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THE CANADIAN HORTICULTURIST & BEEKEEPER

PETERBORO, ONT.
MARCH, 1914

VOLUME 37. No. 3
\$1.00 A YEAR

FOR ALL CROPS **POTASH** ON ALL SOILS

PLOT 1
Unfertilized

PLOT 2
Complete
Fertilizer

PLOT 4
Fertilizer
Without Potash

PLOT 3
Fertilizer Without
Phosphoric Acid

PLOT 5
Fertilizer
Without Nitrogen

**Potash
Increases
Quantity**

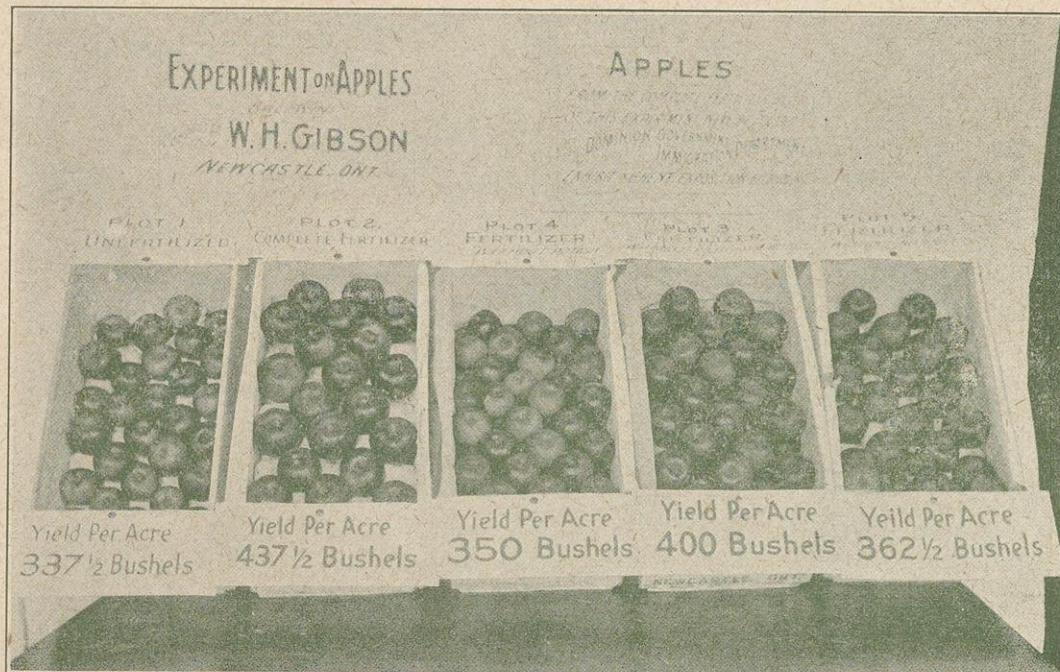
**Potash
For
All Fruits**

**Potash
Improves
Quality**

**Potash
Promotes
Maturity**

**Potash
For
Vegetables**

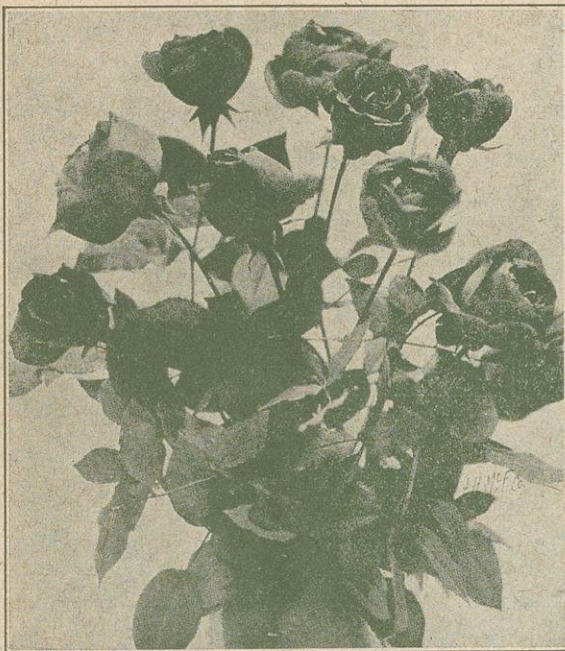
**Potash
Produces
Profit**



Write us for copies of our FREE, Educative Bulletins on the Important Subject of Fertilizing.

Correspondence Invited relative to Soil Problems.

GERMAN POTASH SYNDICATE, 1102-6 Temple Bldg., TORONTO, Ont.



General McArthur

EVER-BLOOMING ROSES

A NEW race of Roses has developed within recent years known as the Hybrid Teas, and which are speedily growing into favor. Many growers are dissatisfied with the Hybrid Perpetual Roses as they have only one season to bloom. A class, however, that will survive our winters and bloom freely all summer is deservedly popular.

To lovers of Roses, therefore, we offer these choice varieties, the best in regard to hardness and bloom for amateur gardeners. They require some winter protection, but where this extra attention is given they will repay one hundred fold by a succession of bloom throughout the growing season in the most delicate of colors, sweet scented, and with buds of finest form.

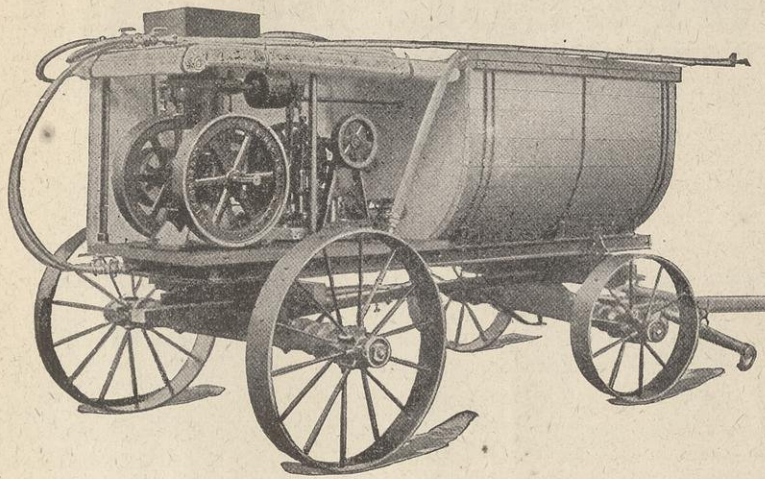
2 Year Field Grown Plants

MANY have tried these Hybrid Tea Roses and have failed, through planting small greenhouse plants, not sufficiently hardened and with little root system. The plants we offer have been field-grown, are two years old, and will be delivered in a dormant condition, the right condition to plant, and the best stock that can be supplied.

SEND FOR FREE ROSE BOOKLET with List of Choice Varieties and Cultural Directions

STONE & WELLINGTON, Nurserymen, TORONTO

THE HARDIE TRIPLEX



There is a certainty of good spraying results from the use of

The Hardie Power Sprayers

Our Hardie Junior is just the outfit for small Orchardist, Fruit and Truck Growers.

These machines are built with a thorough knowledge of orchard conditions; a capable factory organization, and the use of high grade materials.

When you buy a Hardie you join the army of over 6,000 satisfied growers who are using them successfully.

There are many new features in the Hardie line which are of interest to all fruit growers. Have you seen our "Hilo" Spray Rod? Write for catalog to-day.

The Biggs Fruit & Produce Co., Limited

AGENTS AND DISTRIBUTORS

BURLINGTON

ONTARIO

OUR ANNUAL Spring Gardening and Planting Number Out April 1st

This was the record issue last year in amount of advertising carried and general interest.

This year it promises to outclass last year's issue in many respects.

It will have a fine front cover illustration, special articles, and will be full of practical information on the spring work of our readers.

It will be a "Money-Getter," so Reserve your Largest and Best Copy

Advertisers are advised to send in reservation and copy by March 15th if possible. Last forms close March 25th.

RATES:

Page	-	-	\$42.00	Half Page	-	\$21.00
Quarter Page			\$10.50	One Inch	-	\$1.40

FOR SPRING 1914

We have a large assorted stock of the best varieties of FRUIT and ORNAMENTAL TREES, SHRUBS ROSES and PERENNIALS.

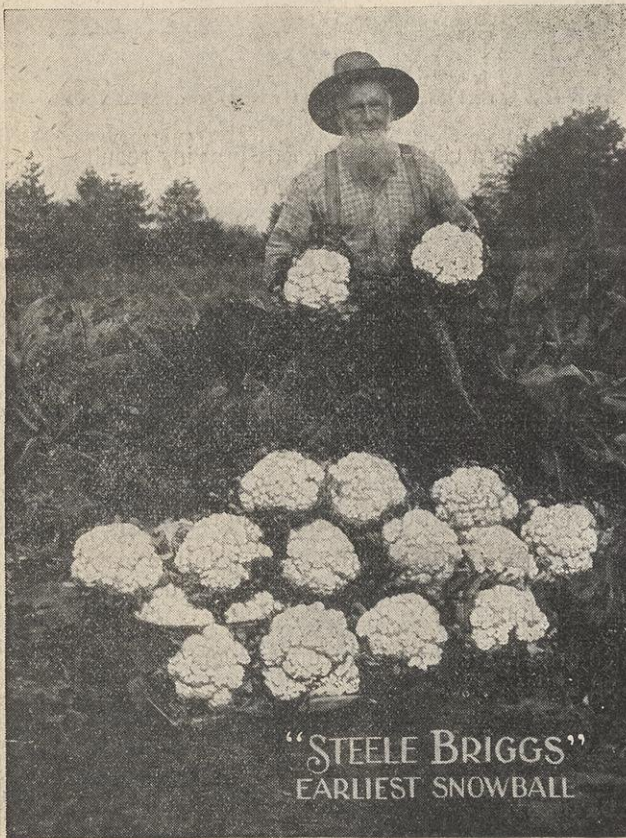
A specially selected stock of Specimen Evergreens, Box and Bay Trees, Rhododendrons, Kalmias and other plants in demand for modern gardening.

Plans and estimates for landscape work.

Send for our New Catalogue

ROSS & SON

Toronto Nurseries, 1167 Queen St. E.



"STEELE BRIGGS"
EARLIEST SNOWBALL

One of the largest market gardeners in Canada says:—"We have used your seeds for the past 20 years with very satisfactory results; Cauliflower, Celery, Carrot, Beet, etc., have been very good."—J. MACNAMARA & SONS, Bracondale

IF YOU WANT THE VERY BEST SEEDS USE

STEELE, BRIGGS

NEW CROPS ARE NOW READY

The illustration opposite is an actual photograph of S. B.'s Earliest Snowball Cauliflower. This strain always gives universal satisfaction.

We are the largest Seed Dealers in Canada. It means that our efforts for the past 41 years, to give the people of Canada the very best obtainable in Seeds, Plants, Flowers and Vegetables have been appreciated. If you want to know anything about our goods, write us. Correspondence is solicited.

If you are a Market Gardener or Florist and have not received our Special Price List, write for one to-day. We shall be glad to mail you a copy.

Our new Spring Catalogue is now ready. It will tell you of the very best varieties to plant and how to do it. Send for it now. It is well worth having.

STEELE, BRIGGS SEED CO., Limited

"Canada's Greatest Seed House"

HAMILTON

TORONTO

WINNIPEG

ESTABLISHED 1856

Simmers' Seeds

—Have Stood the Test for—
NEARLY 60 YEARS

That Means

THE QUALITY IS RIGHT

CATALOGUE for 1914 is now ready, and is FREE to all who write for a copy.

It contains a complete list of the very best in VEGETABLE and FLOWER SEEDS—the kinds that are sure to please.

Write for a copy NOW.

J. A. SIMMERS

TORONTO, ONT.

Ltd.

BULBS

SEEDS

PLANTS

FOR

Spring Planting

ROSES

- 25 varieties Hardy Garden Roses
- 10 varieties Baby Rambler Roses
- 20 varieties Climbing . . . Roses
- 15 varieties Hybrid Tea . . . Roses
- 10 varieties Tea Roses

FLOWERING SHRUBS

PAEONIES

100,000 Perennials. All the best varieties.

Descriptive Catalogue on application

J. Gammage & Sons, Ltd.

LONDON

ONTARIO

Some Logical Reasons for U-Bar Greenhouses

THIS advertisement has to do with the construction, and not with the joys and advantages of owning your own greenhouse—we believe that side to be pretty generally understood—but the construction side is not.

Taking the automobile as a somewhat hackneyed but apt comparison—you would not think of allowing good salesmanship, alone, to sell you a car. You would sell yourself the car first by carefully looking into it, and making sure that it was the car best adapted for your purposes and pocket-book.

Then you would be ready to listen to

sales talk. It's equally logical to buy a greenhouse in the same way, because they vary so greatly in method of construction and consequent productiveness, as well as freedom from repair and running costs.

This is conspicuously so with the U-Bar, because no other greenhouse is constructed like it. Some may look like it, but that's the only way they are like it.

U-BAR GREENHOUSES

PIERSON U-BAR CO

ONE MADISON AVE. NEW YORK
CANADIAN OFFICE, 10 PHILLIPS PLACE, MONTREAL

If it isn't constructed with the U-Bar, it isn't a U-Bar curved-eave house. All we ask you to do is to carefully compare our construction with other constructions.

After you have done this, grant us the opportunity to give you further facts. If you should then conclude not to give us the order, you will at least feel satisfied that, as a matter of protection, you have given the subject the consideration it merits.

It will obviate that most disheartening of things—the jolt of waking up to your mistakes after having spent your money.

Send for our catalog or send for us—or both.



GRASSELLI Lime Sulphur Solution Arsenate of Lead

It takes a number of years experience to attain greatest efficiency in any line of business.

This is especially true in the making of spray chemicals.

You will be assured of the very highest quality that skill and experience can produce, if you will purchase Spray Materials bearing the name—

“GRASSELLI.”

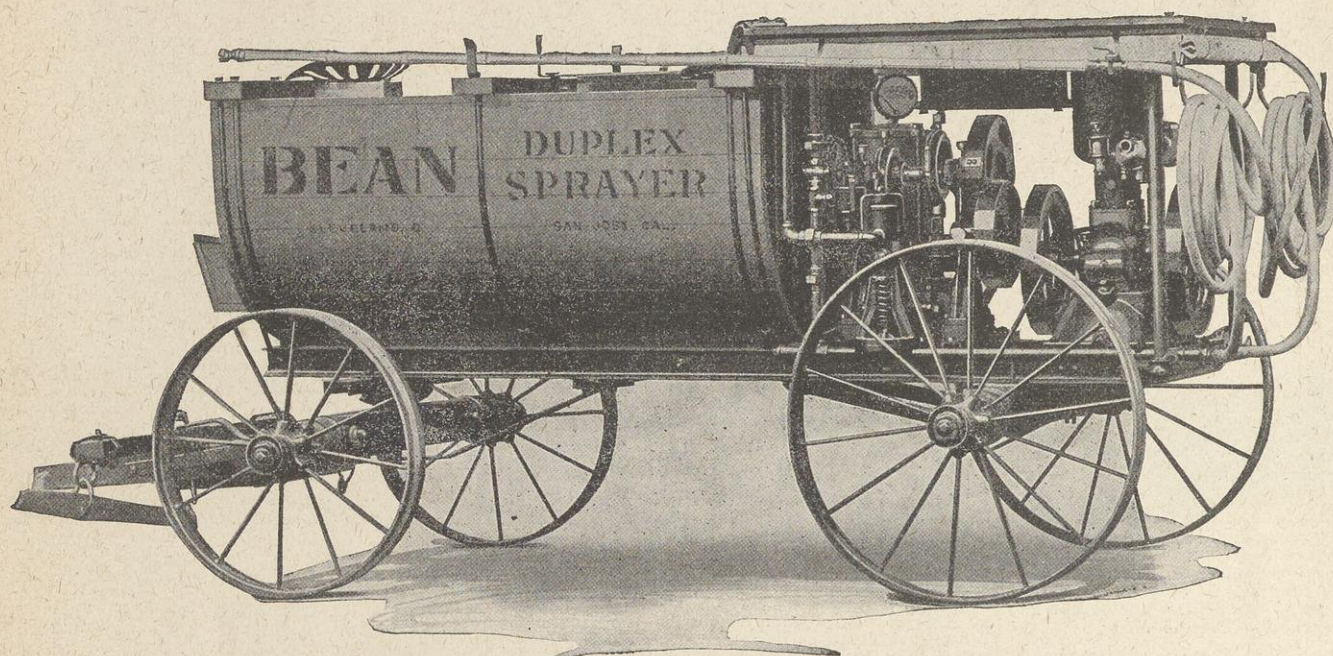
The Grasselli Chemical Co., Limited

Head Office and Works :
HAMILTON

Sales Offices and Warehouses :
TORONTO and MONTREAL

Please address all communications to the Company at 347 Pape Avenue, Toronto, Ont.

PERFECTION IN POWER PUMPS



THE BEAN DUPLEX

REASONS WHY YOU SHOULD BUY THIS SPRAYER

It is the strongest and most durable power sprayer made.
It will give higher pressure and more uniform pressure than any other sprayer.

It has very large capacity.

It will supply two lines of hose, with four large nozzles on each line.

It is built on a solid steel frame, much stronger, much lighter and more durable than wood.

THE PUMP is driven by eccentrics (not the ordinary cranks).

Has porcelain lined cylinders, which never wear out, and require no stuffing boxes.

Has patented threadless valves with reversible seats.

Has underneath suction which greatly increases capacity and never requires priming.

EQUIPPED with patented pressure regulator, which maintains the same uniform pressure whether the nozzles are on or off, and saves over one-third in gasoline and wear and tear. This pressure regulator eliminates 90% of the troubles so common in other power pumps. It is the greatest invention ever put on a power sprayer. You can get it on no other outfit.

ENGINE is the famous $2\frac{1}{2}$ h.p. Novo. Can be used for any other farm work.

This outfit is designed for a perfect permanent power sprayer to run all day and every day without giving trouble.

It is not designed for a minimum sale price, and after being used a short time to be worn out and a source of annoyance.

EQUIPMENT: Rotary agitator, 150-gallon tank with steel driver's seat, tool box, foot rest and strainer; tank filler, which will fill tank in 5 to 8 minutes from well or creek; 50 ft. high pressure hose; 2 aluminum-lined rods, with nozzles and cut-offs; folding tower; 2-ton truck, 5-in tires.

We have hundreds in use in Ontario, all giving excellent satisfaction. Let us refer you to some growers you know.

Write for our illustrated catalogue. You should see this outfit before placing your order. We would like to demonstrate it against any other power sprayer made.

HAND PUMPS. All sizes, suitable for any orchard

Let us quote you on your requirements.

NIAGARA BRAND SPRAY CO., LIMITED
BURLINGTON, ONTARIO



Branch Warehouses:
Sudbury, North Bay,
Cobalt, Cochrane and
Porcupine

Send for
Shipping Stamp

Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

H. PETERS

88 Front St. East, Toronto

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.



The Canadian Horticulturist

Regular Edition

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THE ONTARIO Model 2-B

Built for Business

This machine represents the highest type of high pressure POWER SPRAYER, embodying the best improvements of the past few years. It is simple, easy to operate, in fact all you could desire. The engine fills tank and may be used for other purposes without dismounting. Satisfaction guaranteed or money refunded.

Price without truck and tower - \$250.00

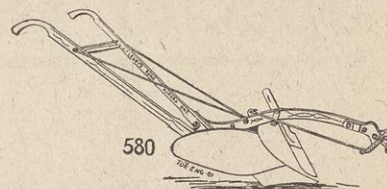
Truck, 28-34 steel wheel, 5-in. tire, 40.00

Collapsible Oak Tower, adjustable, 10.00

WRITE FOR FREE ILLUSTRATED CATALOG on Spraying and Apple Evaporating.

Fruit Machinery Co., INGERSOLL, ONT.

For Your Orchard



Famous Fleury Plows

"ORIGINAL" NO. 21; DANDY: NO. 13—2-Horse Plows.

NO. 16, LIGHT 2-Horse; ONE-HORSE attachment furnished.

NO. 15 A, Famous One-Horse (No other equal to it).

NO. 5, 2-Horse; Special Pattern—SOD AND GENERAL PURPOSE.

Medium Gang No. 22 and Special "VINEYARD" NO. 22.

A full line of LIGHT DRAUGHT Walking Plows for general farm work.

J. FLEURY'S SONS - AURORA, ONTARIO

Medals and Diplomas, World's Fairs, Chicago and Paris

SALES AGENTS:

THE JOHN DEERE PLOW CO. ^{Of} _{Welland} LIMITED
77 JARVIS STREET - TORONTO



This photograph, which appeared in a recent issue of The Canadian Horticulturist, illustrates an orchard (referred to below) in the Trenton district—owned by W. A. Fraser, Esq., and planted entirely with "E. D. Smith" trees.

The following letter from the owner of the orchard was received by us recently:

To Messrs E. D. Smith & Son, Limited, Winona, Ont.

Dear Sirs,—I am sending you under separate cover two photographs showing sections of my orchard and giving you a fair idea of what some of your Spy trees I purchased from you look like after being out four years.

I may just go further and say that out of the 2,000 or so trees I purchased from you I have splendid success and have found your Nursery Stock in keeping with your fair dealings.

(Signed) W. A. FRASER.

We have an enormous stock of apple trees which will be reserved for customers on application to us.

E. D. SMITH & SON, LIMITED, Nurserymen, WINONA, ONT.

(900 ACRES)

A Special Bargain if Sold at Once

A fine general or stock farm, also well adapted for fruit raising, consisting of about 100 acres of extra choice clay loam soil, nearly all of which is under cultivation, and located on main travelled stone road about six miles from St. Catharines. On this property is a fine red brick residence of ten rooms, surrounded by most attractive and well-kept grounds. Has all necessary outbuildings in the best of condition. About ten acres of bearing fruit, consisting of apples, peaches, pears, plums, cherries and grapes. About \$1,000 dollars worth of best hardwood standing timber. A remarkable bargain at \$10,000, if sold at once. Write for further particulars.

SPECIAL We are offering fruit land, planted and unplanted, with or without buildings, and any desired acreage, at Vineland, St. Catharines, Port Dalhousie, McNab, Niagara-on-the-Lake, Stamford and Niagara Falls. The very choicest of locations, all adjacent to trolley lines and towns. Easy terms if desired. Let us know your requirements and we will gladly forward full particulars.

MELVIN GAYMAN, LIMITED

(Real Estate) INVESTMENT BROKERS (Insurance)

14 QUEEN STREET

ST. CATHARINES, ONT.

The Canadian Horticulturist

Vol. XXXVII

MARCH, 1914

No. 3

Reality vs. Fiction in the Fruit Business

T. W. Palmer, Victoria, B.C.

PERHAPS there has been no branch of horticulture so much boomed and advertised as fruit farming. By this I mean tree fruits, particularly apples. The public are gulled and misled in many cases (I don't say all, mind) by flowery written advertisements, highly drawn pictures of the imagination from the pen of a man who has probably never in his life seen an apple nearer its native state than in a grocery shop window. But—he has land to sell!

These advertisements do an enormous harm to the fruit industry at large, as they make the reader expect his fortune made in a few years at the business. The gulled one is persuaded to put his hard-earned money into some of these enterprises only to find his fortune does not come as soon as he was expecting. Thus disappointed and disgusted, he does not forget to let other people hear of it (usually with emendations) and in so doing does a lot of harm to some other man's really meritorious proposition.

Now, if this same man had been told in the first place in an honest and straightforward way, the real standing of the fruit industry, he would not have looked for a fortune lying in wait for him to pick up, but would have been contented with a reasonable thing; that is, a good thing, and some money put aside for a rainy day. In this way a good booster of the fruit industry would have been made, instead of a backbiter.

As an indication of how some of the literature of these land sharps is worded the following will give an idea of how the reader is led to expect an Eldorado, viz.:

"Do you wish peace and prosperity?"

"Your answer is 'Yes.'"

"If you are earning less than \$2,000 a year, would you like to double it?"

"Again your answer will be 'Yes.'"

—THEN—

"Our land is only (some small figure) 'per acre. Suppose as a working basis 'you buy only six acres of our land. Figure on one hundred trees to the acre; 'total, 600 trees. These will bear when 'from four to five years old. When eight 'years old you should get at a low estimate five boxes to the tree. This is, 'then, for six hundred trees at five boxes 'boxes per tree, three thousand boxes 'of apples. These you should sell for 'one dollar and a half per box, making 'four thousand five hundred dollars for 'your season's apples. Does this look 'good to you?"

INFORMATION SUPPRESSED

So far so good, but—, what they don't tell you in their literature is, first, that your apples won't be all No. 1 apples; second, that there is a certain cost attached to the marketing of said apples; third, no allowances are made for off-seasons, bad prices, diseases, and so forth. That these things have to be found out by the grower is all the more

to be censured. When experience teaches these things to the farmer he is naturally disgusted at having his ideals hattered, when, had he been told in the first place he would have been prepared and on the look out to "beat the game."

THE TRUE SITUATION

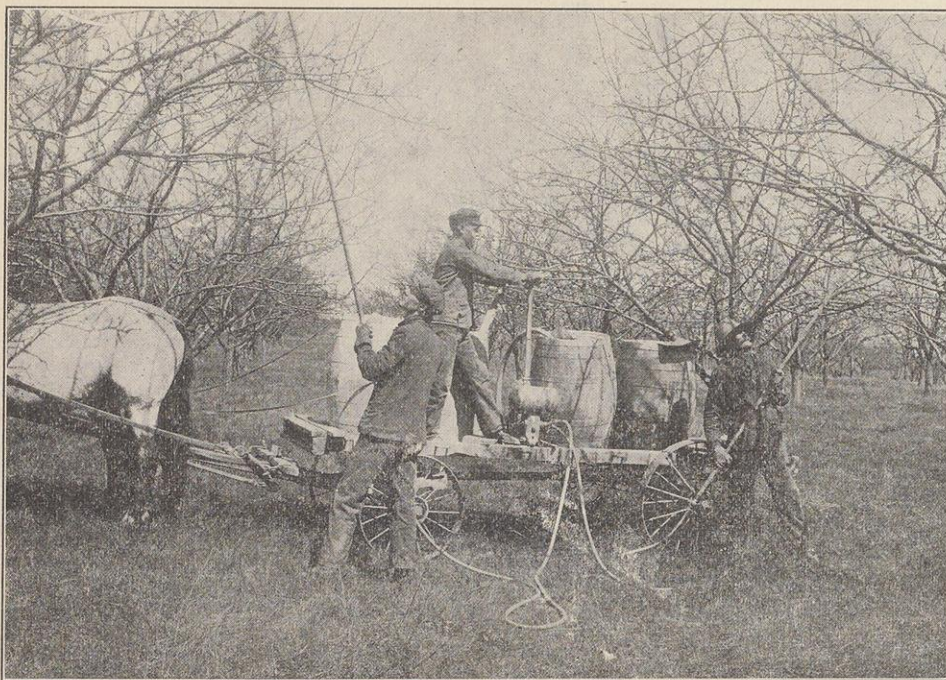
I shall endeavor to give a rough estimate as to the real cost of marketing six acres of apples in full bearing eight year old trees, figuring on a full crop and no disease. I will tell of the different works that have to be done during the year before the crop, and also the labor involved in marketing the same. But it must be bore in mind that in no two districts is the cost the same, nor is it possible to give an exact estimate in any case. In this illustration it is based on marketing the fruit on Vancouver Island, in vicinity of Victoria.

First, then, is pruning. This will have to be done in the fall, after the sap is withdrawn, or in the spring before it has risen again. This may be done by the owner of the orchard, so that he need not deduct any money from the amount received at the end of the year, as it is part of his living.

After this the first spraying of the year has to be attended to. This is done by a mixture of lime, salt and sulphur. This is sold in handy form now by manufacturers in British Columbia at about six dollars for a thirty gallon barrel. This only needs diluting with water in pro-



The Ontario Fruit which carried off the Premier Honors Last Summer at the Convention of the International Apple Shippers Association held in Cleveland, Ohio. It competed against fruit from Oregon, Washington, Colorado and other states



Preparations for a Clean Crop in a Waterloo County Orchard

—Photo furnished by F. O. Hart, U.S.A.

portions of one gallon of spray to nine gallons of water to be ready for use. For an average six acre apple orchard it would require about four barrels of this spray, or twenty-four dollars. Being put on before the leaves are on the trees it takes much less of this preparation than is required when the foliage is on.

A SECOND SPRAYING

The next spraying is with commercial arsenate of lead. This is sold in kegs of different sizes at about eleven cents a pound. For the six acres the quantity required would be about forty pounds of this, which makes about thirteen hundred gallons of spray at a cost of about four dollars and a half. This spraying is to kill all codlin moth, apple worms, and so forth, and is applied directly the bloom falls. If a late hatch of these pests appear of course another spraying has to be done. But as I am figuring on a season fairly clear of pests we will cut out this second spraying of the trees with arsenate.

The third spraying will have to be made to insure the absence of all aphids (green), foliage pests, and so forth; for this Black Leaf Tobacco Spray is admirable. This spraying would cost probably thirty dollars to do as the trees are dense with foliage, and the spray itself is expensive.

Of course, it goes without saying that the orchard has to be properly plowed and cultivated, and kept cultivated. This would cost probably thirty-five dollars for the season.

Thinning the fruit is the next item. No up-to-date orchardist would expect

large fruit if no thinning was done, let alone the damage done to the trees by the weight of fruit breaking off the branches. This would cost perhaps about one hundred dollars, but this is almost impossible to determine, owing to the different things to be taken into consideration, namely the dexterity of the men employed, size of trees, size of crop, and so forth. This is figuring on a full crop.

Now, as the booster's advertisement says, figure your six acres as having one hundred trees per acre, or six hundred trees altogether, eight years old, and five boxes of apples from each tree (very good) and you arrive at three thousand boxes of apples. Of this, say, sixty per cent., or eighteen hundred boxes, are number ones; thirty per cent., or nine hundred boxes, number twos; and the balance, ten per cent., or three hundred boxes, culls. Your account would figure out something like the following:

RECEIPTS

1800 boxes No. 1 apples @ \$1.50..	\$2700
900 boxes No. 2 apples @ \$1.00..	900
300 boxes culls @ 40c	120

Your total.....\$3720

Now, for the part the land shark does not tell about, namely, the expenditure incurred before you receive this amount. (Also bear in mind that I have been figuring on a full crop and top prices, a combination that rarely happens). But to proceed:

COST OF PRODUCTION

	No. 1	No. 2	Culls
Packing, per box	06c	06c	Not packed
Picking, per box	03c	03c	03c
Hauling to market, per box	06c	06c	06c

Paper for packing, per box	04c	02c	No paper. Put in sack
The box itself, per box ..	14c	14c	05c
Wholesalers 10% com., per box	15c	10c	04c
Incidentals	02c	02c	02c
Total expense per box.	50c	43c	20c

Thus for the whole crop it works out as follows for expenses:

1800 boxes No. 1 apples at 50c	\$ 900
900 boxes No. 2 apples at 43c	387
300 boxes culls at 20c	60
Thinning \$100, Spraying \$80 and cultivating \$35	215
Total	\$1,562

Thus it figures this way:

Gross receipts	\$3,720
Cost of production	1,562
Bal. net	\$2,158

And this is an absolutely full season, and the prices figured in are very high. If two thousand dollars was cleared it would be good indeed.

Now, in finishing it would be well to say that if it is possible, it would be by far and away the best policy to let the man, ignorant as yet of fruit farming, know the business as it is, and that is, as a good honest, splendid health-giving means of making a livelihood, not a tremendous fortune, and to prohibit the use of the mails to all those ingenious frauds who are daily catching so many poor suckers!

Use of Soap in Spray Mixture

Prof. L. Caesar, O.A.C., Guelph, Ont.

A contributor in the February issue of The Canadian Horticulturist intimated that soap helped to make arsenate of lead spread and adhere better. There is just a little danger of those who are using lime-sulphur with arsenate of lead thinking that they can increase the value of the mixture by adding soap. If you get a chance to put some lime-sulphur in water in a glass vessel and add some dissolved soap to it, do so, and see what will take place. The soap at once changes the mixture and causes it to curdle, breaking down the compound. No one should use soap with lime-sulphur. It is very probable that soap can be used with the so-called soluble-sulphur, which is not a lime-sulphur, but a soda sulphur. It does not cause this to curdle, and so far as one can see without a chemical examination, does not alter its character.

At an experimental station in New Hampshire they have found that the method of treatment of an orchard which gives the best results is cultivation in the early part of the season. They sow crimson clover in midsummer, and turn that in early the following spring. That method has given good results.—W. F. Kydd, Simcoe, Ont.

Orchard Aphids and Their Control*

Prof. W. H. Brittain, B.S.A., Provincial Entomologist, Truro, N.S.

IN taking into consideration the most economical and effective method to control any insect, we cannot unfortunately, confine our attention to that pest alone, for many other factors intervene to influence our results. It frequently happens that the time to spray for some insect pest coincides with the time to spray for some fungous disease, so that it is often possible by combining various sprays, to make one operation take the place of two or even of three. This is true of the aphids in that the most important aphid sprays coincide with important sprays for other insect pests and fungus diseases, and it is important to remember at this point in considering how we can best reduce the cost of keeping the orchard free from pests. We must also remember that proper pruning, careful thinning, adequate cultivation, the judicious use of cover crops and fertilizers with thorough and timely spraying are all factors in the production of better fruit, and none must be neglected if our work is to prove profitable. In taking up this subject, I realize that you are already thoroughly acquainted with the appearance and life history of the different orchard aphids, and that you are only interested in hearing of some way to kill them. I will, therefore, only deal very briefly with the former side of the subject, confining my

remarks very largely to control methods.

Three species of aphids are commonly found in orchards: First, Green Apple Aphis; second, Rosy Apple Aphis; third, Woolly Apple Aphis.

The first is by far the most common species in Nova Scotia. All of you are familiar with the small, oval black shiny eggs of this insect, found upon the twigs of the last year's growth during fall and winter. These eggs begin to hatch early in spring, and by the time the leaf buds are showing green most of the aphids have emerged. The time of hatching usually extends over a period of several weeks. The newly hatched aphids are all wingless females that give birth to young without the intervention of the males. A small percentage of the second generation give rise to winged females, which fly to other trees and establish colonies there. The aphids breed continuously throughout the season, some being winged and others, again, wingless. Toward fall true males and females are produced that pair in the ordinary way; the true females subsequently depositing their eggs upon the twigs.

The life-history of the Rosy Aphis is similar to that of the green apple aphid. The eggs are laid on the apple, though not nearly so abundantly as in the case of the previous species. The newly hatched young are dark green in color, but later reddish and brownish forms are produced. During the summer the

aphids migrate to some unknown food plant, returning in the fall to deposit their eggs.

The Woolly Apple aphid is in some countries the worst pest of all, owing largely to the fact that it may attack both roots and tops. It is very different in its habits from the two preceding species, for whereas they are leaf eaters, this species feeds for the most part upon the tender bark of roots or stems. On the roots they form gall-like swellings, and may not be detected until the tree is seriously injured. The chief source of the lice found upon the trees in spring is those that migrate from the roots and those which have remained concealed upon the trunk of the tree in cracks and crevices of the bark. In spring and early summer they will be found abundant around wounds in the bark or upon stumps of limbs that have been cut back, or in similar locations. Later in the season they are found farther out on the branches, the small limbs, twigs, or leaves being often completely encrusted with the insects. The aphids have an irritating or poisonous effect upon the bark, their work causing open cankers upon the twigs. Small galls also result in some cases.

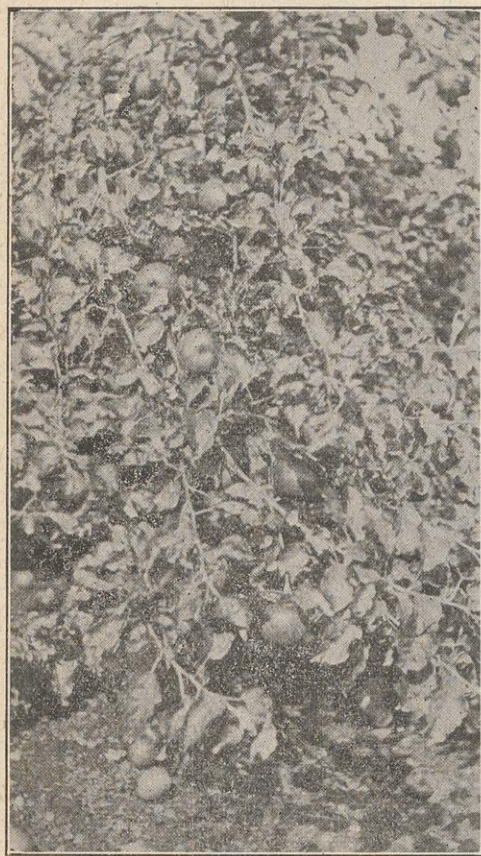
Probably the most valuable aphidicide that has been developed in recent years is a preparation of Nicotine Sulphate, called Black Leaf 40, manufactured by the Kentucky Tobacco Product Company of Louisville, Ky.

I do not wish to enter into the question of spraying for the apple scab, but if

*Extract from an address delivered at the annual convention last January of the Nova Scotia Fruit Growers' Association.



The Exhibit of Ontario Fruit which carried off the First and Second Prizes in the class for Five Boxes, at the Canada Land and Apple Show, held in Winnipeg last October. This was the only Open Competition for Apples. British Columbia was Third



A Well Loaded Tree

Orchard of T. W. Palmer, Victoria, B.C.

you intend giving the first or dormant spray with lime and sulphur it is advisable under some conditions to defer that spray until the buds are bursting, adding the Black Leaf 40 to this spray. This combination is an excellent control for the aphid, besides the good it may do in controlling scab.

Black Leaf 40 may, moreover, with equally good results be added with the next application, i.e., just before the blossoms open and when the petals begin to show pink at the tips. This is probably the more important spray for aphid and scab as well. Lead arsenate for biting insects may likewise be added without impairing the value of the wash, as far as we have determined, for aphid or scab. If necessary the Black Leaf may again be added to the codling moth spray, applied just after the blossoms fall. In these sprays, Black Leaf 40 is used in the strength of one-third of a pint to forty gallons of the wash. When used alone a pound of good laundry soap should be added as well.

Soap must never be added to a spray containing lime-sulphur.

Another spray that has been in use for many years and has been used with success for all kinds of sucking insects is Kerosene Emulsion. It is made as follows: Soap, one-half pound; kerosene, two gallons; water, one gallon.

Dissolve the soap in hot water, add oil

and churn violently until a creamy emulsion is produced. This gives a stock solution that may be kept for some time. For use against aphids, dilute every three gallons of stock solution with ten gallons of water.

The disadvantages of kerosene emulsion are:

First, it cannot be used in combination with other insecticides or with fungicides; second, if a good emulsion is not secured the spray will be sure to burn the foliage. The oil will collect on the top of the mixture and some of the trees will receive a pure oil spray. I have seen so much damage done in this way that I am reluctant to urge the general use of kerosene emulsion.

There is another spray that is very popular with some orchardists. For use one pound is dissolved in five of water. It may be used with Black Leaf 40, but must not be added to lime-sulphur. There are several brands on the market, differing in cost and efficiency.

Quassia chips are often added to whale oil soap and improves it as an aphidicide. The following is the formula: Soap, three pounds; quassia chips, three pounds; water, forty gallons.

Soap sprays are usually fairly satisfactory and are easily prepared.

The soap or emulsion sprays can be used at the same time as has been recommended for Black Leaf 40. All wooly aphid is harder to kill owing to

its protective covering of wax, and accordingly the sprays must all be used somewhat stronger. It is usually most easily destroyed by a spray applied in the fall when the aphids are out on the terminal shoots.

Hardy Apples and Plums

August Dupuis, Director of Fruit Stations, Village de Aulais, Que.

The varieties of apples and plums here mentioned have been cultivated in the north-west part of the province of Quebec for twenty-five to fifty years with success. The severest winters have not injured them. I could add to this list several varieties which are doing well, but they have not been tested long enough by the orchardists and at the Experimental Station to warrant me in recommending them as yet for general plantation.

Nurserymen having agents to sell stock in Quebec province, east of Montreal, ought to offer to their customers only the varieties that have proved hardy and productive after several years of culture. The nurserymen having at heart the success of the fruit industry ought not to sell Baldwin, R. I. Greening, King, Newton, and Pippin trees in this northern part of Canada. All attempts to cultivate them have failed. Their wood does not mature, our season of growth being too short.

HARDY PLUMS FOR QUEBEC*										
	Vigor.	Hardiness.	Fumid-ity.	Season.	Use.	Size.	Qual-ity.	Cook-ing.	Ship-ping.	Dessert.
Bradshaw	75	75	75	Sept.	d.	vl	g	75	50	50
Ooe's Golden D. ..	75	90	90	Sept.	d.c.	ml	g	75	90	75
Gueli	80	75	90	End Sept.	d.	l	g	75	75	75
Grand Duke	75	75	90	Oct.	d.	vl	vg	90	75	90
Hudson River Quackenboss ..	90	90	90	Oct.	d.c.	vl	g	90	90	90
Imperial Gage	80	75	75	Sept.	d.	m	vg	90	50	90
Lombard	90	90	100	S. & Oct.	d.c.	ml	g	90	90	75
Mirabelle (native)..	75	90	90	Aug.	d.c.	sm	vg	90	90	90
Moor's Arctic	75	90	90	Sept.	d.c.	m	f	90	90	50
Pond's Seedling ..	75	75	75	Oct.	d.c.	vl	f	90	90	50
Agen	75	55	75	Oct.	d.	m	g	75	90	90
Reine Claude Montmorency ..	90	90	90	Sept.	d.	ml	vg	90	90	90
Damas bleu	75	90	90	Sept.	d.	s	vg	90	90	90
Shipper's Pride ..	75	75	75	Sept.	d.c.	vl	f	75	90	50
Green Gage	75	75	75	Sept.	d.	m	vg	90	75	90
Washington	75	50	75	Sept.	d.	vl	g	90	75	90

HARDY APPLES FOR QUEBEC*										
Tree.				Fruit.						
Vigor.	Hardy.	Prolific.	Season.	Use.	Size.	Qual-ity.	Cook.	Ship.	Dessert.	
Astrachan	75	75	50	Sept.	d.c.	m	g	50	50	75
Y. Transparent ..	90	90	90	Aug.	d.c.	l	g	90	25	75
Peach of Montreal.	90	90	90	Sept.	d.	m	g	75	25	50
Duchess	75	90	90	Sept. & Oct.	d.c.	l	f	75	90	50
E. Strawberry ..	50	60	50	Sept.	d.	m	f	75	75	50
Alexander	75	90	60	Oct.	c.	vl	f	50	90	50
Longfield	75	90	75	Nov.	c.	m	f	50	90	50
St. Lawrence ..	50	75	50	Oct.	d.	l	vg	50	90	90
Wolfe River	75	75	75	Nov.-Dec.	d.	vl	g	75	90	75
Wealthy	90	90	90	Dec.-Feb.	d.c.	l	g	75	90	75
Am. Gold. Russet..	75	75	75	Nov.-May	d.	m	g	50	90	75
Bethel	75	75	50	Nov.-Feb.	d.	ml	g	50	90	75
Fameuse (Snow) ..	90	90	90	Oct.-March	d.	m	vg	75	90	90
McIntosh Red ..	90	90	90	Oct.-Feb.	d.	ml	vg	75	75	90
Rox. Russet	75	90	75	Oct.-May	d.	m	g	25	90	90
Scott's Winter ..	75	75	75	Oct.-May	d.	m	g	25	90	75
Winter Arabka ..	50	75	75	Nov.-Feb.	c.	l	f	75	90	50
Ren Davis	75	60	75	Nov.-May	c.	l	f	50	90	40

*In the foregoing tables, in the column headed "use" the letter "d." stands for dessert and the letter "c." for culinary. In the column for size "m" denotes a medium size, "l" a large size and "vl" a very large size. Under the heading quality "g" stands for good and "f" for fair.

Efficient Spraying Apparatus Required*

J. M. Robinson, B.S.A., Assistant for Horticulture, Kentville, N. S.

FRUIT growers are waking up to the fact that we need more efficient apparatus if we are to do our best work in spraying. Power sprayers are in use in a great many Nova Scotia orchards, and it is a great pity that some of these are not of the best type. A power sprayer should be able to force not less than one hundred and fifty gallons of spray through two lines of hose, with moderately coarse nozzles, in from twenty-five to thirty minutes in order that thorough and the most economical work may be done. One or two points outside of the sprayer might be discussed briefly with profit.

BAMBOOS

Any one visiting orchards in the Annapolis Valley is at once impressed with the enormous per cent. of scabbed fruit on the tops of our large and even moderate-sized trees. The reason for this is obvious when we look closely at the spraying apparatus used in the general orchard. Very few towers are used on outfits, and dependence for reaching the tops of the trees is placed entirely in the rod used. These rods are with few exceptions too short for the purpose. Long rods are not purchased by the wholesalers as they claim there is no sale for them.

No one can reach the tops of trees twenty-five feet in height with a pole ten feet long. This fact was brought strongly to my notice while thinning in the orchard of E. I. Loomer on July 22nd. Mr. Loomer, who is a thorough sprayer and gets results much above the average, was spraying. After the tree which I was thinning had been sprayed, I took the trouble of investigating the thoroughness of the work done. The lower part of the tree was drenched, but on examining the upper portion I found the leaves absolutely dry and without a sign of any spray. The rods used were ten feet long, while the tree was some twenty-three feet high, and though the spray seemed to be reaching its destination, the top of the tree, it failed to do so.

At the time of thinning even a careful observer from the ground would fail to detect scabbed fruit, but a high per cent. of spotted fruit, mostly from the top of the tree, was harvested. This state of things is not the exception, but the rule. One way of remedying this evil is to purchase longer bamboos or to get a tower arrangement so that we are sure that we reach the top of the trees from every side.

NOZZLES

In order to do thorough work and drive spray through dense foliage, it

seems necessary to have a spray of some coarseness. If too coarse, however, it does not spread, is wasteful, and there is great danger of skipping. It is therefore, advisable to use a whirlpool type of nozzle, with moderately coarse discs.

TANK FILLING

The cost of spraying depends to quite an extent on the time required to fill the tank. The first thing required for quick filling is an abundant water supply, and the second an outlet pipe or hose so that the water may be had quickly.

Mr. S. B. Chute, of Berwick, has an ideal plant, with four inch outlet for re-filling and a two hundred gallon spray tank that can be easily filled in three minutes. This means that the sprayer is working practically all the time, and this means reduced cost in spraying. Often where water in any quantity is obtainable the outfit is kept waiting for fifteen to twenty-five minutes to refill on account of too small an outlet. The cost of installing a lead sufficient to do the work in one-fifth of the time is not great and the money lost by not doing so is at times hard to estimate.

An old-fashioned dash churn is cheap and very effective for creaming arsenate of lead.

COST OF SPRAYING

The cost of spraying an acre of orchard will depend on the efficiency of equipment on the number of trees per acre and on the size of the trees. Roughly the cost of spraying an acre of forty medium-sized trees, taking eight gallons

per tree for each application, would be as follows:

The cost will embrace the cost of three hundred and twenty gallons of lime-sulphur testing 1.0085 specific gravity, using five pounds of Sherwin Williams lead to one hundred gallons of spray.

The cost of application will allow forty cents an hour for sprayer and gasoline, operating nozzles. The following figures would result:

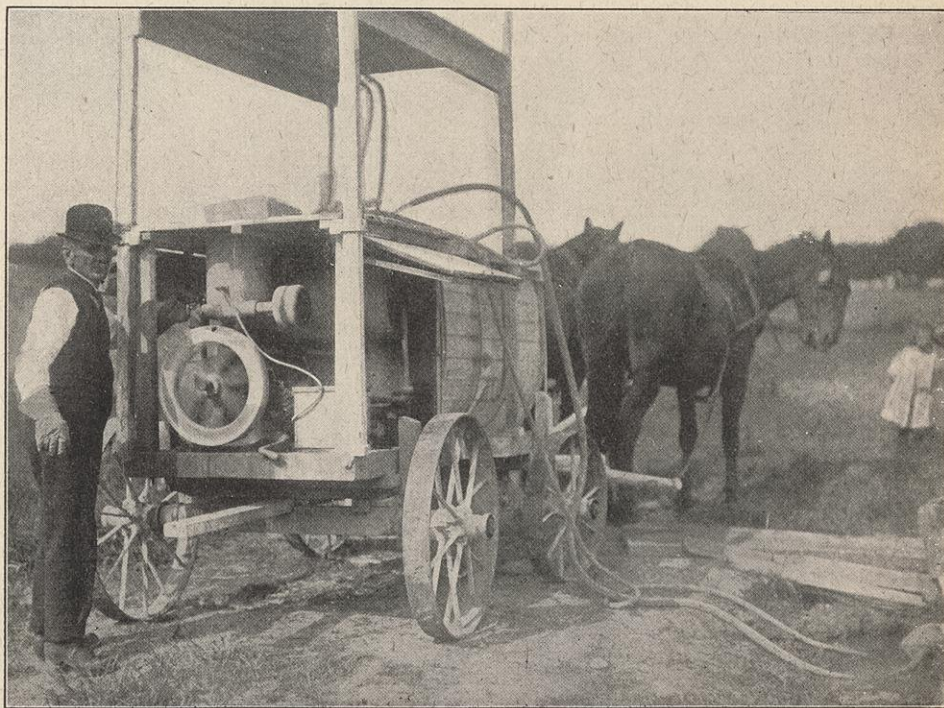
Lime-Sulphur 9.7 gals. at 17½c per gal.	\$1.70
Arsenate of lead, 16 lbs. at 10c.	1.60
Power outfit, 3 hrs., at \$1 per hr.	3.00

Total \$6.30

Each application per acre thus costs the grower either under or over this amount, according to whether his trees take under or over eight gallons per tree, according to whether he has more or less than forty trees to an acre, and according to whether his equipment will put on more or less than approximately one hundred gallons an hour or one thousand gallons a day.

This is, of course, a rough estimate. It is given only for the information of those having limited or no experience in spraying.

White grubs do a great deal of damage to strawberries. They are difficult to handle when they once get into the soil. It is wise to plant in soil that has not been in sod very long. The grub requires two years in the soil, and the second year it does the damage.—W. J. Kerr, Ottawa, Ont.



Filling the Tank with the Tank Filler

This is done by using the pressure from the spray hose. Orchard of Harris and Pearce, New Serum, Ont.

*Extract from an address delivered at the last annual convention of the Nova Scotia Fruit Growers' Association.

Experimental Work with Shrubs and Flowers*

F. E. Buck, Experimental Farm, Ottawa

At the very beginning of the experimental farms system in Canada, the work of testing, recommending and in some cases distributing hardy and desirable ornamental trees, shrubs, and flowers was undertaken on a fairly extensive scale. The work was under the direct supervision of the late director, Dr. Saunders, and the present Dominion Horticulturist, Mr. W. T. Macoun, who was at that time curator of the Botanic Garden or Arboretum. In a young country like Canada, work of this character undertaken by the Federal Government on such a scale had an outstanding value. In the first place it allowed reliable information to be issued in the form of semi-popular bulletins, such as those of "Hardy Trees and Shrubs" and "Herbaceous Perennials Tested at Ottawa," very large editions of both these bulletins being now nearly exhausted; and in the second place the judicious distribution of such plants to the branch farms, public and other institutions, where they attracted the attention of the public, has meant that for some years past, and at the present more than ever before, the possibility of beautifying the individual home and making it a beauty spot has appealed to a large number of people who otherwise to-day might have homes as unattractive as those of many districts of the old world or the desolate homes of new settlers in our own land.

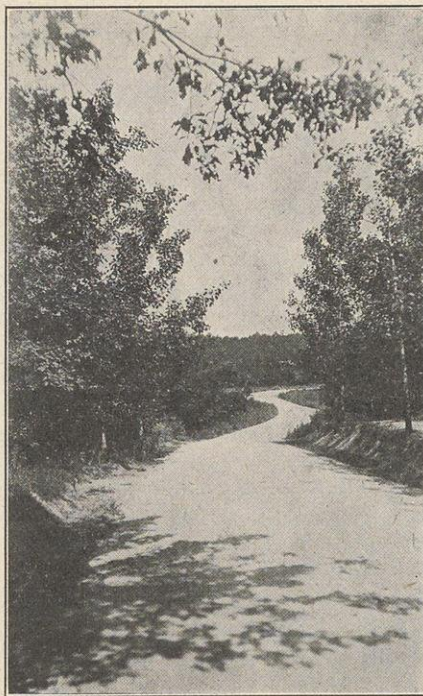
Countless shrubs have been tested and discarded. Others have proved of great value and the good results rewarding the efforts put into this line of work make it stand out surely as of large importance in encouraging the strivings after those things which develop the moral and ethical phases of our life.

This work is still going forward. Just now, to mention but one of its phases, we have under observation a number of new shrubs and varieties of well-known shrubs which were introduced a few years ago from China and other countries by E. H. Wilson, of the United States Department of Agriculture, as well as other shrubs both donated and purchased. We are also putting shrubs to the test with regard to their suitability for certain purposes around the home. This is a phase of work rather new with us.

HEDGE PLANTS

The test of plants for hedge purposes is being expanded and kept up-to-date. Nowhere in the world, as far as I am aware, is there such a complete and thorough test of plants suitable for hedge purposes as that which may be seen under way at Ottawa. About 100 different varieties of trees and shrubs are

used. Many of the hedges are over twenty years old, while others are only one or two. Most are in fine condition, and many are very handsome and attractive. Visitors from all parts of the world compliment the farm on this collection, and inquiries are very numer-



A Country Driveway, Humber Valley Park, Toronto

ous about plants for this purpose. A bulletin on the experiments will be published before long.

The following trees make almost perfect hedges:

All of the hardy birches, namely, *lutea*, *populifolia*, *nigra*, and *lenta*.

The larches, both the American and European.

And several other trees; while some trees that might be expected to do better when grown for hedge purposes are not successful; of these the elm, the Manitoba maple, and the Russian mulberry are examples.

It is always a source of disappointment to attempt growing any plant with the dual purpose in mind of a floral effect and a good hedge, because in pruning a plant to keep it to a hedge form the flower buds have to be sacrificed, consequently several of the most handsome shrubs make poor hedge plants. However, if a hedge with a distinctive character is required, any one of the following might be used:

Purple-leaved Barberry, Golden Ninebark, Red-leaved Rose, Cut-leaved Alder, Red-twigged Dogwood, American Beech, and the following evergreens: Douglas' Golden Arbor-Vitae, Silver-tipped Arbor-Vitae, Irish Juniper, and Swiss Stone Pine.

Ordinarily we score a plant as perfect for hedge purposes when it measures up to the following requirements: It must grow vigorously, but not too rapidly, otherwise it will require too much pruning. It must have an attractive appearance throughout most of the year and must regain that appearance quickly after pruning. It must permit being pruned to a symmetrical form and a form which will not hold the snow on the top in the winter. It must fill out well at the base when planted in single rows at eighteen inches apart in the row. It must not winter-kill in places, and must not suffer from attacks of insects or fungous diseases. These are the main points of a good hedge. At Ottawa we have many which meet these requirements.

WORK WITH PERENNIAL FLOWERS

A few words only on perennial flowers. Mr. Macoun's bulletin on "Herbaceous Perennials," published in 1898, shows at a glance the immense number of these important plants. This group has been eulogized of late as being responsible for most of the recent good work in Home Beautification.

Our most recent work with perennials has been to test them for their effect under certain conditions. All of the best of these flowers previously tested for other information, are now grown in a border twelve feet wide and four hundred and fifty feet long, prepared especially for the purpose in 1911. In this border the five or six great season groups of perennials are well represented. Such being the bulbs as: tulips, narcissi, and so forth, for the first effect in spring, then the irises, then the paeonies, after which come the great bulk of bloom which is followed by the phloxes for late summer effect, and the asters for autumn effects.

It should be mentioned here perhaps that there are certain times during the summer when the amount of bloom in a perennial border is very small. One of these periods is that which occurs just after the bulk of the early summer plants have bloomed. Since this is a time of the year when a large number of people are expecting the flowers to look at their best, we are just now working to find suitable flowers to fill in these gaps in the floral year.

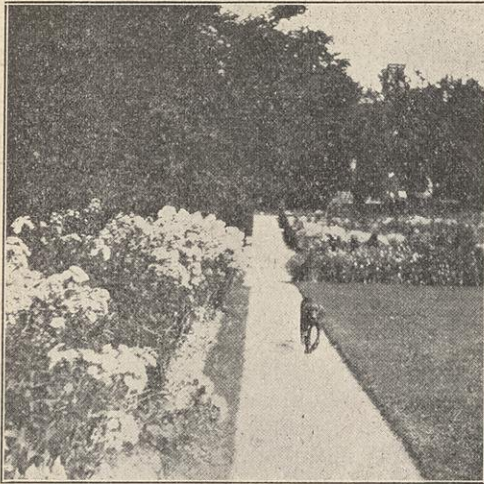
Dahlias require good rich soil, good uniform moisture conditions, and plenty of sunlight, to do well. If the soil has not been sufficiently enriched, or the bed may be more shaded than it should be, or the ground become too dry, the bloom will be disappointing. The Dahlia requires moderately cool soil conditions to do best, and both the application of water and humus to the soil brings these conditions about.—Prof. W. S. Blair, Kentville, N.S.

*Extract from an address delivered before the Ontario Horticultural Association.

The Beeches—A Garden Beautiful

A. J. Elliot, Aylmer, Ont.

“THE Beeches” is the fitting title of the lovely home, on Grand Avenue, London, Ont., of Mr. R. W. Puddicombe, manager of the London Loan Society. A fine home it is.



Mr. Puddicombe's Garden, Looking North Toward the House

This was revealed during a visit when the grounds and garden were at their best. Embowered in grand old beeches, evergreens, and deciduous trees and shrubs, and draped in its summer suit of close-fitting Virginia Creeper and Ampelopsis Veitchii, the house reminded one of the southern colonial home because of its wide and hospitable, pillared verandah, garnished everywhere with boxes, pots and other receptacles for flowers. It might easily be passed by a person on the road without ever imagining that so large a home was so near.

As you enter the gate from the avenue the driveway describes a circle through the ancient forest, and returns to the gateway. Passing up a rather sharp elevation, and arriving at the top and passing the front elevation of the house on the left, you find the primeval and modern hand in hand in great beauty. The only connecting link between the two is a single rank of Scottish firs, planted by a former resident, which seem to stand on tiptoe to make themselves as tall and grand as the lordly beeches they are guarding.

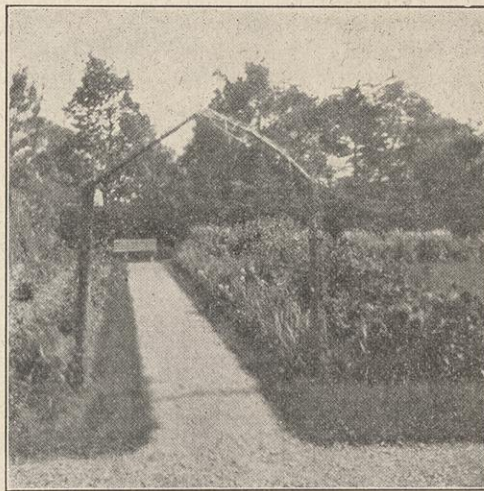
At their feet stretches a large tennis court, level as a billiard table, closely shaven and well kept, surrounded by lawn, till cut off from the garden by a fine row of syringas, backed by a border of perennial plants. The driveway is left here, and walking across the small plateau, on which the house stands, the beauty of the place bursts upon you.

THE ROSE GARDEN

The ground dips from your feet as rapidly as it rose at the entrance. On

this decline is situated the rose garden. At the bottom of this descent the lawn proper commences. It is embellished in the centre with a bed of magnificent paeonies. The lawn still rises till the full height of the ascent is reached on the top of which is planted a grand row of pampas grass. Then some eight feet more, and a row of spruce ends the scene. The general view is lovely.

Descending to the path at the bottom of the incline, and turning, the full beauty of the roses struck me forcibly. It was a glorious day in June when I first was there, and an ideal day for roses. There they stood, some five hundred bushes, all of strong and vigorous growth, fairly bending under the load of blossoms they bore, from the purest white through all the shades of pink, cream, and scarlet, to the darkest shades. It was a panorama of beauty. I could not see a bug, worm, or aphid in the garden. Questioning Mr. Puddicombe



The Middle of the Garden, Looking South

as to their absence, he told me that he had used tobacco water and helebores, but his panacea for rose enemies was nothing more than the garden hose. The rich clay soil is where the rose luxuriates, and the only manure given is in the fall when strawy manure is put on deep for their protection and raked off in the spring, the fine humus left being dug in.

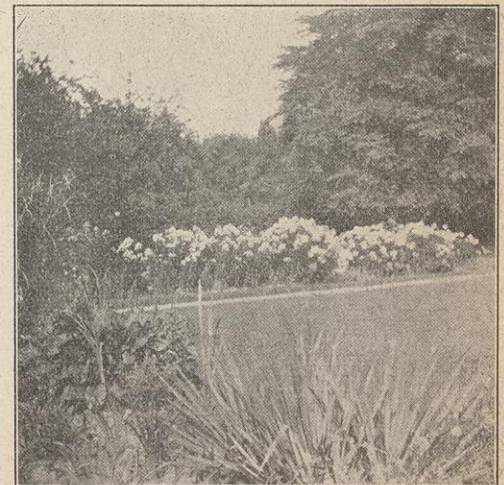
A good lesson might be learned by rose growers as to pruning. The severe winter two years ago froze about all the wood grown the previous year. Yet the following season the roses never blossomed finer nor were more prolific. Mr. Puddicombe's favorites are La France, Marvel de Lyons, Baroness Rothschild, Gen. Jacqueminot, Polonnaise, and Gen. Grant, all of which are well represented in his garden, besides a great many others.

Now, as the rose unfortunately gets through blossoming soon after the month of June is out, the beds would have rather a deserted look; so in the diamond centre bed, geraniums are planted, and the other beds are filled in with Japanese Pinks, Phlox Drummondii, asters, scabiosa, salvia, heliotrope, and on either side liberal perennial borders run the whole length of the enclosure, rioting in bloom. Here was found sweet rocket, the larkspurs, corn flowers, perennial phloxes, garden heliotrope, Sweet William, columbine, hollyhocks, paeonies, and many other flowers.

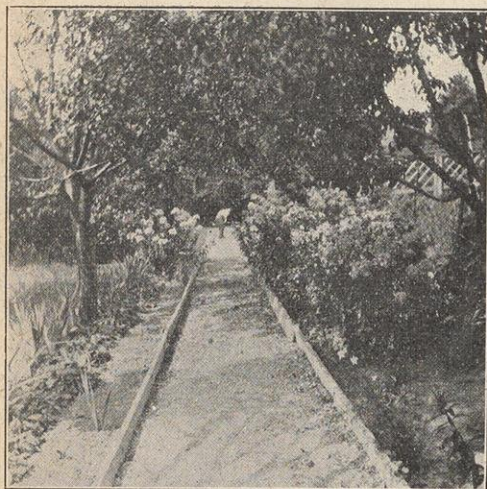
This enclosure is in its turn cut off from the vegetable garden by a lattice fence covered with clematis, entrance being gained through arched ways, where the paths command. Entering by the south path a surprise was experienced. Another lawn met the view. It was surrounded on three sides with perennials and on the fourth by rows of currants and gooseberries, while a centre bed was a mass of splendid cannas.

North of this was the vegetable garden proper in which in profusion is grown in rows currants, gooseberries, beans, tomatoes, beets, carrots, peas, sweet peas, and asparagus, and all around this part, under the spruces that mark the line of property, are grown raspberries. Adjoining this section is the greenhouse, in which some fine chrysanthemums were showing good work for late fall blossoms.

I stated at the outset that the front was a mass of trees and shrubs. Mr. Puddicombe has spared neither expense nor trouble to gain his desired effect. He has the Mahonia Aquafolia, the seeds of which he got while on a visit to Heidelberg in Germany; the Retinospora, Barberry, Thunbergia, Juniper, Azaleas, and the Sciadopitys Vorticillata, besides



The East End, Looking West



A Shady, Bordered Path

the more commonly known varieties of shrubs. He also grows successfully the Magnolia, which had just got through blooming before my visit. Cuddled up at the foot of this shrubbery is a fine row of Japanese anemones.

There are some three acres to this fine place, and it would be impossible for Mr. Puddicombe, who is a busy man, to attend to it. He has a man who has been with him for years, and between them they have made a success of The Beeches, and it is hard to know which takes the most interest in developments there—the proprietor or the gardener Jacques.

There is one magnificent beech, close to the house, that has a spread of over 70 feet, and during hot Sundays a nephew who frequently visits them holds the Church of England service under the leafy dome.

Planting New Shrubberies

John Gall, Inglewood, Ont.

Whether the proposed new shrubberies are to be on a large scale or otherwise, every effort should be made to prepare the soil well, to put in the most suitable kinds of shrubs, and to arrange them in the most attractive way. Even a very small shrubbery makes the home look more substantial and comfortable. Not only does the cultivator derive great interest from watching the growth of his shrubs, but in association with them he can, all the more effectively, arrange other subjects in his garden.

Very fine shrubs can be grown in quite poor soil if it is well treated. Many cultivators are under the impression that it is useless for them to attempt the growing of shrubs, or to form a shrubbery, because the rooting medium is different in regard to quality. Of course good rich soil helps matters considerably; but there is a large amount that is of poor quality, and those who have to grow shrubs in such, should make it

as suitable as possible before putting in their plants.

In preparing the ground, it is absolutely necessary to have it dug as deeply as possible, adding a good quantity of manure. This being done, it is always wise to mark out the stations, before commencing to plant. The need for a careful spreading out of the roots and

for firm planting must be insisted upon. After the operation is completed, water must be applied freely, so that it may sink deep down to the roots.

A few deciduous kinds of shrubs, judiciously mixed with the evergreen sorts, always add to the general appearance, and give additional interest to those of a non-flowering character.

March Work in Indoor Garden and Greenhouse

Henry Gibson, Staatsburg

With the advent of March the progressive amateur finds plenty to do to keep everything in good shape and prepare for Easter. Decorative foliage plants will be greatly improved in appearance by a good spraying with some such insecticide as Lemon Oil, Fir Tree Oil or Aphine. No matter how careful and attentive you may have been, either scale or mealy bug will have found an abode somewhere around the stem or foliage. A thorough going over with any of the insecticides mentioned when they are used according to directions accompanying them, will account for these pests and leave your plants in fine shape.

After the cleaning each plant should be unpotted or some new soil added as a top dressing. In the latter case, remove the old soil down to the active roots. This should be done very carefully with a piece of wood, so as not to injure the little rootlets. For a compost use good loam that has been enriched with thoroughly decayed barnyard manure and bone-meal. Give the tubs or pots plenty of drainage material in the bottom to allow the water to pass off freely.

As the sun gains more power to raise the temperature, more air should be given, and as the weather becomes brighter some means of preventing the direct rays of the sun from striking the plants will have to be devised. This can be accomplished by placing them in a somewhat shaded corner of the house, and in the greenhouse by whitewashing the glass of the section they occupy.

EASTER FLOWERS

If you are bringing along a few lilies for Easter these should be showing buds now. It takes on an average six weeks for these buds to develop without undue forcing, which leaves nothing to spare, as Easter falls on April 12th this year. Keep them well watered and the atmosphere moist, and you will have fine blooms for the holidays without much trouble. Liquid manure applied weekly until the buds begin to turn from green to white will be beneficial, but as soon as this happens it should be discontinued. Spraying or fumigating should be attended to regularly to prevent aphids from getting a hold on your plants.

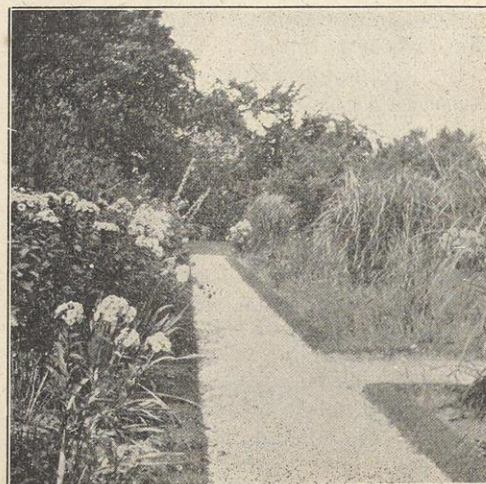
Should any plants color so early as to be past their best by the holidays, place

them in a cool room. This treatment will retard their progress considerably.

Where it is intended to have Dutch bulbs in bloom for the holidays these should be attended to about the middle of the month. It takes very little over three weeks to flower tulips, narcissus and hyacinths, after being brought into the house. Avoid giving them a warm place. They do not need it and they will only become drawn up. The cooler you can grow them the sturdier they will be, and consequently they will keep better and longer. A few hot days will forward these subjects far ahead of all your expectations, but such possibilities should be guarded against by ample ventilation, and if in the greenhouse some shade on the glass. Do not forget to lay newspapers on the tulips on hot sunny days when the flowers are opening.

SOW PRIMULA SEED

The middle of March is a good time to sow seeds of primula that are wanted to furnish bloom next fall. Prepare seed boxes or pans with a mixture of loam, leaf mould and sand. Sift some of this mixture very fine for the top and on this sow the seeds. Place in a moist, close place, where a temperature of about sixty degrees at night can be obtained. cover with glass and a sheet of newspaper until all the seeds germinate, which should be in two or three weeks. When sufficiently large to handle prick them off into flats, and keep well up to the light so as to ensure a sturdy growth



The South End of the Garden, Looking West

in a temperature of fifty degrees at night. As they begin to get crowded pot them off into small pots, using a compost of loam with the addition of sufficient leaf mould and sand to make it light and porous. To this should be added a fair sprinkling of pulverized sheep manure. Continue to pot them on as the roots show around the side of the pots.

It is not advisable to sow seeds of the baby Primrose (*Primula Malacoides*) at this time. *P. Malacoides* is a very desirable plant which should have a place in every amateur's collection. It makes a better Easter plant than it does a Christmas plant and to start seeds now would result in many losses by damping off before the plants could be carried through to another Easter. Damping off is about the only thing that can be urged against this primula, and this to a large extent can be overcome by sowing the seeds later. June first is soon enough to start the seeds.

CANNAS

Cannas are very popular bedding plants and they are becoming more so each year as the new and improved varieties are being tried out. Where a large bed is to be planted nothing will give more satisfaction than these plants. They are showy and bloom throughout the summer until frost cuts them down.

To make the best showing the roots should be started early enough to produce good strong stock by bedding out time next June. They should be started as early in March as possible. If there are any varieties you wish to add to your collection now is the time to get them.

Remove the clumps from the place where they have stood all winter, shake off all the old soil, and cut away the dried up stalks and roots. They should then be cut into small pieces, and if stock is plentiful, left with two or three "eyes" to each piece. If, however, you are short of stock they may be cut to one "eye," although by so doing weak plants are often produced.

Have a few boxes ready such as you would use for sowing seeds in but preferably a little deeper. Place an inch of soil in the bottom of these, on which put the divisions of the cannas closely together, cover with light sifted soil and water thoroughly.

Very often some of the clumps are found to have started into growth before being taken from the winter quarters. Where this happens the eyes should be sorted and those with growths on them should be placed in a box by themselves, and all the dormant eyes together. Have but one variety in a box and mark the name plainly on it. When all the pieces are boxed up and watered they should be placed in a warm position where some "bottom heat" is to be obtained.

Cannas will grow and do well in a tem-

perature of from fifty to sixty degrees, after they are once started, but to get the dormant eyes into an active condition bottom heat is indispensable. This is where a great many amateurs fail when attempting to grow cannas with such conditions as generally obtain in the dwelling house.

Arrange matters so as to have the boxes elevated above the radiator, the kitchen range, or even an oil stove, as was suggested for starting warm blooded seeds last month. Don't have the boxes get real hot but maintain a steady

brisk heat and your cannas will respond handsomely. If such an arrangement is impossible indoors, make up a mild hot-bed out doors, and start them in a sandy soil. When they have made a few inches of growth they should be potted into three and a half or four inch pots, and grown along until bedding time in a temperature of fifty to sixty degrees. It should always be borne in mind that cannas are sub-tropical plants and are easily injured by frost, therefore planting out should be delayed until all chance of frost is over.

The Tuberous Bedding Begonia

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

WHERE the culture and requirements of the tuberous bedding begonia are understood the plant is very popular. The three outstanding essentials to successful cultivation are shade, moisture and a soil of light texture. These are as necessary as light and air to human beings. Who would not grow tuberous begonias, were such possible? Among the singles we find flowers five to seven inches in diameter, the colors ranging from pure white through all the shades to intense crimson, while the doubles, many of them resembling roses, are equally as varied in color, and as desirable. The frilled singles of recent introduction attract attention more quickly than the ordinary singles or doubles, and in many localities could be grown successfully. Less known, but equally beautiful, are the varieties Bertiniana, a tall vermilion single with pointed petals; Count Zepelin, a dark orange double of dwarf habit; Lafayette, likewise of dwarf habit closely resembling Count Zeppelin; and Worthiana, a vermilion single, the

flowers somewhat resembling those of a fuschia.

For our beautiful tuberous bedding begonias, all of which are annual stemmed, we are indebted to the Andean species of South America, such as *B. Pearcei*, *Veitchii*, and probably *Davisii*, these being the first tuberous species introduced, and being readily crossed have proved worthy progenitors of our magnificent garden types.

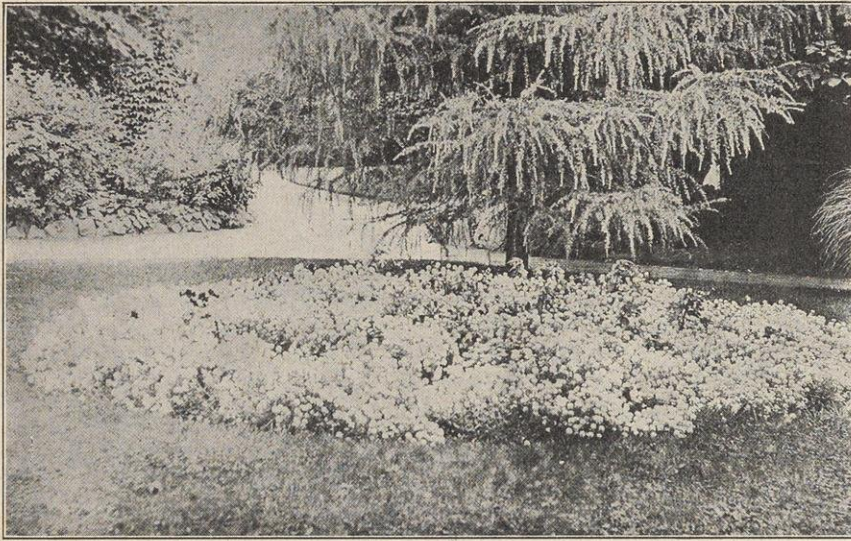
It is not advisable to attempt to grow any tuberous variety on a large scale in localities where the temperature hovers around 85 or 90 degrees for weeks at a time, and foolish to attempt to grow any with a higher temperature, or where an abnormally dry atmosphere exists. If such be attempted doubles alone should be planted, as their closely arranged petals are more resistant to heat than the singles, whose petals do not afford protection to each other. An average summer temperature of 75, a humid atmosphere, and a light soil containing humus, retentive of moisture, are ideal conditions for promoting vigorous growth,



A Bed of Mixed Tuberous Begonias

These are not so effective as a bed of one variety.

—Photo by H. J. Moore.



The Ordinary Sweet Alyssum Grows Too Tall and Soon Smothers the Begonias. Grow Dwarf Varieties such as "Minimum," "Snow Carpet," or "Little Gem."

—Photo by H. J. Moore.

and splendid flowers. Where the atmosphere is not sufficiently humid shade must be afforded, otherwise scorching will result. A surface mulch of well rotted stable manure or leaf soil is also advantageous.

Those who possess a greenhouse may propagate the plants annually by seeds, or by division of the largest tubers. Sow the seeds in January or early February, if desirous of obtaining plants to bed out in June. It is, however, preferable to sow in March or April, and grow the seedlings in pots during the first year. Disappointment will thus not accrue through failure of many to flower satisfactorily out of doors. By pot culture the first year the small tubers may be readily cared for, and after the growth decays they are not so liable to be lost which often happens when planted outside.

Prepare the seed pans by placing cracks in the bottom and on this a layer of fibrous material. Fill to within one inch of the top with finely sieved soil, composed of sand and leaf soil two parts, and loam one part. The mixture should also contain a small quantity of finely broken crocks and charcoal. Press down gently and upon this layer of soil sift through a very fine screen sufficient soil to fill to within one-half inch of the top. Do not leave the surface flat, but convex, so that water may pass to the sides of the pan, and so prevent damping of the seedlings, this damping being caused by the fungus "Pythium." Immerse the seed pans in water without disturbing the surface soil until the soil is thoroughly saturated. Sow the seed evenly and thinly. Do not cover with soil, place in a temperature of 65 degrees Fahrenheit, cover the pans with a piece of glass,

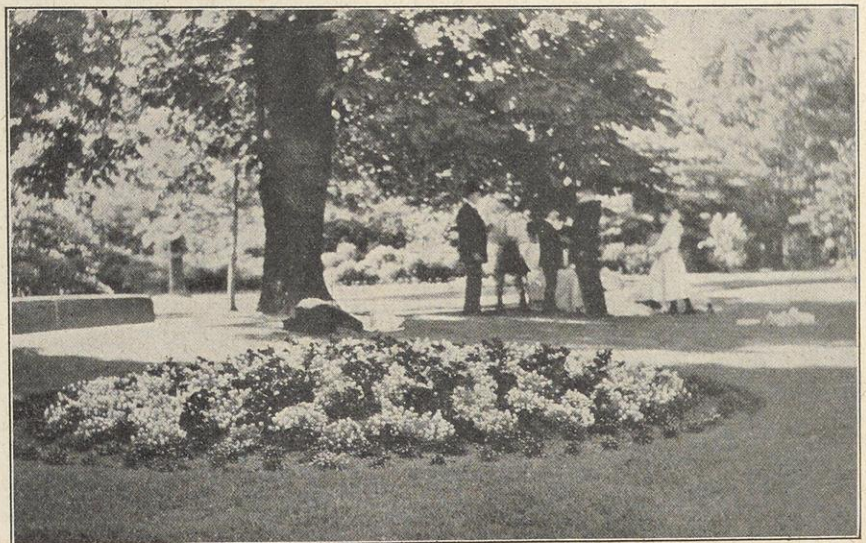
and shade from sunlight. Do not at any time water the seedlings overhead, but partly immerse the pans. The water will thus rise by capillary attraction and the seedlings remain undisturbed.

After germination, afford light (not direct sunlight) until the plants strengthen, and are large enough to handle, then plant singly one-half inch apart into larger pans. When about to crowd each other, pot off into two-inch pots, and finally, ere flower buds show, shift into four-inch pots. Afford occasional applications of Clay's fertilizer or guano, one-half ounce to a gallon of water. Dampen the floors, benches, and other surfaces to create humidity, and to prevent the attacks of red spider, but avoid spraying the plants during sunlight, otherwise scorching will result. Shade from intense sunlight at all times.

Propagate by division during the first week in April. Select large tubers which possess at least two crowns. A sharp knife is essential to sever the tubers directly between these, each portion will thus bear buds, without which they are useless. Expose the cut surface to air for some time until they cease "bleeding," after which dip them into slacked or powdered lime; this will act as an antiseptic, and also check the attacks of slugs, grubs, and other insects which prey upon them. Place the tubers on finely sieved leaf soil in flats, keep the soil moderately moist, spray them occasionally to encourage growth, and maintain a temperature of at least 60 degrees.

When two or three inches of growth has been made pot off into four-inch or five-inch pots, and when well rooted remove to a cold frame to inure to outdoor conditions. Air well during warm days, but close the frames on cold nights. By the first of June the plants will be sufficiently hardened to allow of the sashes being entirely removed, and after a week's exposure to outdoor temperatures, shaded, of course, from direct sunlight, they may be planted in their permanent position.

Tuberous begonias, when massed, are always effective, especially when the singles and doubles are separated, for in their distinctiveness lies their attraction. Effective even to a greater degree are they when arranged in beds of separate colors, the merits of each variety being thus readily seen. Also, when so arranged, it is possible to select and mark desirable kinds, and to eliminate weaklings. As the begonia reproduces itself tolerably true from seed isolation of the varieties it renders seed selection possible, there being little danger of the intervention of foreign pollen through nat-



Dark Tuberous Begonias and Alyssum Minimum in Queen Victoria Park

—Photo by H. J. Moore.

The Beekeeper

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Some Interesting Methods of a Successful Beekeeper

THE story of how Mr. Krouse, of Guelph, who started with one acre of land, achieved success as a market gardener, would make interesting reading. But in spite of this marked success, Mr. Krouse considers beekeeping to be a still better proposition. The ten acres of land which he now owns he is partly disposing of, and is giving more and more of his time to the bees.

A few years ago he started with several colonies. To-day he has a home apiary of ninety-eight colonies and four out apiaries, at distances of from four to six miles away, of about fifty colonies each. From a spring count of two hundred and ten colonies, he has got fifteen tons of honey. It is Mr. Krouse's intention to build these latter up to about one hundred hives each.

The careful and painstaking management that is so necessary to success in market gardening has been applied to the bee yards. Mr. Krouse does not merely keep bees on the hit or miss plan—he studies them carefully. As Mrs. Krouse remarked to an editorial representative of *The Beekeeper*: "On a Sunday afternoon I have seen him lie beside a hive for an hour just to see and learn what they were doing."

In the extracting house and in the workshop, careful attention to detail was noticeable. The extractor is a cut geared Ham & Nott power machine. It has given splendid satisfaction. The gears fit well and run as smoothly as a sewing machine. A one and one-half horse-power gasoline engine furnishes the power. The extractor is on a large raised platform, and the honey flows by gravity into the strainer and thence into the tins, which are set right on the scales. The dark honey is all marketed in sixty-pound tins. The white honey is put up largely in five and ten pound lithographed tin pails, similar to those seen in the O.B.A. exhibit at Toronto.

The work bench is commodious and well fitted. Mr. Krouse makes all his own hives, frames and cases. A saw table is proving a most efficient time saver. A two and one-half horse-power engine supplies the power. No lumber is wasted; the shorter pieces are utilized for casing the sixty-pound tins. Mr. Krouse also buys up a large number of packing cases from the merchants in the

city, and finds them a cheap source of good lumber.

Two styles of hive are used—the standard Langstroth and a modified Langstroth. This latter is of the same length and width as the standard, but is deeper. The frame is eleven and three-quarter inches and with bee space added the total depth of the hive is twelve and one-half inches. Mr. Krouse claims a number of advantages for the deeper frame: The brood chamber is larger and thus decreases swarming. This is especially true with strong colonies. One out apiary of forty colonies has the deep hives entirely, and produced this season five and one-quarter tons of honey. The only disadvantage of the deep frame is that the supers are heavier and harder to handle.

The feature of Mr. Krouse's management, in which we were most interested, was the method of wintering. All the hives remain out of doors, and are packed in single cases. These cases are left on the year round. Wheat chaff or shavings, preferably chaff, is used for packing. The hive stand forms the bottom board of the hive. The dimensions are the same as the inside dimensions of the two cases, which is twenty-five inches high, twenty-five inches wide, and thirty inches long. The sloping alighting board is built in as a part of the stand. The stand is made of dressed half-inch lumber laid on two by four inch cedar pieces. The whole rests on four bricks.

The cases are made of half-inch lumber nailed to one by two inch corner uprights. The corner pieces rest on the hive stand, the two sides and back lapping down over. The first cases that Mr. Krouse made were flush with the sides of the stand. He found, however, that the water made its way in and the bottom board and packing became damp. In constructing the case, the ends are nailed in first and then the sides.

The piece cut out in front to form the opening is levelled. This piece has a small opening in it. During winter this piece is replaced, and thus only the small opening is left. A bridge extends from the entrance of the case to the entrance of the hive proper. This keeps the chaff from clogging the passage. Allowance is made for four inches of packing on all

sides between the hive and the case.

The covers slope from the middle to each side. The gable ends, as we might term them, are four inches high at the centre and two inches at the side. The trimmings from these pieces are used to advantage. They are utilized for contracting the entrances. Mr. Krouse formerly made the covers flat, with the slope to the rear. He found, however, that the water ran down the rear end of the hives and then on to the bottom board. These ridged covers also serve a purpose when removing the supers. The cover is taken off, turned upside down, and the super placed across it. As a result, no bees are crushed.

When preparing the hives for winter, all that Mr. Krouse needs to do is to remove the cover, place a burlap sack full of chaff on top of the hive, and replace the cover. One man can fix up one hundred hives in less than two hours. The great advantages which Mr. Krouse claims for his system are: All the labor of shifting hives is eliminated. Because the bees winter successfully outdoors he does not have to carry them down to the cellar. As the hive is never moved, no bees are lost during the early spring flights. The packing, which remains around the hive during the whole year, keeps the heat out in summer and thus a more even hive temperature is maintained. The combs do not break down with the heat and the bees do not need to spend so much time fanning. As the packing does not allow the temperature of the hive to cool down too much during the night, the bees get started earlier in the morning. During the cool days of early fall, too, they do not cluster so much in the hive.

The ideal which Mr. Krouse has set for himself is to produce a strain of bees that will be quiet and yet industrious. He feels that he has succeeded in a large measure.—B.B.

Increasing Consumption

M. Moyer, Toronto, Ont.

I heard a beekeeper say recently that Toronto was the largest honey consuming city in America, and that this was owing to the advertising value of the honey exhibits made each year at the Canadian National and Ontario Horticultural Exhibitions. No one will dis-

pute the fact that the exhibits have had much to do with it, but the people of Toronto will bear me out when I say that much of the credit is due also to the old firm of M. Moyer & Son, of whom I was a member.

This firm started business on Spadina Avenue in 1888, with the intention of handling four principal articles of food which they considered never received proper attention. These were butter, eggs, cheese, and honey. At that time honey was regarded only as a medicine, and sometimes as a luxury on the table, but not as a food. The purchases were in five and ten cent lots when the children had colds. Carrying only four lines their business was not merely waiting on their customers, but included explaining the food values of each line, and pointing out to them as well, the differences in the values of the different qualities in the same line. This was particularly necessary to do in selling honey, the food value of which was unknown to the general public. By this method they increased their sales from two hundred pounds the first year to fourteen tons in the fifth year. They then added general groceries to their business, which made it impossible to give honey the attention

they used to do, and the consequence was that the sale of honey decreased.

When they sold out their business five years ago, Mr. A. Moyer started to supply the stores in the city with honey, and because he sees that they are regularly supplied with liquid honey in the best and most attractive manner for the consumer is largely due the heavy consumption of honey in this city. While he does this some of the members of the Beekeepers' Association are continually trying to sell to the retailers.

If the beekeepers are anxious to increase the consumption of honey they must devote their time to its production, and see that they have men in all large cities who will see that the honey is regularly and properly delivered to the retailer. To increase the consumption of any article of food, it must be of good quality, but it must also be put before the consumer in the most attractive manner, and this can only be done, especially in honey, by one who can devote every day of the year to this part of the work and supply the retailers at least every two weeks with bright liquid honey in quantities which they can sell in about that time.

Early Queen Cells

P. G. Clark, Marietta, New York

HOW to get queen cells early is often a problem for the novice in queen rearing, and a lack of cells is often a serious handicap to the commercial queen breeder as well. In order to get cells started and perfected at a time when the swarming impulse is lacking one of two conditions must be created—queenlessness or superseding. In this section in the spring, before the swarming season is on, the latter condition is preferred. In order to get the bees to start and mature cells, the strongest colonies are selected, and in order to make them strong the colonies selected are reinforced with hatching brood and young bees from other colonies.

It is not advisable in this latitude to start cells before the middle of May. A ro-framed hive is prepared by placing a piece of queen-excluding zinc lengthwise of the hive so that when in position there will be space for four combs on one side of the excluder and six combs on the other side. The combs in the hive you have selected to start cells in are transferred to the prepared hive and placed on the stand the colony has occupied. In making the transfer select a comb containing honey and pollen and place it next to the outside of the space left for the four combs. Next place a comb containing young brood, that is, larvae that is being fed. Next to this leave a space for the comb containing the pre-

pared cells, and next to the cells place a comb of either sealed or partly sealed brood.

On the side by the excluder containing the six combs the queen is placed, together with the remainder of the brood. Of course, one comb will have to be taken away, and that should be a comb of honey. If prepared cells are used the frame containing them should be placed in the space reserved for it and left there from six to eight hours before the royal jelly and larvae are transferred to the cells. This gives the bees an opportunity to turn down and thin the edges of the cells, and oftentimes will cause more of them to be accepted. From fifteen to twenty cells are enough for a colony at this season of the year.

Placing the queen excluder in the prepared hive causes a crowded condition in the side of the hive where the queen is, and this has a tendency to add the swarming fever to the superseding impulse. The queen excluder should fit snugly on ends and bottom so that the queen cannot get on the side where the cells are. Also the entrance to the front of the side of the hive containing the cells should be closed so as to prevent any lost virgin from another hive entering and destroying the cells. If honey is not coming in from the fields, feeding should be resorted to. A good plan is to equip a bottom board with an Alexander

feeder. Incorporate the feeder into the rear end of the bottom board so that it is a part of it, and it will always be handy, even if not used to start cells.

A piece of enamel cloth placed next to the combs on top of the hive and fastened to the top bar of the excluder zinc will prevent the bees from the whole hive "boiling" out when the hive is opened. Turn the part on the side you wish to look into back on to the other side when manipulating, and you will hardly disturb the opposite side of the colony.

On the tenth day after the bar of the cells has been placed in the colony, the matured ones should be distributed to nuclei. Then the queen can be transferred to the side of the hive containing the four combs. Select a comb of capped brood from the other side and place in the space vacated by the comb containing the cells. Then prepare a bar of cells as before and place it next to a comb of open brood on the side of the hive containing six combs. It will then be ten days later, and so much nearer the swarming season, and with the addition of the young bees that have hatched during the ten days, the colony should be stronger and more anxious to build cells. In addition to this, the queen being paced on the side where there is not many empty cells, the bees seem to think she is failing, and are inclined to supersede her. This makes an ideal condition for cell-getting.

How Bees Produce Honey

This interesting subject was taken up by Mr. Morley Pettit before the Ontario Agricultural College short course class in 1913. During the course of his talk he traced the process from the gathering of the sugary material known as nectar to the removal of the finished product from the hive.

Commencing with the insect alighting on the flower, he explained that the bee goes in and sucks up the nectar through its sucking mouth parts into the gullet or oesophagus, from whence it is conducted to the honey stomach. During this conduction it is mixed with saliva and the saliva induces a change in the chemical nature of the nectar, forming grape sugar. Right here, Mr. Pettit drew attention to the advisability of using tartaric acid in our syrup for feeding purposes, since it is believed this acid aids the conversion of ordinary cane sugar into grape sugar; a change which must be made before it can be used as food by the bees. In making this syrup for fall feeding, he places twenty parts of water in a boiler, and after bringing to a boiling point, stirs in three teaspoonfuls of tartaric acid, which has been previously dissolved in a cupful of water.

Resuming the course of change from



Gathering Enthusiasm for Beekeeping: Students who attended the Short Course in Apiculture held at the Guelph Agricultural College in January

nectar to honey, the nectar is carried in the honey stomach of the insect from the flower to hive and deposited in a cell in the hive. The nectar is now thin, like maple sap, and undergoes a process of evaporation carried on by the bees fanning before the entrance of the hive. It is curious to note that the air circulation often takes place with only one opening, the entrance, being forced in one side by the bees and out the other. The rapidity with which they will evaporate the honey, it was explained, depends a great deal on the atmospheric conditions. Where these conditions will not allow rapid evaporation, the beekeeper was advised to put on extra supers for storage and give them a chance; the number of supers depending on the locality and crop expected.

As the bees get the honey ripened, they cure it. Mr. Pettit did not consider honey ripened until it had been one-half or two-thirds capped by the bees. His advice was to leave the supers on until this has been done, as this is the only means by which the change from nectar to well-ripened honey can be accomplished. To emphasize the importance of this point, he stated that the greatest check we have on the honey market at present was the sale of unripe honey.

In conclusion, Mr. Pettit drew the following lesson from the foregoing facts, namely, since the bees require to ventilate in order to cure the honey, we can easily appreciate the value of plenty of ventilation to aid them in their work. This can be accomplished by enlarging the entrance until it is from one and a half to two inches deep. This

practice of sliding the brood chamber forward so as to leave an entrance at the back was not recommended, and attention was also called to the practice of some apiarists when tiering up, of leaving an entrance to each super with apparently good success.

Questions Answered

When bees are wintered in packed boxes, four hives in a box, and left there until the first of May, will they go back to the place where they wintered, when placed on their summer stands? Would they not winter just as well in boxes made of twelve feet lumber, six or seven placed in a box in a row, facing the south, and packed with chaff? When is the best time to take them out of the packing boxes?—J. E. K., Uxbridge, Ont.

Bees wintered outdoors should always be wintered on the summer stand and not be moved from the summer stand to packing boxes or a shed of any kind. There would be a great deal of trouble caused by their going back to the location of the boxes if they were moved and unpacked the first of May. They might winter as well in the long boxes you mention, but the main objection is that you would have so many entrances close together, side by side, that especially in windy weather bees are liable to drift from one to another, making the colonies at the end of the row overstrong and the others too weak. The best time to take the packing off the boxes is from the first to the middle of June. I would not unpack sooner than that in your locality.—Prof. Morley Pettit.

I was much interested in Mr. Pettit's article in the August issue of *The Beekeeper* about Monteith and the bees. I noted that some one told him that clover seemed natural to the soil up here. This seems to be true. An old fire rang-

er, who formerly was a beekeeper, told me that he had walked knee deep in clover miles away from any possible communication with civilization. My father told me of similar experiences in looking over the country in search of mineral.—M. J. Dubeau, Warren, Ont.

Methods of Feeding

W. A. Chrysler, Chatham, Ont.

There are various methods of feeding and reasons for feeding. Generally speaking, two principal kinds of feeding are necessary, namely: spring feeding for stimulating brood rearing in order to get a large force of bees for the honey flow, and fall feeding for winter stores.

As fall feeding time is at hand, I will just mention a few observations that have occurred to me in the past.

Among the various methods I have tried, I have used, and would recommend the Miller style of feeder, which holds 15 to 20 pounds of syrup placed over the frames. I have also been using for the past few years a feeder in the bottom board, which will hold about the same quantity of feed, that I prefer to anything I have used in the past.

Colonies of bees that are fed for winter without any pollen in their combs and no opportunity for gathering any before cold weather sets in, will be dead next spring, no matter how well you feed them unless pollen is given them in some way.

Small colonies in September should be united as stimulative feeding to build them up would be disastrous for the reasons already mentioned.

WINTER STORES

Bees fed for winter stores should be fed rapidly to their requirements in from one to three days about the second week in October in this locality, or after the queens have discontinued laying. Prolonged feeding of small quantities reduces the vitality of the bees and induces the queens to lay. Such bees become old much sooner than bees not so fed.

The feed should be made of the best granulated sugar two parts sugar and one part of water and thoroughly liquified. Feed each colony until it has from thirty to thirty-five pounds of stores. I find that it takes about forty-five pounds of syrup to make thirty pounds of stores even when fed quickly, and if fed in small quantities it will take more feed to obtain the same amount of stores.

I expended considerably over two hundred dollars last year for glass sealers. I think the members of the Beekeepers' Association could work together to advantage in this matter as in the buying of queens.—J. M. Munro, Slate River, Ont.

The Canadian Horticulturist

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THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.
Published by The Horticultural
Publishing Company, Limited
PETERBORO, ONTARIO

The Only Magazines in Their Field in the
Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC
FRUIT GROWERS' ASSOCIATIONS
AND OF THE ONTARIO BEEKEEPERS' ASSOCIATION

H. BRONSON COWAN Managing Director

REPRESENTATIVES

UNITED STATES

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GREAT BRITAIN

W. A. Mount Stephen, 3 Regent St., London, S.W.

1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, \$1.00, and of The Canadian Horticulturist and Beekeeper, \$1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office) 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, \$1.40 an Inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1913	11,570	August, 1913	12,675
February, 1913	11,550	September, 1913	13,729
March, 1913	11,209	October, 1913	13,778
April, 1913	11,970	November, 1913	12,967
May, 1913	12,368	December, 1913	13,233
June, 1913	12,618		
July, 1913	12,626	Total	150,293

Average each issue in 1907, 6,627

" " " " 1913, 12,524

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts. Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

The O.A.C. Apiculture Short Course

Wm. A. Weir, Toronto, Ont.

ONCE again our beekeepers have responded to the knock of opportunity, as the free course in apiculture, conducted during January by the Department of Apiculture at the Ontario Agricultural College, Guelph, boasted a record attendance. An average of eighty-five attended these lectures, giving best of attention to the programme mapped out for them by Professor Pettit. These students, the majority of whom have had "bees on the place," came from far and near, even from the Maritime Provinces. One man from New Brunswick was attending the short course for the second time. This in itself speaks volumes for the good derived. The ladies were well represented, and from the number of good wives present one partially realizes the value of beekeeping to the farmer's wife.

The programme had evidently been prepared with a view to only helping those who would help themselves, and to be of interest to all beekeepers, whether inexperienced or experienced. To make certain that the simplest rudiments were understood, at least theoretically, the student was advised to read either "The A B C and X Y Z of Bee Culture," or "The Honey Bee," two well-known bee works.

PROGRAMME VARIED

To pick out any one part of the programme and pronounce it the "best" would be hard indeed, as the variety of subjects and their scope would not admit of strict comparison. The scientific and the practical were blended together throughout the course, and plenty of opportunity was given for questions on any phase of bee culture. The more advanced students were particularly energetic when the time for a "Question Box" came around, and no attendant had any trouble taking up the allotted time. The scientific lectures by Professor Pettit and F. W. L. Sladen, assistant in apiculture for the Dominion, were illustrated as far as possible by lantern slides, and all the lecturers brought aids to illustrate their addresses before the class. This practice materially heightened the interest and questions were more numerous where these aids were used.

The student was first introduced to the natural laws which govern the honey bee's life, and then led on to see the use made of this knowledge by up-to-date beekeepers. An analytical examination of the worker bee was given. This was followed by the subjects: Feeding, Swarm Control, Wintering, and Queen Rearing—which were dealt with very fully. The whys and wherefores of every manipulation were made clear. The variety of methods of feeding, controlling swarms, and wintering brought out only served to impress the basic principles of each operation firmly on the student's mind. The consequence was that he will reason for himself, and thus add by experience to the mass of bee lore on hand.

COMMERCIAL POINTS

Commercial aspects of practical beekeeping were also given their place, and the subjects of wax rendering, choosing locations, arranging apiaries, cooperation, and handling of apiary supplies were handled very thoroughly by experienced men. In the case of wax rendering, Mr. O. L. Herschiser gave an actual demonstration with his press, and was successful in extracting considerable wax from slumgum thrown out by another press. The question of cost was the most troublesome. The press re-

quires a larger first outlay, but Mr. Herschiser submitted figures which showed that the higher efficiency of the press saved its extra cost in a few years. The press is heated over a fire while operations are in progress.

The last two days were devoted almost entirely to the subject of bee diseases and their control. Mr. Jas. Armstrong, the popular bee inspector, carefully described American Foul Brood, and with the aid of frames, hives, etc., demonstrated to the class how treatment is accomplished. The McEvoy system was advocated as the most effective and the provisions of the Foul Brood Act dwelt upon. European Foul Brood also received attention at the hands of Mr. Warrington Scott, a local inspector in eastern Ontario. Mr. Scott has had considerable experience with the disease and advocate requeening black stock with Italian queens, and stimulative feeding of colonies in the spring to help them clean out the scales and build up more rapidly. On Friday morning, the last day, the inspectors gave their experiences as inspectors with Mr. Pettit, and suggested improvements for next year's work.

BEEKEEPING APPLIANCES

During the progress of the short course, tools and appurtenances of beekeeping were kept on exhibition by the department, and during the intervals many gathered around these exhibits and discussed their usefulness. A complete power extracting outfit was demonstrated by Prof. Pettit to the students. The outfit consisted of a one and one-half horse-power Gilson engine, a six-frame Ham & Nott power extractor, and an A. I. Root honey pump, with all the necessary attachments and storage tank. Honey was placed in the extractor and the efficiency of the pump was shown. Usually this pump is connected by pulleys with the extractor, but Prof. Pettit had it connected direct with the engine. The advantage of the latter plan is apparent, as the pump is working all the time whether the extractor is going or not. The quicker honey is drawn from the extractor the more freely it will flow, hence the advantage.

Two interesting excursions were made during the short course, one of which was not scheduled. The first was according to programme, and on Monday, January the 19th, a special Grand Trunk train carried a large number of the students to Brantford as guests of the Ham & Nott Bee Supply Co. The day was spent looking through the immense plant of this firm and in watching the various processes used in turning out good bee supplies. The other excursion was the result of an invitation from F. W. Krouse, of Guelph, during his address on Systematic Swarming, when he invited the students to arrange to visit his apiary. Arrangements were made, and on Wednesday afternoon Mr. Krouse acted as host. The sight of an apiary in actual wintering and lying dormant, almost awaiting the spring, created great interest, and many an idea was stored away for future reference.

Among the many valuable hints received mention should be made of the removable basket and ventilated bee escape board exhibited by Mr. W. J. Craig, of Brantford. Mr. Craig had a complete outfit of hives, showing the different styles of frames, supers, sections, fences, etc. The removable basket is held or attached to the frame by a sliding rod. This rod is unscrewed

easily, and when withdrawn from its place allows the basket to drop away from the revolving frame of the extractor. The cleaning problem is thus simplified. The ventilated bee escape board consists of stiff, heavy wire mesh, with the trap soldered in the centre.

After the sessions were over the students indulged in hearty handshakings, and separated, some to take part in the poultry and horticultural short courses, more to return to the farm with plans for better beekeeping in the future.

The Educational Value of Bee Demonstrations at Fairs*

Morley Pettit, Provincial Apiarist, Guelph, Ont.

BEE demonstrations at fairs have been conducted by beekeepers for years, largely as a means of drawing a crowd to enable them to sell their honey. A hive of bees on a platform enclosed by a wire cage is sufficient to attract attention of itself, but when the beekeeper takes his life in his hand, as it seems to the average onlookers, and enters the cage, opens the hive, takes out the combs and handles the bees, crowds are attracted even from the race-track, especially if the demonstrator has a good strong voice and a ready wit. Once the beekeeper has attracted a large crowd, his assistant proceeds to sweeten them up by selling them small packages of honey.

Bee demonstrations conducted by the Department of Agriculture, of course, have not the honey selling in view, and the latter feature is omitted. They are calculated to entertain and instruct, and where all conditions were favorable, have been very successful. The difficulty with conducting outside demonstrations of this kind at our Ontario fall fairs has been the uncertainty of the weather at the late season when most of the fairs are held. It is not pleasant opening the hives of bees when the weather is cold, windy or showery. The bees easily become irritated and sting the operator, in spite of the fact that he endeavors to make the spectators believe that he is not being touched. Then at the average fall fair where the bee demonstration is placed in line with the attractions, the demonstrator, who may not have sufficient strength of voice to compete with the other "spielers," finds it difficult to give his audience anything of interest in the way of a lecture on account of the other noises of the midway. Taking all these difficulties into account, we decided last year to change the form of the demonstration from the outdoor bee handling demonstration to an inside stand where the demonstrator could have an exhibit of different implements used by beekeepers, also bees working behind glass in an observation hive. Here he is able to come into more direct personal contact with those spectators who are anxious for information, either on beekeeping or on the uses of honey. This information bureau on beekeeping is found to give better results on the whole than the outside demonstration.

CLASSES REACHED

From an educational standpoint, the bee demonstration reaches two classes of persons. First, beekeepers and prospects; second, honey eaters and prospects. We must first of all think of the fact that the average person goes to a fall fair to be amused rather than to be instructed. People of this class crowd past the demonstration, listen to a few words of the talk, marvel at the activity of the bees, wonder if they are making honey and why they don't sting,

and ask all the other usual questions; but all day long there will be a few who either have bees or are interested in getting them, who will linger, asking questions, relating their experiences, and taking up all of the spare time of the demonstrator if he is of the right sort. These are the ones who receive the most benefit, and from their standpoint the educational value of the bee demonstration is great.

By far the greatest class of people reached, however, are the prospective honey consumers. The demonstrator has a great opportunity for instructing them. First of all, he can convince the ones who may still be sceptical that honey actually comes from the hive; he can show them the combs in which the bees store the honey as they bring it in from the flowers, and explain how they gather, carry, and ripen the nectar, changing it from a thin watery substance to the well-ripened honey which appears on the table. He also explains the difference between comb honey and extracted honey, showing how the latter is removed from the comb and how the extracted combs are returned to the hives for refilling, thus saving the bees the labor or building new combs for every bit of honey that is gathered from the flowers. He can also show how bees work much more readily in the large combs used for storage of honey for extracting than they will in the small squares in which the comb honey is produced; how the bees swarm less and remain more contented, and therefore gather larger quantities of honey when they are given these combs for filling. This answers the usual question as to why the price of comb honey is always higher than that of extracted.

CARE AND USE OF HONEY

A lot of valuable information can be given to the housekeeper on the care and use of honey. How few people there are who realize that the granulation of extracted honey is a natural process which always takes place unless steps are taken to prevent it. When honey has granulated it is somewhat of a problem to the average housekeeper to bring it back to a liquid state. In fact, I have known of good honey being thrown out because it had "all gone hard." All such honey needs is to have the container placed in a larger vessel containing hot water, which is kept at an even temperature of about one hundred and fifty degrees Fahrenheit, or about as hot as the hand will bear.

In our work last year about thirty demonstrations, such as I have just described, were conducted at various fall fairs in Ontario. For this work we had an appropriation of five hundred dollars from the Federal Grant for Agriculture.

Two years ago last November, Dr. C. C. James, in his address to the convention of Ontario beekeepers, made the following statement: "I doubt if there is any industry in the whole round of agriculture which is capable of such enormous expansion as the production of honey." My late lamented

His Advertising Paid

Hold there! I've got enough. To my "Want Ad." for bees and a location, I have had replies from places as widely separated as Toronto, Lorne Park, Woodbridge, Kingsville, Arkona, Mount Salem, Collingwood, Jordan and Port Credit, and still they come. Please take advertisement out.

B. P. WOOD,
159 Keele Street,
Toronto, Ont.

friend, Mr. W. Z. Hutchinson, who was one time editor of The Beekeepers' Review, said: "No more ennobling pursuit exists than that of beekeeping. It is the poetry of agriculture, it is uplifting and inspiring, health-giving and useful, fascinating and profitable. It improves the mind, trains the eye, cheers the heart, and fills the pocketbook."

GREAT POSSIBILITIES

Some of my other apicultural friends who are still very much alive have accused me of unduly spreading the news and boosting beekeeping. While I am ready to admit that there is a great danger of overcrowding the pasture by placing too many bees in one place, I would say that there is plenty of unoccupied territory in Ontario as yet, and the danger of overproduction can be explained as lack of distribution and under-consumption. Let me quote again from that admirable address of Mr. James: "You men know what the possibilities are in connection with honey. Those provinces where honey cannot ordinarily be produced can take five, ten, or twenty-five times as much as we are producing at the present time. . . . People of this country are not educated up to the use of it. Take the number of families in the province of Ontario and give a small quantity of honey to each family, and then put alongside of that the limited production, and you will see what a wonderful market can be developed."

Let me say in conclusion that demonstrations at fall fairs are valuable as a drawing attraction and as a means of education. Many people will come to your fair for the sake of seeing the bees either handled in the open by the demonstrator or working on their combs behind glass in the observation hive. Many interested beekeepers will come to "talk bees" with the expert who will be in charge. On the other hand, if the demonstration is properly conducted the honey producers will benefit through the interest in honey being stimulated and the people taught to look upon it more as a staple which should appear on every table at least once a day, than as a luxury or medicine.

Beekeepers' Supplies

G. C. Rahn, Haileybury, Ont.

In reading the January, 1914, issue of The Beekeeper, I was particularly interested in an article by James Sackville, Sr., Bewdley, Ont., under the title of "A Hint to Manufacturers." From my experience in buying bee supplies from Canadian as well as United States manufacturers, I think Mr. Sackville has brought up a timely subject, which should deeply interest both the manufacturers and beekeepers of Canada.

While I have found the materials furnished by Canadian manufacturers satis-

*A paper read at the annual convention of the Ontario Association of Fairs and Exhibitions held in Toronto in February.

factory, the workmanship has been very unsatisfactory. The poor workmanship and misfit of parts has caused me to purchase supplies in the United States. While the supplies of the United States manufacturers are of a high-class standard, it is difficult to find a dealer, carrying a full line, who makes prompt deliveries. I have had a number of lots of supplies shipped to me direct by United States manufacturers, on which I have had to pay twenty-five per cent. duty.

The inconvenience due to delay in forwarding supplies, with the increased cost, on account of the duty, together with the inferior grade of Canadian supplies, have led me to do some figuring to offset, if possible, the above unsatisfactory condi-

tions. I have concluded that there is a splendid future for the manufacturer of bee hives and bee supplies in Canada, not alone for Canadian, but also for foreign trade, if such manufacturer puts out high-grade goods only.

The United States manufacturers of bee hives and supplies buy lumber in Canada, ship it into the United States, manufacture it into the finished product, then ship the finished product back into Canada, pay fifteen per cent. to twenty per cent. duty, and beyond question, realize a profit. Why can not some energetic Canadians formulate arrangements for the manufacture of bee hives and bee supplies of high standard and secure a generous share of this business at a very satisfactory profit?

An Old Timer's Suggestions for Beginners

G. Guyer, Port Elgin, Ont.

AS the bees in our locality started gathering stores earlier than some seasons previous to this, I have been thinking many young beekeepers will come short in the spring, especially those who have had little or no experience in preparing their bees for winter. This has been a long winter, warm in the fore part, and the bees would require more stores than if it had been colder and more steady.

What I here say is intended for inexperienced beekeepers. So many young men have taken the bee fever during the last few years, if the older ones do not assist them some of them may get discouraged and go out of business. Scores of them have done it during my time, a period of thirty-four years, and I prophesy that there will always be some who will make a failure. So far as I am concerned I want to do all that I can to help the young men starting in the bee business.

This being the winter season our talk and study should concern how we are to bring our bees through the winter and have them good and strong when the fruit blossoms come. I am going to tell you what I have done in the fall and what I plan to do in the spring.

The latter part of last August I united my latest swarms, two and three together, according to the swarms, some only two and some three, then I let them work away for a while till the buckwheat flow was over. I then examined every hive and gave each the attention it required. I took on the top store as soon as the buckwheat flow was over, and as soon as the first hoar frost came I slushed with my open air feeders. At the same time I had sealer feeders on top of those that needed the most. They took it down at night or in bad weather when they could not fly.

Now, if you do as I do, some big gun will come along and tell you that you are feeding your neighbors' bees, that you are promoting robbing and a whole lot of such talk that I pay no attention to. If you are two miles from your neighbors' bees you are perfectly safe. I am one mile from my neighbor's apiary, and I am feeding outside right along, fall and spring. In the spring I give them their artificial pollen until the willow buds are well out, and I have no trouble with robbing. Outside feeding has more of a tendency to check robbing. Of course I do not open my hives at any time in the day. I do that in morning and evening in the spring and fall. In the summer, when there is a flow of honey, I open my hives any time, but if a dry spell comes I am very careful about open-

ing hives. I use eight and ten frame Richardson hives. I prefer the ten-frame I winter part outside in bee clamps and part in cellar. I give my bees forty-pound stores, not including frame bees, and so on. I figure bees, frames, and combs eight pounds. Of course sometimes I find old combs a little heavier than new ones, but I come out in that part very well.

MAKING CANDY

In regard to making bee candy, I do not need to mention how it is done, as it has been told scores of times, but the way I give it to the bees has never been told, that I know of. I mould it in a wooden frame two inches deep and eight by ten inches square, with an eight by ten inch window glass nicely fitted in one side. When about ready to pour my candy in I have the frame and glass nice and warm, and wring out a cloth in hot water, and lay it on the table, and turn the frame, with glass side down, on the warm wet cloth, and pour my candy in the frame. I do not pour it in too hot. I let it cool off a little, so that it will run nicely, and then put down a little stick in the centre of the glass before it gets too cold. Then I pull that stick out and see that I have a nice little hole right down to the glass. Then I see that I have a hole through the bee quilt four by six inches, and turn my candy feeder right over that hole with glass side up. Then I close it up and keep it nice and warm. I go around occasionally in February and March and fold back the packing very gently, so that I can see through the glass. If they need another supply you can be sure they get it. I do the same in the cellar.

I put up my bees in such shape that I can feed them any time in the winter if they need it. My long experience has taught me to see that my bees always have plenty of stores and the right temperature in the cellar as near as I can get it: That is forty degrees. If any in the cellar need a fresh supply of stores I open the ventilators at night and let the temperature run down a bit. The bees then cluster down below the queen excluder, and I can then put on another supply of candy. I am very careful about it, and do not leave the ventilator open very long. I can generally do this without losing a bee. "Well now," some one will say, "what would you do if you had three or four hundred colonies piled up in your cellar?" Well, I wish to say I am not writing this article for that class of men. They have gone through the mill and know their business; at least, they ought to.

I have practiced open air feeding for

years. My experience is I never found a better system to stimulate brood, spring and fall. I would like to give all new beginners my system in open air feeding, but it would make this letter too long, and you would get tired of my bee hobby. At the same time I would like to do all I can to encourage the young beekeepers. We have a band of splendid writers on bee culture, but so many of them seem to jump over the very thing the young beekeeper ought to know. I appreciate all the bee writings very much, and read all I can get a hold of.

Market for Honey in France

A consular report, recently issued by the Department of Trade and Commerce, Ottawa, relating to the market for honey in France is as follows:

Judging from the quotations recently communicated to the consulate at Havre by an American dealer in this article, honey from the United States, or from the Dominican Republic, from which the market draws a large supply, can be shipped to France and sold at a profit at prices much lower than those asked for the French product. The United States enjoys the minimum tariff on honey imported into France, and the same tariff also applies to honey coming from the Dominican Republic and Haiti, whether shipped direct from the West Indies or via the United States. The French customs duty (minimum) is \$1.75 per 100 pounds net on pure, natural honey, and \$2.89 per 100 pounds net on imitation honey, or honey mixed with products containing sugar. The foregoing rates apply to merchandise imported directly to a French port. If imported via another European port or country there is a surtax of \$0.3152 per 100 pounds. In making offers to the trade, however, it is unnecessary to quote honey duty paid. Quotations should be made c.i.f. Havre.

Besides the honey prepared for table use, the article is employed extensively by the manufacturers of gingerbread. This is made in large quantities in Lyons, Rheims and Dijon, France, in which cities the United States has consular representatives, from whom the names of the principal consumers and buyers can be obtained.

The sale and consumption of honey in France varies, in a great measure, according to the localities or regions in which it is produced. In certain sections of the country it is abundant and easily obtainable; in others, there exists so little taste for it that only a few grocers keep it in stock. The French departments producing the greatest quantity of honey are: Cotes-du-Nord, Ile-et-Vilaine, Eure-et-Loire, Marne, Cher, Finistere, Var, Loire-Inferieure, Loiret, Aisne, Somme, Correze, Morbihan, and Isere.

French imports of honey in 1912 totalled 2,825 net metric quintals (metric quintal = 220.46 pounds), derived principally from the following countries: United States, 595 quintals; Haiti, 967 quintals; Mexico, 436 quintals; Italy, 180 quintals; Algeria, 3,316 quintals; Belgium, 1,623 quintals; Germany, 1,480 quintals; and Great Britain, 556 quintals. From the foregoing it will be noted that, with the exception of Haiti, France imports more honey from the United States than from any other country, and that almost one-third of the French honey exported is shipped to the Netherlands.

Read the advertisements for Beekeepers on Page 75.

FREEMAN'S BONE MEAL

BEST ON EARTH

MORE PHOSPHORIC ACID TO THE DOLLAR'S WORTH THAN IN ANY OTHER FERTILIZER

Send for Booklet on Fertilizers and Fertilizing with Guaranteed Analysis

WATCH FOR THE TRADE MARK.

The W. A. FREEMAN CO., Ltd
223 HUNTER ST. E., HAMILTON.

FLOWER POTS



Large stock of all sizes for the Spring trade.

Send us your order NOW and receive your supply, before the Spring rush.

THE FOSTER POTTERY CO., Ltd.
HAMILTON, ONT.

Vegetable Growers are Active

The annual meeting of the directors of the Ontario Vegetable Growers' Association was held in the office of the secretary, J. Lockie Wilson, Parliament Buildings, Toronto, on February 4th. Delegates from the different branches were present, and were enthusiastic over the work being done by the association.

The purchasing agent, Mr. W. J. Kerr, stated that the cooperative buying had been a financial success. He was perfectly satisfied with the work that had been accomplished during the year. The last bulletin issued to the members contains quotations on flower seeds, fertilizing and spraying materials, as well as on vegetable seeds.

It was decided to continue the vegetable field crop competitions in onions, tomatoes and celery.

A vegetable tying machine was on exhibition during the afternoon, and after the delegates had examined the work done by this machine, they passed the following resolution:

"That the Saxmeyer Vegetable Tye exhibited and operated at our annual meeting is a labor saver and would be of material assistance to vegetable growers, and as these machines cost \$90 in the United States and the duty is \$26, we would respectfully recommend that the duty be removed from tying machines until such time as they are manufactured in this country."

There was a pleasant break in the routine of business when the delegates presented Mr. Thos. Delworth, of Weston, with a gold watch as a token of their appreciation of the practical interest he had taken in the work of the association. The secretary, J.

Douglas Gardens

OAKVILLE, ONT.

Early orders for the following Plants are specially recommended for the coming Spring season, viz.:

Antirrhinum (Snapdragon), including pink, 10 for 60c.

Aster, China, 6 vars., 10 for 25c, 100 for \$1.25.

Geraniums, 5 vars., 10 for \$1.00.

Salvia, 2 vars., 10 for 75c.

Scabiosa, 10 for 60c.

Stocks, 2 vars., 10 for 25c.

Dahlias, plants only, 11 vars., 10 for \$1.25.

Delphiniums, Gold Medal Hybrids, 10 for \$1.50.

Aquilegia (Columbine), 2 vars., 10 for \$1.25.

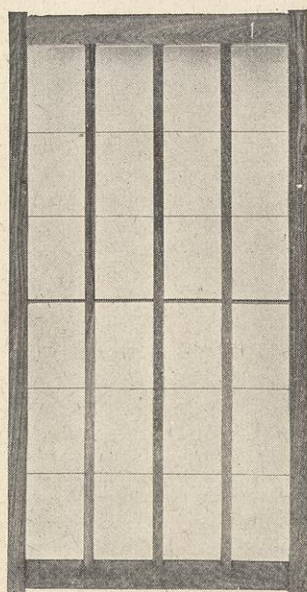
Iris, 22 vars., 10 for \$1.25 and up.

For descriptions, etc., of the above and of many other plants, see Spring Planting List sent free on application.

Above prices include carriage prepaid.

JOHN CAVERS

RED CYPRESS HOT BED SASH



Size 3 ft. 2 in. by 6 ft. for 4 rows of 8 in. butted glass.

Price, \$1.20 in Clear Cypress.

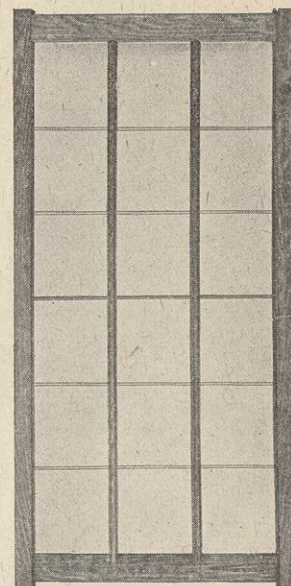
What a pleasure to have home-grown vegetables and flowers weeks ahead of the regular season. A hot bed fitted with our superior Hot Bed Sash will ensure this.

DURABLE

Our Hot Bed Sash are made of the very best material, put together to withstand the most severe usage, and are guaranteed to last for years.

All the joints are tight fitting, blind mortised and white leaded before being put together. A half-inch oak rod runs through the bars and into the stiles. A metal pin is driven into each of the bars and stiles through the rod. In this way each bar is held in the proper place and prevented from sagging.

Folder Sent on Request



Size 3 ft. by 6 ft. for 3 rows 10 in. lapped glass.

Price, \$1.15 in Clear Red Cypress.

BATTS LIMITED 374 Pacific Ave. **West Toronto**

This is the Book that will show you how you can have a BEAUTIFUL OLD ENGLISH GARDEN

THE OLD ENGLISH GARDEN owes much of its charm to the beauty of its simple herbaceous plants.

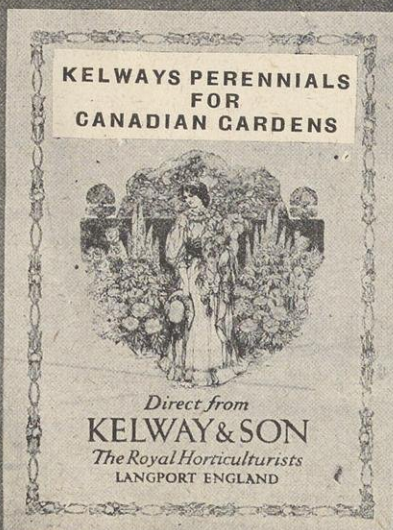
KELWAY'S COLOUR BORDERS of Paeonies, Delphiniums, Pyrethrums, Gailardias and the like will enable you to reproduce this picturesque effect under almost all conditions of soil and climate. Borders are planned to fill any space, and on receipt of dimensions, carefully selected plants are sent beautifully packed, labelled and numbered in order for planting.

The cost is \$6.00 for every 10 square yards.

Full particulars and illustrations are given in the Kelway Manual of Horticulture mailed Free on receipt of 60c, by

KELWAY & SON
LANPORT - SOMERSET
ENGLAND

Write for a copy of this useful book
It comes to you by return mail



Lockie Wilson, was also the recipient of a token of esteem of the representatives present.

The following officers were re-elected by acclamation for 1914:

President, C. W. Baker, London; 1st vice-president, W. J. Kerr, Woodroffe; 2nd vice-president, F. F. Reeves, Humber Bay; secretary-treasurer and editor, J. Lockie Wilson, Toronto. Representative to Canadian National Exhibition, Thos. Delworth, Weston. Representatives to Horticultural Exhibition, Messrs. J. W. Rush, F. F. Reeves, Thos. Delworth, and James Dandridge.

Annapolis Valley Notes

The annual meeting of the Nova Scotia Fruit Growers' Association is looked forward to by larger and larger numbers each year as something that no up-to-date fruit-grower can afford to miss. This association held their fiftieth convention in January at Kentville, and had one member present, Mr. R. W. Starr, of Wolfville, who has been in attendance at every meeting since the Association was organized in 1863.

In no other place in Canada is apple scab quite so troublesome and hard to control as in the Annapolis Valley, and the fruit-growers gave the closest attention to Prof. L. Caesar of Guelph, in his address on the "Apple Scab and its Control." Many who had almost despaired in trying to grow clean apples, had their faith restored after listening to Prof. Caesar, and this coming season will use the spray pump more vigorously than ever. The time of application seems to be the vital factor, but thoroughness in applying and a good pump are also essential.

All winter apples bring record breaking prices, some good number three netting as high as three dollars, and number ones from four to six dollars according to variety. Like the forty cent eggs, however, the big prices only come when there are few apples to ship.

The United Companies are just closing the most successful year since their organization, and have handled no less than sixty per cent. of the crop of the Valley during the present season. Their next forward step will be in the direction of some system of pre-cooling for fall varieties of apples at their various warehouses. Thousands of dollars were lost to the fruit-growers last autumn from the rapid ripening and decay of the softer varieties during the warm weather of the fall.—M.K.E.

Okanagan Valley North

Charles Webster, Armstrong, B.C.

The past season has proved that the "Okanagan United Growers" is thoroughly organized for its purpose—selling and buying cooperatively. It must be said of members in this northern part of the valley that they stood loyally by their association. Mistakes have perhaps been made. Opposition from a few established firms, who refused to sell their business, has been keen. This, however, does not alter the fact that the countries or districts where cooperation is established are the most prosperous. Another year of earnest endeavor should put the big concern on a thoroughly satisfactory footing.

We have a contribution to the high cost of living: Celery, for which Armstrong is justly famous throughout Western Canada, realized the growers here 2½ and 2¾ cents

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
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Write for our prices before getting your wax made up. We can please you. Wax taken in exchange at market prices.

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**BUY CARNIOLANS IN CARNIOLA**

Pure Carniolan Alpine Bees
Write in English for Booklet and Price List. Awarded 60 Honors.

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QUEENS

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STRAWBERRIES

Your copy of our Strawberry Catalogue is now ready. A Post Card will bring it. It describes all the best varieties of Strawberries and Raspberries. Cultural directions and lots of other valuable information.

THE LAKE VIEW FRUIT FARM
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A few good market garden properties for sale or rent. Locations good, prices and terms attractive. Cheap natural gas for greenhouse fuel. Write for details to

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THE BEEKEEPERS' REVIEW

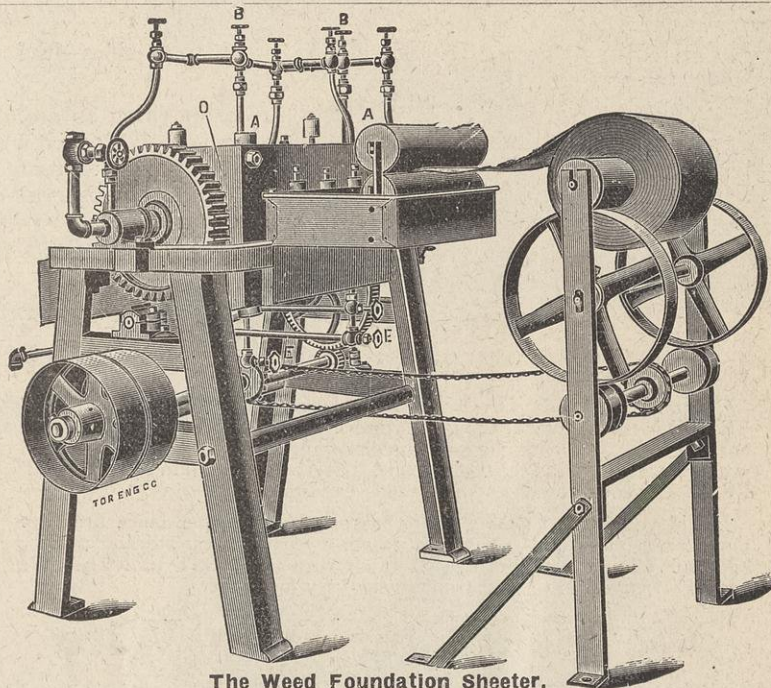
would like very much to enroll a goodly number of new subscribers for the year 1914. Listen! Besides the 3,000-colony series managed from one office, we will begin with the January number of the REVIEW a series of articles by a beekeeper "grey with experience" that we will call the Farmers' Series; or, How to Produce Comb Honey with Two Visits a Year. The editor of the REVIEW has looked into this system quite thoroughly, and believes that, with this method that will be described in the REVIEW during 1914, the busy man or farmer can harvest much more comb honey per colony, with about a fourth the work that is required with the ordinary system now in vogue. All progressive beekeepers should subscribe for two or three good bee journals. We are making a special low price on the REVIEW when clubbed with other bee journals.

Here is a { GLEANINGS, one year, \$1.00 } Both, one year, for \$1.50
good one: { The REVIEW, one year, \$1.00 }
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is an { AMER. BEE JOURNAL, 1 yr., \$1.00 } All Three for \$2.00
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Extra for Canadian postage: Gleanings, 30c; American Bee Journal, 10c.
All three listed above 40c.

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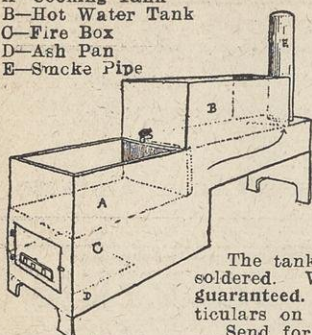
FOUNDATION made by this process excels all other in strength of texture. This combined in nice, straight uniform sheets, with good cell walls and thin base, gives it world-wide reputation for general excellence of quality. So much better than the ordinary, and costs no more—Try it.

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Beeswax taken in payment of making at trade prices if desired

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BRANTFORD, ONTARIO

A—Cooking Tank
B—Hot Water Tank
C—Fire Box
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E—Smoke Pipe



Make Your Own Spray

Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

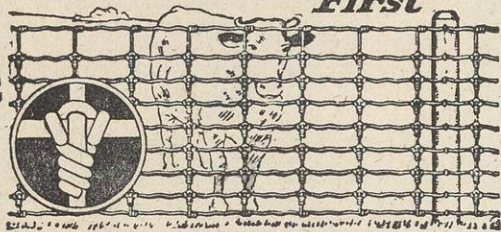
It is an easy matter to make home boiled lime sulphur. The chief essential is a proper spray cooker. We manufacture two kinds of cookers, one with a single tank, and one with a double tank. (See illustration.) They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. They can be used for either wood or soft coal.

The tanks are made of heavily galvanized steel, thoroughly rivetted and soldered. Will not leak. They are built to give satisfaction, and are guaranteed. Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day.

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YOU can judge a FROST FENCE by both sides—the outside and the inside.

Outwardly, a FROST FENCE is a pleasing thing to see. It stands straight and strong, well made and even all along its length. The extra heavy galvanizing it receives, defies rust and weather and makes it look well year after year. Observation will prove to your complete satisfaction that

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when it is first put up and when it has been up for years.

Inwardly—and here's where it counts most—the quality of FROST FENCE is the quality of the best Number 9 Hard Steel Wire, for we use nothing else. By using a wire of smaller gauge here and there, we could produce a lighter and cheaper fence, but then it wouldn't be FROST FENCE as you know it and as Canada expects it.

Did you know that we get a long start over other fence firms by making our own wire? Only that way are we sure of the sterling quality and fault-free perfection of every foot of wire in FROST FENCE. We have a strong claim to your trade in the very fact that

We Make Our Own Wire

The lock we use is unique in fence-making. Notice how it is wrapped around both stays and laterals, with a doubly secure wrap. That lock is a big factor in FROST FENCE satisfaction.

The nearest FROST dealer can give you more facts and a practical demonstration. If you are not already acquainted let us introduce you.

Write us direct if you can't get FROST FENCE.

We may need an agent in your district.

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Frost Wire Fence Co.
LIMITED

HAMILTON - ONTARIO

per pound, and was selling in Calgary for 15 cents a pound. Of course, handling, crating, and expressage has to be allowed for. Nevertheless, someone is getting more out of it than the producer. The public market, somewhat despised at present, I fear, may yet have to be called into service to reduce the cost to the consumer. Anyway, the producer and consumer must get closer together by their own efforts, those who stand between will not voluntarily reduce their charges.

The New Tariff Conditions

R. R. Sloan, Payfield, Ont.

Just what effect the change recently made in the tariff regulations of the United States will have on the Canadian fruit industry is hard to foretell. Speaking from a producer's standpoint, I believe they will somewhat stimulate the prices of some of our Canadian fruit, more especially in Ontario.

There is always a certain amount of demand for such varieties of apples as Spies and Russets on the American market. Now the duty is somewhat lower, I think this demand will gradually increase.

When the crops are light in the States then we may look for a good market there, but when the American crop is heavy then we will have more difficulty selling in the United States markets. A few years ago we disposed of two crops of apples to a Chicago firm, but they found that the duty was too high to continue the business. We found Chicago to be a good market for Spies, Golden Russets, and Talman Sweet. Now the tariff has been lowered, this market may be again available. One thing we may be certain of it that if we grow good Ontario fruit of any kind, we need not fear the competition on any market.

Canning Apples

C. Smith, Highland Creek, Ont.

One of the problems before the apple growers is to increase the consumption of apples. One way to do this is to can apples after they have been peeled, cored, sliced thin, sweetened and baked about four hours. Prepared in this way they are delicious. They compare with apple sauce about the same as strawberries with prunes. They can be used in various ways.

With the use of modern machinery for peeling, coring, and slicing, they can be prepared much more economically than by the small consumer; the fact is the consumer will not take the time to prepare them.

The advantages over evaporated apples would be: they retain their flavor; they will keep indefinitely; they are not exposed to dust and dirt.

If the factories were located in producing centres it would solve the problem of transportation, cold storage and commission men and save the cost of barrels and packing. The grower would haul his apples to the factory as needed during the winter. I don't say that it would save all the cost of transportation, storage and commission, but they would be much more simple and less costly.

The factories now in operation would be able to keep their capital and employees busy the year around. The difference in the price now paid by the consumer and that received by the producer is too great. I advance this suggestion for the consideration of others better informed than myself.



**EVERY DAY IS RIPE GRAPE DAY
IF YOU HAVE
ONE OF OUR GREENHOUSES**

THINK of the pleasure of going into your glass-enclosed grape arbor and picking such fine big full clustered grapes as these! Then think of having a continuous supply of various varieties from Muskat of Alexandria to Gros Colemans, from May Day to Christmas Day!

Not just grapes, mind you, but beautifully colored, meaty, winey flavored fruit, the finest that can be grown.

A three-compartment graperie will give you the extreme limit of crop extension.

A simple lean-to, cool graperie built against a wall, will force your crop along a month to six weeks, without any fuel expense whatever.

So you see graperies are not the luxury imagined.

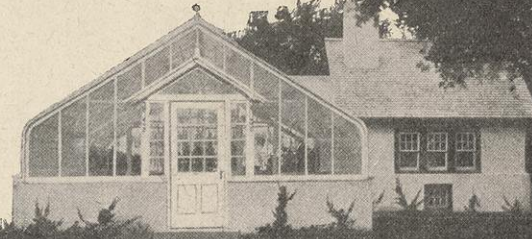
If you can afford an automobile for instance, you surely can afford one of our graperies or greenhouses.

Wouldn't you like to know what a house like the one below costs?

And by the way—why not attach your greenhouse directly to your garage. It has several advantages, done that way.

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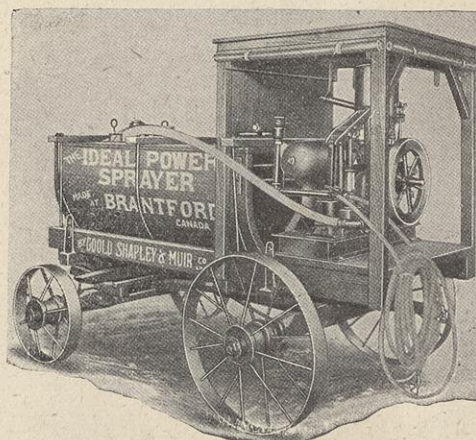
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GOOLD, SHAPLEY & MUIR CO. Ltd., Brantford, Ont.

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**EXTREMELY EARLY,
WONDERFULLY
PROLIFIC**

A week earlier than the Earliana. More productive than the Chalk's Jewel. As large as the Plentiful. As solid as the New Globe. In fact, the world's leading extremely early Tomato.

In our field tests, I.X.L. Tomato proved to be a week to ten days earlier than the Spark's Earliana, with an abundance of fruit larger and more prolific than Chalk's Jewel; in fact, any number of specimens could be found as large as the Plentiful Tomato. The I.X.L. Tomato is without a single exception the leading extremely early Tomato. Do not experiment with it, but plant your entire early crop in I.X.L. Tomato. Your crop will net you big returns.

1. A beautiful, brilliant red color.
2. Vines are a perfect mass of large, smooth fruit, a single plant yielding $\frac{1}{2}$ bushel.
3. Fruit is extremely early, enormously abundant, ripens all at once.
4. Vines compact and can be placed two feet apart in three-foot rows.
5. The largest growers tell us that we cannot say too much in favor of the I.X.L. Tomato.

Price: $\frac{1}{2}$ lb. \$2.25, oz. 75c, $\frac{1}{2}$ oz. 40c, pkt. .15c

OUR SPECIAL OFFER

We want every person who uses seeds to see our 1914 Seed Book and try this Splendid Early Tomato, and we will send a packet for 10c. with Seed Book. This book is full of new photographs of Vegetables, Fruits and Flowers. Send your address to-day.

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Lime-Sulfur Injury

In discussing the prevention of lime-sulfur injury with reference only to that injury to fruit or foliage caused by the dissolved sulfur in the spray. Prof. V. I. Savro, of the Oregon Agricultural College, in a recent bulletin, writes as follows:

A fine mist spray would not be as injurious as a coarse or drenching spray. It is good horticulture, in fact, to apply only a light even coating of spray, where possible. Though this procedure can be followed in many parts of the country, however, it is difficult for some regions. In some of the fruit growing sections, a fine mist spray can be rarely used. Frequently the winds are strong enough to necessitate a coarse spray in order that the tree may be sprayed thoroughly. In such cases no choice remains; a coarse spray must necessarily be applied. Drenching, however, may be avoided by using care and judgment.

In cases of lime-sulfur injury induced by previous fungus infection, there is no question as to the proper procedure. It is much more advisable to destroy the leaves by means of the spray than to allow the fungus to become destructive.

The most simple method that presents itself of avoiding lime sulfur injury is to weaken the soluble sulfides by increased dilution. From our own experiences and those of several others we are led to believe that lime-sulfur properly made (i.e., boiled for not more than one hour) is not injurious at the strengths generally recommended. Home-boiled preparations are rarely injurious for this reason. On the other hand, we know of lime-sulfur factories that prolong boiling for three or four hours. This gives a concentrate that is more injurious (on account of the greater proportion of sulfides in solution) than a properly made concentrate testing the same specific gravity. It is rather difficult to recommend a practical method of deciding whether the concentrate is liable to be injurious or not, and the procedure to follow upon ascertaining this point. In general, a concentrate that has been boiled for not more than one hour, may be considered safe at the dilutions generally recommended (1 to 30, at 30 degrees B. for apples, 1 to 40 for pears). Again we wish to call attention to the fact that we are considering only that injury caused primarily by the sulfides in the spray. Our own experiments have shown, in one case, that injury followed an application of lime-sulfur diluted 1 to 75. This, however, was not strictly lime-sulfur injury, but injury due to other causes to be explained later.

Another method of avoiding lime-sulfur injury is by rendering the sulfides insoluble. This may be done by adding various substances to the spray that will break down, not necessarily all the sulfides in solution, but enough to render the remaining sulfides non-injurious. It may be argued, however, that in breaking down the polysulfides the insecticidal properties of the spray are impaired. In reply it may be noted that lime-sulfur is used during the growing season primarily as a fungicide, and its insecticidal value at the strength used upon foliage is questionable.

I have found The Canadian Horticulturist a gem as regards its relation to the fruit interests.—Ernest Flindall, Lovett Ont.

Progressive Jones, Says:

Harab Fertilizers Make Champion Crops

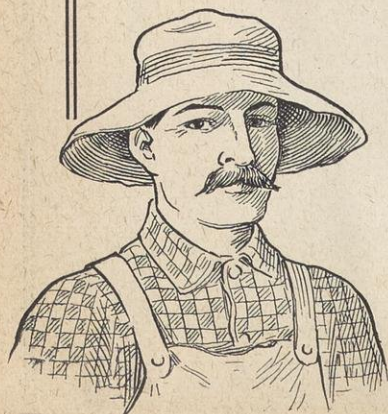
The success my friends have had with Harab Fertilizers has made me proud. Mr. A. Gilchrist, of Runnymede Road, Toronto, used Harab Fertilizers and raised Gladioli which won the Gold Medal Diploma at Toronto Exhibition. Another Harab user was a prize winner at the International Apple Growers' Association, Chicago. Mr. F. G. Bridge of St. James Park, London, used Harab Fertilizers for tomatoes, which grew to giant dimensions, eight of them weighing 8 lbs. 6 oz.

I am sure you will get champion results, too, if you will use Harab Fertilizers according to directions. The Harab Fertilizer booklet tells why these animal fertilizers are superior to other fertilizers. If you'll take my advice, you'll write for a copy right now.

*Yours for bumper crops
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"Home Mixing" is a book to help you increase your yields. Send your address to me on a postal card.

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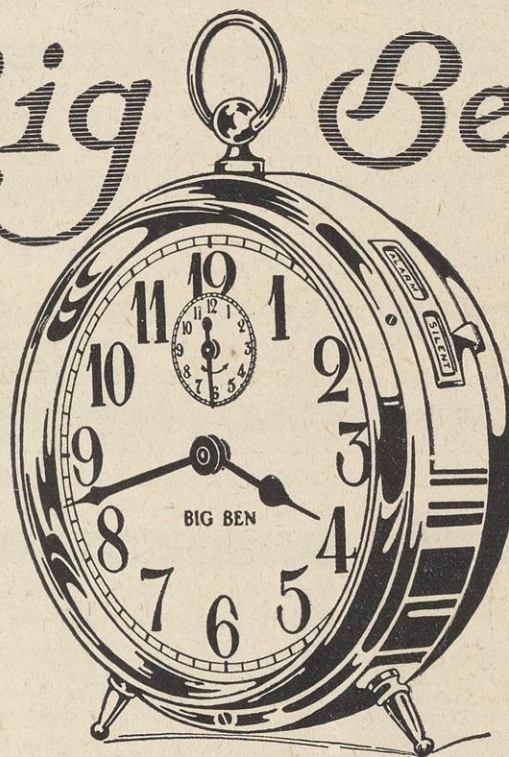
It never needs repairs. It is the cheapest fence to erect because, owing to its exceptionally heavy top and bottom wires, but half the usual amount of lumber and posts are required.

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and address of nearest agent. We also make a complete line of farm and ornamental fencing. Agents nearly everywhere. Agents wanted in unassigned territory.

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Big Ben



8,760 Hours On a Drop of Oil

7,000 Canadian dealers say that Big Ben does *more efficient work* for less pay than any other clock built. He's a regular glutton for good work.

In return for one little drop of oil Big Ben will work for you a full year. From "Boots on" to Lights out"—365 times—he'll guarantee to tell you the time o'day with on-the-dot accuracy. He has made the same guarantee over 3,000,000 times and made good every time. He'll make good for you. More than \$8,000,000 has passed over good dealers' counters for Big Ben and his brothers.

A Big Ben battalion, over 3,000 strong, leaves La Salle, Illinois every day. Every one of them feels proud

of his triple nickel-plated coat of impenetrable steel; his dominating seven-inch height; his large, bold figures and hands, and his big, easy-to-wind keys. No other clock can match their looks and ability to serve.

Things move with a will when timed with Big Ben. He'll wake you *gradually* by ringing every other half-minute for ten minutes or rouse you out in a hurry with one long musical ring. Suit yourself how he does it. You can shut him off short in the middle of his call, if you wish.

He is built in a live town for live wires. And his best work has been on the farm. Before-breakfast chores are started *right on time* when Big Ben time is set. *He never oversleeps.* He runs on time, rings on time and stays on time.

If your dealer doesn't sell Big Ben, send a money order for \$3.00 to his makers—Westclox, La Salle, Illinois. He will come to your house by express duty charges prepaid.

Use the *Available* Kind of Fertilizer

For many crops all the *available* plant food that is needed is one grain to each pound of soil.

When such a small quantity of food must do all the work for your crop, it is exceedingly important that what you put into the soil in the form of fertilizer shall be *available*—that it shall have not only the right quantity, but the right quality and right crop value.

It has cost us forty years of experience to know how to mix the right kinds and the right quantities of ingredients for fertilizer.

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accomplish also the more difficult task of getting the right blending, the right solubility into a mixture which will run readily and freely from the farmer's planter, and which will remain dry and drillable as well as efficient until used in the field. We make a brand to fit every crop need.

Write and tell us what your crops are, and we will send you our illustrated catalogue.

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British Columbia

Secretary W. J. Bonavia, of the Department of Agriculture, reports that the work of the Interior Fruit Pests Inspector, who has had a total staff of sixteen men under his direction was greatly increased last year by the outbreak of fire blight in the Okanagan and Boundary districts. This disease, which is so prevalent in the Pacific Coast States to the south, has been vigorously combated, and by the cooperation of orchardists, has been largely stamped out.

D. D. McLennon, of Fruitvale, a suburb of North Yakima, recently sold his forty-six acre orchard to H. J. Madill of Calgary for one hundred and fifteen thousand dollars. Mr. McLennon realized thirty thousand dollars from his crop last year.

At a meeting of the members of the provincial horticultural staff, held shortly before the first of the year, the opinion was freely expressed that the Canadian apple box will be discarded in the Okanagan district in favor of its American rival. The packing schools, which assemble in various parts of the province, will still retain the Canadian box for demonstration purposes during the coming season, except in the Okanagan Valley where the American box will be employed, although this year the American box may become the recognized standard throughout the province.

The Canadian box measures ten inches by eleven inches by twenty inches. It is longer, narrower, and shallower than the American box, which measures eighteen inches by eleven and a half inches by ten and a half inches. "As will be seen from these measurements the cubic capacity of the two boxes is practically identical," said Provincial Horticulturist R. M. Winslow, after the meeting, "so that the retailer will not suffer, provided that the box price remains the same. At the same time there will be an advantage to the trade in a slightly lesser cost in handling, while the standardization of these boxes, with the shooks used in packing other fruits, will slightly lower the cost to the packer. In addition to these slight gains, the American standard has the appearance of holding more apples, which will have some effect in the marketing of the fruit."

Bulletins

Recent bulletins include one on "Lettuce Drop," by the University of Florida Experiment Station, author O. F. Burger. Bulletin 217, of the Maine Agricultural Experiment Station, Orono, is entitled Woolly Aphis of the Apple. Commercial Peach Growing in Michigan is dealt with in special Bulletin 63 of the Michigan Agricultural College Experiment Station, East Lansing, Michigan. The authors are F. M. Barden and H. J. Eustace. The Connecticut Agricultural Experiment Station, New Haven, Connecticut, has issued Bulletin 179, dealing with Soy Beans.

"A Preliminary Report on the Pollination of the Sweet Cherry" is the title of Bulletin 116 of the Oregon Agricultural College Experiment Station, Corvallis, Oregon. The author is V. R. Gardiner. Another bulletin just issued by the same station is entitled "An Investigation of Lime-Sulphur Injury: Its Causes and Prevention." The author is V. I. Savro.

E W I N G S

Try Something New In Your Garden Next Spring

Have you ever grown Asparagus—Pole Beans—Cress—Kohl Rabi—Salsify? Get the new Catalogue of

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and study up some of these uncommon but delicious vegetables. Plant them along with some of your regular "stand-bys"—they'll add interest to your gardening and pleasurable variety to your meals.

Ewing's Seed selections are strictly up-to-the-minute, and at the same time they are backed by a reputation of over 40 years of sterling satisfaction on Canadian farms and gardens.

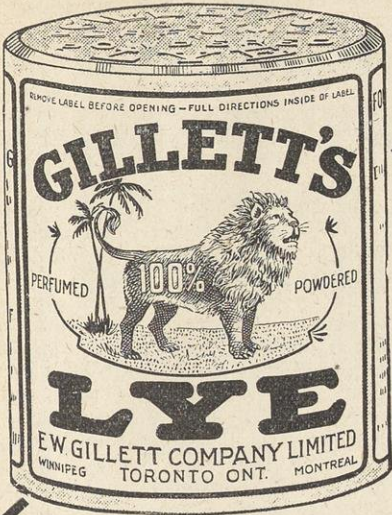
Write at once for our Illustrated Catalogue, and if your Dealer hasn't Ewing's Seeds, buy Direct from us.

THE WILLIAM EWING CO., LIMITED,
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McGill Street, MONTREAL.

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S E E D S





Spring Spraying

The first spray in the spring is the most important one, and the results obtained from the use of Gillett's Lye have demonstrated that there is nothing to equal it, especially when used properly before the buds begin to swell.

One can of Gillett's Lye dissolved in five gallons of water makes a proper solution for **full grown trees**, but a weaker solution, say, about one can of Gillett's Lye to about 10 gallons of water, is suitable for **young trees and vines**.

A strong solution used on trunks and limbs of the older trees will **cleanse** the bark of all moss and fungus growth and kill all insects. The earth should be well scraped back from the foot of the trees, and the trunk and limbs should be well sprayed, and in three or four days the bark will be perfectly clean and look bright. The earth around the trees should be well saturated, thus acting as a preventive and fertilizer as well. In a short time the tree will be vigorous and healthy.

If you have not received a copy of our spraying pamphlet, send name and address on postal card, and this valuable little book will be mailed you free of charge.

E. W. Gillett Company Limited

Winnipeg TORONTO, ONT. Montreal

500,000 FEET BELTING FOR SALE
Leather, Rubber Canvas, etc. 100,000 rods Wire Fencing, 40,000 lbs. Barb Wire at 2c. per lb., 300,000 ft. Iron Pipe, also 1,000 other bargains at 25% to 50% less than regular value. New lists just issued, sent free on request. Write immediately.
IMPERIAL MFG. & SUPPLY CO.
6 QUEEN ST. MONTREAL, QUE.
All kinds of Machinery Bought and Sold.

FREE LAND FOR THE SETTLER IN NEW ONTARIO

Millions of acres of virgin soil obtainable free and at a nominal cost are calling for cultivation.

Thousands of farmers have responded to the call of this fertile country and are being made comfortable and rich. Here, right at the door of Old Ontario, a home awaits you.

For full information as to terms, regulations, and settlers rates, write to

H. A. MACDONELL
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Minister of Agriculture
Parliament Bldgs., Toronto

ENGLISH HAND-MADE LACE

MADE BY THE COTTAGERS OF BUCKINGHAMSHIRE.

This is the old-fashioned lace made on the cushion, and was first introduced into England by the Flemish Refugees. It is still made by the village women in their quaint old way.

Our Laces were awarded the Gold Medal at the Festival of Empire and Imperial Exhibition, Crystal Palace, LONDON, ENGLAND, for general excellence of workmanship.

BUY some of this hand-made Pillow Lace, it lasts MANY times longer than machine made variety, and imparts an air of distinction to the possessor, at the same time supporting the village lace-makers, bringing them little comforts otherwise unobtainable on an agricultural man's wage. Write for descriptive little treatise, entitled "The Pride of North Bucks," containing 200 striking examples of the lace makers' art, and is sent post free to any part of the world. Lace for every purpose can be obtained, and within reach of the most modest purse.



COLLAR—Pure Linen.
\$1.00.



DAINTY HANDKIE—70c.
No. 910.—Lace 1½ in. deep.

Collars, Fronts, Plaistrans, Jabots, Yokes, Fichus, Berthes, Handkerchiefs, Stocks, Camisoles, Chemise Sets, Tea Cloths, Table Centres, D'Oylies, Mats, Medallions, Quaker and Peter Pan Sets, etc., from 25c. 60c., \$1.00, \$1.50, \$2.00, up to \$5.00 each. Over 300 designs in yard lace and insertion from 10c., 15c., 25c., 45c., up to \$3.00 per yard.

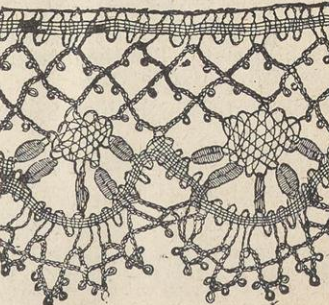
IRISH CROCHET.

Mrs. Armstrong having over 100 Irish peasant girls connected with her industry, some beautiful examples of Irish hand made laces may be obtained. All work being sold direct from the lace-makers, both the workers and customers derive great advantage.

Every sale, however small, is a support to the industry.



(1½ in. deep.) STOCK—Wheel Design.
Price 25c. each. (Half shown.)



No. 122.—80c. per yard.

† MRS. HORACE ARMSTRONG, OLNEY, BUCKS, ENGLAND

Beautify and Protect Your Property

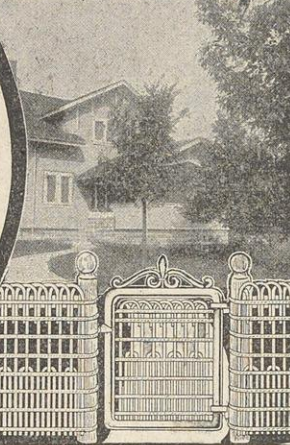
Peerless Ornamental Fencing accomplishes two great purposes. It beautifies your premises by giving them that symmetrical, pleasing, orderly appearance, and it protects them by furnishing rigid, effective resistance against marauding animals, etc.

Peerless Ornamental Fencing

is made of strong, stiff, galvanized wire that will not sag. In addition to galvanizing, every strand is given a coating of zinc enamel paint, thus forming the best possible insurance against rust. Peerless ornamental fence is made in several styles. It's easy to erect and holds its shape for years.

Send for free catalog. If interested, ask about our farm and poultry fencing. Agents nearly everywhere. Agents wanted in open territory.

Banwell Hoxie Wire Fence Co., Ltd.
Winnipeg, Man.—Hamilton, Ont.



Sprayers

Sulfur Dusters

For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn
Power Sprayers

Send for Catalogues
and particulars to:

VERMOREL Manufacturer,
(Rhône), FRANCE VILLEFRANCHE



TO DESTROY APHIS, THRIPS, ETC.

Without Injury to Foliage

SPRAY WITH

"BLACK LEAF 40"

Sulphate of Nicotine

"Black Leaf 40" is highly recommended by experiment stations and spraying experts throughout the entire United States, also by Canadian experts.

Owing to the large dilution, neither foliage nor fruit is stained.

Black Leaf 40" is perfectly soluble in water; no clogging of nozzles.

PACKING:

In tins containing 10 lbs. each, 2 lbs. each, and ½ lb. each.

A 10-lb. tin makes 1,500 to 2,000 gallons for Pear Thrips, with addition of 3 per cent. distillate oil emulsion; or about 1,000 gallons for Green Aphis, Pear Psylla, Hop Louse, etc., or about 800 gallons for Black Aphis and Woolly Aphis—with addition of 3 or 4 pounds of any good laundry soap to each 100 gallons of water. The smaller tins are diluted in relatively the same proportions as are the 10-lb. tins.

PRICES: In the United States, our prices for the respective sizes are as follows:

10-lb. tin, \$12.50; 2-lb. tin, \$3.00; ½-lb. tin, 85c.

IN CANADA, Dealers usually charge about 25% to 30% over the above prices because of the Canadian duty, etc. Consult your dealer about this.

THE KENTUCKY TOBACCO PRODUCT CO.

(Incorporated)

LOUISVILLE — KENTUCKY

Items of Interest

At a farmers' club meeting held at Smithdale, Simcoe county, Ont., on January 6th, it was decided to organize a co-operative fruit growers' society on the lines of the Norfolk Fruit Growers' Association. A committee composed of F. E. Webster, Ben. Kerr, T. H. Conner, Dan. Carmichael, and Lockey Paterson were appointed to canvass apple growers not present, and to call a meeting for the purpose of framing by-laws, and other business.

In Oregon, fruit growers are required to maintain their orchards in good condition or stand the consequences. Recently every apple tree in a forty-four acre orchard near Portland—two thousand eight hundred in all—was cut down by the state fruit inspector and a force of men. The owner stood by protesting, but was unable to stop the destruction of his orchard. Neighbors claimed the trees had every disease known to apples. The owner was given a month in which to comply with the law requiring annual spraying. Failing to do so the trees were cut down and burned.

Messrs E. D. Smith & Son, Limited, of Winona, Ont., the well-known nurserymen, recently forwarded a shipment of a general assortment of the best varieties of American grape vines to one of the Government Experimental Stations in Australia, a shipment of apple trees to Madeira, Spain, and a general assortment of apple, pear, and plum trees and shade trees to Manchuria, China. These shipments were arranged and dug with the utmost care, and the Ontario Government Inspector, who examined the trees, expressed the opinion that he had never before seen nursery stock that had been packed so thoroughly or carefully.

The Canadian Trade Commissioner at Auckland, New Zealand, under date of December 22, 1913, reports as follows: "The Vancouver boats bring large quantities of apples, and your commissioner accompanied the inspector, who said they were a very fine lot. This business is capable of great expansion. Many boxes of United States apples arrive by each boat, so it is quite evident there is a large demand. The Canadian shipper does not appear able to transact business on a sufficiently extensive scale in this regard."

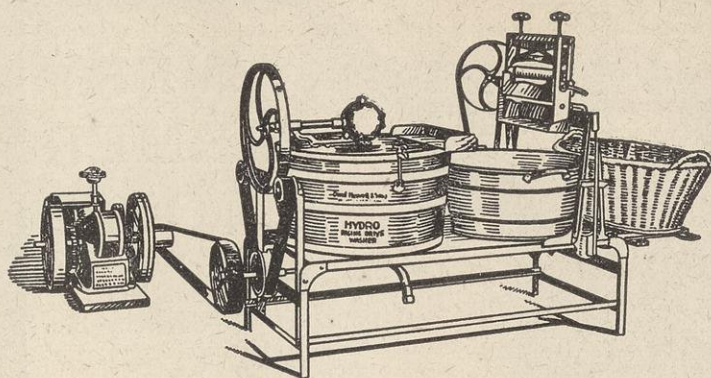
At a mass meeting of citizens of Armstrong held recently, the following resolution was passed:

"That this meeting is against Chinese or Orientals owning farm lands within the city of Armstrong, and in the municipality of Spallumchen, and requests owners of farm lands to bind themselves and their heirs and assigns for a period of five years not to sell to Chinese or Orientals nor to lease land to them within that period."

Recent Publications

Among the publications that have reached The Canadian Horticulturist recently is a book entitled "Every Day in My Garden," by Virginia E. Verplanck. It is beautifully bound and well illustrated, the illustrations including a number of colored plates. The book is intended to be a guide for work in the garden and home, during each month of the year, and is based mainly on the latitude of Eastern New York. The actual reading matter is short. The publishers are Wm. R. Jenkins Company, 6th Avenue and 48th Street, New York. Price \$2.50.

Let the
Gas Engine
help your
wife to do
her washing



HAS it occurred to you that your other business partner—your good wife—is still using the out-of-date, back-aching methods of years ago—wearing herself out with the drudgery of the old-fashioned washday? If you have a gas engine on your farm you need a

Maxwell

That little $1\frac{1}{2}$ H.P. gas engine that works your churn and cream separator and operates your Pump Jack, Root Pulper and other small implements, will do the clothes washing and wringing for your wife—and do it quickly and satisfactorily. This Maxwell "Hydro" Power Bench Washer works equally well by gas power or by electricity, and can be driven by a one-

"HYDRO" BENCH WASHER

sixth H.P. motor. We make it in one, two and three tub machines, and the mechanism is as perfect as science can invent.

One of these machines would be a genuine boon to your wife when washday comes round. Make her a present of one—and let your gas or electric power help her to do her part of the work and lighten the burden of washday!

Write to-day for further particulars of this
Maxwell "Hydro" Power Bench Washer.

DAVID MAXWELL & SONS, DEPT. "H" ST. MARY'S, ONT.

11

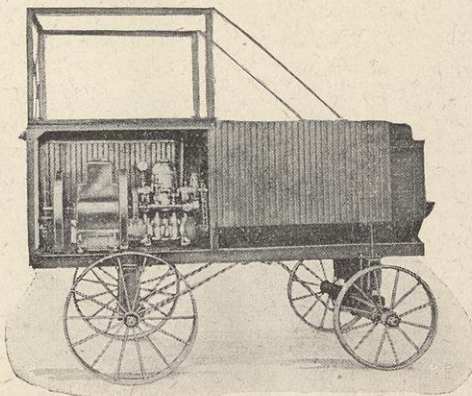
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"GOES LIKE SIXTY"

Light Weight High Pressure Direct Geared No Racking Pump Jack



100 % SERVICE

Engine can be used for other work all the year round. Truck makes a capital farm wagon. Sills of channel steel, with steel platform.

Price of Complete Outfit, Only \$230

This includes all accessories, Engine, Pump, Tank, Bamboo Extensions, Agitator, Hose, Nozzles, etc.

Do not buy a Sprayer until you have investigated the "Goes Like Sixty" Power Sprayer. Send for Sprayer Catalogue to-day.

GILSON MFG. CO. 244 YORK ST. GUELPH, ONT.

Get One Barrel More per Tree

That's what a good sprayer will add to your fruit crop yearly.

Over 400,000 fruit growers and orchardists are proving this fact every season with Goulds Sprayers.

Because Goulds Sprayers apply the spray in such a uniform way that every leaf, every twig is saturated; every crevice is treated. The proper amount of solution is used and no more. This saving in mixture alone pays for a Goulds Sprayer over and over again. Made in 50 sizes and styles. Guaranteed to give absolute satisfaction.

**GOULDS
RELIABLE
SPRAYERS**

are designed by engineers whose training and experience have worked out countless improvements. Don't fool with out-of-date sprayers. Their waste eats up many times what a Goulds Reliable Sprayer would have cost you first.

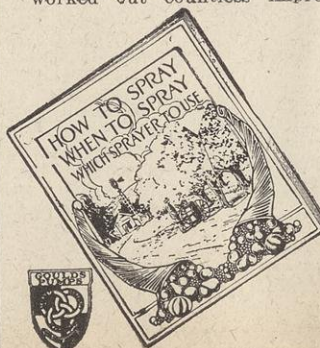
40-Page Book Free

Brimful of practical spray facts. Tells what mixtures to use, what amount and how to apply them, proper time to spray, how to conquer insects and fungous growths of all sorts. Sent Free. Write for it.

(21)

THE GOULDS MFG. CO.

17 W. Fall St., Seneca Falls, N.Y.
Largest Mfrs. of Pumps for Every Purpose





EVERY FARMER KNOWS

That fertilizers are an absolute necessity to successful farming.
The only question that confronts him is getting the *right* fertilizer.

GUNNS SHUR-CROP FERTILIZERS

are prepared under the supervision of chemical experts—are backed by forty years' reputation, and are guaranteed to be in perfect condition chemically and mechanically.

Gunns' fertilizers are finely ground, insuring an even, easy distribution. For users of our fertilizers we are ready at all times to analyze samples of soils and recommend the fertilizer best suited, making it up especially if necessary.

For fertilizer book and other information, write

GUNNS LIMITED, WEST TORONTO

Nova Scotia

The apple shipments from the Annapolis Valley for the last four months of 1913 were 105,532 barrels less than the corresponding four months of 1912, which were also about forty per cent. less than for the four corresponding months of 1911. This drop was caused by the weather conditions of the spring of 1912 being bad for the apple crop, and the spring of 1913 being still worse than for a number of years. The apple shipments from Halifax the last four months of 1913 were 354,397 barrels, against 459,929 barrels during the same period of 1912. The shipments for the month of December, 1913, were 69,974 barrels, against 91,147 barrels for December, 1912, showing a decline of 21,173 barrels.

While the quantity of apples grown in Nova Scotia has been declining for two years, the prices have so enhanced that it is considered by many that the past season will be more remunerative than for a number of years.

The cooperative movement started three years ago has given wonderful results, enabling the grower to obtain the best prices for his apples and potatoes at the least possible expense. The latter maintained throughout the heaviest shipments the record price of fifty cents a bushel to the grower, who also effected a great saving in the prices he had to pay for the feed and fertilizer he required.

The United States Markets

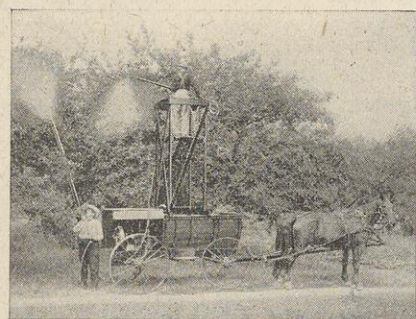
D. Johnson, Forest, Ont.

I had some experience last year in the United States markets, which was very unsatisfactory. Friends in Cleveland and Detroit advised us that they were paying two dollars fifty cents a bushel for peaches. We found this to be true, so in company with some neighbors we shipped to commission merchants in those cities five cars of peaches. I consider that we would have made two hundred dollars a car more had we sold these peaches in Canada, or that my neighbors and myself would have made one thousand dollars more had we not shipped the five cars across the line. The fruit was of the finest quality, carefully packed and shipped in good refrigerator cars. It appears to me that the American consumers are paying big prices for their peaches, but these big prices are not enjoyed by the producers.

Regarding apples, I had heard of the big prices for apples, and had hoped for a good market right at our door for our apples. Accordingly, as soon as the new tariff came into effect, I visited a number of the big United States cities with the intention of selling our pack to them. I found that I could not make a satisfactory sale there, so returned home and sold at a much better price to a western firm than we could get on the other side. In view of these facts I can only say that I do not expect much from the United States markets in future years when their prices were so much below our own last season in the midst of one of the shortest crops the United States has had for years.

Most of the standard varieties of fruit could be delivered to market in better condition and with less loss from decay if they were promptly cold stored after picking.—J. A. Ruddick, Dairy Cold Storage Commissioner.

"FRIEND" Sprayers



Mr. Fruit Grower
You have heard of the celebrated

"Friend" Power Sprayer

But you have not heard of the 1914 MODELS.

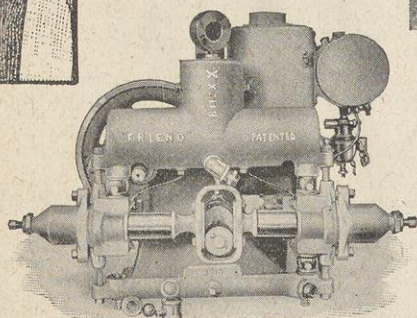
Western King and Queen

Western King

If you have a power sprayer, EXCHANGE engine and pump for our POWERFUL UNIT MOTOR-PUMP and PROPELLER AGITATOR, or sell it and buy a whole new outfit. "FRIEND" outfits are now made in many styles, TO SUIT YOUR TASTE, in-



Western Queen



The "Friend" Motor-Pump

cluding motor-pumps, & fits on bed without trucks, and complete machines—built in large and small sizes. The SIMPLEST, MOST COMPACT, MOST POWERFUL and FINEST WORKING power sprayers ever produced. Many Westerns sold in Canada last year to growers who are STAUNCH FRIENDS this year.

WRITE FOR CATALOG TO-DAY,
STATING REQUIREMENTS.

"FRIEND" MFG. CO., GASPORT, NEW YORK

EGGS

EXPRESS PREPAID—all the standard breeds of Chickens, Ducks, Geese and Turkeys. HIGH-CLASS STRAINS. Write today for catalog describing breeds—also poultry supplies. IT'S FREE.
J. H. RUTHERFORD, Box 62
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The Earliest Tomato Grown

Without exception D & F's O. K. Tomato yields an *earlier* crop than any other on the market.

Grown from single plant selections covering a period of five years. Fruit is exceptionally large, a beautiful red and full of strong healthy new blood.

D. & F's HIGH GRADE SEEDS

are used by successful Gardeners in every section of the Dominion.

58 FIRST PRIZES were awarded at the Montreal Horticultural Exhibition, Sept., 1913, to Mr. F. S. Watson, on products grown from D. & F.'s High-Grade Seeds.

Send to-day for our Seed Annual. It is a complete garden guide. We mail it free.

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Rennie's Seeds Grow

the Finest Vegetables
and the Best Flowers
in the Land

Success in planting, whether it be in planting an entire garden, a bed of either simple or intricate design, or an extensive farm tract, depends upon many things, the principal one being the Quality of the Seeds.



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are absolutely dependable—have been since 1870—44 years ago. Their reputation for uniform purity and fertility—a reputation that has always been strictly maintained—is YOUR assurance of success in planting.



Rennie's Catalogs are unusually comprehensive and mighty interesting and instructive. They contain innumerable hints and suggestions of great value on cultivation. And the descriptions are not exaggerated, but can in every case be relied upon.

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Streets, **TORONTO**

Glorious New Spencer Sweet Peas

KING WHITE—It attains perfection in every detail, which goes to make up a Spencer Sweet Pea. It is the experts' ideal for perfect form. The improvement in form, size, vigor, waviness and purity stands eminently out when compared to other White Spencers, and calls for unstinted admiration. The number of four-blossomed sprays and the great length of stem will appeal strongly to those wishing a good White for decorative work. Packet, 20c.

"EMPRESS EUGENIE"—The color is a delicate tone of light gray flaked with light lavender. A vase or bunch gives a most charming effect. The flowers are of large size, beautifully waved and crimped. A vigorous grower and very free bloomer, throwing a large proportion of four-flowered sprays. Packet, 20c.

ILLUMINATOR—A glorious orange-salmon Sweet Pea. In dull light the color appears to be a flat orange scarlet, but when in bright sunshine or artificial light, the color is completely changed, and it appears a bright salmon cerise, sparkling with orange. It introduces a new shade of color to Sweet Pea enthusiasts of rare beauty, and with its additional attributes of great vigor, floriferousness and symmetry, it is sure to captivate all who give it a place in their garden. Packet, 20c.

"WEDGEWOOD"—It is a true self and is appropriately named, as its color throughout is a unique shade of wedge-wood blue, a color so popular in China. It produces profusely flowers of good size, borne almost uniformly in four-flowered sprays, well placed, upon long stout stems. Of finest Spencer form, the standard and wings are well waved. Packet, 20c.

FREE—Our 112-page illustrated catalogue of Vegetable, Farm and Flower Seeds, Plants, Fruits, Implements, Poultry Supplies, etc. Write for it.

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SMALL FRUIT PLANTS

Gooseberries, Josselyn! Josselyn!! Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection! Perfection!! Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples, Black Victoria, Boscoop.—Raspberries, Herbert! Herbert!! Herbert!!! Cuthbert, Marlboro, Brinkley's Orange, Golden Queen, Strawberry-Raspberry. — Garden Roots, Asparagus, Rhubarb. Write for Catalogue.

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Eastern Annapolis Valley

Eunice Buchanan

On January 16th a meeting was held in Berwick, attended by a director from each fruit company, to decide whether or not to put in a cold storage plant. It was concluded that the Central Office of the United Fruit Companies, Limited, should go ahead with a trial plant. As yet the location is not decided, but it will probably be near to a source of natural ice, supplying about seven hundred tons which would be required to run this proposed Cooper-Madison system size of cold storage plant. It is estimated that the cost will be less than fifteen cents a barrel, and that this will be the beginning of a series of cold storage plants through the Valley. Another fruit company has been organized at Hortonville, and a warehouse is to be built there.

At the request of the United Fruit Companies a subsidy of five thousand dollars was granted by the Government for a steamship service to run from Annapolis, Nova Scotia, to ports in England.

Yarmouth, to the west of us, closed its first annual seed fair on February 8th. In addition to growing wheat, oats, peas, buckwheat, beans, beets, and potatoes, the Federal authorities are offering bonuses for raising cabbage and turnip seed in commercial quantities.

In addition to the seed fair, a short course in agriculture, with a staff of instructors from the Agricultural College, Truro, has also been held in Yarmouth. The attendance began with 122, and 50 more applications were received. Another short course of this description will be held in Bridgewater.

The winter has gradually been growing more severe. On February 12th the thermometer dropped to twenty-two degrees below zero in Berwick, where it was said to have been the coldest day within the last thirty years.

As another good step in cooperation, our local paper, the Register, is devoting a large space each week to the doings of the United Fruit Companies, which is now their official organ.

Bulletins

Recent publications that have reached The Canadian Horticulturist include the following: "Plum Culture and District Lists of Plums Suitable for Canada, with Descriptions of Varieties," by W. T. Macoun, Dominion Horticulturist, Experimental Farm, Ottawa; "The Box Packing of Apples," by E. F. Palmer, B.S.A., being Bulletin Number 216 of the Ontario Department of Agriculture. This bulletin is well illustrated and contains much helpful information. "The San Jose and Oyster Shell Scale," by Prof. Caesar, B.S.A., being Bulletin Number 219 of the Ontario Department of Agriculture, Toronto.

The Utah Agriculture College has issued two bulletins, one Number 128, entitled "Blooming Periods and Yields of Fruit in Relation to Minimum Temperatures," by A. M. Ballantyne, Logan, Utah, and the other, Bulletin Number 129, by E. D. Ball and W. M. Ball, of Logan, Utah, entitled, "Codling Moth Studies." "Success with Hens" is the title of a book by Robt. Joos. This book covers the subject of poultry raising with unusual fullness. It is published by Forbes & Company of Chicago and sells at \$1.00 a copy.

For Use
in any
wagon,
cart, etc.



No. 190. Horizontal, 50-Gallon

IRON AGE

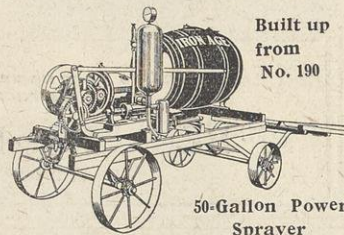
**Bucket, Knapsack,
Barrel, Power, and
Traction Sprayers**

They are built up in units so that you can buy what you need now and add to the outfit later if necessary. All have the best pumps in use on any sprayers—least slippage among eight of the best in a disinterested test. Solutions touch only brass or galvanized parts. Hemp packing, bronze ball valves, both easy to get at. Pumps outside. Power Sprayers are 50, 100, 150, or 250 gallons capacity. 200 pounds pressure with 6 or 8 nozzles.

Ask your local dealer about this line and write us for our new "Spray" book, spray information and copy of Iron Age Farm and Garden News.

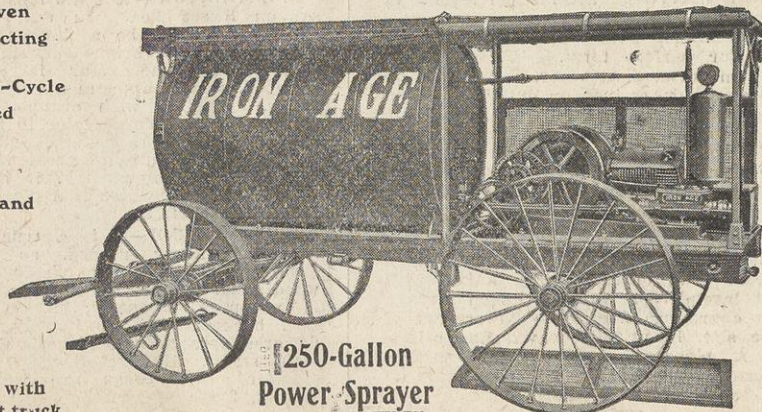
The Bateman-Wilkinson Co. Ltd., 460 Symington Ave., West Toronto, Ont.

Gear-Driven
Double-Acting
Pump
2-H. Four-Cycle
Air-Cooled
Engine
Outside
Sediment
Chamber and
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50-Gallon Power
Sprayer



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Furnished with
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Expert advice regarding varieties of trees, shrubs and plants. No stock for sale.

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The Royal Horticulturists

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A BETTER HOME LIGHT

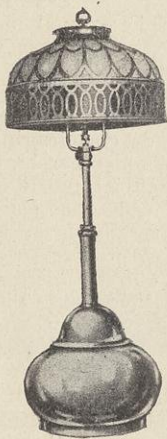
Costs less than 1c. a night
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a lamp that is truly
a wonder. "The Fault-
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own gas from coal-
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bright, white light at
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Simple, strong, most
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Finer
Fruit**

USE
the
quickest,
surest, most econom-
ical method of spraying;
preventing disease, blight;
killing bugs; assuring bumper
crops of finest fruit. 300,000
farmers, gardeners have found

Brown's Auto Spray

most efficient—Style No. 1 shown here.
Capacity 4 gallons. Easily carried over
shoulder. Does more work than 3 ordi-
nary sprayers. Patented Auto Pop Nozzle
—throws any kind of spray—does not clog.

Better Vegetables, Bigger Crops



Just the size for small trees, fields
up to 5 acres, poultry houses, etc.
For large sprayers—Brown's

NON-CLOG ATOMIC NOZZLE

sprays any solution
without clogging.
Guaranteed. 40
styles, sizes—
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*"Turns the soil
better"*

The Bissell

Because of their
shape, plates
of "Bissell"

Orchard Harrows turn over soil cleaner,
better than you've been accustomed to
have it done. Attach wings and Harrow
extends out 12 ft. or more to cultivate
under limbs of trees—closes up narrow
enough to cultivate between grape vines.
Combination Harrow too—reversible
from "Out Throw" to "In Throw."
Low seat, well-braced frame. Ask your
dealer for information or write Dept. N
T. E. Bissell Co. Ltd., Elora, Ont.
JNO. DEERE PLOW CO., Ltd., 77 Jarvis
St., Toronto—Selling Agents for Ontario
and Quebec.

PAINT WITHOUT OIL

Remarkable Discovery That Cuts Down the Cost
of Paint Seventy-Five Per Cent.

A Free Trial Package is Mailed to Everyone
Who Writes

A. L. Rice, a prominent manufacturer of
Adams, N. Y., has discovered a process of
making a new kind of paint without the use
of oil. He calls it Powderpaint. It comes in
the form of a dry powder and all that is
required is cold water to make a paint wea-
ther proof, fire proof and as durable as oil
paint. It adheres to any surface, wood,
stone or brick, spreads and looks like oil
paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manuf'r., 441 North
St., Adams, N. Y., and he will send you a
free trial package, also color card and full
information showing you how you can save
a good many dollars. Write to-day.

CENTRAL NURSERIES, ST. CATHARINES, ONT.

Have a Fine Assortment of

Trees, Vines, Plants, Ornamentals, Etc.

For Spring Planting

For Satisfaction, Plant St. Riges, Himalaya and Ever Bearing Berries
Our prices are right and so are the trees. Send for priced catalogue
if you have none, also your want list for special prices on Apple
Trees. We can please you. Try Seed Potatoes, Lincoln, New.

Look over our Price List. No Agents. Wanted, a Nurseryman

A. G. HULL & SON



Fertilizer "Actions" that "Speak Louder Than Words"

Every farmer desiring to increase his farm profits will be interested in this De-
partment of Agriculture Report on the "Acre Profit" competition held in Welland
County last summer under the supervision of R. Austin, B.S.A., District Repre-
sentative.

"Home Mixed"

Such as would be recommended by "Raw
Materials" combines.

Competitor—Roy Mackenzie Barron,
Fonthill, Ont.

Crop: POTATOES
Fertilizer Used on Acre: 600 pounds.
100 lbs. Nitrate of Soda }
300 lbs. Basic Slag } "Home Mixed"
200 lbs. Potash }

Also 8 loads of Manure.
Yield: 135 Bushels.

Cost of Production: \$44.25
(Including rent of land, labor, cost of
fertilizer, etc.)

Net Profit from Acre: \$33.15
(Average yield for Province, 1913—116 bushels.
per bus. in each case.)

These results show that increased profits can be made by farmers who use
Factory Mixed fertilizers, and particularly those who use

"Davies Factory Mixed"

As recommended by those who realize
that "Results speak louder than Words."

Competitor: Will Chrysler, Allanburg, Ont.

Crop: POTATOES
Fertilizer used on Acre: 500 pounds.

Davies 3-6-10 Potato Grower
(Factory mixed)

Also 6 loads of Manure.
Yield: 296 Bushels.

Cost of Production: \$42.35
(Including rent of land, labor, cost of
fertilizer, etc.)

Net Profit from Acre: \$135.25
Marketable Potatoes valued at 60c

DAVIES SPECIAL MIXED FERTILIZERS

The results of this competition show that although 100 pounds more of the Home
Mixed fertilizer and two extra loads of barn-yard Manure were used, that Factory
Mixed fertilizer netted a profit of \$102.10 per acre more than the Home Mixed fertilizer.

You should give these facts your most serious consideration.
Now is the time to take action. Go to your Fertilizer dealer to-day, arrange
with him for the purchase of sufficient Davies' Special Mixed fertilizer to use on your
farm crops this spring.—500 pounds per acre is a good average application.

Remember—Davies' FERTILIZERS—not only produced larger crops per acre, but do
so economically and also improve the quality of the crop, securing for you a more
profitable harvest in every way. Write for our free book, "Farm Davies' Way." "We
have or want to have an Agent near You."

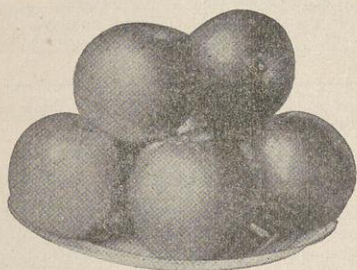
**THE DAVIES COMPANY
LIMITED**

R. INNES, B.S.A., Manager, W. TORONTO, ONT.

Vinegar Plants Cider Presses

We are the exclusive Canadian Agents for the Hydraulic Press Mfg. Co., Mount Gilead, Ohio. If you want a Cider Press of any kind or a Vinegar Plant, write us.

The Brown Boggs Co.
Limited
HAMILTON, CAN.



Choice Fruit

is the result of systematic cultivation, and spraying with

SHERWIN-WILLIAMS
NEW PROCESS
ARSENATE OF LEAD



THE SHERWIN-WILLIAMS Co.
of Canada, Limited
MANUFACTURERS OF INSECTICIDES
Offices and Warehouses:
Montreal, Toronto, Winnipeg, Calgary, Vancouver,
Halifax, N. S., London, Eng.

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach,
Grapes, Small Fruits, Deciduous and
Evergreen Ornamentals, Roses, Flowering
Shrubs, Climbers, etc.

Catalogue Free: It tells the whole Story.

J. H. WISSMER, Nurseryman, Port Elgin, Ont.

50,000

FIRST CLASS FRUIT TREES

Two year old, 3 to 5 ft. high. To introduce our stock will sell while they last at \$20.00 per 100, \$2.50 per 10. All varieties of Plums, Pears, Peaches, Cherries and Apples. Special prices to Associations.

W. P. POWE & SON - CAINSVILLE, ONT.

SUPERIOR Plant Boxes



PRICES RIGHT

Delivery in March and
April. Order NOW
to ensure prompt ship-
ments.

**Canada Wood Products
Co.**
ST. THOMAS - ONT.

Directors for Vineland

F. M. Clement, B.S.A., has been appointed director of the Provincial Government Experimental Station at Vineland, in succession to A. D. Harkness, who recently resigned. Mr. Clement is a graduate of the Ontario Agricultural College, where he specialized in horticulture. He afterwards acted as district representative for some years in Elgin county, distinguishing himself in the horticultural branch. Over a year ago he was appointed assistant in the horticultural department of Macdonald College, at Ste. Anne de Bellevue, which position he now holds. He will assume his new duties about the first of April.

Ontario Rose Society

The annual meeting of the Rose Society of Ontario was held in Toronto, February 16th, with E. T. Cook, vice-president of the Canadian Rose Society, in the chair. The officers' reports showed that the society had made encouraging progress. Not only had the membership been extended, but the financial position of the society had been placed on a sound basis by contributions, not only from members, but from others interested in rose growing in Ontario.

The president spoke of the enthusiasm of the members. Their efforts had shown their determination to make the rose the flower of Ontario. The society, he said, was rapidly attaining one of its greatest objects, which was to have as large a number of affiliated societies as possible. Mr. J. T. Moore, of Moore Park, he said, had helped the society greatly by his influence and financial support. It was seldom that any society had secured and retained so much real support as the Rose Society of Ontario had. Three large rose shows were planned to be held this year.

Ottawa Flower Guild

The Y.W.C.A. was filled with happy children, Saturday afternoon, February 14, bringing their bulbs and plants to the sixth bulb exhibition of the Ottawa Children's Flower Guild. The affair was entirely informal, and as cards had been sent only to the one hundred and twenty children to whom bulbs and plants had been given last November, a great many of the children were absent. The hall was crowded, many parents and friends being present. Mr. W. T. Macoun was judge. The result of the children's work was surprising to every one, the majority of the plants being fit for any florist's window. Mr. R. B. Whyte, the president, presided.

Mr. W. T. Macoun expressed his surprise at finding that the children under twelve years of age far surpassed the elder members of the Flower Guild. He had found it exceedingly hard work to decide which were the best plants, so keen was the competition, and therefore he had added seven extra prizes to those given by the committee. One plant taking a prize, to which Mr. Macoun drew attention, was planted in builders' sand, so that no one could offer the lack of good soil as an excuse for not growing bulbs. Mr. Macoun held up each prize plant for public inspection, giving the reasons for and against excellence and form. It was a delightfully instructive address.

Use The Owen Compressed Air Spraying System—Save Money

The Owen system embodies a central plant in which is installed an air compressor driven by a gasoline or steam engine. Two heavily galvanized, high pressure steel tanks are also provided complete with valves, fixtures, etc. The tanks are mounted on a suitable platform which can be placed on any ordinary farm wagon. When spraying, one tank is filled with about 200 lbs. of compressed air and the other with the spraying liquid. The tanks are filled at the central station at the same time.

The Owen Compressed Air Spraying System

provides an even, steady pressure at all times. The spraying mixture is kept thoroughly agitated by an agitator. One man with one set of tanks can thoroughly apply 1200 gallons of mixture per day. With two rigs, one man can apply 2000 gallons per day. There is no complicated machinery—no pump cylinders coming in contact with the liquid—no engine to be hauled around courting trouble. It's the most simple, most satisfactory spraying system ever devised.

When not used for spraying, the engine can be used for any other purpose and the compressor will furnish air for pneumatic water systems, etc.

Write today for Free Catalog

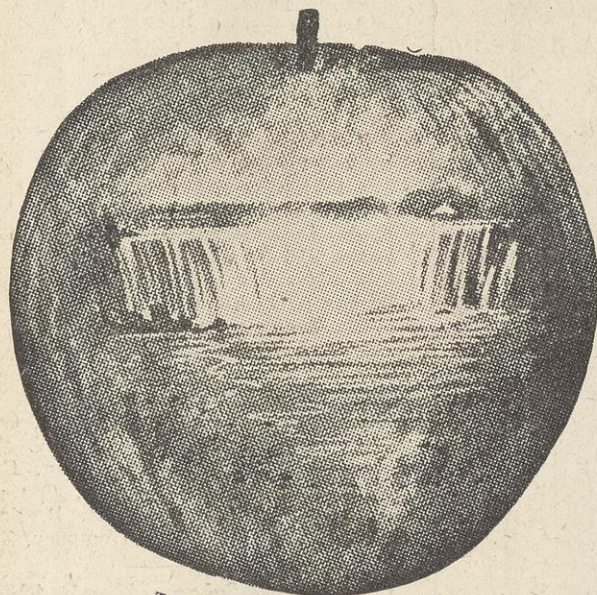
W. H. Owen Sprayer Co., Sandusky, Ohio



DON'T PAY FREIGHT ON WATER

USE NIAGARA SOLUBLE SULPHUR

The Sulphur Spray in powder form. Controls Scales quicker and better than Lime-Sulphur. A positive control for Apple Scab, Peach Curl and other fungus diseases.



TRADE MARK REGISTERED

It has the following advantages over Lime-Sulphur: Is cheaper, easier to handle, no leakage or loss, no sediment, keeps indefinitely, saves freight and storage.

100 lbs. of Soluble Sulphur will make more spray than a 600-lb. barrel of solution.

Remember Soluble Sulphur was used by over 500 growers in Ontario last year. It will be used by thousands this year. There is a reason for this. Soluble Sulphur does the work. Saves time and money and eliminates many of the objectionable features of spraying. This material can only be procured from us. Place your order early so as to be sure and be supplied.

If you have never used this great spray let us send you full particulars.

ARSENATE OF LEAD

The highest grade only. The kind that mixes easiest. Does not burn foliage. Contains the highest analysis of arsenic.

SWIFT'S is made up to a quality, not down to a price. It is always full weight, guaranteed. The best is always the cheapest.

NIAGARA LIME-SULPHUR

The pioneer and reliable solution. Highest in Beaume test. Clear and uniform.

Write us for spraying supplies.

Wherever Fruit Excels Niagara Spray is used

Niagara Brand Spray Co., Ltd.

BURLINGTON - ONTARIO

FOR SALE

25 Acres of Choice, Early, Warm Land, specially adapted for the growing of Virginia Leaf Tobacco, and all early Fruits and Vegetables. Five acres in Peach and Cherry Trees about six years old. Buildings consist of Tobacco Barn, Stable and small house, and also a Hot House 20 ft. x 80 ft. This property is beautifully located, and only three quarters of a mile from the Leamington Post Office, a bargain at.....

\$12,000

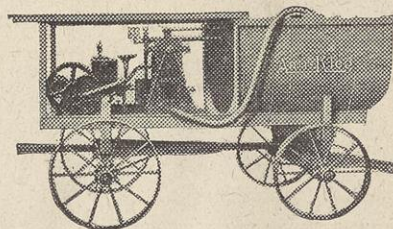
Apply to P.O. Box 504, Walkerville, Ont.

16 Acres beautifully located, choice early land Fruit Farm, situated on the Lake Front Road, near Leamington, Ont. Twelve acres in fruit trees from one to five years old, Peaches, Plums and Apples. Buildings consist of a new six room Bungalow, Stable and Packing House.

Price **\$9,500**

Apply to P.O. Box 504, Walkerville, Ont.

SPRAY WITH AN **ANTI-KLOG**



They give the highest efficiency through long hard terms of service. There is an **ANTI-KLOG** of the right capacity for those who have much and those who have little spraying to do.

They spray better—spray better longer—and represent more downright sprayer value—than any other spraying devices manufactured.

Ease of operation, simplicity, strength and a number of other individual features appeal to every user. The **ANTI-KLOG** nozzels make it very difficult for any mixture to clog the outlet.

GUARANTEED FOR 5 YEARS

You are absolutely guaranteed when you buy an **ANTI-KLOG**, as each is sold under an unqualified guarantee of 5 years' service.

Send for our new free catalog and give your dealer's name. You should now make preparations for spring spraying.

ILLINOIS METALS COMPANY

2420 West 22nd Street - CHICAGO, ILL.

Strawberry Plants

FOR SALE

For 1914 we are offering strong, vigorous, well rooted stock of twelve standard varieties. Price List Free.

ONTARIO NURSERY CO., Wellington, Ont.

Mated pairs of Silver, black and patched foxes for sale.

Also options on 1914 puppies for summer delivery.



JOHN DOWNHAM, Box N, Strathroy, Ont.

HURST You Can Make Your Orchard Yield a Bigger Profit

Get my BIG FREE BOOK, "Why, How and When to Spray." Contains 74 illustrations of insects and fungus diseases and gives the remedy for each. A book that every farmer, truck- or fruit-grower should have. Also shows a complete line of sprayers—28 different styles—man-power—barrel—horse—and gasoline engine power for field and orchard.

10 Days FREE Trial—5 Year Guarantee

No Money in Advance—No Freight to Pay

Our liberal selling plan enables you to buy a HURST SPRAYER without any risk, and pay for it at your convenience. Write today and tell me what size sprayer you need or what you have to spray and get my great

Money Saving Offer and BIG FREE BOOK. It will save you money in buying a sprayer and increase your profits. Write at once. E. H. LAMIELL, General Manager,

THE H. L. HURST MFG. CO., 986 North Street, Canton, O.



Seeds with a Lineage

Lovers of gardens and grounds should know that at Raynes Park, London, England, Messrs. James Carter & Co. have the finest and most complete testing and trial grounds in the world.

Their equipment and the unique methods employed guarantee the quality of their seeds. For generations they have been cultivating, selecting and perfecting until Carters Tested Seeds have reached the highest percentage of purity and germination.

In England, where the art of gardening is most highly developed, Carters Seeds rank first. Ask any gardener with experience in Great Britain—he will know Carter.

In Canada, Carters Seeds have achieved a tremendous success, both on large estates and in smaller gardens.

We import these seeds direct from Raynes Park and carry a complete stock at our Toronto warehouse. We issue an American Catalogue, with all prices in American money. It includes selected varieties of Flower and Vegetable Seeds, with valuable directions for planting and cultivation.

A copy of this Catalogue will be mailed you FREE. Write for it to-day.

CARTERS TESTED SEEDS, Inc.
133 A King Street, Toronto



**Carters
Tested
Seeds**

If you are interested in upkeep of Lawn, Tennis-Courts or Golf-Course, write for the "Practical Greenkeeper." Every Championship Golf-Course in America is to-day using Carters Tested Grass Seeds.

Fruit Growers Convene

The annual meeting of the Northumberland and Durham Fruit Growers' Association was held in Cobourg recently. The feature of the convention was the attention that was devoted to matters connected with the proper marketing of fruit. Mr. D. L. Pauline, of Brandon, Manitoba, suggested that growers in the east should obtain a list of western buyers and send them a monthly statement of the number of barrels and the varieties of each that they have on hand. This would give a better and wider market and lead to more competition in buying. It was stated by Mr. Pauline that some sections have effected a marked improvement in their pack by requiring the packers to insert their names and addresses in each box or barrel of fruit packed by them.

Mr. P. J. Carey, Dominion Fruit Inspector, pointed out that west of Brandon the apple trade is confined almost exclusively to boxes. He was of the opinion that a much larger portion of the Ontario crop should be box packed.

The following officers were elected: President, F. B. Lovekin, Newcastle, Ont.; secretary, R. S. Duncan, Port Hope, Ont.; treasurer, Thos. Montague, Ont. Directors: W. J. Bragg, Bowmanville, Ont.; W. H. Gibson, Newcastle, Ont.; W. S. Drinber, Perrytown; J. H. Hayden, Cobourg, Ont.; J. G. Wait, Wicklow, Ont.; J. W. Turpin, Colborne, Ont.; R. B. Scripture, Brighton, Ont.; W. H. Dempsey, Trenton.

South African Fruit Trade

Reporting from South Africa to the Department of Trade and Commerce, Trade Commissioner W. J. Egan, stationed at Cape Town, writes as follows in regard to Canadian apples shipped to that market last fall:

Opinion among the various dealers varies in reference to Canadian apples received in South Africa this year. Durban dealers report grading and packing of Nova Scotia fruit to be all right in every particular. They complain, however, that Nova Scotian Kings and Wagners on the whole were a great disappointment, as they were poor in color and in keeping qualities. The Ontario fruit, such as Ben Davies, Kings, Russets, and Spies, left nothing to be desired.

Port Elizabeth dealers were well satisfied with the consignments to them, but state that they did not receive all they had arranged for, one large dealer claiming that although he booked space early last May, he failed to secure accommodation for his second shipment.

The apples which arrived in Cape Town were, with the exception of one lot of Golden Russets on the s.s. Benguela, in very good condition, but were not graded in all cases as they should be for export. The difference in grading of the apples received in Cape Town and other ports must be attributed to the fact that almost all the apples shipped to this port are purchased by local dealers, who visit Canada annually, while the fruit to other ports is consigned by Canadian producers or dealers.

The South African market during October, November, and December is a splendid one for good Canadian apples, and will command high prices. This office invites early correspondence this year with a view of consignments for next year and advises the securing of space in cold storage chambers early in the season.

A FARMER'S GARDEN

IS without real serious meaning to many thousand farmers because they think it is too hard work or it is not convenient to work a horse. So many farmers fail to understand what truly wonderful possibilities there are in modern hand tools.

IRON AGE Wheel Hoes and Drills

(Now made in Canada)

do all of the sowing, hoeing, cultivating, weeding, furrowing, ridging, etc., in any garden with better results, far less work and some real pleasure for the operator. 38 or more combinations at \$3.00 to \$15.00. Ask your dealer about them and write us for new booklet. "Gardening with Modern Tools" also copy of our paper "Iron Age Farm and Garden News"—both are free.

The Bateman-Wilkinson Co., Limited
462 Symington Ave., Toronto, Ontario.



THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

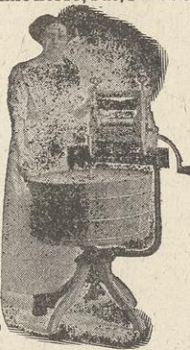
Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it?

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

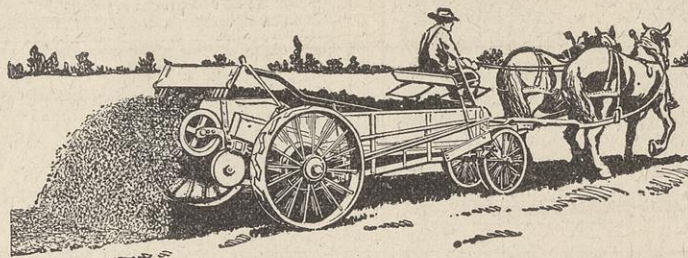
And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me personally:
K. F. MORRIS, Manager, 1900 Washer Co., 357 Yonge St., Toronto, Ont.



International Harvester Manure Spreaders



THE I H C LINE GRAIN AND HAY MACHINES

Binders, Reapers
Headers, Mowers
Rakes, Stackers
Hay Loaders
Hay Presses

CORN MACHINES

Planters, Pickers
Binders, Cultivators
Ensilage Cutters
Shellers, Shredders

TILLAGE

Combination,
Peg and Spring-Tooth,
and Disk Harrows
Cultivators

GENERAL LINE

Oil and Gas Engines
Oil Tractors
Manure Spreaders
Cream Separators
Farm Wagons
Motor Trucks
Threshers
Grain Drills
Feed Grinders
Knife Grinders
Binder Twine

STEEL frame on steel wheels—that is the lasting basis on which International manure spreaders are built. All parts, including box, beater, spreading mechanism, apron, are built by experts, using best materials, from careful designs based on field tests.

Every detail is strong and durable, built for long life and ease of draft. Among the features that will interest you are these: Simple protected beater driving mechanism, all of steel; load carried on rear axle, insuring traction; reversible gear and worm; low, easily loaded box, with ample clearance underneath; end gate, preventing clogging of beater while driving to the field; etc.

All styles are in the I H C spreader line, high and low, endless and reverse apron, and various sizes for small and large farms. Our catalogues will tell you more. Write for them and let us tell you also where you may see I H C manure spreaders.



International Harvester Company of Canada, Ltd

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.;
St. John, N. B.; Quebec, P. Q.



NA-DRU-CO TASTELESS PREPARATION OF COD LIVER OIL

The Wonderful Spring Tonic

If you have had a hard winter, Na-Dru-Co Tasteless Preparation of Cod Liver Oil will help you to recuperate quickly and avoid the coughs and colds so prevalent during the changeable spring weather.

In this preparation the nutritive and curative properties of the best Norwegian Cod Liver Oil are combined with Hypophosphites, Cherry Bark and Malt Extract in a form that is really pleasant to take and easily digested even by the most delicate.

Thus the great objection to Cod Liver Oil is removed and every one who is run down or suffering from throat or lung troubles can take advantage of its unique medicinal and strengthening qualities.

Add to this the Tonic Hypophosphites, the healing Cherry Bark and the invigorating Malt Extract, and you have probably the finest food-tonic known.

Get a 50c. or \$1.00 bottle from your Druggist.

314

NATIONAL DRUG AND CHEMICAL CO. OF CANADA, LIMITED.

SKIPPED HILLS RAISE NO POTATOES

Every hill you miss in planting means money lost out of your pocket. No machine can plant perfectly unless there is hand correction of misses and double hills. 10 to 50 bushels more to acre, using

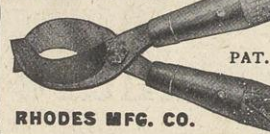
IRON AGE (Improved Robbins) Potato Planter
(Now made in Canada)

A piece in every space and one only. No pickets used—no injury to seed. Perfect placing of seed and uniform spacing. Can't you see that it must pay for itself? Write for booklet, "100 per cent potato planting." We make full line potato machines, Garden Tools, Sprayers, etc.

The Bateman-Wilkinson Co., Limited
465 Symington Ave.
Toronto, Ont.



RHODES DOUBLE OUT PRUNING SHEAR



Cuts from both sides of limb and does not bruise the bark. We pay Express charges on all orders. Write for circular and prices.

RHODES MFG. CO.

536 S. Division Ave. GRAND RAPIDS, MICH.

FRUITLAND NURSERIES

are offering for sale a general assortment of first-class Fruit Trees, Bushes, Vines and Ornamental Shrubs, etc., at very low prices. Our catalogues are just out. It will pay you to send for one.

G. M. HILL, Box 42, FRUITLAND, ONT.

British Columbia Fruit Growers' Convention

The 24th annual convention of the British Columbia Fruit Growers' Association was held in Victoria, B.C., during the last week in January. It was crowded with important discussions relating not only to provincial but to broader issues as well.

President W. C. Ricardo, in his presidential address, stated that the industry stands to-day in a stronger position than it did this time last year. He reviewed the work done in the past year, the success of Messrs Abriel and Foggo's interview with the Dominion authorities in regard to more rigid enforcement of the Sales and Inspection Act, the starting, by the aid of the Provincial Government, of eight local co-operative associations in the Okanagan with a central agency, which on the whole have worked together successfully, and he ended with a warning that "if there ever was a year in which the British Columbia growers should watch the cost of production and the grading of their product, it is this year of 1914, with the largest crop in the North-western States and our own Province ahead of us."

The transportation Committee's report referred to the growing popularity of express service over freight for fruit, and found the complaints of railway rates far fewer than in former years.

Messrs Foggo and Abriel strongly advocated in the advertising committee's report the need of advertising by the Province as a whole by the grower and by the shipper. They advocated joining with the Alberta Government in running an exhibition train through that province and possibly through Saskatchewan. J. Johnstone believed the best method was through the Provincial exhibits at the different fairs.

GRATIFYING REPORTS

The report of the executive and secretary noted that the fruit growers of the four North-western states of America had formed a "Deciduous Protective League" to do for their fruits what the Citrous Protective League had done for other fruits. The Provincial Government grant was increased from \$3,500 in 1912 to \$6,500 in 1913, and the total number of members showed an increase of one hundred and one, there being now six hundred and ninety-six all told. Hearty endorsement was made of the work of the British Columbia Entomological Society and the association was urged to support its executive in the support they had given to the National Fruit Growers' Association.

Fruit growers were urged to encourage the sentiment for inter-provincial trade and two delegates had already gone to the prairies to interview the governments and the grain growers.

Parcels post received the hearty support of the executive, who saw in it the prospect of wider distribution and greater facility in the shipping of consignments. They pointed out that for every railway station there were two post offices in Western Canada. They had recommended to the Postmaster-General a twenty-five-pound minimum.

IRRIGATION PROBLEMS

Hon. W. R. Ross, Minister of Lands, addressed the convention on "Public Irrigation Corporations" and the proposed legislation authorizing their formation. He reminded his audience that water had come to be looked on as one of the resources of the province, and one which could be conserved through wise use and careful administration. The need for this was not so ap-



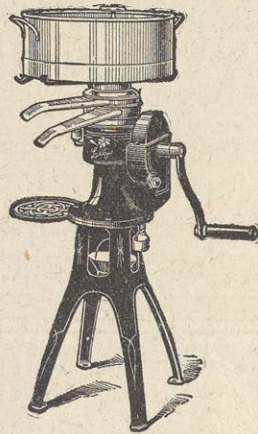
130-Egg Incubator and Brooder Both For \$13.90

If ordered together we send both machines for only \$13.90 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead-air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Especially adapted to Canadian climate. Incubator and Brooder shipped complete with thermometers, lamps, egg testers—ready to use when you get them. Five year guarantee—30 days trial. Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of \$13.90 is for both Incubator and Brooder and covers freight and duty charges. Send for FREE catalog today, or send in your order and save time. Write us today. Don't delay.

WISCONSIN INCUBATOR CO., Box 316, Racine, Wis., U. S. A.



International Harvester Cream Separators



THE I H C LINE GRAIN AND HAY MACHINES

Binders, Reapers
Headers, Mowers
Rakes, Stackers
Hay Loaders
Hay Presses

CORN MACHINES

Planters, Pickers
Binders, Cultivators
Ensilage Cutters
Shellers, Shredders

TILLAGE

Combination,
Peg and Spring-Tooth,
and Disk Harrows
Cultivators

GENERAL LINE

Oil and Gas Engines
Oil Tractors
Manure Spreaders
Cream Separators
Farm Wagons
Motor Trucks
Threshers
Grain Drills
Feed Grinders
Knife Grinders
Binder Twine

A DAIRY farmer who does not use a cream separator is losing up to \$15 per cow per year. Complete your dairy equipment by the purchase of an International Harvester cream separator—Lily, Bluebell or Dairymaid. These separators skim closely—leaving barely a drop of cream in a gallon of milk—and they will do it for years.

These machines are furnished with pulleys for the use of power. Belted to a small I H C engine, you have the best outfit it is possible for you to buy. Note the low supply can on I H C separators, the height of the milk spout which allows a 10-gallon can to be used for the skim milk, the strong frame with open base which can be kept perfectly clean, and the dozen other features which make these I H C machines the best.

Your local dealer should have one of these machines on sale. If he has not, write us before you buy and we will tell you where you can see one; also send you an interesting book on separators.



International Harvester Company of Canada, Ltd

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.;
St. John, N. B.; Quebec, P. Q.



parent in former days, when bottom lands were sufficient for the settlers, and it was natural that it was not realized that the water problem was one that required technical training to solve. More recently contentions over conflicting water rights had become serious and widespread and had aroused public sentiment to demand legislation.

Prior to 1909 men believed that all they had to do was to record a notice to take water, and it was theirs for ever, no matter how little land they had to use it on or whether they made due development. They might even have subdivided or sold their water holdings.

Mr. Ross referred to the impossibility in many cases of the individual settler bringing water on to his land, whereas by the combination of fifty or one hundred this was made feasible. Education along these lines was necessary in the province. They had stores of experience to draw on in the United States.

To form a public irrigation company a petition signed by landowners representing fifty per cent. of the value of the lands to be incorporated would be necessary. Then after careful survey and investigation the whole matter would be laid before the people of the district affected and a vote taken.

OTHER SPEAKERS

Other addresses were delivered on Fruit Growing and Marketing in the Yakima Valley by W. P. Sawyer, The Methods of the North Pacific Fruit Distributors, by H. C. Sampson, secretary to that organization; by E. Robinson, on the North-western Fruit Exchange; and by R. Robertson, of the Okanagan United Growers, Ltd.

Mr. Robertson sketched the growth of the cooperative movement in the province.

SALES METHODS

Mr. Sampson, equipped with facts to his fingertips, told of the five hundred thousand acres planted with fruit in the North-western States, which will come into bearing in twelve years, and of the dispositions they were making to market the one hundred and twenty-five thousand carloads. He laid down the principle that the individual grower cannot sell his own crop. Both the selling and buying of fruit wholesale are a life study, and unless the seller is equipped with reports and knowledge equal to those in the buyer's possession he must come off second best. He told of the power of his company over railways, who in certain districts, where there was no competition, put on unfair rates, and of how quickly these climbed down when told that retaliation would take place in Washington or some place where competition did exist. He told of the amount recovered for the growers for fruit damaged or ruined by the railways, and that within a few weeks, and he outlined what he believed would be the future of the company's career of usefulness.

ASIATIC EXCLUSION

The last day's proceedings witnessed a decision at last arrived at on the Asiatic question. On such an important matter it was felt that any representations made to the Government should have the weight of the whole association behind them. The resolution ultimately passed petitions, the Provincial Government to persuade the Dominion and Imperial Governments to total exclusion for the future of all Orientals from Canada, and that in the meantime relief should be given as far as possible to

BEES FOR SALE

For Sale — Early swarms at fall prices, ½ lb. bees \$1.00, 1 lb. bees \$1.50, f.o.b. here. Add price of Queen if wanted. Untested Italian Queens, 75c each, Tested Italian Queens, \$1.25 each. These are bred from best honey-gathering strain. No disease. Safe arrival and satisfaction I guarantee to any Express Office in Man., Ont. and Que., which has connection with Detroit, Mich. This is undoubtedly the best way for Northern honey-producers to increase and improve their stock. Delivery begins about April 5th. Capacity, 40 swarms per day. You will get your bees when wanted, or money back by return mail.

W. D. ACHORD, FITZPATRICK, ALA., U.S.A.



Bee Supplies Bees and Queens

Improved Model Hives
Sections Comb Foundation

Italian Queens

Bees by the Pound Packages
Etc., Etc.

EVERYTHING for the BEEKEEPER

Catalogue Free

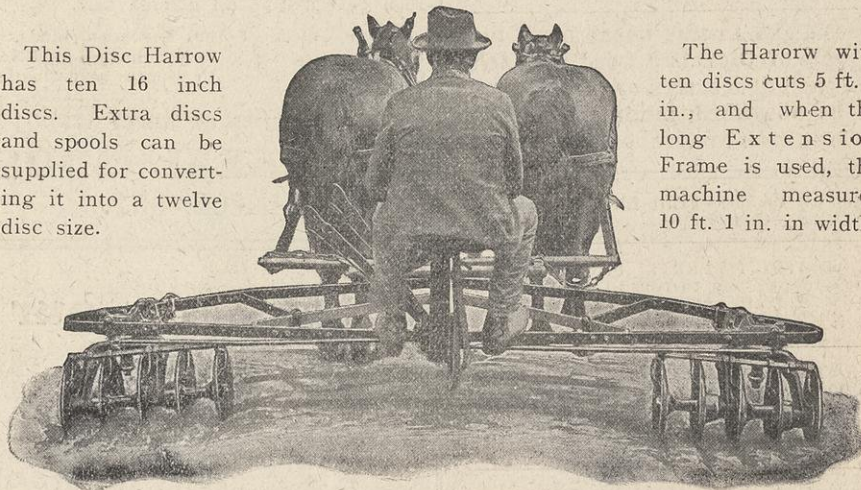
Highest Price paid for BEESWAX

F. W. JONES - BEDFORD, QUE.

MASSEY-HARRIS

Orchard Disc Harrow

This Disc Harrow has ten 16 inch discs. Extra discs and spools can be supplied for converting it into a twelve disc size.



The Harrow with ten discs cuts 5 ft. 6 in., and when the long Extension Frame is used, the machine measures 10 ft. 1 in. in width.

It is reversible—covers the roots or not, as you wish. The gangs are interchangeable in their position on the frame so as to throw the soil to or from the trees and vines.

It is adjustable to any depth, in the middle or at the ends, by means of gang hinges. Levers adjust each gang separately to any angle, regulating the amount of dirt thrown. In grape cultivation the Massey-Harris

**MASSEY-HARRIS
IMPLEMENTS FOR
THE FRUIT GROWER:
ORCHARD HARROWS
ORCHARD CULTIVATORS
SPRAY OUTFITS
VINEYARD PLOWS
SPRING TOOTH
HARROWS
GRAPE and BERR
HOES, Etc.**

cultivates all of the ground. A plow cannot do this. It is a good side-hill harrow. The steel frame is in one piece. Strong arches or yokes support the gangs; separate bearing boxes take up the friction.

We furnish as an extra attachment, a steel extension frame. With it the operator can cultivate under the trees, close to the trunks.

MASSEY-HARRIS CO., Limited

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MONTREAL MONCTON WINNIPEG REGINA SWIFT CURRENT
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Agencies Everywhere

BLACK CURRANTS

We have some excellent plants of the Black Naples variety, grown from the most productive patch in the district. Also some Lawton Blackberry plants.

Apply for prices.

J. E. HENRY & SON - WINONA, ONT.

PLOUGHS—Wilkinson

TRADE MARK

REGISTERED

U.S.S. Solf Centre Steel Moldboards, highly tempered and guaranteed to clean in any soil. Steel beams, steel landsides and high carbon steel couler. Clevises can be used either stiff or swing. Each plough is fitted especially with its own pair of handles—rock elm, long and heavy and thoroughly braced. The long body makes it a very steady running plough. Shares of all widths—specials for stony or clay land. The plough shown turns a beautiful furrow, with minimum draft and narrow furrow at finish. Ask for catalogue.

The Bateman-Wilkinson Co.
461 Symington Ave. Ltd.
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No. 3
Sod or
General
Purpose
Plough.
25 styles
to choose
from.

**FOR SALE AND WANTED**

Advertisements in this department inserted at rate of 3 cents a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 30 cents, strictly cash in advance.

ALL KINDS OF FARMS—Fruit farms a specialty.
—W. B. Calder, Grimsby.

NIAGARA DISTRICT FRUIT FARMS.—Before buying it will pay you to consult me. I make a specialty of fruit and grain farms.—Melvin Gayman & Co., St. Catharines.

RELIABLE HELP, SKILLED AND unskilled, supplied horticulturists and others. Canadian Employment Bureau, Proprietor member of B. G. A., London, England, 65½ James St. South, Hamilton, Ont.

ASK DAWSON. He knows.
IF YOU WANT to sell a farm consult me.
IF YOU WANT to buy a farm consult me.
I HAVE some of the best Fruit, Stock, Grain and Dairy Farms on my list at right prices.
H. W. Dawson, Ninety Colborne St., Toronto.

SALMON ARM, Shusway Lake, B.C. has the finest fruit and dairy land in B.C. No irrigation necessary; mild winters, moderate summers, no blizzards or high winds; delightful climate; enormous yields of fruit, vegetables and hay; good fishing; fine boating amidst the most beautiful scenery, and the Salmon Arm fruit has realized 25 cents per box more than other fruit in B.C. Prices of land moderate, and terms to suit. Apply to F. C. Haydock, Salmon Arm, B.C.

WANTED—Young Man, single, with some experience, as beekeeper, to begin about May 20th. Must be strictly temperate, industrious and willing to work hard in busy season. State age, experience and wages expected, with board supplied, in first letter.—Ewart McEvoy, Woodburn, Ont.

BEES wanted, up to 250 colonies. Particulars to Box 23, Fisherville, Ont.

WANTED — Empty top storey Hives (Langstroth); Extractor and Apiary equipment generally.—J. R. Black, Aurora, Ont.

BEES WANTED—Either with or without other equipment. Give full particulars to Wm. Weir, 34 Chester Ave., Riverdale, Toronto, Ont.

GLADIOLUS

AMERICA (pink), the leading commercial variety—\$1.50 per 100—express charges collect—mailing size, \$1.20 prepaid. TACONIC, Groff's best pink, Twice the price of America.

H. P. VAN WAGNER

R. R. NO. 5 HAMILTON, ONT.

Geraniums Geraniums

S. A. Nutt, John Doyle, Madame Barney, etc., 2½ inch pots, at \$3.50 per hundred.

Madam Sallerai at \$2.00 per hundred.

JOHN GOLBY, Florist

West Main Street - - GALT, Ont.

GLADIOLI

GROFF'S HYBRIDS are now more largely grown in the United States and Canada, than any other strain. They are in good demand in AUSTRALASIA, and English orders have nearly exhausted some varieties.

AMERICA (Groff's 119) stands easily at the head of commercial varieties.

PEACE, WAR, DAWN, BLUE JAY, LAVANDULA, PEACHBLOW, and others, will soon be found in all gladioli lists.

We try most of the European kinds, as they come out, but so far have found very few, that are likely to secure a permanent place.

CATALOGUES ON APPLICATION

CAMPBELL BROS.
SIMCOE, ONT.

**Increase your
PROFITS
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TRADE MARK

**Neutral Arsenate
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is safe, economical, and sure because it contains the maximum amount of arsenic which will combine completely with the lead. Write for descriptive folders and prices, before buying elsewhere.

THE
CANADA PAINT CO.
LIMITED

PAINT-VARNISH AND DRY COLOR
MAKERS-LINSEED OIL CRUSHERS
MONTREAL-TORONTO-WINNIPEG-CALGARY-HALIFAX
OXIDE MINES-RED MILL QUEBEC

what has become to white people an intolerable situation.

The following officers were elected: President, W. C. Ricardo; vice-president, Thos. Abriel, Nakusp; executive committee, R. M. Palmer, James Rooke, Grand Falls, F. D. Nicholson, W. S. Foggo; new directors, J. J. Thornton, A. J. Clarke, J. Reckie, Mr. Bulmer.

British Columbia

At a conference held in January the fruit growers of British Columbia and the United Farmers of Alberta considered a proposition to patronize one another and to handle each other's products. The British Columbia fruit growers were represented by W. S. Foggo, of Vernon, and Mr. Abriel of Nakusp, and the Alberta farmers by President Tregillus and Secretary Woodbridge, of the United Farmers of Alberta, and E. J. Fream, vice-president of the growers' association.

It was proposed that the Fruit Growers' Association of British Columbia and the Farmers' Association of Alberta should co-operate in marketing produce, and when the Alberta farmer wanted fruit he should purchase it from the British Columbia growers, and when the fruit growers wanted hay or grain they should secure it from the Alberta farmer.

Mr. J. E. Armstrong, M.P. for East Lambton, purposes obtaining legislation making it a criminal offence for employees of express companies to damage fruit by rough handling. Mr. Armstrong also proposes to amend the Fruit Marks' Act so as to make fruit inspectors cargo inspectors also at shipping points.

PRIZE DAHLIA ROOTS

15 for one dollar by mail prepaid. 15 larger roots one dollar by express, not prepaid. Low rate to Horticultural Societies who give Dahlias as premiums.

GEORGE E. EGERTON

112 CHALMERS ST. - - GALT, ONT.

Roses Roses

Irish, Dutch and American. Hybrid Perpetual, Hybrid Teas and Climbing. Strong 2 year field-grown bushes that will bloom the first year—none better, none cheaper.

ALSO

Trees, Shrubs, Vines, Perennials

Get Catalogue

A. W. GRAHAM
St. Thomas - Ontario.

Remember

Next issue will be our big Spring Number. Your advertisement in it will mean dollars to you this Spring.

Copy should be sent in early,
(See Publisher's Desk)

Planet Jr



**No. 3 Planet Jr
Hill and
Drill Seeder**

Sows all garden seed accurately in hills and drills. Sows in a narrow line making wheel hoe cultivation quick and easy. Sows in hills 4, 6, 8, 12 or 24 inches apart. The seed index, graduated for both hills and drills, is always in plain view.

Planet Jr Farm and Garden Implements cut down the cost of cultivation, lighten labor, and give better results. \$2 to \$100, according to requirement. Fully guaranteed.

FREE Our new 72-page illustrated catalogue describing 60 implements for all kinds of cultivation. Write for it today.

S L ALLEN & CO
Box 1106G Philadelphia

Write for the name of our nearest agency

**No. 11 Planet Jr
Double Wheel
Hoe, Cultivator, Plow
and Rake**



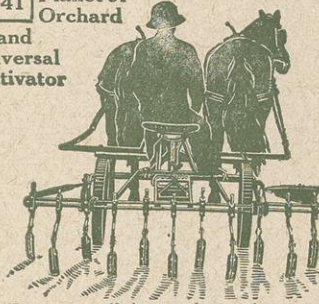
The greatest cultivating tool in the world for the grower of garden crops from drilled seed. The plow opens furrows for manure, seed, etc. and can be reversed for covering. The cultivating teeth are adapted for deep or shallow work and for marking out. Crops can be worked both sides at once until 20 inches high.



**No. 4 Planet Jr
Combined
Hill and Drill Seeder,
Wheel Hoe, Cultivator
and Plow**

This is a practical every day time-, labor-, and money-saver for the woman in tending her vegetable garden as well as for the market-gardener. It combines in a single implement a capital seeder, an admirable single wheel hoe, furrower, wheel cultivator, and a rapid and efficient wheel garden plow. Sows all garden seeds in drills or in hills.

**No. 41 Planet Jr
Orchard
and
Universal
Cultivator**



The most efficient tool ever invented for cultivating vineyards, hopyards, and orchards of apple, citrus, olive and groves of orange, walnut, etc. It is equipped with fruit tree shield and side hitch for low trees. Carries teeth, sweeps, furrowers, plows, etc. Works deep or shallow and cuts from 4 to 6½ feet wide. Convertible into disc harrow and alfalfa cultivator.

**Planet Jr 12-tooth
Harrow, Cultivator
and Pulverizer**



An invaluable tool in the market-garden, truck and strawberry patches. Its 12 chisel-shaped teeth cut out all weeds, stir and mellow the soil and leave the ground in the finest condition without throwing dirt on plants. Can be set exactly to desired depth making delicate work easy.

Apple Shippers

Read this before disposing
of your Apples



IT'S ONLY NATURAL to give your own property **THE PREFERENCE** — Blood is thicker than water.

Having no bought apples of our own, we are in a position to look after your interests. Consign

your apples to us—we can take care of them for you.

Have ample storage to hold for improved market.

Dawson-Elliott Co.

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PHONE MAIN 1471

For the Land's Sake

Use the best Manure
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GOOD CROPS

For Nurseries, Fruit Growers
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Sure Growth Compost

Makes poor land fertile and keeps fertile
land most productive.

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Say you saw this ad. in The Canadian Horticulturist

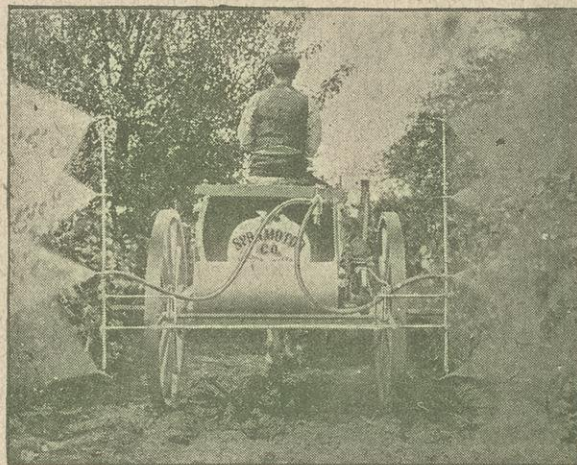
The SPRAMOTOR Does All That is Humanly Possible for Growing Things!

START an orchard, a vineyard, a field of potatoes, or anything that grows, and let it take care of itself. That's one way of being a grower. It may seem strange to you who read this, but there are still some men who go blindly ahead trying to achieve the impossible—trying to raise a perfect crop from a neglected field or orchard.

Here's another way:

Spray your plants, vines or trees with the efficient SPRAMOTOR. Did you ever consider that trees, shrubs, vines and plants—with few exceptions—are quite unequipped by Nature to combat their many foes? They are the legitimate prey of tunnelling insects, burrowing grubs, blight, worms, canker, scale, rust, lice, and the countless pests and parasites that house in and upon them.

The man who grows fruit trees, vines or row crops for a living should be sufficiently alive to his own interests to supply the protection which Nature has withheld, and so bring his crop to the pitch of perfection.



Vineyard Spramotor Killing "Rot"

What Excuse Have You for Not Owning a SPRAMOTOR?

If you are a small grower, let us tell you that we make reliable, durable, efficient SPRAMOTORS from \$6 up. If you are in the business on an extensive scale, remember that we make horse-power and gasoline engine SPRAMOTORS up to \$350.



Spraying for a Big Fruit Crop

Model "C"
Gasoline
SPRAMOTOR

FREE

Take advantage of this! Write us stating what you consider are your spraying requirements. This will put you under no obligation whatever. By return mail we will send you our valuable treatise (illustrated) on "Crop Diseases," their prevention and cure, together with the SPRAMOTOR catalogue, describing our whole line. Write while you are at this page!

WE MAKE SPAMOTORS—NOTHING ELSE!

For years, our best efforts have been directed to the one goal of producing **the best spraying outfit sold**. We have won over a hundred first awards and gold medals with SPRAMOTORS at different exhibitions, fairs and contests. SPRAMOTOR got the first place at the Canadian Government Spraying Contest, Grimsby, Ont., out of eleven machines entered. That means something—and the Canadian Government has used this machine ever since.

Perfect Spraying is What You Want

and only a perfect machine will do that kind of spraying. Don't you think that a machine that took first place at Government tests in competition with eleven other makes, is as near perfect as has been produced? A SPRAMOTOR—at any price—will be immeasurably superior to any other at a similar figure. Why not have the best there is when it costs no more? You can't afford to take chances and do "hit-or-miss" spraying.

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