Canadian nurserymen, preferably those whose climatic conditions are somewhat similar to their own.

Iced Cars for Fruit

W. W. Moore, Chief, Markets Division, Ottawa

The Dominion Department of Agriculture has arranged again this year with the Grand Trunk and Canadian Pacific Railways to provide iced cars for the transportation of fruit shipped to Montreal and Quebec for export, during the months of August and September; the cost of icing to the extent of \$5 a car to be assumed by the department. The agreement provides that these two railway companies will, during the period named, on proper application from shippers, supply as far as practicable, iced cars for the transportation of fruit in carloads, the minimum weight to be 24,000 pounds. This arrangement will also apply in the case of less than carload shipments when forwarded in one car by one or more consignors from any one station, provided the aggregate weight of the shipments is not less than 24,000 pounds.

The ice is to be supplied on the basis of \$2.50 a ton of 2,000 pounds, and when more than \$5 worth is supplied the shipper or consignee must pay the excess amount. Shippers are expected

to state, through their railway agent, the amount of ice to be utilized in the initial icing and whether cars are to be re-iced in transit. The shipper should also see that the cost of icing up to \$5 is charged forward against the department. Last year, under a similar arrangement, 102 carloads of fruit, mostly early apples, were shipped in iced cars prior to the end of September and it is to be hoped that this year a much larger number of shippers will avail themselves of the privilege offered.

In this connection I wish to point out the advantages possessed by the St. Lawrence route for export shipments of early fruit. In addition to the iced cars above referred to, which, if the fruit is in proper condition when loaded, should land it at Montreal or Quebec in good condition, the shipper has the further advantage of the over-sight exercised by the cargo inspectors of this department, who are on the docks day and night for the purpose of seeing that packages of fruit are carefully handled and properly stowed in the ship. The refrigerator chambers are also inspected and thermographs are placed so as to record the temperature maintained in the chamber during the voyage. Inspectors are again on hand at the ports of discharge in Great Britain to note the condition of the fruit when landed and the handling it receives. If the shipper, therefore, takes pains to ship his fruit in good condition he may rest assured that it will reach the other side in first-class shape.

Something for Dairymen

The subjects that will be dealt with in the four issues of *The Canadian Dairymen* for August will not be only timely but of great value and interest to dairymen and farmers generally. On August 7 harvesting crops and producing milk for condensed milk factories will be featured. This latter question will involve a comparison between conditions relative to and profits resulting from the production of milk for condensories, and producing milk for city consumption, creameries and cheese factories, together with a comprehensive description of the process of manufacturing condensed milk.

Power on the farm will be the main subject treated in the August 14 issue. The various forms of power will be discussed, their advantages and disadvantages, and the saving in time and labor effected through their use. On August 21, cultivation for fall crops will be taken up. In this issue all matters pertaining to the preparation for fall crops, their cultivation rotation and so forth will be dealt with.

Silo construction and points pertaining thereto will constitute the special subject for the issue of August 28. Together with these special subjects letters and articles touching on all phases of dairying will be presented.

During this month the cheese and creamery department of *The Dairymen* will be especially interesting. Efforts are under way to strengthen these departments. Each issue will contain letters from practical and competent men, dealing with seasonable subjects that will be of inestimable value to men engaged in cheese or butter making. The subscription price of *The Canadian Dairymen* for one year is one dollar. Sample copies can be had by dropping a card to the Dairymen Publishing Co., 506-7-8 Manning Chambers, Toronto, Ont

That British Columbia is becoming a great fruit growing province is evidenced by the enthusiasm and success of all persons who have bought land for that purpose. Some of the best fruit land is still available and is being offered for sale by Messrs. McDermid and McHardy of Nelson, B.C. See their advertisement on another page.

The annual convention of the American Association of Park Superintendents will be held in Toronto on Aug. 15, 16 and 17.

New Brunswick Fruit Growers' Association

IN accordance with the suggestion to that effect made at their last annual meeting, the New Brunswick Fruit Grower's Association held an illustration meeting at the orchard of the president, Mr. J. G. Gilman, of Kingsclear, on June 26. The principal speakers were Mr. G. H. Vroom, the Dominion Fruit Inspector, and that well-known entomologist, Mr. McIntosh, the Curator of the Natural History Museum of St. John.

In giving a practical demonstration of spraying, Mr. Vroom clearly described "how not to do it," and explained that some orchardists thought it necessary to "wash" their trees, a proceeding that was worse than useless. He laid great stress on the importance of having the spraying mixture properly made, and the Paris green thoroughly well incorporated with the mixture, and recommended that the latter be not added till just before commencing to spray, as being of a heavy nature, and insoluble in water, it would sink to the bottom and the benefit of it be lost, if mixed long beforehand and allowed to stand. He also emphasized the necessity of spraying just after the blossoms have fallen, as by that means the spray was able to reach the ends of the blossoms where the codling moth was in the habit of laying her eggs, and so be in readiness for the young caterpillars when they came out to feed. He recommended the bandaging of trees as one means of dealing with insect pests.

A move was subsequently made to the adjoining orchard of Mr. S. B. Hatheway, where a young orchard had recently been laid out under the direction of Mr. T. A. Peters, the deputy commissioner of agriculture, after the manner of the illustration orchards which the provincial government is setting out in various parts of the province. Mr. Peters explained the method of laying out and planting the trees, and the subsequent cultivation of the orchard, in a most appreciative manner.

SOMETHING ABOUT NATURE STUDY

At a public meeting Mr. McIntosh said he was glad to find that there was a widespread awakening, not only in this province but in the country generally, as to the value of nature study. Some people thought that nature study and natural history were the same thing, but this was not so. A naturalist was a specialist, one who made a special study of all the animate and inanimate objects of nature, with the view of learning all there was to be known about them; whilst the pursuit of nature study simply meant the obtaining a general knowledge of such objects, a little about all of them; in fact, just sufficient to know and understand how they live and move and have their being. He found it especially gratifying to see the growing desire for such nature studies among the children and the opportunities which the schools were providing for its teaching. The existence of the brown tail moth was discovered in Nova Scotia by a student of nature. So far this pest had only been found in two places in New Brunswick, and in each case it was a mature moth and not the caterpillar.

The speaker then described fully the various insect pests with which the orchardist is usually troubled, which included the bud moth, the codling moth, the aphid or green fly, the oyster-shell bark-louse (which he described as the most widespread of all the insects pests of the province), the borers (for which latter there was no perfectly satisfactory remedy), and the tent moth, which might perhaps be sometimes mistaken for the brown tail moth. The caterpillar of each was somewhat alike, but not exactly. The brown tail moth usually made its nest at the end of a branch, whereas the tent moth usually chose the spot where a branch joined the stem of a tree, or the fork between two branches. In concluding the speaker said that nature study was most valuable because of the knowledge gained of the various insect

pests which damage the farmer's crops; and as such knowledge increased, so would the knowledge of farming; and better crops and more money would, as a natural consequence, result to the farmer. Mr. McIntosh's remarks were illustrated by large colored drawings of the several moths and caterpillars described, which made the subject most interesting and intelligible to his audience.

In an address by Mr. Vroom, he expressed the pleasure he had received in listening to the remarks of Mr. McIntosh, which showed that even the oldest orchardist had something to learn. He cordially agreed with the president that these meetings were the best means of disseminating knowledge it was possible to have, and as the last speaker had truly said the more knowledge the farmer had the better would be his crops. Some people thought apple growing was all profit. Whilst this was not the case by any means, there was no doubt that properly attended to there was money in it. But in their desire to care for the orchard, they must not neglect the other part of their farm, but treat the orchard as an adjunct of the farm.

To be successful, it is necessary to have good land, well drained and well cultivated, and kept in good condition. Only the kinds of trees suited to the locality should be planted; it is simply a waste of money to buy an inferior quality of stock. When planting, be careful to trim the roots and tops of the trees. If the whole of the tops were left on when transplanting, the strain on the remaining roots was too great for the tree to stand successfully. It was advisable to be somewhat sparing in the use of fertilizers, as it would only tend to make too much wood, but as soon as the tree began to bear, it would be of advantage to dress with a little potash, and this could be applied in the form of hardwood ashes.

Mr. T. A. Peters, the deputy commissioner of agriculture, in speaking of the caterpillar of the brown tail moth and its likeness to the caterpillar of the tent moth, said that though in general appearance they were somewhat alike, the brown tail caterpillar had two red spots on its back near the tail end which the tent caterpillar had not, so that any one finding these spots would know the kind of caterpillar he had to deal with.—G. Bidlake.

Messrs. Stone & Wellington, of Toronto, have had many years' experience in shipping nursery stock to the western provinces and British Columbia. That their stock has been received with favor and is doing well, is evidenced by the letters received by that firm from its many satisfied customers in the west. Mr. John Ryan, Sr., of MacLeod, Alta., wrote: "I have had a letter from the Deputy Minister of Agriculture from Edmonton, inquiring of me in regard to the growing of fruit trees in Alberta, the shelter required, etc. I told him that I had some fruit trees from Stone & Wellington, of Toronto, that could be seen in my garden at any time, and were doing well. He has sent me some forms to fill in, which I have done, and I have recommended your firm to him." A letter from Mr. Max D. Major, of Fern Point Fruit Farm, Winnipeg, Man., states: "Having purchased most of my nursery stock from you for many years past, I have pleasure in adding my testimony to the excellent quality thereof, in particular as to the truthfulness of name. I cheerfully recommend any prospective customers to place their orders with you. I may also add that I have always found your business dealings perfectly square and honorable." Mr. H. H. Sparling, Lorne Park, Sask., writes: "Nursery stock received in good condition. I must say the stock is very fine. The people are more than satisfied; they say it is the best stock ever shipped to Saskatchewan."

Fruit Crop Promises Fairly Well

THE yield of apples in Canada promises fairly well. The outlook in the Annapolis Valley of Nova Scotia is good. In Quebec, the crop will be below medium. Reports from various sources in Ontario are bright, although fruit is dropping badly in some districts. It is probable that the next few weeks will see a decrease in the prospects. The prospects for good prices are excellent. The crop in British Columbia promises to be, on the whole, below the average. The situation in the United States indicates that there will be little or no surplus apples for export. In many of the apple producing states the prospects are not bright. A shortage in the crop generally is looked for. The situation in Canada is mentioned in the following reports from crop correspondents of THE CANADIAN HORTICULTURIST:

ANNAPOLIS COUNTY, N.S.

Paradise.—Nonpariels are an entire failure, and this means much to western Annapolis. Gravenstein may be 25% of a full crop; Baldwin, Ben Davis and Yellow Bellfleur, 50%; Spy, King, Ribston, Blenheim, Greening and Golden Russett, 75%. The whole crop may average 50%.—B. Starratt.

KINGS COUNTY, N.S.

Port Williams.—The prospects for a good crop are favorable. Pears will be a full crop; plums, except Japanese, a full crop. Apples are of good quality and free from spot. Present prospects indicate a shipping crop fully equal to last year.—J. Donaldson.

Auburn.—Prospects for a good apple crop are bright, except with Baldwins and Gravensteins that bore heavily last year. Cranberries are showing well and if the early frosts keep off, the berries will ripen.—J. S. Bishop.

Kentville.—The weather lately has been excellent and a good apple crop is expected. Kings county never looked more promising or beautiful. Growers and farmers have lost that anxious look occasioned by the late season.—M. G. De Wolfe.

ROUVILLE COUNTY, QUE.

Abbotsford.—The apple crop will be lighter than last year. The June drop was unusually heavy. The curculio has done its share in producing these results. Apples are free from spot as yet, but the fungus is showing on the leaves. European plums, a failure; American plums, a medium crop; Flemish Beauty pear, medium; cherries, light; small fruits are a full crop and of good quality.—J. M. Fisk.

ST. JOHN'S AND IBERVILLE CO., QUE.

Henrysburg.—Prospect for plums and apples are discouraging; not half a crop in this section. Japanese plums looked fine in blossom, but there is not a single sign of a plum.—J. Spencer.

HASTINGS COUNTY, ONT.

Belleville.—The strawberry crop was only about one-half of that of last year. Cherries turned out well. Currants and gooseberries are coming in and look fine. The apples will turn out a medium crop. Pears will be a full crop.—F. S. Wallbridge.

WENTWORTH COUNTY, ONT.

Hamilton.—Present indications point to a yield below the average. Strawberries, short crop; cherries, fair; plums, fair; white peaches, light. The plums are dropping badly. Pears will be a fair crop, and grapes are expected to be heavy.—Jas. A. Stevens.

LISGAR COUNTY, MAN.

Pilot Mound.—A good crop of small fruits

is expected. Crabapples promise well. Rabbits were very destructive to the fruit trees last winter.—H. M. Speechly.

MACDONALD COUNTY, MAN.

St. Charles.—Fruit crop prospects are good. The winter was a long and severe one, and the spring possibly the latest on record in Manitoba, at least since the days of modern settlement, but notwithstanding this we are having a good season for fruit, but the main reason for this is the entire absence of spring frosts. The early spring was so cold that there was no growth, but when the weather finally did turn warmer and the buds began to expand, there was no setback. Not once after growth started was there any close approach to the frost mark. At the time of writing, currants, gooseberries, raspberries, and so on, are loaded with fruit. Strawberries, which are now being picked, are hardly up to the average, owing to very warm, dry weather recently. The drouth has not injured the other fruits so far, but raspberries will suffer if it is continued much longer. Tree fruits are also a fine crop. Plums are well loaded, though in some cases "plum pocket" has injured the crop. This has been entirely prevented in our orchards by spraying with Bordeaux mixture, double strength, before the buds open. Crabapples, of which there are a few orchards in sections of Manitoba, are giving a good crop, and standard apples, where grown, are also promising.—D. W. Buchanan.

VALE AND CARIBOO COUNTY, B.C.

Spence's Bridge.—Most all fruit is a light crop caused by extreme frosts. Cherries, peaches and apples, fair.—A. Clemes.

Kamloops.—The crop this year will be about an average one, with the exception of peaches, which were badly winter-killed.—J. T. Edwards.

Fruit Trees

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An immense stock of all the hardy varieties. Field grown stock with masses of fibre.

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Ontario Vegetable Crops

THE vegetable crop in Ontario is late but is looking well, report the crop correspondents of the Ontario Vegetable Growers' Association. Frost in the south-western part of the province did some damage. The demand for green truck from Essex County exceeds the supply, and many new greenhouses soon will be built for cucumbers and other crops. All kinds of truck are looking well in the vicinity of Hamilton and Toronto.

The potato crop of the province promises to be only fair. Table roots, including turnips, parsnips, carrots and beets, are doing well and will be plentiful. The celery prospects are bright; it is probable that there will be a large crop. Cabbage will not be very plentiful. The onion crop will be quite late, but it is expected that the yield will be fair to good. Corn will be medium. Melons promise to yield an average crop.

OTTAWA DISTRICT

Ottawa.—Radishes have been a short crop; lettuce, a glut; bunch onions, in the early spring, were a glut; now there is barely enough to supply the demand. White turnips are plentiful; good peas, scarce; western cabbage, scarce. Late cabbage will be scarce next winter, but the celery crop will be one-third more than usual. Winter roots are going in nearly double of last year, except parsnips, which started poorly. Early varieties of corn will be heavy, but main and late crops will be light.—T. Mockett.

WENTWORTH COUNTY

Hamilton.—Everything in garden truck looks well. Cauliflower, beans and potatoes are among the new arrivals. New potatoes are selling at 70 cts. a basket; cauliflower, 10 cts. a head; and beans, 90 cts. per basket. Peas have been in some time and are now quoted at \$1 per bu.

New carrots, five cts. a bunch; beets, 20 cts. a doz. bunches. Tomatoes are not looking any too well and will be light.—J. A. Stevens.

TORONTO DISTRICT

Humber Bay.—All crops have made rapid growth and are looking well. Butter beans are now being taken to market. Prices are equal to last year.—J. W. Rush.

ESSEX COUNTY

Leamington.—The main crop of tomatoes will not be here till the last of the month; a few early ones on the market now. They are setting heavy and a large crop is looked for. Reports state that many plants have been frozen. This will tend to raise prices and make up for the losses sustained by lack of July shipments. Cabbage is being shipped now in large quantities, selling at \$1.50 a half-bbl. crate. Wax beans do not promise a fair crop, selling at 75 cts. a 11-quart basket. Cucumbers are still scarce. More glass houses will have to be built to supply the demand for this vegetable, selling at \$1.15 a 11-quart basket for A1 stock, and 90 cts. to \$1 for lower grades. Melons are now growing well. Onions promise a fair crop. Early celery will not be in for some time. Peppers, eggplant, etc., are now growing fast and some peppers are ready for shipping. New potatoes selling at \$1.50 a bushel.—E. E. Adams.

Irrigation Convention

The first irrigation convention in western Canada was held in Calgary on July 17 and 18, with a large attendance. The necessity of conserving the water supply of Alberta, Saskatchewan and British Columbia, and the appointment of a commission to inquire into the

water laws of the three provinces, were subjects that were dealt with. The first resolution called for the appointment of a committee which would be a sort of a supreme court on the question. One motion dealt with the question of prohibiting irrigation companies from monopolizing the water rights, reservoir sites, small streams or other sources of water, situated in another district, to the detriment of that district, or should not be allowed to divert water from a natural watershed.

A motion was carried, urging on the Dominion and provincial governments the importance of making topographical and hydrographical surveys to determine the location and quantity of the west's water supply, and the proper methods of conserving it. Another which was carried, was one entertaining objections to associating too closely the administration of agricultural colleges with that of universities devoted to general educational work. A resolution was passed, urging on the federal government the desirability of making sufficient appropriations towards the construction or subsidizing of such irrigation projects as may prove feasible.

The Ontario Department of Agriculture sent an exhibit of fruit to the recent Winnipeg fair. It was made up of fruit that has been held in cold storage since last year and of fresh, tender fruits from the Niagara district. Mr. P. W. Hodgetts had charge of the exhibit, which was a feature of the exhibition.

The Guelph Horticultural Society recently held an interesting lawn meeting on the beautiful combined grounds of Professors Reynolds, Hutt and Dean, and Mr. Butchart. A tour was made of the grounds of each of the foregoing gentlemen, as well as others in the neighborhood. The gathering was a most enjoyable and instructive one. Other societies should do likewise.

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"Alberta," new steamer, 14,000 tons, building
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S.S. "CANADA"	Aug. 10th
S.S. "OTTAWA"	" 17th
S.S. "DOMINION"	" 24th
S.S. "KENSINGTON"	" 31st
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NOTES FROM THE PROVINCES

By our Regular Correspondents and Others

Quebec

Auguste Dupuis, Director, Fruit Stations

I have received the following note from Messrs. Stone & Wellington: "We were pleased to see your article in the June number of THE CANADIAN HORTICULTURIST, and we agree with you in regard to the damage to the fruit trade that is done by irresponsible nursery concerns in selling such tender varieties as King, Baldwin, and so on, in the northern districts of Quebec. We have always taken particular pains with our agents in the province of Quebec, allowing them to sell only such varieties of stock as have been proved iron-clad and hardy, and which will stand the severe winters. We well know that a number of people in Quebec have been humbugged and have lost considerable money by planting tender kinds. The first thing we do in starting a new agent in your province is to instruct him on the hardy varieties. We, however, want to be up-to-date, and if you can supply us with any bulletins or reports from your experimental stations we will be pleased to receive them."

If all nurserymen would follow principle outlined in the foregoing letter, the fruit industry in the districts of Quebec would prosper and the demands for stock would increase to the mutual benefit of nurserymen and fruit growers.

The losses have been so great in the eastern part of Quebec by the planting of tender varieties in worn out and unprepared soil that the

Quebec Pomological Society has suggested to the government the licensing of tree agents, who would have to pass an examination to prove their competency in fruit culture and in guiding the planters in the right direction, instead of the wrong system of encouraging them to plant in poor soil trees raised in rich nursery soil. Without manuring, without protection either natural or artificial, extensive plantations made in Montmagny and other counties have come to nothing. The general verdict of farmers on these failures is that trees sold now are not so strong as those planted by their ancestors (in virgin soil). It is to be hoped that the nursery concerns advertising in THE CANADIAN HORTICULTURIST will employ in our cold districts only honest agents to whom plate books will be given illustrating *only* good and recognized hardy varieties of fruits.

Saskatchewan Climate

G. T. Barley, Prince Albert

After a careful comparison of the weather conditions and climate in Ontario, with various districts in the west, I have come to the conclusion that that portion of land that lies between the two Saskatchewan rivers is the most suitable for fruit and tree planting for the following reasons: The soil is a rich, black loam; the land is rolling and well timbered with native trees; there is an abundance of rain during the growing season; high winds, so prevalent in other quarters, are absent.

I have spent over 20 years in this country and have observed climatic and other conditions carefully. We hope to grow many kinds and varieties of fruits, ornamental trees and shrubs that it is now thought will not do well.

British Columbia

C. P. Metcalfe, Hammond

Strawberries are about over, and raspberries will soon be. Prospects for other kinds of fruit are about the same as last month. Fruit trees as the season advances show considerable injury from last winter's frost, and entail extra care in the way of cultivation and thinning if they are to mature a fair crop of fruit without taxing the trees too severely.

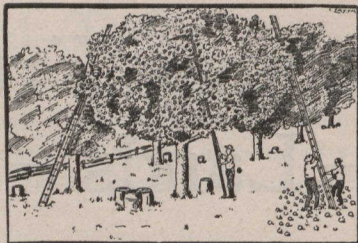
In a year of this kind, thinning is of especial value in that it lessens the drain on the vitality of the tree, and encourages the formation of fruit buds for another season. No exact rule can be laid down; as methods of thinning vary in the different varieties of fruit and in different trees in the same variety. Some varieties bear every year and have to be thinned very severely if the crop of fruit buds for another season and the general growth of the trees are not to be checked. Others again which bear only biennially may be allowed to carry quite a load, as they will have the off year to recuperate.

There are many other things to be taken into consideration in thinning apples, as the size, color, flavor, and keeping qualities are all materially affected. Another important factor is the increase in the percentage of No. 1 fruit and the decrease in No. 2 and culls.

Prince Edward Island

Fruit meetings were held in Prince Edward Island in July. The Island is handicapped for manufactures, and many branches of farming. Not so with apple growing, which can be followed

THE
NEW
WAY



THE
OLD
WAY

THE WAGGONER EXTENSION LADDER

is what you want for pruning and picking; also for general use about the place. It is reinforced with steel wire and is the lightest, strongest and handiest ladder made. Write for free illustrated circulars and price list.

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THESE are the largest and most reliable fruit merchants in Great Britain. Your interest demands the securing of our prices and terms of sale before selling your crop. Write to-day. Market cables received every sale day.

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A. E. W. PETERSON
APPLE BROKER

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on equal terms with the rest of the Dominion, if the same energy and intelligence are used. It was the object of this series of meetings to discuss not only cooperation in selling but all other questions in apple growing that may be of special interest to the audience. The program gave the fullest opportunity for asking questions on all practical subjects. Any intelligent farmer in Prince Edward Island can take an acre of suitable land worth, say, \$50 an acre, and by planting it to apples at an outlay of less than \$50 more, can increase its value to \$400 an acre.

Every farmer who plants a ten-acre orchard on his farm will have work and revenue enough to justify one more of his boys settling on the old homestead rather than enriching some other province with his brain and muscle.

New Brunswick

J. G. Gilman, Fredericton

The morning of July 9 found us making our first picking of Dunlap, Crescent and other early berries. The show of green fruit was good, and gave promise of a full crop. The afternoon of same day found the berry crop damaged beyond repair, by one of the worst hail storms that ever visited this locality, beating the green fruit from the stems and bruising the greater part that was left on. Later pickings showed many bruised berries.

The apple crop also is damaged to the extent of 75% of bruised fruit. Fortunately the area covered by the storm was not large, and good average crops of both small fruits and apples are being expected. The extremely late spring made many crops late in starting, but the favorable conditions for rapid growth that have prevailed for the last eight weeks have brought the crops on so fast that they are but little behind the average year. The farmer's difficulty is to keep up with the cultivator and hoe.

Nova Scotia

No event that has transpired in Nova Scotia has better shown the importance of having a well-organized department of agriculture than the recent invasion of the brown tail moth. In Massachusetts a million and a half of public funds have been spent in an endeavor to repress this pest. It is estimated that upwards of a million of private money has been devoted to the same cause. These figures are sufficient to indicate the seriousness of the invasion of such a pest in Nova Scotia. However, through the efforts of the provincial department of agriculture, the pest has been located and its bounds defined before the people whose trees were being affected were aware of its presence.

In Massachusetts it was different, for there nothing was done by the commonwealth until the caterpillars had done much devastation. Another year without any public effort would have meant that this serious pest would have gained an almost impregnable foothold in Nova Scotia. However, by prompt and strenuous effort upwards of 3,000 nests have been destroyed. As far as can be judged this constitutes the largest proportion of nests actually existing.

Since the period for destruction has passed, the department has been operating two spraying outfits in those sections of Digby County where wild apple trees exist in large numbers and where little, if any, private spraying is done. These spraying outfits are in charge of Mr. G. H. Vroom, of Middleton, who reports that they are working very satisfactorily and assisting in the further destruction of the caterpillars.

Whether the brown tail moth can be absolutely stamped out in Nova Scotia it is difficult to say. However, it would appear as if, by this prompt effort, it would, at least, be prevented from ever gaining the strong foothold that it has now in the New England States.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Montreal certainly has a live lot of fruit men, up-to-date in every respect. Think of five cars, California fruit, on July 18 sold by the Montreal Fruit Auction Co. in two hours, in lots of from one to 20 crates and boxes comprising pears, plums, peaches and apricots, aggregating a sale of \$9,000. These five cars commenced to unload after 12 midnight, and by 9 a.m. were ready for auctioneer. Buyers with catalogs of same in their hands were ready for business. There was a very heavy bill attached to each of these cars, about \$700 to cover each car for icing, duty and express charges. The fruit put up by the several California fruit firms, viz., Earl Fruit Co., Producers' Fruit Co., and Pioneer Fruit Co., is a credit to the state of California.

Strawberries coming forward by hundreds of crates toward the end of July in good order was very unusual so late in the season. High prices were a characteristic of season, the general price being 9 to 12 cents for a four-fifths quart box. A few fine raspberries came in to-day and sold at 18 to 20 cents a box.

New Brunswick has just commenced to ship strawberries. One peculiarity in their package is their octagon-shape boxes, with the bottom nailed three-quarters of an inch up the box. By some it is thought to be a fraud, but such is not the case. One box in crate rests on the other. No lattice sections are between, the air space being sufficient to protect the fruit. These boxes contain four-fifths of a quart, therefore are the size required by law. As the fruit arrives here in perfect condition, a distance of 500 miles, what more could we desire?

Montreal Island has been favored with frequent showers and moderate heat. Vegetables and fruits are all looking well. Duchess apples to-day can be found measuring one inch across the core; this is good for so late a start.

PACKERS' "SAFETY" Fruit Wrapper PAPER

Recommended by Government Inspectors
Used with perfect results by largest growers

TAKE NO CHANCES WITH
UNTRIED PAPERS

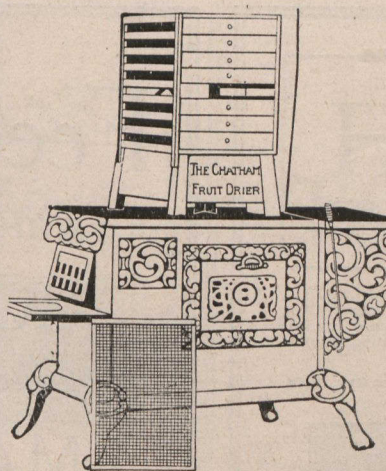
Large Stock, Following Sizes,
Always on Hand:

8x 9....	10c per ream (480 sheets)
10x10....	14c " "
20x30....	81c " "
24x36....	\$1.15 " "

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Here is a Chance to get Something for Nothing

The heat that comes from the top of your stove when it's in use in baking and cooking can be utilized to perfectly dry and evaporate a lot of nice Fruit for winter use, providing you own a

Chatham Fruit Drier

SOLD ON APPROVAL

This little Fruit Drier is the greatest invention ever used for the drying and evaporating of fruit. It sits right on top of your stove, and the heat goes up and around the fruit and soon dries it thoroughly, and in a much more sanitary way than by hanging it up on strings in the kitchen, or out of doors in the sun, where it is exposed to dust and flies. The CHATHAM FRUIT DRIER holds twelve square feet of fruit when the eight trays are full, and after the fruit is placed in it and put on the stove to evaporate it requires no further attention.

30 DAYS' APPROVAL TEST

After you use it thirty days, if you don't find that it does all we say it will do, we'll take it back and refund every penny of your money, and the test shan't cost you a penny. That's fair, isn't it? We have letters from women all over Canada telling us of the success they have had with the Chatham Fruit Drier, and you'll say the same thing after you've once used it. Write to-day for price, printed matter and circulars, FREE. You can't afford to be without this handy, economical little money-maker. Address

THE MANSON CAMPBELL CO., LIMITED, CHATHAM, ONT.

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LADDERS FOR EVERY USE

FRUIT GROWERS in every part of Canada are using our celebrated double truss high carbon steel wire extension ladders.

LIGHTER STRONGER CHEAPER than any other ladder made.

The most perfect ladder in existence. Each side rail has a heavy, high carbon steel wire stretched along the inside, securely fastened at the end, forming a truss and prevents side swaying. Send for one of our new illustrated catalogues, giving sizes and prices.

THE
BERLIN WOODENWARE COMPANY
BERLIN - ONTARIO

Branches in all parts of Canada

Desired—A Conference Next Winter

FRUIT growers in all parts of Canada are wondering what arrangements, if any, are being made by the Dominion Department of Agriculture for the holding of another Dominion fruit conference next year. At the conference held in Ottawa last year a general desire was expressed by the delegates that a similar conference should be held every two or, at the most, every three years. A resolution to this effect was introduced by the resolutions committee and was spoken to by Rev. Father Burke. While Hon. Sydney Fisher did not promise to arrange for the holding of another conference within two years, he assured the delegates that one would be called within a reasonable time.

A number of important matters that were on the program for consideration at the last conference were not dealt with, owing to lack of time. But little or nothing has been done to carry out the expressed wishes of the last conference in regard to several other matters that were dealt with. Several new questions, deserving consideration, have arisen during the

past year. These facts being generally recognized, the feeling has been growing for some time that it would be well for the Dominion Department of Agriculture to arrange for the holding of another conference next year. Such a gathering would make it possible for the growers to complete all business left over from the last conference and to deal with the new questions that have arisen since. It is felt that the conference is needed.

ALL WANT ONE

Leading fruit growers in all the provinces of Canada are anxious to have another Dominion Conference held in 1908. In spite of the way the work was rushed through, the success and results of the conference held in March, 1906, have been so pronounced it has led to the belief that they warrant the holding of similar gatherings at regular intervals. The regular recurrence of these conferences will make possible more rapid improvements in matters relating to the fruit interests of the Dominion as a whole than has been the case in the past. The fruit industry is developing rapidly, and with its progress, questions of national importance require more particular attention. The following letters received from various fruit growers' associations contain many valuable suggestions:

BRITISH COLUMBIA

"The British Columbia Fruit Growers' Association is heartily in favor of a Dominion Conference next winter," wrote Mr. W. J. Brandrith, the secretary. "There are several things that should be set straight. The two principal ones are: 1. Why was not the apple box made legal for home trade, as we expected it to be, after the discussion at last conference? and 2. We are opposed to the Staple Commodities Act re Small Fruit Packages. We have been

British Columbia Fruit Lands FOR SALE

Two ten acre Fruit Ranches, near Vernon, B.C. Price \$1,550.

One 97 acre Ranch, good soil, a snap, only \$2,500. 4 1/2 miles from Vernon, good water on the ranch, also good pasture and timber.

A splendid Market Garden for sale. 18 acres of land and 110 feet of glass. Doing good trade, a chance for a gardener that wants to make money for himself. Near Revelstoke, B.C. Only \$2,000 cash.

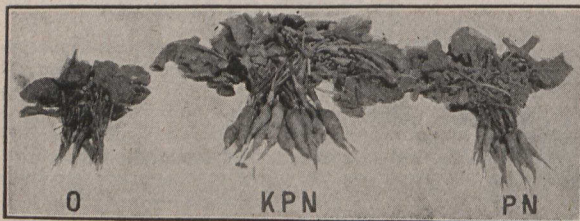
F. V. STAGG, Real Estate Agent
P. O. Box 118. Revelstoke, B. C.

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POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced by a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



Treatment: Unfertilized
Result: Non-saleable

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\$200.00

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\$20.00 per acre realized

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers. Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

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GOOD RETURNS

MARCHMENT'S

SURE GROWTH COMPOST

— IS THE BEST —

Supplied to the Largest Nurserymen
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15 years experimenting with crates in which to successfully carry our berries to Manitoba. The consumers knew what they were getting—24 pounds of fruit. Now, two-fifths of a quart or four-fifths of a quart does not mean anything when the berries get as far as Regina, and when they get to Winnipeg they mean less."

THE ONTARIO ASSOCIATION

"I am fully in sympathy with the matter of holding another Dominion Conference of fruit growers in 1908," wrote Secretary Hodgetts of the Ontario Fruit Growers' Association. "As secretary of the Ontario association, I have been for the past five years in touch with a large number of the growers of this province, and know fairly well the questions in connection with the industry in Ontario which are causing the most trouble. The work that was undertaken by the conference in 1906 was enormous, and the results of corresponding value. I consider it as fully sufficient to justify the Minister of Agriculture for the Dominion in again calling the delegates from the various provinces together.

"In reference to topics, there should be some time devoted to finishing the work of the last conference. Further information should then be available as to "Fruit Statistics," the Federal and Ontario Departments having combined this year to obtain more extended and accurate reports. As the amendments to the Fruit Marks Act will have had two seasons' experiment, further discussion on this subject will be inevitable. Transportation problems seem to be getting more acute every year, despite enormous expenditures by the railway companies, and I think that the Board of Railway Commissioners might well devote an afternoon to hearing the opinion of the fruit growers on this important topic. Owing to the placing of the express rates under the Commission subsequent to the last conference, this important branch of transportation work was only touched upon.

A number of other topics need further discussion.

"One new subject that I would like to see discussed would be that of nomenclature of fruits. At present our nursery catalogs, prize lists, and so on, seem to use the variety name in most cases which first comes to mind, with the result that considerable confusion results. Here at the Department we have been endeavoring to follow the rules of the American Pomological Society, but some of their names for well-known varieties are out of the question in Ontario, as usage has fixed such names as the Duchess and Greening apples, the Duchess pear, and so forth. A committee of each association might well be appointed in advance of the conference to look into this matter.

"I would further suggest that a session be devoted to cold and cool storage for fruits. Considerable information along these lines should now be in possession of the Federal Department of Agriculture. More attention from the grower and shipper is now required as to the proper temperatures in which to store fruits from the time it is picked until it reaches

EMPRESS PANSIES, the finest strain in existence. Sow in July and August. Packets of Seed post free, 50c., 75c. and \$1.00.

DAFFODILS in 5, 10 or 15 different varieties (East Coast grown bulbs are the best). Delivered free by parcel post. 250 for \$3.00, 500 for \$5.50, 1,000 for \$10.00.

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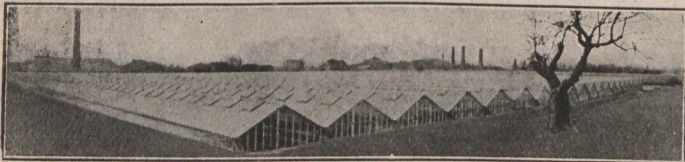
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Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN
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ABUNDANT CROPS OF HIGH
QUALITY FOLLOW THE USE OF

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ALL KINDS OF LAND REQUIRE
THIS FERTILIZER

Fruit Growers—Flower Growers
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SHOULD USE TOBIQUE PLASTER

SPREAD IT ON YOUR LAWN OR GARDEN
THOUSANDS OF TESTIMONIALS
FROM USERS

R. C. Mosher, Manager, Plaster Rock, N.B.

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THE F. G. TERRY CO., 31-41 GEORGE ST.
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August 26 to September 9

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New Grand Stand—largest in
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Extensive Cold Storage System

Entries close Saturday, August 3

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the consumer, and a thorough discussion on this subject would do much to bring the matter to the attention of the fruit growers.

"The executive committees of each provincial association could each appoint one member to receive local suggestions as to topics, resolutions, and so on, and to correspond with the members appointed from other associations with a view to preparing a comprehensive program in advance. Then these topics could, where necessary, be thoroughly discussed by each provincial association at their annual meeting in advance. Such a plan would make the conference more truly national in its character."

NOVA SCOTIA

A letter from Mr. S. C. Parker, secretary of the Nova Scotia Fruit Growers' Association, states: "I would gladly join in any way to promote an early meeting of the conference. In any event, each association should be getting in readiness for such a gathering, and be fully prepared for it when it comes."

We have just seen a sample copy of your paper, and are so pleased with it that we are sending subscription for one year.—Fred. R. V. Johnson, Mara, B.C.

H. H. & S. BUDGETT & CO., LIMITED BRISTOL, ENGLAND

Importers of Canadian Apples. Liberal allowances made to reputable shippers on bills of lading at Montreal. Write at once for further particulars regarding our method of disposing, and payment for first-class Canadian fruit.

Every fruit grower whose means and limited acreage do not warrant the cost of a mechanical evaporating plant, should have one or more kitchen evaporators. Much fruit goes to waste every year on account of the lack of a proper means of handling and disposing of it. This can be overcome by purchasing a fruit drier from the Manson Campbell Co. of Chatham, whose advertisement appears in this issue.



ECONOMICAL AND RELIABLE Hot-House Heating Systems

"Sovereign" Hot Water Boilers and Steam Heaters may be relied upon to provide a continuous even temperature for heating hot-houses and conservatories.

The system works just as satisfactorily with water supplied from a tank on the premises as it does when connected with a city or town water service.

Catalogue and full particulars sent to any address.

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DO YOU KNOW

THAT WORN-OUT LANDS MAY BE MADE PRODUCTIVE AND PROFITABLE BY THE JUDICIOUS USE OF THE RIGHT KIND OF FERTILIZER?

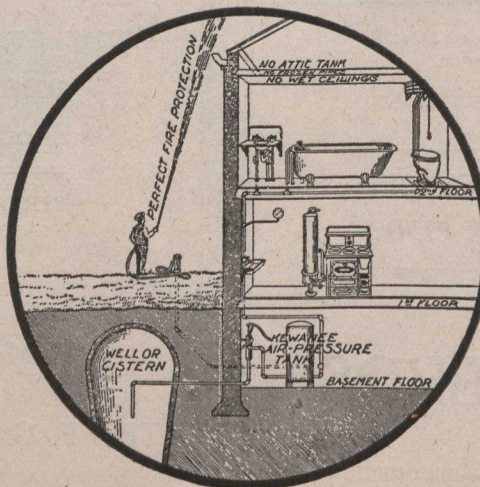
NOW IF YOU HAVE A PIECE OF LAND THAT WONT GROW ANYTHING BUT WEEDS, TALK WITH US ABOUT IT AND LET US SUGGEST THE RIGHT FERTILIZER

WE FEEL VERY SURE THAT WE CAN SHOW YOU HOW TO USE FERTILIZERS WITHOUT GREAT EXPENSE SO YOUR LAND WILL PAY

CONSULT US FREELY IT IS OUR BUSINESS TO KNOW ENQUIRIES FREELY ANSWERED AGENTS WANTED FOR TERRITORY NOT TAKEN UP
THE W.A. FREEMAN CO. LIMITED
HAMILTON ONTARIO

KEWANEE WATER SYSTEMS

(AIR PRESSURE)



Are now in use in over 7,000 Private Homes, Stock-farms, Greenhouses, Ranches, Hospitals, Charity Homes, Apartment Houses, Factories, Government Buildings, etc. Built in sizes to suit the smallest family or the largest town. Throw streams 100 feet high. Everything out of sight and reach of frost. No failures. They are NOT expensive luxuries but ARE ECONOMICAL NECESSITIES, and give to the country or village resident the FULL SERVICE AND FIRE PROTECTION afforded in the cities. No elevated tank nuisances. Write for information to

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Canadian Representative and Salesman

Jordan Station, Ontario

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The British Market for Canadian Fruit

From a Britisher's Standpoint

WHAT a wonderfully productive country Canada is!" We so often hear this remark in London, that the significance of its meaning is often lost sight of. Its power of production is almost boundless, this being especially so in reference to dairy and fruit produce. On the other hand, the mother country is unique in its power of consumption, which is prodigious, making it the most profitable market in the world for every kind of produce.

In Great Britain we have a combined population of over 43,000,000, which have to be fed every day, and when one realizes that over 6,000,000 (or one-seventh) of this total live within the fifteen-mile radius which forms Greater London, the possibilities of the British market, and London especially, can be readily seen. I heard Lord Rosebery, when speaking of free imports of foodstuffs into Britain, say: "How can any man, who, considering our insular position and the millions of mouths to feed three times every day, ever dare to even suggest any tax on our food? Our appetite is insatiable, and our doors must be kept wide open to receive all that is sent in."

Here then are two big facts; the almost illimitable productive power of Canada and the "insatiable appetite" and consuming power of the homeland. What a combination is here shown, forming the basis for a vast and ever-increasing mutual trade, as evidenced by the marvellous figures given to us by our Board of Trade, as month by month they keep showing increase upon increase, and at a wonderful ratio! It is impossible to expect that the present increase will permanently continue. But even if we were on the falling instead of on the ad-

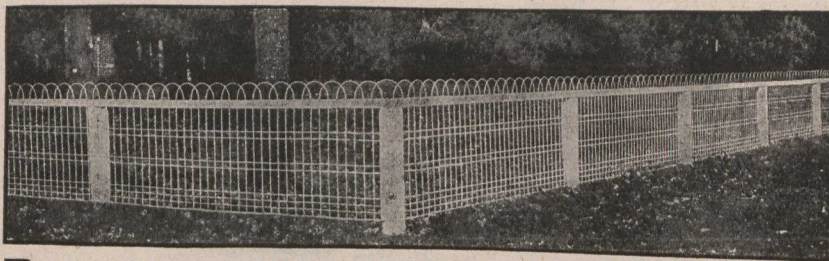
vancing wave, a sufficient miracle remains in the astonishing economic position of England—little favored by nature, with a huge population cooped up in a tiny island—to make us assured that one of the most vital factors in this miracle is the advantage we enjoy of cheap food and cheap raw materials, and in unfettered, unhampered trade.

With these facts before us, London should become more and more the market for Canadian (and especially Ontario-grown) fruit, and to this market I wish to draw the attention especially of the Ontario growers, who, unlike our Nova Scotian cousins, have *not* exploited it as they might; and it is with this in mind that I would like to offer a few practical suggestions, as they appear to one who has studied this market for a considerable period and from the point of view of both buyer and seller.

ONTARIO FRUIT SECOND TO NONE

Your fruit is *second to none*, and given the facilities for cooperation in the best methods of growing, picking, grading, storing, packing and shipping, the fruit should arrive here in the pink of condition, which means best prices and good returns. These points just mentioned I will deal with in their order in a further article in the special apple number of THE CANADIAN HORTICULTURIST for next month, and will content myself, now, with only a few general remarks on the export trade as it appears to us on this side.

On the London market we can sell *best quality goods* at tip-top prices, and it should be the combined aim of the grower, picker, grader, storer, packer and shipper, each one in his turn as he handles the fruit, to arrive at that high standard



PAGE WHITE FENCES

The Acme style you see above costs only from 16 cents a linear foot. Handsome and durable for lawns, parks, cemeteries, etc. Any height or length. Gates to match from \$2.25. Write for catalog, or inspect this ideal fence. From us direct or any Page dealer.

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Paper for Fruit Wrappers

Are you doing an export fruit business? We supply paper—thin—cheap. Good for fruit wrappers. Tell us your wants and let us send you samples free.



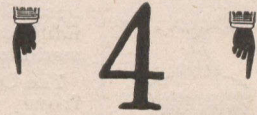
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LONDON, ENG., MAKES



SPECIAL POINTS

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"UP-TO-DATE"
Shipping Terms.

POINT 1 Selling Commission is **5%** Only and Inclusive

POINT 2 Cash Advance of **\$1.00** per barrel against documents.

POINT 3 Our Guarantee that **\$1.25** Shall Cover

ALL FREIGHT EXPENSES

From your station right into London market, including all cartage, dock and market charges.

POINT 4 OUR SPECIAL STORAGE ARRANGEMENTS at Cheap Rates right on the London docks when required or necessary to wait for the market.

NOTE POINT NO. 3 AND WRITE FOR

full particulars of our up-to-date fixed Consignment Terms to the Canadian Produce Sales and Agency Co.

Arthur C. Deayton,
Manager

Bank Chambers, Teddington, London.

Any and Every Kind of Agency Work Undertaken.

MAKE GOOD USE OF US

The Simplicity of the Beck-Iden Acetylene Lamp



The light from a Beck-Iden Lamp is obtained from acetylene—the best illuminant in the world to-day.

The Carbide, from which acetylene is made, reaches you in tin cans, which can be kept anywhere, with perfect safety.

The top part of the lamp is unfastened from the base, turned upside down, and filled with carbide.

The base is then filled with water, the lamp is put together again and is ready for use.

Acetylene is formed by the carbide dropping into the water.

The lamp works automatically and can only generate the necessary amount of gas, at any one time.

At each filling, the Beck-Iden Acetylene Lamp burns for about nine or ten hours.

Makes an ideal light for country homes.

For full descriptions, cost of light per hour, etc., write for booklet.

Beck-Iden Acetylene Lamp Co.,
86 Notre Dame St. West, Montreal. 13

of perfection at his work, which will ensure the fruit being landed here in such a state, that it will fetch the top price of the market.

This brings me to your method of selling. Why not net the full value of your apples, by shipping them to some reliable firms (and there are still some to be found in London), to sell for you, instead of selling at a low price on the spot? Surely it is worth waiting another month or so for your cash, to net perhaps another shilling or more a barrel on your output, as would be the case generally, on a proper consignment basis, that is, fixed terms for charges.

My point is, that on this basis of sale, your apples bring home their value, and, seeing that the better produce you ship, the better price you get, surely it is to your advantage to obtain the full market value for it, rather than let any buyers snap it up at their own price, and very often snap up with it a profit which is yours, and should come to you, if your fruit was sold at its proper market value here.

I know personally of a fine parcel of 1,000 barrels of russets which one of the Ontario co-operative associations sold on the spot at \$3.00 f.o.b., last season—no doubt a very good price—but they realized from \$5.00 to \$6.00 when they got here; they would have netted nearly another \$4,000 had they sold them on a commission basis, an extra profit not to be sneezed at. Of course, at times it cuts the other way, but not so often now in these days of improved transit. With better packing and grading, good prices are the rule, and an out-of-condition lot is the exception.

Again there are firms who will advance \$1.00 a barrel against shipping documents, and who also will give a *written guarantee* that the inclusive charges (except commission) from your railway station right into the London market, covering freight, tolls, dock charges, cartage, and so forth, shall not exceed \$1.25 a barrel, a very reasonable proposition, as you then know exactly what your expenses will be and can make your calculations accordingly: these arrangements of *fixed charges*

should bring the consignment business again into favor.

Another argument often brought against consigning, is, that the shipper often meets a market heavily stocked, and down go prices and returns, owing to the large quantity of apples arriving at the time. To meet this, the writer has seen the superintendent of the Surrey Commercial Docks, London, and finds that if sufficient support were given them they would gladly place one of their fine warehouses at the disposal of Canadian shippers, where apples could be stored at a very nominal rent of, say, about one penny a barrel, per week, and in a *fixed temperature* of 34 degrees, best suited to such produce.

We wonder sometimes why your many apple growers' associations do not combine in this matter, and forward their consignments of apples to their own supported or paid agent here, who would store them if necessary, and sell as the market was fit to take them and when prices were good, and also sell direct to large buyers at the docks *en bloc*; and who could look after their interests generally on this side.

I commend these methods to the serious consideration of your associations and growers for the coming season, and should further information be sought by any so interested, the editor of THE CANADIAN HORTICULTURIST will be pleased to put them into correspondence with those who would cooperate with them on this side, in any such scheme, and also with those firms here who are open to do business on the fixed charges principle with advances against shipments, and so secure full market value for their goods.

There is immense scope yet for a very great extension of trade in Ontario-grown fruit, and having just opened up the subject in the first article, I shall have a further talk next month on details of the fruit export business, showing the possibilities there are of making even better profits for the growers on their shipments of fruit to this country.

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Onion Blight or Mildew

W. T. Macoun, Horticulturist, Experimental Farm, Ottawa

IN some parts of Canada onions have suffered during the past few years from the attacks of Onion Blight, *Peronospora Schleideniana*, which in some cases has caused serious loss to vegetable growers. As this disease can be prevented by thorough spraying with Bordeaux mixture, all vegetable growers should be aware of the fact. The onion blight is a parasitic fungus which spreads by means of spores in summer and is carried over winter by what are known as oospores. These oospores are formed within the leaves, and when these are removed in the field or fall off they remain over winter there and re-infect the young plants in the spring or early summer. It will be readily seen that it is important where the disease is troublesome to remove all foliage from the field in the autumn and destroy it. Where possible, the onion should not be grown two years in succession in the same field, and if possible two years should elapse as these oospores retain life for two years. When the disease infects the onion plants by means of the oospores in early summer the mycelium grows through the plants, feeding on the juices, and the first outward indication of the disease is a violent discoloration of the foliage. In a short time the leaves turn yellowish and fall off and give the plant the appearance of being scalded. When the disease is quite apparent, but before the leaves dry up the latter have a downy look on the surface in places. It is at those points that the spores are being given off from the tiny stalks which have protruded from the mycelium within the leaf. These spores spread rapidly and if conditions are favorable will germinate in half an hour and re-infect other leaves or plants. These spores are so numerous that it does not take long for a large area to become affected. It has been found that the disease spreads most rapidly in damp,

warm, close weather, the spores germinating very rapidly under such conditions. In low-lying ground the air is moister than over elevated

land, and the disease is usually worst there. Sometimes the disease will be checked before it has done much damage owing to a change in weather conditions, but it may break out again later on. Every leaf which is destroyed weakens the plant and lessens the size of the onions, hence it is very important to check it at the very start



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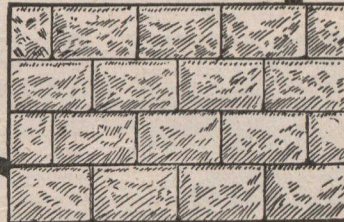
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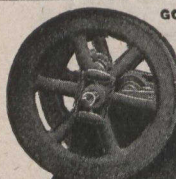
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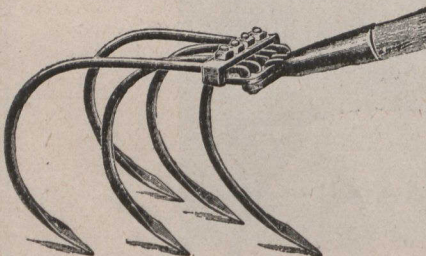
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or use some effective preventive measures. Once the spore has germinated and the disease entered the leaf it is not possible to reach the mycelium by spraying, hence it is necessary to spray early enough to kill the spores before they germinate. Spraying should be begun towards the end of June and the plants kept covered with Bordeaux mixture until the end of the season. If the disease appears before spraying has been done, spray as soon as possible. As the leaves of the onion are smooth it is necessary to put the mixture on in as fine a spray as possible, so that it will adhere well.

Niagara District Exhibition

There is plenty of courage and enterprise among the horticultural enthusiasts of St. Catharines and the Niagara District. Last year, the Ontario Government gave a grant of \$500 to assist the holding of a horticultural exhibition at St. Catharines. The exhibition was held and proved a financial success. This year Hon. Mr. Monteith cut off the grant to the St. Catharines exhibition. It is understood that his reason for doing so was because the Government increased the grant to the Ontario Horticultural Exhibition at Toronto. In spite of this setback, St. Catharines has made arrangements for the holding of a large show on September 17, 18 and 19. Grants amounting to about \$800 have been secured from the city, county and township councils, including one of \$200 from the St. Catharines Horticultural Society.

This year, third prizes will be added in almost every section. The total value of prizes will be increased from \$1,100 to \$1,200. The exhibition will last three days instead of two, as last year. The prizes for fruits will amount to about \$450; flowers, \$260, and vegetables, \$150, not including between \$300 and \$400 in special prizes. A full orchestra from the 19th Regiment has been secured for every evening of the exhibition. The exhibition last year was a great success and included many fine exhibits. It is believed that this year's exhibition will surpass it in nearly every way.

Vegetable Canning Industry

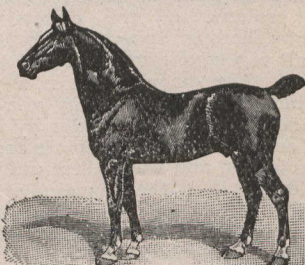
The Ontario Vegetable Growers' Association purposes securing as complete information as possible regarding the extent of the vegetable canning industry in Ontario. Its object is to find the location of all the canning factories and to get in touch with leading vegetable growers in the vicinity of each factory. An effort will then be made to secure crop reports from the various centres, so that the growers may have an accurate idea of the extent and condition of the crops. This is something they have greatly lacked in the past.

A committee from the association, composed of Messrs. T. Delworth and H. B. Cowan, waited on Mr. C. C. James, Deputy Minister of Agriculture, recently, and consulted with him in regard to the matter. It seems that the Ontario Department of Agriculture has gathered a vast amount of information relative to the canning factories of the province which it purposes publishing in bulletin form, in the near future. It is probable, therefore, that the Ontario Vegetable Growers' Association will defer action until this bulletin is in circulation. The bulletin will give the names of the factories, with a list of their owners and of the principal varieties of vegetables and fruit packed in each factory.

Horticulturists who have use for hose will read with interest the advertisement of The Doolittle Hose Coupler. This is a device that, when attached to the tap, does away with the unpleasant task of screwing on the hose. Large sales have been made to J. H. Dunlop, the Dale Estate and others, which should be a guarantee of its merit. Read the advertisement of I. P. Doolittle on another page.

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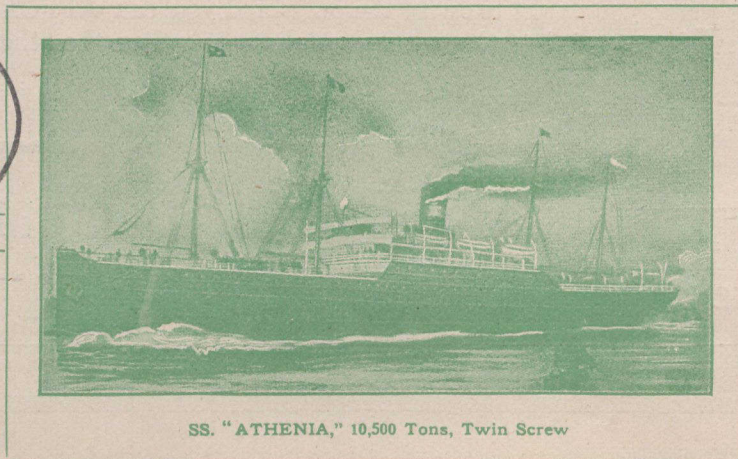
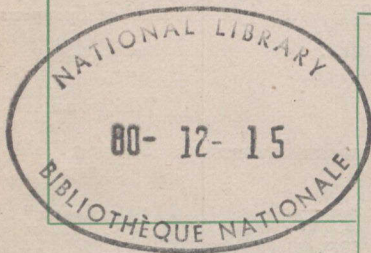
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