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Cleanings in Bee Culture
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THE CANADIAN HORTICULTURIST & BEEKEEPER

PETERBORO, ONT.
MAY, 1914

VOLUME 37. No 5
\$1.00 a Year

ROSES

THAT BLOOM ALL SUMMER

Hybrid Tea, the best varieties.

Baby Rambler, the best varieties.

ROSES THAT BLOOM IN JUNE AND JULY

Hybrid Perpetual, 20 best varieties.

Climbing Roses, 15 best varieties.

FLOWERING SHRUBS

All the Leading Varieties.

Big full sized bushes.

PERENNIALS

100,000 to choose from.

Summer Flowering Bulbs.

Catalogue on application

J. GAMMAGE & SONS, LTD. - LONDON, ONT.



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.

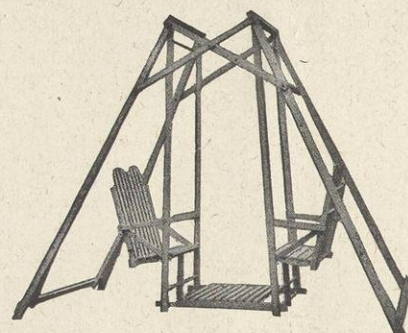
Have ample storage to hold for improved market.

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A Real Summer Need The Stratford Lawn Swing



Just the thing for your Lawn or Garden

It is fine for the youngsters and a source of enjoyment for the grown-ups too. It is inexpensive and helps you get the best of a summer's outdoor comfort.

**Made in Three Sizes at Three Prices
Built Solid and Strong**

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The Stratford Mfg. Co. Limited
Stratford, Canada

We make all kinds of Summer Furniture for Lawn and Verandah

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SPECIAL 10% DISCOUNT WILL BE ALLOWED OFF ALL THESE PRICES

Import your Bulbs and Perennials Direct from Holland at $\frac{1}{2}$ to $\frac{3}{4}$ of Regular Store Prices.

EARLY SINGLE TULIPS			Doz.	100	1000
MIXED—Fine mixture of all colors			\$ 10	\$ 40	\$ 3.00
SUPERFINE MIXED—All colors, specially made up			10	50	4 00
L'IMMACULEE—Pure White	D	10	60	4 80	
*LA REINE—Blush White	M	10	55	4 40	
*POTTEBAKER—Pure White, very large flower	T	20	1 40	13 00	
*CHRYSOLORA—Pure Golden Yellow	M	10	65	5 60	
*YELLOW PRINCE—Bright Yellow, sweet scented	D	15	80	7 20	
*GOLD FINCH—Pure Golden Yellow	T	15	90	8 00	
POTTEBAKER—Yellow	T	15	90	8 00	
*THOMAS MOORE—Orange Red, scented	M	15	70	6 00	
*ROSE GRIS DE LIN—Pink shaded, White at base	D	15	60	4 40	
*COTTAGE MAID—Dark Rose, shaded White	D	15	55	4 60	
BIZARD VERDICT—Carmine Red, gold striped	D	10	45	3 60	
*DUCHESS DE PARMA—Scarlet bordered Yellow	T	15	35	7 25	
*KEIZERKROON—Bright Red with Yellow edge	T	20	1 25	11 25	
*IOOST VON VONDEL—Cherry Red feathered White	D	20	1 40	13 00	
ARTUS—Dark Scarlet	D	12	50	4 00	
CRIMSON KING—Bright Crimson	D	12	60	5 25	
DUSART—Dark Scarlet, large flower	D	15	95	8 50	
*POTTEBAKER-SCARLET—Bright Scarlet	T	20	1 10	10 00	
*CRAMOISE BRILLIANT—Brilliant Red, large flower	T	15	85	7 50	
*SARAH BERNHARDT—Rosy Lilac, unique color, fine for exhibition	M	90	7 00	65 00	
EARLY DOUBLE TULIPS			Doz.	100	1000
MIXED—Fine mixture, all colors			8	50	4 00
SUPERFINE MIXED—All colors, specially made up			15	70	6 00
*MURILLO—Blush White	D	10	65	5 50	
ROSE BLANCHE—Pure White	D	15	85	7 25	
*SALVATOR ROSA—Fine deep rose	M	20	1 25	11 00	
*COTRONE D'OR—Old Gold Yellow	T	25	1 85	17 60	
*TITIAN—Red bordered with Gold	M	25	1 50	15 00	
RUBRA MAXIMA—Dark Red	D	20	1 05	9 60	
*IMPERATOR, RUBRORUM—Fine bright scarlet	M	25	1 60	14 50	
*VUURBAK—Dazzling Scarlet	D	25	1 80	16 00	
PURPLE CROWN—Purple Red	M	15	90	8 00	
LATE SINGLE TULIPS			Doz.	100	1000
MIXED—Singles, late, all colors			10	60	5 00
RYBLOEMS—Mixed			10	80	7 00
RYBLOEMS—Mixed Rose on White Ground			20	1 10	10 00
RYBLOEMS—Mixed Violet on White Ground			20	1 10	10 00
BIZARDS—Mixed			15	70	6 00
DARWINS—LA CANDEUR (White Queen)—Pure White			40	2 60	25 00
DARWINS—BARON DE LA TONNAYE—Vivid Rose			25	1 80	16 00
DARWINS—CLARA BUTT—Bright Salmon Rose			25	1 80	16 00
DARWINS—GRETCHEN—Soft Flesh Rose			20	1 10	10 00
DARWINS—MADAME KRELLAGE—Bright Rose, light			35	2 20	20 00
DARWINS—MRS. POTTER PALMER—Glowing Purple			40	2 80	26 00
DARWINS—THE SULTAN—Glossy Maroon Black			20	1 20	11 00
DARWINS—Superfine mixed			15	90	8 00
DARWINS—In 10 named sorts				1 50	13 00
GESNERIANA—Scarlet with Blue base			20	1 10	9 50
PARROTS—Mixed in all colors			10	60	5 00
PARROTS—Cramoise Brilliant Red with Black Centre			15	70	6 00
PARROTS—CONSTANTINOPLE—Light Red			15	70	6 00
PARROTS—Luteo Major, large Yellow			15	70	6 00
PARROTS—Perfecta, Yellow and Red			15	70	6 00
PICOTEE—White shaded Rose			15	80	7 00
LATE DOUBLE TULIPS			Doz.	100	1000
MIXED—Double, late, all colors			15	90	8 00
YELLOW ROSE—Deep Yellow			20	1 00	9 00
PAEONIEGOLD—Scarlet with Yellow Stripe			20	1 00	9 00
PAEONIERED—Red			20	1 00	9 00
CARMEN SYLVA—Rose			15	85	7 50
SCILLAS			Doz.	100	1000
SIBERICA—Sky Blue			15	70	6 00
SIBERICA—Alba—Pure White			15	90	7 00
CROCUS					
COMMON SIZE—White, Striped, Blue or Yellow			15	40	2 50
KING OF THE WHITES—Largest size			15	80	6 00
KING OF THE STRIPED—Largest size			15	80	6 00
KING OF THE BLUES—Largest size			15	80	6 00
LARGE YELLOW—2nd size			10	50	4 00
LARGE YELLOW—Mammoth size			15	75	6 65
SNOWDROPS			Doz.	100	1000
GALANTHUS ELWESI—Pure White			10	50	3 60
GALANTHUS NIVALIS—Double White			20	1 20	10 00
CHINODOXA			Doz.	100	1000
LUCILEA—Blue White Eye			15	80	7 00
SARDENSIS—Dark Sky Blue			15	85	7 50
FREESIAS			Doz.	100	1000
*REFRACTA—ALBA			20	1 20	10 00
REFRACTA—ALBA—Mammoth bulbs			25	1 60	14 00
SINGLE OR DOUBLE BEDDING HYACINTHS			Doz.	100	1000
WHITE SHADES—Large size bulbs			35	2 40	22 00
PINK SHADES—Large size bulbs			35	2 40	22 00
RED SHADES—Large size bulbs			35	2 40	22 00
BLUE SHADES—Large size bulbs			35	2 40	22 00
MIXED—All colors			35	1 95	22 00
1st SIZE NAMED SINGLE HYACINTHS			Each.	10	100
*L. INNOCENCE—Pure White			8	67	5 60
*GRAND BLANCHE—Blush White			8	67	5 60
*GERTRUDE—Pink			8	67	5 60
*GENERAL PELISSIER—Brilliant deep red			Each	10	100
*KING OF THE YELLOWS—Bright Yellow			8	67	5 60
*MARCHIONESS OF LORNE—Orange			8	80	7 00
*REGULUS—Light Blue			8	80	6 50
*BARON TUYLL—Dark blue			8	67	5 60
*LORD BALFOUR—Dark Lilac			8	70	6 50
*SIR WM. MANSFIELD—Bright Purple			8	67	5 60
1st SIZE NAMED DOUBLE HYACINTHS			Each	10	100
*ISABELLA—Pure White			8	70	6 00
*GROOTVORST—Fine Blush Pink			8	70	6 00
*NOBLE PAR MERITE—Red			8	70	6 00
*GOETHE—Light Yellow			8	70	6 50
*BOUQUET DE ORANGE—Reddish Orange			8	70	6 50
*GENERAL KOHLER—Bright blue			8	80	7 00
LILIUM			Each	Doz.	100
CANDIDUM—White, large bulbs			6	65	5 00
EARLY FRENCH ROMAN HYACINTHS			Each	Doz.	100
*WHITE—Large size bulbs			40	2 80	
*WHITE—Mammoth size bulbs			50	4 00	
*BLUE—Large size bulbs			30	2 00	
*ROSE—Large size bulbs			30	2 00	
GROWN IMPERIALS			Each	Doz.	100
FRITTILLARIA—Mixed			10	1 00	8 00
NARCISSUS OR DAFFODILS			Doz.	100	1000
*POETICUS ORNATUS—Pure White, Orange Cup			45	3 50	
*POETICUS ORNATUS—Double Noses			12	70	6 00
*LEEDSII TYPE—Pure White			55	4 50	
Trumpet Varieties			Doz.	100	1000
EMPRESS—White and Yellow, 1st size			25	1 30	12 00
EMPRESS—White and Yellow, double noses			30	1 80	17 00
*EMPEROR—Yellow and Yellow, 1st size			20	1 00	9 00
*EMPEROR—Yellow and Yellow, double noses			30	1 50	14 00
*PRINCEPS—First size			50	4 00	
*PRINCEPS—Double noses			15	80	6 00
FINE MIXTURE—Trumpets only			50	4 00	
FINE MIXTURE—All sorts and colors			40	2 50	
DOUBLE DAFFODILS			Doz.	100	1000
ALBO PLENO—White, sweet scented, strong bulbs			15	80	6 00
*QUEEN OF PHOENIX—Pure white			45	3 00	28 00
ORANGE PHOENIX—White and Orange			20	1 20	10 00
*VON SION—Golden Yellow, common size			20	1 20	10 00
*VON SION—Golden Yellow, 1st size			25	1 60	15 00
*VON SION—Golden Yellow, mammoth size			35	2 40	22 00
Mixture of Double Daffodils			70	6 00	
POLYANTHUS NARCISSUS			Doz.	100	1000
*PAPER WHITE—Grandiflora, reg. size bulb			20	1 20	
*PAPER WHITE—Grandiflora, mammoth bulbs			25	1 80	
*MIXED VARIETIES			15	1 00	
ELIVIRA—White with Yellow eye, Hardy variety			30	2 00	16 00
IRENE—Light Yellow with Orange Eye, Hardy variety			60	4 00	32 00
JONQUILS			Doz.	100	1000
*Single, Yellow, Sweet Scented			10	50	4 00
*Double, Yellow, Sweet Scented			30	2 00	
IRIS			Doz.	100	1000
SPANISH—Superfine Mixture			25	1 60	
SPANISH—Blue, White or Yellow			45	3 50	
ENGLISH—Fine Mixed			15	1 00	9 00
The following cannot be shipped early and do not arrive till middle or late in November. They usually arrive in time to plant out doors; otherwise they can be buried in the ground or put in earth.					
LILIUM—Lancifolium Roseum—White with soft Pink.			Each	Doz.	100
" Lancifolium Rubrum—Crimson and White			1 00	7 00	
" Lancifolium Album—White			1 50	12 00	
" Auratum—White, Yellow and Red Spots			1 60	12 00	
" Tigrinum—Double Tiger Lily			60	3 00	
ANEMONES—Japonica Whirlwind—Perennial			35	2 00	
IRIS—German Iris—Fine Mixed			35	2 00	
IRIS—Japanese—Fine Mixed			50	3 00	
PERENNIAL PHLOX—Choice Mixed Varieties			8	65	4 50
PAEONY—Sinensis—Double White			15	1 30	9 00
" Double Pink			15	1 20	8 00
" Double Red			15	1 20	8 00
" Double Mixed, all varieties			1 00	6 00	
" Canary—White with Yellow Centre			30	3 00	20 00
" Charles Leveque, pure Soft Pink, very large			30	3 00	20 00
" Charlemagne, brilliant Deep Rose, large			30	3 00	20 00
" Duchess de Nemours—Double, Pure White, extra large			25	2 60	16 00
" Festiva Maxima—Double, Pure White, tipped Carmine			30	3 00	20 00
DELPH. (Perennial Larkspur)—Choice Mixed Var.			8	65	4 50
ORIENTAL POPPY—Royal Scarlet			8	65	4 50
HELLEBORIS—Niger—Christmas Rose			30		
CLEMATIS—Henryi—White, large flowered			35	4 00	
" Hybrid Splendide—Red flowered			35	4 00	
" Jackmani—Purple flowered			35	4 00	
TUBEROUS BEGONIA			Doz.	100	1000
In separate colors, White, Salmon, Pink, Dark Rose, Scarlet, Crimson, Copper, Orange, Yellow, or Mixed.			Single 40	3 00	Double 60 4 00

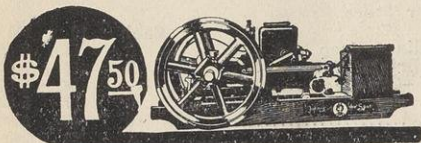
All 25 of one kind at 100 Rate; 250 at 1,000 Rate.

Abbreviations—D Dwarf, M Medium, T Tall, * in front of name suitable for forcing.

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This glorious and absolutely distinct Annual Climber is the result of a cross between the Cypress Vine and Scarlet Morning Glory.

It is considered the most beautiful and brilliant annual climber ever sent out. It is a strong and rapid grower, attaining a height of 30 feet and more, with beautiful fern-like, lacinated foliage, and literally covered with a blaze of circular fiery cardinal-red flowers from midsummer until frost. Flowerse are about 1½ inches in diameter and are borne in clusters of 5 to 7 blooms each, and wherever it has been grown it has attracted more attention and favorable comment than any other plant in the garden. Like other Ipomoeas, it delights in a warm, sunny situation and good soil. The seed may be started indoors in March or April, but it is best to wait until the weather gets warm and settled and then sow out of doors. In either case it is well to file or cut through the hard outer shell of the seed, or steep in warm water until they begin to swell, which greatly assists in a free and quick germination. If sown in cold or wet ground, the seed is liable to rot.

Packets containing about 20 Seeds, each 30c. 4 Packets, \$1

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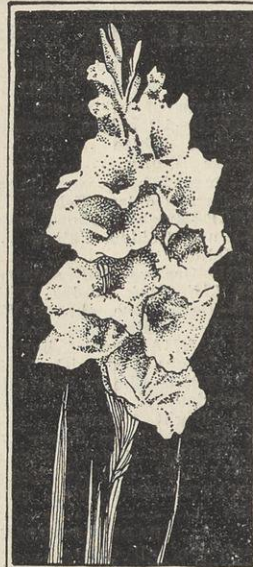
Ordinary Varieties—Mixed 10c. each, 3 for 30c, \$1.00 for 1 dozen.

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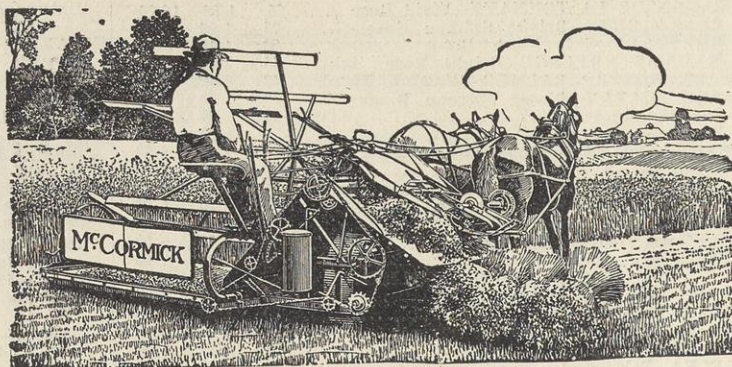
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Established 1850



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For Eastern Canadian fields the McCormick binder is built with a floating elevator which handles varying quantities of grain with equal facility. The binder guards are level with the bottom of the platform so that when the machine is tilted to cut close to the ground there is no ledge to catch stones and trash and push them ahead of the binder to clog the machine. These are features you will appreciate.

The McCormick local agent will show you the machine and demonstrate its good features to you. See him for catalogues and full information, or, write the nearest branch house.

International Harvester Company of Canada, Ltd

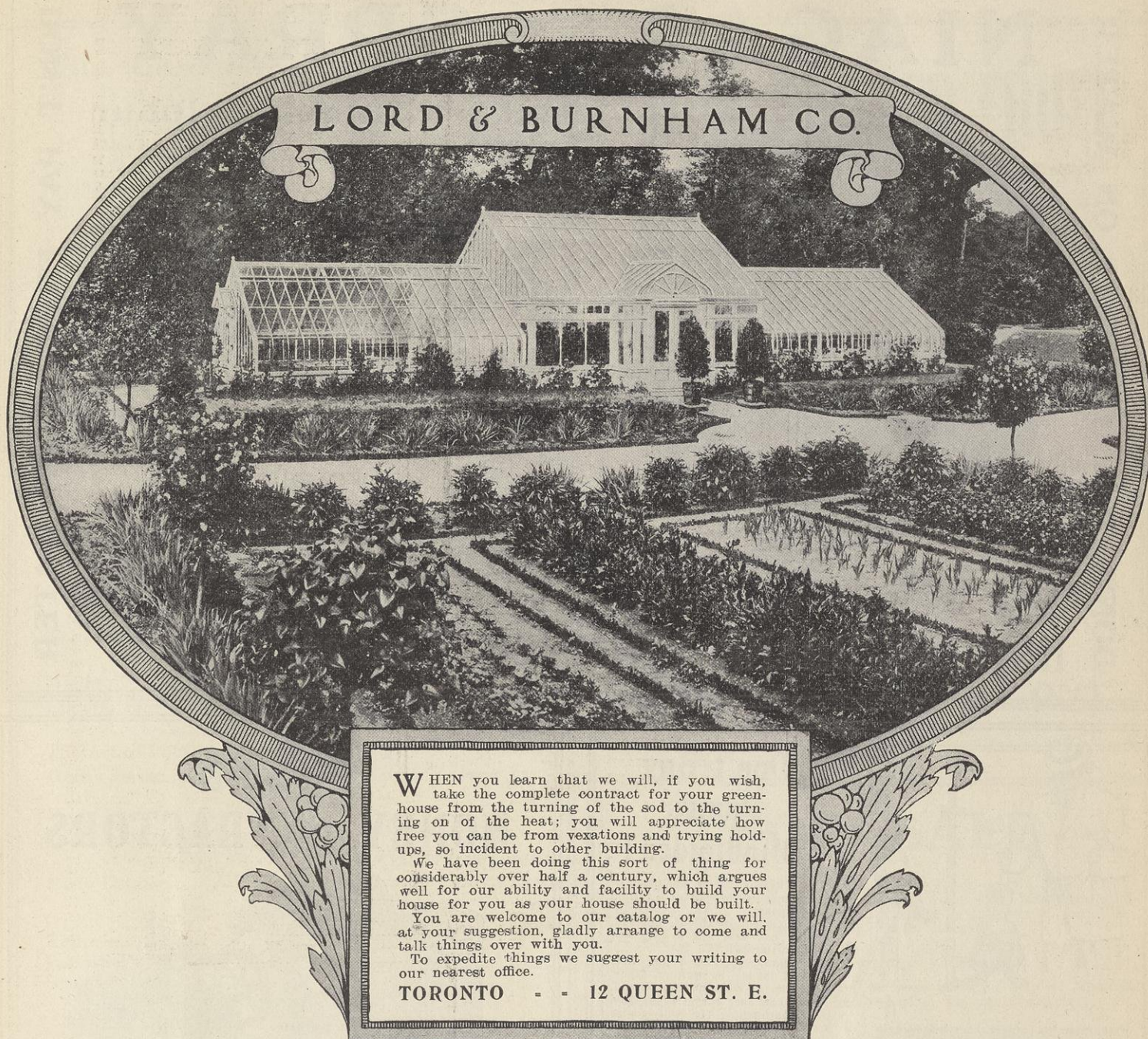
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These machines are built at Hamilton, Ont.





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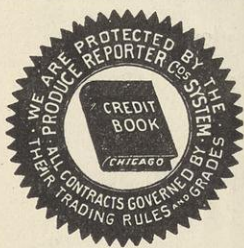
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We have been doing this sort of thing for considerably over half a century, which argues well for our ability and facility to build your house for you as your house should be built.

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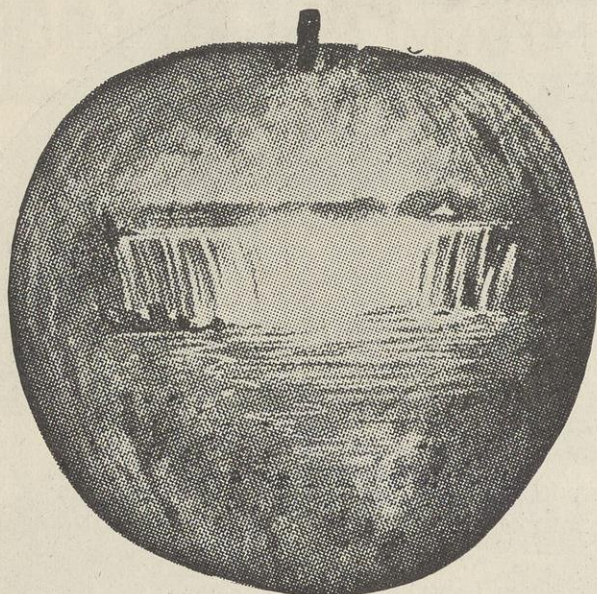
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The high grade kind. That mixes easiest with water. Stays mixed with a minimum amount of agitation. Carries the highest analysis of Arsenic oxide. Does not burn foliage, and has a hundred per cent weight in every package.

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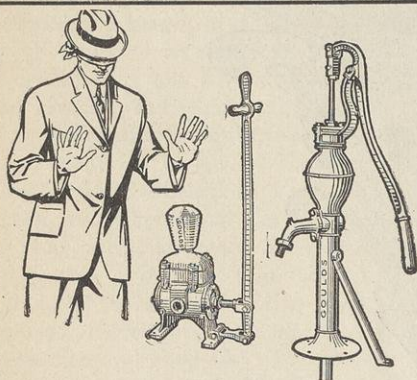
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RELIABLE
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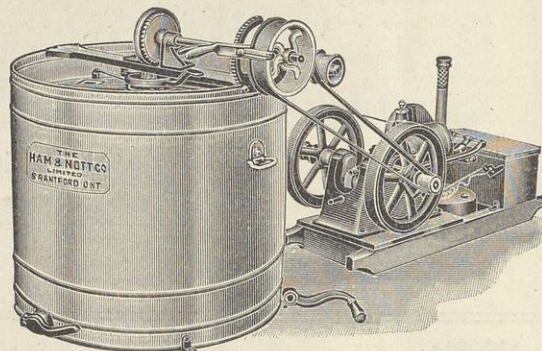
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THE HAM & NOTT COMPANY
BRANTFORD, ONT. **LIMITED**

The Canadian Horticulturist

Regular Edition

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No. of bars	STYLE Height inches	Uprights inches apart	Spacing of Horizontals in inches	PRICES		
				Old Ont. per rod	New Ont. and Que.	Maritime Prov.
4	30	22	10, 10, 10	\$0.16	\$0.18	\$0.19
5	37	22	8, 9, 10, 10	.18	.20	.21
6	40	22	6 1/2, 7, 8 1/2, 9, 9	.21	.23	.24
7	40	22	5, 5 1/2, 7, 7 1/2, 8	.23	.25	.26
7	48	22	5, 6 1/2, 7 1/2, 9, 10, 10	.23	.25	.26
8	42	22	6, 6, 6, 6, 6, 6, 6	.26	.28	.29
8	42	16 1/2	6, 6, 6, 6, 6, 6, 6	.28	.30	.31
8	47	22	4, 5, 5 1/2, 7, 8 1/2, 9, 9	.26	.28	.29
8	47	16 1/2	4, 5, 5 1/2, 7, 8 1/2, 9, 9	.29		
9	48	22	6, 6, 6, 6, 6, 6, 6	.29	.31	.32
9	48	16 1/2	6, 6, 6, 6, 6, 6, 6	.31	.33	
9	51	22	4, 4, 5, 5 1/2, 7, 8 1/2, 9, 9	.29	.31	
9	51	16 1/2	4, 4, 5, 5 1/2, 7, 8 1/2, 9, 9	.31		
10	48	22	3, 3, 3, 4, 5 1/2, 7, 7 1/2, 8	.31	.33	
10	48	16 1/2	3, 3, 3, 4, 5 1/2, 7, 7 1/2, 8	.33		
10	51	16 1/2	3, 3, 3, 4, 5 1/2, 7, 8 1/2, 9, 9	.33		
10	51	22	3, 3, 3, 4, 5 1/2, 7, 8 1/2, 9, 9	.31	.33	
11	55	16 1/2	3, 3, 3, 3, 4, 5 1/2, 7, 8 1/2, 9, 9	.36		

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No. 9 Top and Bottom, and No. 12 High Carbon Horizontals between; No. 12 Uprights; No. 11 Locks (Maritime Province Prices of Medium Weight and Special Poultry Fences include painting)

5	36	16 1/2	8, 8, 10, 10	.18	.19	.22
6	36	16 1/2	6, 7, 7, 8, 8	.20	.21	.24
6	42	16 1/2	7, 7, 8, 10, 10	.20	.21	.24
7	42	16 1/2	6, 6, 7, 7, 8, 8	.22	.24	.27
7	26	.8	3, 3, 4, 5, 5, 6	.23	.25	.28
8	48	16 1/2	4, 5, 6, 7, 8, 9, 9	.26	.28	.31
9	36	12	3, 3, 3, 4, 5, 6, 6, 6	.27	.29	.32
9	50	16 1/2	3, 4, 5, 6, 7, 8, 9, 9	.28	.30	.33
10	54	16 1/2	3, 3, 4, 5, 6, 7, 8, 9, 9	.30	.32	.35

SPECIAL POULTRY FENCING

No. 9 Top and Bottom, Intermediate No. 13. Uprights 8 inches apart.						
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20	60	8	Close Bars	.47	.49	.52

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48 13-ft. op'ng	4.25	4.45	4.45
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WALK GATE, 43 in. high, 3 1/2 ft. opening	2.35	2.35	2.35
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The Canadian Horticulturist

Vol. XXXVII

MAY, 1914

No. 5

The New Soluble Sulphur Spray

LEADING orchardists in Canada are interested in the new spray mixture Soluble-Sulphur. In last issue of *The Canadian Horticulturist* appeared an article by Prof. L. Caesar, Provincial Entomologist, Guelph, Ont., advising its use this year only in an experimental way. In the same issue Mr. J. G. Mitchell, of Clarksburg, Ont., the well-known fruit grower and manager of the Georgian Bay Fruit Growers' Association, who used it in his orchard last year, advocated its use strongly.

Writing in "Better Fruit," F. A. Frazier, of Portland, Oregon, an authority on apple culture, says regarding it:

Soluble Sulphur is a compound made by melting under high degree of heat in specially designed furnaces, of sulphur and soda (not caustic soda), resulting in a soluble powder fifty-seven to sixty per cent sulphur. All sulphur in solution is caustic in a certain sense. The sulphur is simply more active in the solvent condition. The caustic property of soluble sulphur is due only to the sulphur in solution and not to the solvent agent. Much loose talk has been indulged in pertaining to things caustic. No properly made sulphur spray ever injured a tree. Sometimes the fruit or foliage has been burned, but in most cases such burning is because of previous fungus infection and injury admitting the spray to the wounds caused, or a devitalized condition of the tree where it does not have normal power of resistance. Soluble Sulphur is sometimes spoken of as being more caustic than lime-sulphur. What is really meant is that there is a greater spray value to a given quantity.

All contact sprays in general use of any value have the caustic or burning quality. The virtue of crude oil, as a scale spray, over the lime-sulphur is because of its greater burning properties. That is why crude oil can not be safely used on tender trees or foliage which together with its gumming and pore-filling characteristics has rendered it unsafe as a tree spray for continued use. Lime-sulphur Solution re-acts very rapidly in presence of the atmosphere (returns to its solids), thus withdrawing from action a large portion of sulphur.

A solution of soluble sulphur does not re-act in the same way. The tendency is to spread and penetrate until evaporation

of water leaves the finely divided sulphur thoroughly spread over the surface and effectually carried into the scale crusts. Thus a given quantity of Soluble Sulphur spray will go farther in effective work than the same quantity in the old time lime-sulphur way.

In soluble sulphur the perfect spreading quality prevents the concentration of spray in drops, so when used in proper proportions it does no harm to the most tender plants. Soluble Sulphur is, therefore, not only a superior scale spray, but a very effective and economical scab spray. There is also a valuable feature in that the trees assimilate very readily the sulphur in this form, thereby producing a greater vigor and extending to a better coloring of fruit. Soluble sulphur can be safely applied at winter strength when the fruit leaves of apple trees are the size of a squirrel's ear. This combines the winter strength spray with the first scab spray and at this time also the aphids are more susceptible to control.

Sulphur, even the old time home-boiled and later the concentrated solutions, has been an element of no small value to the western orchards through the assimila-

tion by the trees. The orchardists of the east know this truth better because of the comparisons which they have observed between sulphur orchards and those other-wise sprayed or unsprayed. If there is one factor above another to which the success of the western orchards can be attributed, it is the thirty-odd years' use of the sulphur sprays. In the last six or seven years the same thing has been the greatest single factor which is bringing eastern orchards up to the standard of the much and justly famed western orchards. Should the western orchardist ever forget what he owes to the sulphur sprays, just that soon he stands aside while the east passes him on the way to market with the high-grade fruit.

The economy of soluble sulphur is apparent, one hundred pounds being equal in effective value to fifty-seven gallons of thirty-three degrees lime-sulphur solution. As to the efficiency, results count for more than far-fetched theories. Having been under the closest investigation for three years, we find it used exclusively on many orchards of two or three hundred acres, the equivalent of fifteen thousand barrels of solution being used out

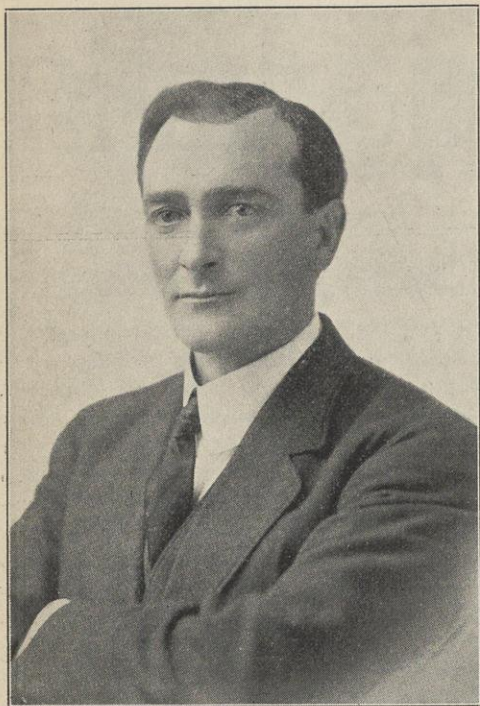


Golden Russets in Bloom : Orchard of W. H. Gibson, Newcastle, Ont.

These Russets were fifteen years planted and averaged four barrels to a tree. This variety is in great demand on the English market and should be more extensively grown where the soil is suitable.

Pears and Pear Culture

A. W. Cook, O.A.C., Guelph, Ont.



Mr. D. Johnson, Forest, Ont.

The announcement that Mr. Johnson has been appointed to the newly created position of Dominion Fruit Commissioner has met with general approval. Note reference to Mr. Johnson published on page 133.

of the eastern factories in 1913. In point of convenience, the elimination of the heavy barrel with the high freight and haulage charges, the leakage, freezing, and crystallization are all elements which any fruit grower will appreciate.

Scientific investigation is always slow. Progressive spray manufacturers employing the best chemical engineers obtain able, and the progressive fruit growers bent upon results, cooperating with the experiment stations with their equipment for research work, are right along bringing efficiency up to the minute.

Soluble Sulphur is a true spray efficiency up to the minute. The combination of the materials for spray purposes and the process of making are recognized as new and valuable, after most thorough investigation by the United States and Canadian patent offices and letters patent have been issued. Neither the discovery of the elements nor the fact that they would combine and form a soluble material is claimed, but the obstacles which have halted previous efforts to produce in a practical way a practical spray have been overcome by the invention of the soluble sulphur.

By cultivating early in the season fruit is better matured to a marketable size, and better coloring is secured; early cultivation also induces the fruit buds for next year's crop to form. The tree will grow with a steady, healthy growth, holding the sap at the top of the tree for the sustenance of the fruit buds. Early cultivation conserves the moisture.—W. T. Macoun, Ottawa.

PRUNING pears must be done with the idea of securing fruit buds near centre of tree. This alleviates the tendency of large limbs to break under the strain of their crop. Remember to disinfect all large wounds, that are the result of pruning or other causes, with lime-sulphur solution or some other disinfect. Take the greatest care to thoroughly treat the pruning tools while going from one tree to another. If this is done it does not leave an opportunity for this disease to gain a foot hold in the tree.

THIN THE FRUIT

When the tree reaches maturity and comes into the bearing state there can be a considerable amount of time saved in the thinning of the fruit by pruning off the fruit spurs. There is one disadvantage in this method when the orchard is located in a section that is known to have late frosts. As the pruning should be done before the leaves start there is apt to be enough fruit spurs left on the tree that has been late in maturing to give a yield of fruit while if no thinning had been done there probably would have been a light crop of fruit. However, taking into account this one disadvantage, pruning can be and should be practiced more throughout Ontario than it is. The pear, like many other varieties of fruit, can be made to yield more regularly by regular, systematic pruning and the thinning of the fruit each year.

The cultivation of the pear is very similar to that of the apple. Cultivation should commence as early in the spring as it is possible to do so. Cultivation should be very thorough and done systematically. It is very essential to keep a dust mulch at the surface to maintain the necessary moisture for proper plant and fruit development. As all fruits are composed mostly of water, the necessity of maintaining the soil moisture will at once be seen. This is the case in practically all orchards. The humus can to a large extent be enlarged by the use of cover crops. Among the best cover crops we have vetch, rye, rape, turnips and winter oats. The rye and vetch are sown in the later part of August so as to attain a good heavy crop. After this is ploughed in during the spring it is generally followed by rape or summer turnips.

In cultivating the orchard one should not continue it later than the latter part of June for the southern counties. If cultivation is kept up it induces large twig growth. If a high color is desired, this is a serious handicap. There has been a feeling amongst fruit growers in Ontario that certain chemical fer-

tilizers would produce highly colored fruit. From experiments conducted by the Ontario Agriculture College, it has been found that very little of the color is derived from the use of fertilizers. If one were to alternate the use of barnyard manures with commercial fertilizers it will be found more profitable than if either is used separately.

In some sections of the western states pears are put up almost exclusively in boxes for the fancy markets. In Canada, up to date, they have been handled very carelessly. This may be accounted for to a large extent from a large percentage of them being disposed of to the canning factories. The size of the package that has been used in the north-western states is somewhat smaller than that of our standard apple boxes. The British Columbia growers use a box somewhat the same. The majority of pears that are marketed are usually put up in small baskets holding eleven quarts. This is used for the local trade. By using this size of a carrier the pear can be made to appear pleasing to the eye. However, if the fruit is to be shipped to a distant market it is best to pack it in a box that would be about half the size of our regular apple boxes. By doing this the pears present a better appearance upon reaching their destination, because they have been provided better protection. If one takes the care to pack regularly the fruit should always be wrapped. If the points here touched upon are borne in mind and followed out, pear growing can be made a success.

Fruit Tree Borers

I. F. Metcalf, B.S.A., Gore Bay, Ont.

An enemy of fruit trees that has done a great deal of damage is the borer. The presence of borers in a tree is indicated by the lack of growth and by the presence of sawdust like gnawings and excrement that are pushed out from their holes. These may not be detected until after the damage is done, unless the sod is kept away from the base of the tree. Frequently a tree will be entirely girdled before you are aware that the borers are working in the tree.

When the work of the borers is noticed the best remedy is to cut them out with a sharp knife, or a very flexible (copper) wire may be pushed in and they may be killed in that way. However, there are several ways of preventing this trouble. The idea is to prevent the female beetle from laying her eggs on the trunk of the tree. These eggs may be laid any time in the early spring, and would soon develop into the borers which would later on do the damage to the trees. Any pre-

ventative treatment must be given in the spring, as these treatments would have no effect on the borers themselves.

AN EFFECTIVE WASH

A great variety of washes have been used for preventing the female beetles from laying their eggs upon the trees. The following is probably as effective as any that can be safely used without injury to the bark (after having removed all loose bark with a dull hoe or scraper).

Dissolve one-half gallon of soft soap or five pounds of whale oil soap in one-half gallon of hot water, and add a half-pint of carbolic acid. When mixed, add five gallons of warm water and enough lime to make a whitewash of about the consistency of paint. Finally, stir in one-fourth pound of Paris green. Apply the wash with a stiff brush, covering the bark thoroughly and completely, and filling all cracks and crevices. Another application should be made in about three weeks' time.

The use of something that will not only protect the trees from the attack of the

borers, but also from the heat of the sun, is more useful and economical than a simple wash. The parts of trees injured by heat are more liable to the depredations of borers than the healthy, uninjured portions, and so anything that will prevent sunscald and will at the same time keep off insects, will be a double benefit to the tree.

Take some wood veneer, such as is used in basket-making, or birch bark, and wrap around the trunk of the tree beginning just below the surface of the ground and extending upwards for about two feet. Bank the base of this up with some soil to prevent the insects getting in that way, and fill the top with cotton wool. See that there are no openings along the length of this covering where insects could get in. If applied in the fall this covering would also protect from mice. A small amount of money and a little time spent in looking after the trees that you now have will be much better spent than it would be in buying and setting out new trees.

Black Leaf 40 and lime-sulphur (1-10), \$1.35.

Black Leaf 40 and lime-sulphur (1-30), 80 cts.

Black Leaf 40 and lime sulphur (1.30), and lead arsenate, \$1.04.

KEROSENE EMULSION

Kerosene at 17 cts. per gallon.

Soap at 5 cts per lb.

Cost of 40 gallons of spray, 78 cts.

WHALE OIL SOAPS

The cost of the different makes will range from about sixty to seventy-five cents for forty gallons of the diluted wash.

I have purposely omitted mention of several mixtures of which a good deal is heard, because I consider the cost prohibitive.

A number of years ago it was confidently stated that the dormant spray of lime-sulphur was a specific against all kinds of aphids eggs. This has since been disproved both by experiment station workers and practical men all over the country, even when the spray is deferred until the buds are bursting and the aphids hatched, only a small percentage are destroyed. It is significant to note in this connection that in British Columbia last year, whereas the amount of lime-sulphur used fell off forty-one per cent., there was an increase of twenty-four per cent. in the sales of Black Leaf 40, indicating that the growers considered aphids the chief pest, and found control during the growing seasons most satisfactory.

APPLY IN TIME

Though in bad years more than the one spray will be found necessary, one thing must be recognized, and that is, that the spray must be applied before the aphids have had time to curl the leaves, or subsequent sprayings will be of little value, even with the use of a fairly high pressure. In spite of its relative high cost, I am inclined at the present time to recommend the Black Leaf 40, as from the standpoint of efficiency, cost, convenience of application, ability to mix with other sprays, it has, in my own experience, proved most satisfactory. I do not believe that when there is reason to fear an attack of aphids a grower would be justified in "taking a chance," and risking no spray. By doing this, he would stand to lose, not only a large proportion of his crop, but also the time and money he had spent in cultivating, pruning, thinning, and all other operations incidental to the production of his crop. I am convinced that most of the cases of non-success that have been reported by those using this spray have been the result of two factors: First, not spraying until the leaves have curled, and second, insufficient pressure.

Orchard Aphids and Their Control*

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

THE rot form of orchard aphids is the most troublesome, and I have been informed by several Nova Scotia fruitgrowers they have been troubled with it, especially in young trees. The best treatment known for this form is tobacco waste, which can be obtained from tobacco factories at small cost. Nursery trees can be protected from the aphids by laying a line of dust in a furrow on either side of the tree loosely covering

with earth. Larger trees can be protected by removing the earth to a depth of about four inches for a radius of three feet around the tree and putting in about a peck of the tobacco waste. It is most convenient to do this in the spring when plowing. Throw a furrow away from the tree on each side, having a man follow the plow with a hoe and scraping away the earth for a short distance around each infested tree.

COST OF DIFFERENT SPRAYS (40 GALLONS)

Black Leaf 40 and soap, 55 cts.

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



Nests of the Tent and Forest Caterpillars which have done so much damage of late years

The eggs of these caterpillars may be found in little lumps around the ends of the branches of the trees early in the season. Cut them off before they hatch out. If you neglect to do this an early spraying will quickly destroy them.

—Photo by Rev. Father Leopold, La Trappe, Que.



A Row of King of Tompkins Apples in Bloom in the Orchard of W. Palmer, Victoria, B.C.

The Pollination of Fruit

Wm. Gibbs, Appin, Ont.

POLLINATION is accomplished through two agencies: To a small extent by wind under favorable conditions, and to a large extent by pollinating insects. Of these the honey bee is the most important, because of its great numbers, owing to the many apiaries that are kept throughout the country.

The relatives of the honey bee, which also assist in pollinizing fruit trees and flowers, include the bumble bee, which is almost the only medium by which red clover is pollinized. The balance of her relatives include ants, lonely wasps, digger wasps, and colony wasps. These latter have little effect on the pollination of fruit blossoms on account of their not being present in sufficient numbers.

Investigations have shown that bees are an absolute necessity for the production of fruit and clover seed. They are also the only agencies by which cross-pollination takes place excepting that affected by wind, which is not considered to take place to any great extent. In some flowers the pistils are sterile to their own pollen. Thus they are dependent entirely on cross pollination for their very existence. It is claimed that because of cross-pollination the apple is more vigorous and more resistant to disease, better able to withstand frost without killing, grows larger, and has more color.

Prof. F. A. Waugh, of the Massachusetts Agricultural College, has frequently warned fruit growers against the danger of spraying fruit trees when in bloom because of the destruction of honey bees that results. Speaking at a convention last June he gave some conclusive evidence, showing that the honey bee was

the principal and almost the only agent in the pollination of fruit trees. He referred to the claim to the effect that there are other agencies than bees for doing this work, principal among which is the wind. To determine the relative importance of these factors he stated that he had taken pieces of glass, coated them with vaseline, and secured them on the windward side of fruit trees in full bloom, at a distance that was about equal to the distance between trees. He found that these glasses, smeared as they were with grease, received almost no pollen dust, even when the wind blew through the trees in full bloom in the direction of the plates. He further stated that there are practically no insects except bees that are flying when fruit trees are in bloom, and that nearly all the cross-pollination that is effected is through the agency of the bees. There are some varieties of trees that are self-pollinating, but even these varieties have more and better fruit when bees are present. Prof. Waugh is not only not a beekeeper, but he is regarded as one of the greatest authorities on fruit culture in the United States.

A Remedy for Plum Aphis

A. H. Ruff, Toronto, Ont.

The following remedy has been used by me as a remedy for the plum aphid (aphis pruni). I feel that I can highly recommend it:

Thirty pounds of soap (soft soap is the best), one gallon of coal oil, three pounds of naphthalene, and nine parts of water for the stock solution. If boiled until the soap is dissolved it will readily mix. Use eighteen pounds of the stock solution to one hundred gallons of water. Spray before the buds swell.

Changing Varieties

D. L. Mackintosh, Calgary, Alberta

There are by far too many varieties of apples grown in British Columbia, as well as in most other fruit districts. Growers are aware of this, but when you mention the advisability of changing to varieties that have proved themselves worthy of culture they shake their heads and seem to have the idea that this is going to involve a great loss.

Most growers consider that the trees should be taken out and young trees planted in their places. This is wrong. The thing to do is to cut over the present trees, leaving about one-half dozen branches about six inches long above the crotch, and more if the tree is of any size, and crown graft at least four scions into each branch. This would give at least twenty-four young growths right away, and owing to the vigor of the roots they would make great growth the first and second year. The chances are that if everything was favorable there would be a quantity of fruit the third year. Thus the whole character of the orchard could be changed in a few years with very little loss.

If the right varieties were worked on the old trees, the grower would be more than compensated for any trouble or apparent loss he might have had. I should never think of taking the old trees out, because the change can be made so much sooner by cutting back and grafting the desired varieties.

Better Fruits at Less Cost

Prof. H. A. Surface, Pennsylvania

Obtain uniformity of size by a uniform system of pruning, and especially by systematic thinning, feeding, cultivating, mulching, manuring, etc.

Both increased size and color can be obtained by making several pickings, taking each time only those that are well developed and colored, leaving the others for future development in size and color.

Avoid blemishes from diseases by spraying with fungicides, according to the teachings of our plant pathologists, and by planting varieties on ground suited to each respectively. For example: Champion peach, on low ground or where there is no air drainage, is almost sure to have ripe rot; and Salway in such a location is very liable to have scab and crack. Also spray with strong lime-sulphur solution once each dormant season, better immediately before the leaves appear; and with bordeaux mixture or self-boiled lime-sulphur just before the blossoms open; and spray again with the same, at proper intervals, two or three times after the blossoms fall.

The road that leads to the orchard is the pathway to a simple, happy prosperous life.

Making a Lawn

J. H. Grisdale, Director of Experimental Farms, Ottawa, Ont.

"The lawn
Which, after sweeping broadly round
the house,
Went trickling through the shrubberies
in a stream
Of tender turf, and wore and lost itself
Among the Acacias."

Mrs. Browning here paints such a picture as all love to dwell upon. Who among us has not some pleasing memory of just such a grass set scene. Such surroundings bespeak the peace, the calm, the restfulness so welcome to the weary soul, so kind to the tired eye. Not one of us but admires a well kept lawn, and better still, not a man or woman among us but may have one at small outlay of time and money.

THE SOIL

The best grass growing land is a good loam. Any well drained, well prepared area of any other sort of soil may, however, be so handled as to ensure a pleasing result. Where building operations have recently been going on such residues as bricks, stone chippings, etc., should be buried at least six inches below the surface. The surface should be graded with a slight fall away from buildings and any depressions or hollows should be filled in, even something higher than the surrounding land to allow for settling. Manure should then be applied, about one pound per square foot of lawn surface. After scattering the manure evenly over the surface, the whole area should be well ploughed or spaded. If time presses or labor is too expensive, ploughing or spading may be done only the once, and that to a moderate depth. If it is desired to ensure the very best results possible the land should be ploughed, burying the manure to a moderate depth (four or five inches) then later, after harrowing and rolling several times, or when in a good state of tilth ploughed again about half an inch deeper than before. Harrowing and rolling will be again in order and any new unevenness due to settling should now be corrected. After harrowing, levelling and rolling till in good shape it should be left untouched for a week or ten days.

SEEDING

After the surface has lain fallow for ten days or so, it should be again levelled and well harrowed. If not very firm underfoot it will be advisable to roll with a heavy roller once or twice before seeding. The seed should be divided into two equal portions and the first part scattered as evenly as possible over the whole lawn, walking from east to west while sowing. Each and every square foot of the whole lawn having received its fair share of the first half of the seed, the sower should then proceed to sow

the second half of the seed as evenly as possible over the lawn walking from north to south during the process and again being careful to give every square foot of land its fair share of this, the second part or other half of the seed, as well as a fair proportion of the first part. Carelessness in seed scattering is responsible for many patchy looking lawns and is in fact the cause of not a few failures. The seed once sown, the whole surface should be lightly and evenly raked or harrowed. On most soils a rake will give better results than a harrow. The main point is to cover the seed, although at the same time, one must guard against too deeply burying it. After raking or lightly harrowing the land should be rolled again, unless very damp, in which case the rolling operation should be postponed till a later date.

Many lawn grass mixtures are to be had at seed stores. Not infrequently these ready prepared mixtures contain a rather large proportion of weed seeds. It is important to buy grass seed free from weed seeds, since if preparation has been made as above outlined, the chances are very strongly in favor of a lawn free from weeds other than such as spring from seeds sown by wind or mixed with grass seed.

Taken all in all probably the best grass to sow is Canadian Blue Grass, or failing this, Kentucky Blue Grass. Pains should be taken to secure a good

sample of this grass and it should then be sown liberally at the rate of about fifty pounds an acre, or one pound to the hundred square yards.

After the seed is sown the lawn should be well rolled, care being taken to pack as evenly as possible and retain a smooth surface. No rolling should be done, however, if the surface is at all damp when the seeding is performed. It would be much better to postpone the rolling for a day or two, or if the soil continues moist it might be advisable to postpone the rolling for two or three weeks.

After the grass is well up should a drought occur or a heavy rain come and the surface later become very dry, it would be found advantageous to roll again, using a light roller. This will break the surface crust, create a mulch, and so encourage growth and ensure a better stand.

Care should be taken not to use a lawn mower upon the young grass, since this machine is almost certain to pull out by the roots rather than clip it at this stage of growth. If weeds spring up or the grass becomes unsightly, the whole area should be carefully gone over with a sharp scythe rather than with the lawn mower.

The process of getting a lawn by sowing is of course rather slow. The seeding down method may be very often improved upon, at least so far as speed is concerned, by sod laying. For laying sod, practically the same preparation



An Inexpensive Beauty Spot Where the Birds Delight to Stay. Lily Pond in the Garden of Mrs. McNair, Hamilton, Ont.

should be made as for seeding. The lawn maker should see that the sod supplied is thick enough to include a fair

proportion of growing roots, and so ensure the grass getting a good start in its new feeding ground.

Planting and Pruning Shrubs

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

IN order to arrive at the proper time and method of pruning shrubs a study of their characteristics is necessary. For this purpose we must recognize two distinct types, distinct in the sense that one flowers upon the current year's wood, and the other upon the old or previous season's growth. It is easy to distinguish between the two. As a general rule shrubs should be pruned at once after flowering if pruning is necessary, but in the case of the more tender ones which flower upon the current season's growth, it is unwise to prune before danger of heavy frosts is past in the spring, say about the first week of April. roses and hydrangeas. There is always danger when these are pruned early in the season, of the remaining buds being killed, which is often the case when bright sunlight succeeds excessive frost. When this occurs the plants may be seriously injured, and the resultant growth and flowers worthless.

Lilacs, Shrubby Honeysuckles (*Lonicera*), Weigelia, Snowballs (*Viburnum*), Deutzias, Forsythias, and similar hardy shrubs should all, if necessary, be pruned at once after flowering, and the old flowers removed from such as the lilac before seed formation has occurred.

In the case of shrubs, except evergreens, which are dependent upon the formation of new growth for the following season's flowers, the immediate removal of old flowering wood or branches favors the development of new growth and the subsequent ripening of vegetative or flowering buds ere winter sets in. Shrubs, however, bearing berries (fruits) which mature during the fall should not be pruned after flowering, as this will eliminate their winter beauty, as upon the flowering branches the berries are borne. In this category are such examples as *Berberis* of many kinds, snowberries white and red fruited (*Symphoricarpos racemosus* and *Vulgaris*), and deciduous species of *Euonymus*, many of which bear very ornamental fruits.

BENEFITS OF PRUNING

The objects of pruning are: To encourage the development of vigorous growth and the subsequent production of flowers; to eliminate worthless branches and superfluous growth, and thus favor the equal distribution of air and light: To remove defective parts, and to promote growth to replace these and thus assist nature to restore symmetry.

It is an easy matter to remove all undesirable growth, providing certain principles are observed. When remov-

ing branches, do not leave stubs, each undesirable portion should be removed with a slanting cut at its junction with another stem or just above a bud. Whenever it is necessary to shorten or "head back" the longest branches all should not be cut at the same height.

Growth should be encouraged close to the ground rather than at the apex of the shrub. To induce this the longest branches must be gradually removed. As the stronger branches grow more quickly to the source of light, the weaker lateral ones eventually succumb. It is a case of the survival of the fittest, consequently the main stems near the ground appear bare and unsightly, therefore, the stronger must be removed to be replaced by the weak. Dilapidation quickly ensues where careful pruning is not exercised, but where the practice pertains renovation is constantly taking place much to the enhanced appearance of the subjects.

It is utter folly to clip shrubs into grotesque shapes unless they are planted as hedges or are included in a formal garden scheme. Clipped shrubs are not desirable for any other purpose, neither are they natural, as usually all their beauty and grace vanishes with the removal of growth which produces flowers. A well pruned shrub should appear to an artistic eye a perfect object, no sign of mutilation should be visible, the head should be perfectly symmetrical with being grotesque. Clipped shrubs are always grotesque, as the pernicious practice of hacking these beautiful subjects results in their total failure to produce annually their abundant blossoms. Shrubs differ from trees in that they possess no well defined leader (trunk). When pruning trees it is proper to retain the leader, but in the former no such leader should be encouraged.

ROSES

Roses planted in the spring should be cut back somewhat severely. Other shrubs may simply require thinning to counterbalance the loss of roots caused by lifting. Roses, however, which are established are pruned according to the characteristics of the class to which they belong. Hybrid perpetuals are stronger growers than hybrid teas, while climbing or rambling roses are distinct from either of the former. Strong growing plants should be pruned lightly, weak growing ones such as many hybrid teas severely, but in the case of ramblers it is only necessary to remove old or dead branches to prevent crowding of young



A Well Pruned Hydrangea

growths, or to allow such growths to be trained into desirable positions. It may also occasionally be necessary to shorten back the longest growths to keep the plants within bounds.

Briefly the shoots of hybrid perpetuals should simply be severed at points six inches or so from the previous season's wood, and all superfluous or weak growth removed. The mistake of cutting all at the same height should be avoided. Hybrid teas should be severely thinned, completely eliminating weak growths, leaving only the strong, say, three or four to each plant, or if these are exceptionally weak, only two. Cut these back to four inches from the old wood and the resulting growth will be much stronger than were a larger number allowed to remain, and will produce flowers of finer quality and in greater profusion.

HYDRANGEA

Prune the shoots of hydrangea paniculata back to two buds and after growth has commenced rub off one of the shoots, leaving the stronger in each case. Restrict the number on the plant to four or five. In this way weak unsightly plants will become rejuvenated, and if carefully cultivated and mulched enormous flowers will result. The illustration is that of a plant bearing individual flowers eighteen inches in depth and sixteen inches in diameter at the base, pruned in the manner indicated above.

Some of the Clematis are almost herbaceous in character, dying down to the ground in winter. Others, by protection, or during mild winters, come through the winter without the growth being killed back very much. If the wood is not killed back when starting them in the spring, it is well to leave some of the strong live wood rather than cut them right down to the ground. The variety Jackmanni is one of the best varieties grown. They flower on the new growth produced from older wood.—Wm. Hunt, O.A.C., Guelph, Ont.

The Culture of Sweet Peas

J. H. Bowman, Elmira, Ont.

THE sweet pea is one of the most popular of annual flowers, and deservedly so. I know of no other flower that will yield so much beautiful bloom over so long a period.

Disease has been very prevalent during the past few years, and appears to be increasing each season. The disease, commonly known as streak, is said by some authorities to be caused by root rot fungus. Light to dark brown streaks appear on the lower parts of the stem and on the leaves. The points of the shoots are often abnormally thick and of a yellowish color. The flowers often come malformed and are usually very poor in color, thin and flimsy. The stems are also weak.

Whatever the cause may be, I am convinced, after three years' careful observation and experiment, that heavy dressings of animal manure encourage the development of streak. If your soil is in fair condition, I wouldn't use any animal manure at all, but would advise the use of a phosphate and potash fertilizer.

Those authorities who hold that "streak disease" is caused by root rot fungus, *Thulavia basicola*, advise disinfecting the soil by one of the following methods: By heating to two hundred and twelve degrees F. This is hardly practicable where any quantity of soil is to be treated. By soaking with formalin—one per cent. solution, one part, to twelve and one-half gallons of water. By making holes all over the ground, twelve inches apart and ten inches deep, dropping half an ounce of petrol in each, and closing immediately to keep vapor in. This disinfection should be done at least two weeks before sowing or planting. Some writers also advise soaking the seed the night before sowing in permanganate of potash, a half-ounce to a gallon of water.

Dig your trenches about two feet wide and twelve to eighteen inches deep. Don't use any animal manure unless your soil is in very poor condition. After you have worked up the soil, dust on the following fertilizer, and rake in thoroughly: Two ounces bone meal, two ounces superphosphate, two ounces sulphate of potash per square yard.

It is important to get your sweet pea seeds in as early in the season as possible. Sweet peas do best if they have an opportunity to make good root development before hot weather sets in. Sow seeds in two rows, one foot apart, and three inches apart in the row. They may be thinned later to about six inches apart.

A trellis or support of wire netting or string should be provided before the plants make any tendrils. Sweet peas

never grow away so freely if the support is not provided in time.

After the plants are up a few inches, they should be cultivated thoroughly, and this cultivation should be kept up through the season at least once a week. The Buco cultivator is an excellent tool for this purpose.

If you have room for but twelve varieties, the following (selected as the best of over fifty Spencer varieties I grew last season) are recommended: Elfrida Pearson, blush; Etta Dyke, white; Hercules, pink; Mrs. Routzahn or Gladys Burt, cream pinks; Mrs. R. Hallam, deep cream pink; Clara Curtis, cream; Nettie Jenkins, lavender; Maud Holmes or King Edward Spencer, crimson; Queen of Norway, mauve; Nubian, maroon; Mrs. C. W. Breadmore, picotee pink on cream ground; Thos. Stevenson or Edna Unwin Improved, orange scarlet.

Making Flower Beds

P. D. Powe, Cainsville, Ont.

Making the beds for garden annuals is one of the most important steps to be taken in the getting of good flowers. In the city, where manure is hard to obtain, the scrapings from the road are good if mixed with a little prepared fertilizer (obtainable from all seed dealers) and worked into any fairly good garden soil. Where manure

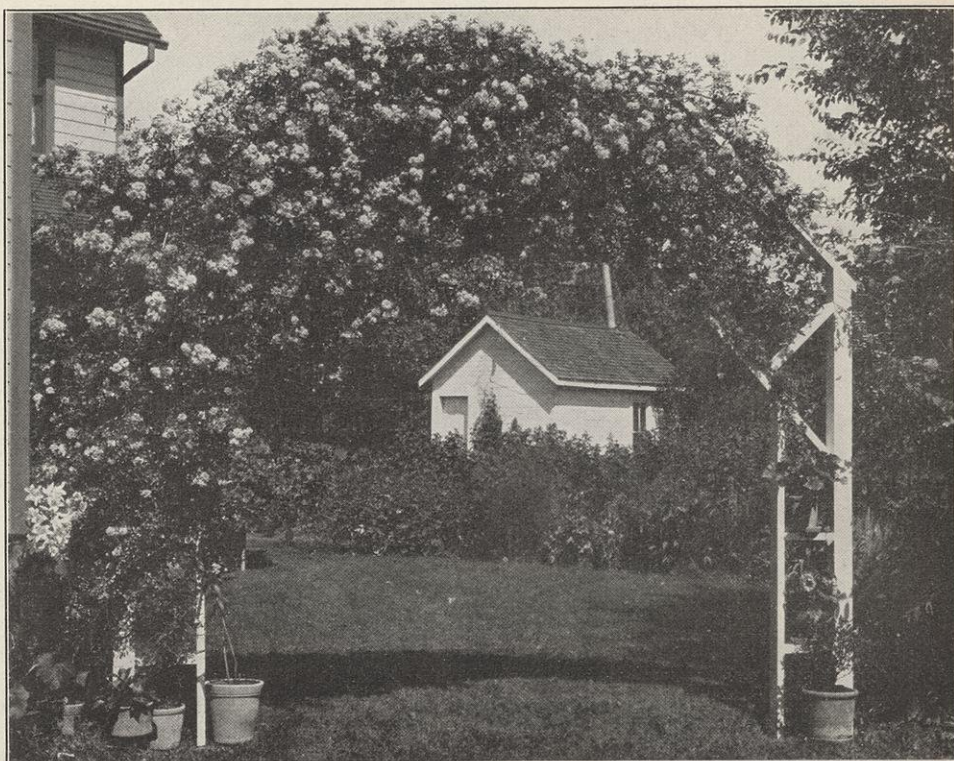
is plentiful and soil abundant, a good bed may be made up of one-third manure, well rotted, and if the soil is dry, one-fifth sand. Remember, the richer the beds the better the plants if you can keep the weeds down.

When we have our soil well worked in a pile we must decide what shape our bed will take and its size. This depends greatly on experience. If you are not an expert and a true judge of beauty, you had better stick to the plain square, round, diamond or oval bed, and not try any of the more complicated designs. Leave these to the florist or landscape gardener.

The size of the bed should be determined by how much land you have at your disposal. We can only say that one large bed is far more beautiful and artistic than several small beds.

These points decided, turn again to your compost heap and after spading the bed you have laid out wheel your prepared soil upon it and with a rake round it up and make it to the size and form decided on. Remove all grass, weeds, stones and other matter, and make the whole firm and smooth, gently sloping towards the edges of the bed. Long, narrow beds may be made in the same manner at the foot of a trellis or along the porch, where vines may be planted. These beds are best prepared as soon in the spring as the ground is ready to work.

When trees are starting leaf take a stick and make shallow lines in the beds. Sow



An Arch of Dorothy Perkins Roses in Bloom at entrance to Rose Garden of Wm. Hartry Seaforth, Ont.

Fully one thousand choice roses are grown in Seaforth by some half dozen enthusiasts. They include all the standard varieties and many new sorts that promise to increase in popularity. Mr. Hartry keeps bees as well as roses. His honey house may be seen in the background.



Something of the Beauty of a Well Arranged Pergola is Here Revealed

Pergolas in the garden are gaining rapidly in public favor. They make ideal retreats at almost any time during the growing season. This pergola is in the garden of Mrs. D. Lumsden, Ottawa, Ont.

these thinly and cover lightly or they may be sown broadcast if the whole bed is to be planted solidly in one variety of plants. One of the most beautiful beds we ever saw was planted in this manner. It comprised all the mixed poppies in all colors. The beauty cannot be described in words and can only be understood by making a similar bed. Balsam, petunias, phlox or other quick

growing plants of a like character, are the best for this purpose. Where a border is desired a drill or light furrow one half inch deep, may be made around the edge of the bed with a sharp stick, and sown thinly with the seed of alyssum, mignonette, portulaca, or many other low growing plants. As the seed is mostly small, give a very light covering of earth.

Experimental Work with Flowers*

F. E. Buck, Experimental Farm, Ottawa

SINCE 1911, the seed of several hundred different varieties of annual flowers has been obtained each year from seedsmen in this and other countries, and tested at the Central Experimental Farm, Ottawa. Details are not possible here, but some results have been obtained which are suggestive and encouraging. Some results have suggested other lines of experiment, for instance, the seed of a number of annual plants left over from previous years and saved for a test as to germinability, was sowed just before the period of drought of last June and July. A certain number of the young plants which came up did not succumb to the heat and drought but survived under the most adverse conditions and gave bloom late in the year after those of the regular test were over. As a point of interest it may be stated that they bloomed with us at Ottawa up till the end of October. From this we conclude that it may be well for us to try out most annuals under similar conditions in order to know what can be recommended to people who wish to raise flowers under conditions that would make a weed blush to do well.

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

One very interesting point of general interest which has been called to our attention by visitors from the old world in connection with these annuals is that the intensity of their colors is greater with us at Ottawa, than it is, say, in England. The brilliancy of the whole patch of annuals tested at Ottawa was very great this past dry season.

To tell you anything about the recent experiments, commenced in 1911, with roses, more particularly the hybrid tea varieties, other than this, that already a first edition of a pamphlet on roses has been exhausted and another edition will be ready shortly, is unnecessary perhaps, because what we have to say about the test so far will be said in that pamphlet. I must mention, however, that we started tests with sweet peas about the year 1910. So far these tests have been chiefly variety tests but in future we are planning to make them cover in addition methods of growing, and so forth. We need definite information on several points, such as whether sweet peas will do well when grown under certain conditions in the same position year after year. We want more information as to the control of sweet pea diseases and troubles, reliable data regarding which can-

not be given till definite observations have been carried on for several years. We do know certain things about certain methods which seem to contradict certain prevailing opinions. One is that sweet peas grown in a trench did not do so well in our soil as those grown by their side which were sown in level ground. Another is that those planted from six to twelve inches apart did not do so well as those planted about three inches apart, and that those planted closer than this did best during the early part of the year only.

In all our experimental work at Ottawa we wish to keep in mind at least two things, one is improvement, that is, in the widest meaning of the word. Improvement is sought by selection, by introducing new things and discarding old, by rearranging old and new, by modern technique, by methods of culture, of control of insects and diseases, by the cultivation of that taste and knowledge of the best which leads to the improvement of those things that make better home surroundings possible. Improvement, that is, in things themselves and in the way of doing things. This must be the *raison d'être*, the basis of our experimental work.

The other thing is this: we do not seek the new things so often as the slight improvement of the old, and therefore our chances of success are greater. So long as we do not duplicate the work of others but remember to do work called for by local conditions, and do it without deviation, by discouragement of seasons or events, even so long will the experimental work be of a quality and quantity justifying, we hope, its continuance and increase.

Geraniums

Wm. Hunt, O.A.C., Guelph, Ont.

To secure good geranium plants for flowering in winter, slips should be taken in the fall or very early spring. A nice plant potted from a three and a half or four inch pot into a six or seven inch pot in June in bedding out time and put into good potting soil, will make a good plant for winter flowering. Plunge the pot to the rim out in the open ground early in June. Pinch the tips of each shoot out when about eight inches in length until about the second week in July. This induces a bushy, sturdy growth.

Keep all the blooms and buds pinched off until the middle of August. Lift the pot from the ground early in September and bring it into the window when it should flower all winter. The plant should have plenty of water at the roots during the summer when plunged in the ground. After bringing it into the house some liquid fertilizer should be given the plant about every ten days. "Bonora," sold at seed stores, is the best plant food for pot plants.

The Beekeeper

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The Management of a Small Apiary

Frank M. Powell, St. Catharines, Ont.

SUCCESS in any business depends largely upon the attention given to it. This is a truism the beekeeper must not forget. In the apiary, proper care at the proper time gives best results and saves labor. Although the way in which I managed my apiary this year might make too much work in a large bee yard, it has paid me well.

In April, when the weather warmed up enough for the bees to fly, I gave each colony a quart sealer of sugar syrup. About two weeks later I gave another to force brood rearing, as the earlier the young bees hatch, the stronger will be the colony. I fed by turning the can upside down with a piece of cheese cloth over the mouth. I placed it directly over the cluster, putting an empty super with chaff filled around the can in order to keep the bees warm.

The winter cases I left on until the middle of May. About every two weeks I examined the brood nest, cutting the cappings off the honey on a couple of combs and placing them in the centre of the brood nest. The combs were soon well filled with brood and had little honey in them. As soon as the brood

chamber got crowded, which was at fruit bloom, I put on a super with a row of partly drawn sections from last year.

Before the hives became over-populated I cut the queens' wings. It was an easy matter to find the queen, as my Italians are quite gentle. On some days they could be examined without either smoke or veil.

OUT OUT QUEEN CELLS

By May 24 there were queen cells well started in every colony. These I cut out, as I thought it was too early to make an artificial or shaken swarm. In eight days I shook into a new hive having starters of about an inch. I gave one comb, well filled with eggs and larvae, to keep the bees contented. I then put the super on and the old hive on top with queen excluder below it to keep the queen from going down. In ten days I divided the colony, taking the old brood chamber off.

As I had good Italians, I made up my mind that I would raise some queens. I succeeded in getting seven queens from twelve grafts. Four of these turned out well, but the others were a failure, I believe, because I looked at them too soon.

When the weather warmed up, I enlarged the entrances. As I use the Langstroth hive I turned the bottom board upside down, thus giving an entrance one inch deep the full width of the hive. Later I placed a half-inch block under each corner and also lifted the lid. I shaded the front with sacking nailed to a couple of stakes and held on the hive by a couple of bricks.

By the time the sections in the supers were well started, those in the centre being partly propped, I raised the super and placed an empty one underneath. This kept the bees busy. When the sections were well filled and capped, I removed them so as to keep them white. From four colonies, spring count, I now have eleven colonies and get seven hundred and twenty-five sections of comb honey.

I would consider my story only half told if I did not make some reference to the short course which I attended at the Ontario Agricultural College last winter. The success which I have attained in the management of my small apiary I place to the credit of the course which I received there.



The Apiary of M. Luc Dupuis, Village des Aulnaies, Que. This Apiary was Established in 1875

Life History of the Bee

IN an instructive address before the Ontario Agricultural College short course students in 1913, Dr. Burton N. Gates, of the Massachusetts State Agricultural College, briefly ran over the life history of the honey bee, and illustrated the practical application of such knowledge. He pointed out, for the benefit of the uninitiated, that each hive of bees contains representatives of three castes, as it were, of bees—the workers, drones, and queens. Of the workers we would usually find fifteen thousand to eighty thousand in a hive performing the work of housekeepers and honey gatherers; of the drones, anywhere from five hundred to one thousand per hive, under natural conditions, whose sole function is that of fertilizing the young queens; and only one queen, under normal conditions, who performs the function of “mother.” A common exception to this rule was referred to, namely, where a mother and daughter live together after the bees have superseded the old queen. With reference to the drones, a practical hint was thrown in here. Since the drones are only useful for fertilizing the queens, and always are superabundant, it is to the beekeeper's advantage to keep down their production and gather for himself the honey they would consume.

TWO KINDS OF EGGS

Commencing with a description of the eggs, Dr. Gates called the students' attention to the two different kinds of eggs; the one yielding females and the other males. He affirmed that essentially there is but one difference between them, the former are fertilized and the latter not. Then touching on the development of the fertilized egg, the resulting insect was either a worker or queen, according to the nature of the food fed during the larvae stage and the room given. The time taken for the development of the eggs into larvae or grubs was given as three days.

Another practical hint was given at this point. In order to see the eggs which have been laid in the cell, it is necessary for the operator to hold the frame of brood so that the sun or light shines over his shoulder and down parallel with the sides of the cell. Then, and then only, he will see the egg attached to the bottom of the cell.

Passing on to the next stage, known as the larvae stage, which commences with the hatching of the egg, the speaker explained that the grub was first straight and transparent, then, on developing, the segments of the body become more distinct, but finally at the end of forty-eight hours, it practically fills the whole cell and is in a much curled position. The insect remains in this stage of development for four or

five days, and it is during this stage that the future of the female grub is decided; the queen being fed an abundance of rich, jelly-like substance and the workers a mixture of pollen and honey. While the food fed the queen is the most concentrated, the mixture fed to the worker is highly nourishing.

The final outcome of the larvae is that it spins a very fine silk web around itself after straightening out on the wall of the cell. The bees then cap the cell, commencing with the bottom wall of the cell, which they draw out and build upwards on a curved line and then start at the top wall and build in a similar manner downwards, forming a convex cap on cell. When they fail to perform this duty, it was explained, we have which is known as Baldheaded Brood, but this name is also applied where a moth has eaten the capping off. In order to differentiate as to the cause, Dr. Burton drew attention to the fact that the moths nearly always eat across the tops of the cells in a diagonal direction.

Returning to the metamorphosis, it was stated that the larvae sheds its silken bag and divides into head, thorax and abdomen, and changes from its former whitish color to a light brown. This is referred to as the pupa or nymph stage, and corresponds to the cocoon stage of the butterfly. After spending a varying number of days, it emerges, and enters the adult stage.

DISEASES OF THE BEE

The doctor gave some more illustrations of practical application of this knowledge. During the different stages the honey bee is attacked with different diseases, due to various causes, and a knowledge of this helps us in our diagnosis and treatment. Then, it is very necessary for success in honey production that the beekeeper commit to memory the periods of time spent by the developing bee in the different stages. For this purpose, Dr. Gates gave the class the appended table. An example of the necessity referred to is sound in the necessity for preparing to harvest the honey crop in a given locality by building up the colonies. This preparation should commence three weeks before the expected flow to allow the development of plenty of workers, which take (see table) 21 days.

At the conclusion of his address, Dr. Gates summed up the elements of success in honey production as “Having things done right, at the right time, on the right day.”

TABLE SHOWING TIME TAKEN IN DEVELOPMENT OF BEE

Kind.	Egg.	Larvae.
Queen3 days.....	5½ days
Worker3 “.....	5 “
Drone3 “.....	6 “

Pupa	Total.
.....7 days.....	15½-16 days
.....13 “.....	21 “
.....15 “.....	24 “

A Successful Method

James Moore, Greenock, Ont.

So much has been said and written on the subject of swarm prevention that it would seem there was nothing new to be told. The following method, however, was suggested to me by an American sheep rancher, and is one with which I have had splendid success.

About the first of June I remove three frames of brood and honey from the brood chamber and place them with the queen in an empty super. I then place this super under the brood chamber with a queen excluder between. I fill out the super with drawn out combs. I then place in the original chamber three sheets of foundation, in place of the three frames of brood that I have removed. At the same time I uncap all the honey that is in this upper chamber. As the bees hatch out they fill this upper storey with honey.

By the 15th of July the colony is in condition to have the treatment repeated. I put another empty compartment underneath as before, and move the queen down, placing the queen excluder over the low chamber. The bees now go ahead and fill the two top storeys. With this method the queen is given plenty of room for laying, and I get little or no increase at all. From one hive I got ninety-eight pounds of light honey and twenty-two pounds of buckwheat.

The Question Box

The following questions were left over from the question box at the convention last November of the O.B.K.A. The answers are by Prof. Pettit.

“Have you had experience with capping melters?”

I have had a little experience. Judging from it and what others say, I consider that the safest plan is to drain cappings well and store them until they can be melted at leisure in the winter, rather than to attempt to have them melted while the extracting is going on. For melting in the winter and saving the honey as well as the wax, perhaps the best melter on the market is the Peterson capping melter.

“What is the best method of introducing a queen to a colony which has a queen already?”

The question may refer to the so-called “smoke method,” which Arthur C. Miller, of Providence, R.I., claims will sometimes be successful, but further testing is necessary to prove that any method will safely introduce a queen to a colony from which the old queen has



Mr. Jas. Storer among his Bees. Mr. Storer is the President of the Victoria County Beekeepers' Association

not been removed. It would be a very valuable discovery, which might be compared with the invention of the steam uncapping knife, and other modern improvements which are so materially assisting in the reduction of the cost of producing honey.

"Is there any legislation to regulate the distance we have to keep our bees from other persons' dwellings?"

I do not know of any such legislation in Ontario, although they have something in the province of Quebec. It is important to keep bees in such a man-

ner as to make as little trouble to neighbors as possible.

"Should the O.B.A. do anything with regard to the reduction of freight rates to the west?"

That is what the transportation committee should be for.

"Is the flavor of extracted honey improved by not taking it out until fully capped?"

Leaving it with the bees until fully capped improves the flavor, because usually until it is capped it is not well ripened.

Notes from the Short Course in Apiculture

By a Student

IN replying to a question as to second swarms, Prof. Pettit said: "Second swarms usually average about one week after first swarm. At that time the new queens begin to emerge. The young queen instinctively starts on the 'war path,' looking for rivals, and if allowed her own way will sting the other developing queens in their cells. It is when the workers prevent her from carrying out this mission in full that the second swarm is decided upon."

Taking up the principles of natural swarming given by the Professor, Mr. F. W. Krouse, vice-president of the Ontario Beekeepers' Association, outlined the manner in which he applied these principles. A detailed statement of manipulation may appear in these pages shortly from Mr. Krouse. His general practice seems to be to take a survey of all his hives regularly and as soon as clustering is noticed on the outside of a hive it is marked and attended to as soon after as possible. The clustering indicates loitering and lack of room. The

clipping of queens he practises. "Not," as he says, "to prevent swarming, but mainly to prevent swarms which do issue absconding." It is also very useful in keeping track of the queen's age. The plan which Mr. Krouse follows in early spring involves the placing of a super beneath the brood chamber. This provides plenty of room if needed and still does not take away the heat from the brood, but an important point often overlooked by beekeepers when practising this method is that the super which is slipped under the brood chamber "should always have some drawn out combs in it." If this is not done, some strains of bees may swarm in spite of the extra room. This manipulation usually keeps the bees contented as regards room until the clover flow commences. Mr. Krouse also claims that the presence of a young queen in the hive acts as a help in preventing swarming. "Bees will sometimes become dissatisfied with an old queen and swarming is the ultimate result. Many beekeepers make a practice

of alternating drawn out combs with foundation in the hope of preventing swarming. Mr. Krouse criticized this practice severely, and advised the students to place all the combs at one side of the hive and the foundation at the other. A strong plea for a larger frame and hive was made by Mr. Krouse, and this coaxed considerable discussion. The sum total of its advantages seemed to be that deep frames usually wintered the bees better and that the Langstroth frame did not provide sufficient laying room for a prolific queen, thus developing swarming impulse. The last point was debated, and it was also contended that the ten-frame Langstroth was as heavy as the average beekeeper would care to handle. It was also a standard hive and would bring better prices in the sale of bees.

Sometimes in his work he finds it necessary to give the queen more room in the brood chamber, and he resorts to the method of raising frames of brood into the super. In this connection he emphasizes the raising of capped brood only as "If the frames contain any open brood the probability is that the bees will draw out queen cells in the super and thus bring on swarming."

Passing on from the problem of swarming, the question of locating an apiary site was introduced by Mr. J. L. Byer, President of the Ontario Beekeepers' Association. In dealing with this feature of the bee business, he emphasized first of all the importance of being careful not to overstock territory with bees. "Of course," he said, "every farmer has a right to keep bees," but for the beekeeper who is looking for commercial profits, it is like taking half a loaf instead of a full loaf! Each territory has a limit in nectar yielding flowers and only sufficient bees should be placed there to gather the crop. "It is not hard to find good locations in the country, but they have to be sought, and often a district is capable of being developed by the progressive beekeeper."

After taking the possibilities of overstocking into consideration, the next point which comes into the beekeepers' mind is, "What crops are grown? Do they yield honey?" Clover and basswood are, of course, the most coveted sources, and a mixture of these two nectars is considered the purest to be had from a market standpoint. So then, if clover and basswood are found in the range of the prospective locality, it speaks well for it. Again, if this flow is preceded by a good fruit bloom and dandelion flow or followed by a buckwheat or fall flowers flow, so much the better. Just along this line Mr. Byers mentioned that a great deal may be done to interest the neighboring farmers by a little

judicious canvassing and neighborliness. Clover seed production is made much more profitable for the farmer and the virtues of the bee in cross-pollination could be extolled frequently.

After considering the honey flow, we should look for convenience and transportation facilities. If it is possible to secure a good location within reasonable distance of railways, or good roads, then the value of these facilities are a big asset, for it means that the beekeeper is in a position to transport his produce or supplies at the lowest cost.

In our climate the problem of wintering compels us to look for sheltered spots. Mr. Byer prefers to place his bees in the lee of some natural windbreak, such as a row of closely grown Norway spruce or other evergreen, but everything else being suitable it is quite practicable to provide an artificial protection in the shape of a board fence. Then, secondly, protection from the hot July sun will also make the bees more comfortable and help to safeguard against swarming. Orchards are for this reason very desirable for apiary sites.

Replying to a question as to how many bees should be placed on a site, Mr. Byers said that this was governed entirely by the nectar produced in the locality and the location of neighboring beekeepers. Generally speaking, fifty to one hundred colonies was sufficient for one site, but there are sites which profitably carry up to three hundred colonies.

Incidental to the conveniences of "site" location, a little stream of water near to the apiary is a great convenience. In spring when the bees are few, they use a great deal of water, and some convenient supply must be available.

Among professional beekeepers the practice is gaining ground of keeping a complete outfit, extractor, engine, etc., at each out-yard, and while this requires a greater first outlay, it saves money in the long run. The depreciation on machinery which is moved from place to place is much greater than where stationary. During the discussion which followed, the value of motor trucks in apiculture was touched upon, and on account of the speed it is possible to develop, another convenience in moving supplies, bees, etc., the investment seems well warranted.

Nova Scotia Honey

A firm in London, England, wishes to be put in communication with persons in Nova Scotia who produce honey. This English firm has become interested in Nova Scotia through the exhibit at Selfridge's Departmental Store, London, prepared by the Department of Industries and Immigration, Halifax. All beekeepers in Nova Scotia who would like to extend their honey trade should send in their names and addresses immediately to Mr. Arthur S. Barnstead, Secretary of Industries and Immigration, Halifax.

A Correction

Editor, The Beekeeper.—Mr. F. White-side, Little Britain, Ont. (see page 36) is mistaken in saying that I advised wintering bees in root houses. If he refers to my remarks on the subject he will find that my advice was just the contrary.

Bees in this district can and should be wintered on their summer stands. The winters here are not severe enough to make cellar wintering necessary.—W. J. Sheppard, Nelson, British Columbia.

The National Field Day

DEAR Beekeeper Friend,—The first Canadian National Field Meet will be held on Victoria Day, May 25th, at the apiary of Mr. H. G. Sibbald, past president of the Ontario Beekeepers' Association, at the Forks-of-the-Credit, Ontario. This great event, which has slowly been gathering force since last December, has reached the point where the various committees which have been working on the plan feel that it will surpass anything of the kind heretofore attempted in the British Empire. Plans have been laid for handling a great crowd. Members of committees will be at the various stations from Toronto along the line to assist the stranger and bid him welcome. Special coaches will be placed on the train for the beekeepers' accommodation, and the good old-fashioned farmers' hay rack will convey the jolly crowd from the station to the yard, some half mile away.

All beekeepers within reasonable distance are requested to bring well-loaded baskets and to prepare for two meals (noon and evening), and thus help to take care of those who come long distances. To the beekeeper confined within the narrow limits of city life this field day and picnic offers a day of relaxation and freedom from the cares and worries of business, while the producer from the country is afforded an opportunity to meet the city man as well as of enjoyment. The editors of *Gleanings* and the *American Bee Journal* have consented to be present and take a part in the work of demonstration, while our own fair province will have its corps of brilliant men on the "firing line." For a day's outing no spot in all this magnificent country of ours can surpass the beautiful Forks. Poets have sung its praises, and historians have recorded its beauties.

Now, dear Beekeeper, lay aside your cares and anxieties, come along and bring your families, and enjoy the pleasure of friendly intercourse with the great men of our ranks. The committee herewith pre-

sent the programme with a feeling of pardonable pride. Never in the history of Beedom in Canada has such a brilliant galaxy of men been brought together for such a purpose. In the evening of life, while dwelling on sweet thoughts of the past, may this great Field Meet induce you to say:

"Backward, turn backward, Oh time, in thy flight;

Make me a child again, just for to-night."

Fraternally yours,

G. R. CHAPMAN, President.

CHAS. E. HOPPER, Secy.

The programme is as follows: The C.P.R. train will leave the Union Station at Toronto, at 7.20 a.m., arrive at Forks-of-the-Credit at 9.25 a.m. From 10 to 10.45 a.m. there will be a general inspection of the apiary, honey house, appliances, etc., conducted by Mr. Sibbald. From 10.45 to 11.30 a.m., Mr. J. L. Byer, president of the O.B.K.A., will officiate. From 11.30 to 12 a.m. we will extend to all sister organizations and delegates.

Lunch, provided by the ladies, will be served from 12 to 1 p.m., following which there will be addresses by Mr. C. P. Dandant, editor of the *American Bee Journal*, Mr. Morley Pettit, Provincial Apiarist, Mr. E. R. Root, Editor *Gleanings in Bee Culture*, Mr. M. B. Holmes, Athens, Ont., Director, O.B.K.A., and by Mr. Wm. Couse, Streetsville, Ont.

From 5.15 to 6 p.m., lunch will be served and toasts drunk. The train will leave on the return trip at 6.15 p.m., and will arrive at the Union Station at 8.25 p.m.

Members of the Ladies' Committee will wear white badges. Mrs. Sibbald is the president. Please leave baskets with the Ladies' Committee. Members of the Information Committee will wear blue badges at all stations on the line. Members of the field committee will be known by their yellow badges. Mr. Wilson is the president. The fare for the round trip from Toronto is one dollar and fifteen cents.

Encouragement for Beginners

D. Anguish, Lambeth, Ont.

I WOULD like to give a few notes of encouragement to the beginner who has had the opportunity of reading articles published in journals circulated as sample copies. Don't be discouraged by reading Mr. Holterman's article, which states that comb honey has taken a terrible drop from three dollars a dozen to one dollar seventy-five cents. Those remarks are only common expressions from the middleman. I saw an article in *The Beekeeper* which made me feel a little nervous, in the Secretary's Corner, page 103. Ten car loads of No. 1 comb honey had been offered to a certain man at one dollar fifty cents a dozen, and he is a Canadian. If he does not take it, it is likely to be dumped into the lake.

It seems to me that these articles should never have been put into print, for neither one is going to do any good, and they may do a lot of harm. Were the public press to take it up, there is no telling where it would end, as far as the beekeepers are concerned. They have a pretty good idea why those two articles were published, but it is different with the consumer. As I happen to know or have a little idea of the object of those two articles, it has not discouraged me in the least. We are going right

along preparing for as much comb honey as ever, and expect to get as good prices as we have been getting for these last few years, especially if that ten car lot is dumped into the lake at Chicago.

My advice to the beginner is to go right along and produce as much choice or fancy comb honey or extracted as you can for one-tenth part of the population of the world does not know what honey tastes like. Do not take notice of what the large beekeepers say about over-production, as long as you see them launching out with more yards and bringing bees into this country by the car load lots, and advertising for students. There is still room for you, Brother or Sister, for the Lord never intended the nectar that is secreted in the flowers to be kept for the benefit of one or two men.

In reference to the Government grant, it seems to me that as it is public money it should be spent for the benefit of all beekeepers, whether large or small, or whether he is on the official board for life or only a looker-on. It does not look very brotherly to see only a few getting all the plumes.

I am a member of a fruit growers' asso-

ciation and have attended meetings twice a month all winter. Thus I have had an opportunity to hear some good addresses on producing fruit of all kinds. I have heard the praises of the honey bee sung and the fruit grower warned to be very careful about spraying and thus not destroy his best friend the honey bee.

One evening we had a producer who rents orchards, and who is also a shipper. He was getting along fairly well describing his methods of pruning and taking care of orchards until he came to spraying. The first spray was to be done when the trees were dormant, and the second spray just

before the blossom burst. When he came to the third spraying he found a lot of objections as he stated that you must begin when the trees are in full bloom, or in other words, when the blossoms were only half off. He was asked if there was not a law to prevent it. He was a small man, but he braced up and said he would rather pay a few fines than wait later. I want you beekeepers around Ingersoll and Aylmer to keep a good look-out and see that this one particular fruit grower pays his fines, for he is willing to do so for the privilege of killing off some of his best friends, the bees.

The Peterboro County Convention

THAT the spirit of cooperation is becoming more and more alive, is plainly evident from the persistent way in which it keeps cropping up at various meetings and conventions. Cooperation was the subject of a considerable amount of discussion at the meeting of the Peterboro County Beekeepers' Association held in Peterboro, on April 2nd.

Mr. F. C. McRae, District Representative, urged the necessity of cooperation, and suggested that a start be made this spring by buying supplies on a cooperative basis. Mr. H. B. Cowan, of The Beekeeper, pointed out the excellent opportunities for cooperation among beekeepers. At one time the fruit growers of Ontario thought cooperation an impossibility. At the present time there are between forty and fifty cooperative fruit growers' societies in the province, with a large central society. The western farmers have proved that cooperation is practical, and are now wanting to cooperate with us in exchanging their grain products for our cheese, apples, honey, etc. Had the beekeepers some system of cooperation, a splendid market could be created in the west.

Mr. Morley Pettit stated that the experiments conducted last year in giving members an opportunity to purchase queens, and dispose of honey through the association, showed that cooperation is favorably regarded by the beekeepers.

SPRING MANAGEMENT

Mr. Pettit dealt with the problem of spring management. Spring is a critical period for the bees, as it is then that the greatest losses occur. Every colony must be carefully examined to see that the entrances are not clogged with dead bees. The entrances should be contracted and great care taken to prevent the robbing of weak colonies. If the bees are short of stores they require to be fed with syrup made of equal parts of boiling water and granulated sugar. No tartaric acid is used in the syrup for spring feeding. Spring feeding is an advantage, in that it stimulates brood rearing so that there is a complete working force of bees on hand when the honey flow begins.

When bees are wintered in the cellar they may be taken out when the weather has reached a reasonable degree of warmth. They may be taken out on the morning of a fine day so that they can have a flight the same day, or they can be taken out in the evening, when it does not matter if they don't have a flight for two or three days.

In order that the bees may build up strongly, protection from the cold north-west and east winds is essential. If no natural wind break is available, an eight foot board fence makes a good substitute. As a temperature of over ninety degrees is

required for brood rearing, it is necessary to have a suitable cover to prevent the escape of heat from the brood chamber. This is made with a three-eighth inch lumber, with a seven-eighth-inch rim, turned dish side up, and filled with a sheet of hair felt. A sheet of galvanized iron is placed over all. This cover is water tight, proof against the sun's heat, and keeps in the heat of the colony.

QUEEN CLIPPING

At the beginning of the fruit bloom brood chambers should be examined, and the queens clipped. Clipping is valuable in swarm protection, and also for keeping records of the age of queens. A queen should be got rid of after the second season, unless she has special qualities as a breeder. As the fruit bloom comes on the entrances may be enlarged to full size. When the hive is full of bees, and they begin to whiten the combs, it is time to place on a super of combs. There are two plans for putting on the first super. One is to place it above the brood chamber, the other to place it below. When the super is placed above, the queen enters it and starts brood rearing. A little later, when the clover flow starts, the queen is driven down again. To be certain that the queen is down, the super is removed, the combs taken out, and the bees shaken off in front of the hive. An extracting super is placed in position, and the super of brood can be placed on top and allowed to hatch, or can be used as a nucleus.

The objection to this plan is that the heat from the brood chamber ascends to the super, and the brood in the brood chamber is liable to be chilled. When the super is placed beneath the brood chamber, the heat does not escape, and there is not so much danger of chilled brood. By this latter plan the first honey gathered, which is generally dark, is stored in the brood chamber. After the clover flow starts the supering of the hive should be carefully attended to, and more room given as required.

Mr. W. Agar, Foul Brood Inspector, from Guelph, in answer to a number of questions, stated that European foul brood is now within a few miles of Peterboro, cases having been located near Norwood, Keene and the head of Rice Lake. European foul brood can be distinguished by its yellowish color, offensive odor, and the fact that the brood dies before it uncoils. Black bees and weak colonies are very susceptible to the disease. The remedy is to keep the colonies strong, feed liberally between fruit bloom and clover, Italianize, and above all, get rid of black bees. The attendance at the meeting eclipsed that of any meeting yet held, about fifty being present. President W. B. Anderson occupied the chair.—A.T.B.

Beekeepers' Supplies

Editor, The Beekeeper.—In the March number of The Beekeeper, an article appears under the heading of "Beekeepers' Supplies," which seems to me to be unfair to Canadian manufacturers. Having just paid a visit to the factory of the Ham & Nott Co., of Brantford, and spent some time in looking over their large stock, I was much impressed with the enormous quantity of goods manufactured, and also the quality.

Having spent about twenty years in the planing mill, sash and door business in a number of factories throughout Ontario, as an expert machinist and millwright, about six years of which was spent only about six miles from our friend in Haileybury, knowing well the quality of our Northern timber, and having about one thousand hives under construction in my own shop, as I make all my own, I think I am in a position to judge somewhat of workmanship as well as material, and I must say that our Canadian factory at Brantford is a credit to our beekeeping industry. I examined considerable of the stock and was surprised to find such a fine quality of material being used. I did not find one piece of hive part containing a knot of any kind.

As to the misfit of parts, surely if this were common there would be many complaints. Two years ago I was called in to examine some hive parts made by Ham & Nott that would not fit properly, and I found the parts were put together wrong side out. Last year in selling my comb honey I found a dealer who objected to my honey because the sections were so small. He had been buying comb honey that held a lot more than mine, and to prove his assertion brought out some. The sections were one-piece sections, put together inside out. How this beekeeper got them in the super I would like to know.

Our friend writes of American manufacturers buying their lumber in Canada. I am not well acquainted with their goods. However, three years since I bought a car load of bees and supplies in the States. They were all made by the A. I. Root Co. of Medina, who are the largest makers of bee supplies in America, and the supplies were all made of Southern Cypress. I understand that they are using this lumber almost entirely in the manufacture of their supplies.

I have been looking carefully over and comparing the product of both manufacturers and find that in some points ours excel. After comparing extractors, I am giving my order for a Ham & Nott eight-frame power machine, as I am satisfied that in a couple of points their machine is better than the American.

I wish it understood that I am not running down American made supplies. My order this year, not counting wax, will be over one hundred and fifty dollars, divided about equally. Not because of any defect in the Canadian made goods, but because some of the supplies are not made in Canada.

It must be borne in mind that there is a much larger demand for bee supplies in the United States than in Canada, and consequently large factories can be operated there and more attention given to the needs of beekeepers.

I think the way to improve our supplies will be to write our factories when parts do not go together and we may find that the fault is not in the hive. Let us give all credit to our own industries and "Boost for Canada."—S. B. Bisbee, Beamsville, Ont.

Keeping Bees on Shares

Prof. M. Pettit, Guelph, has furnished the following reply to a question regarding the keeping of bees on shares, asked by a reader of *The Beekeeper*:

You will find the subject of keeping bees on shares very fully taken up in the "A B C of Bee Culture," page 91. (This may be purchased through *The Beekeeper* for \$1.50 plus twelve cents for postage.—Editor.) According to their recommendation, the owner of the bees should agree to provide a good location for keeping bees and the required number of colonies of healthy bees, also all hives, tools, machinery, and buildings necessary to carry on the work. He should further pay one-half of the cost of all sections and bottles, etc., and in case of feeding the bees should furnish feeders and the sugar for making the syrup. He is then to give and deliver on the premises to the one who looks after the bees the full one-half of all marketable honey and wax produced.

On the other hand, the second party to the contract agrees to care for the bees in a proper manner, to provide all the labor, to pay one-half the cost and expense of sections, cans, bottles, shipping cases, etc., to do the work of feeding the bees when necessary, and to deliver on the premises to the owner, the full one-half of all the marketable honey and wax produced, and to accept the remaining half for his full compensation for labor and care of the bees in securing such a crop. It is further agreed that the one who is doing the work shall put the bees in good shape for the winter, and that all increase of swarms, artificial or natural, shall belong to the owner. In case no honey is secured or the amount runs below ten pounds per colony, it is agreed that the owner shall pay to the employee as a compensation for his labor on the bees, a fixed rate per hour for the time he has spent on the bees, the rate to be agreed upon in making out the contract. In such case any surplus honey there may be belongs to the owner of the bees.

The Apicultural Department

In the Ontario Legislature recently Mr. Mayberry, of Oxford County, asked the Government the following questions:

"First—What is the present provision in the Agricultural College at Guelph for giving instruction in the beekeeping industry and encouraging its development? Second—Does the Government intend to take any further action toward increasing the accommodation for the development of this industry at Guelph Agricultural College?"

The Minister of Agriculture replied: First—A lecturer in apiculture with a regular assistant and stenographer and temporary assistance for special work. A fully equipped office, classroom, and room for storage, and ample accommodation for some fifty colonies. Second—The matter is under consideration.

The reply of the Minister of Agriculture might mislead those not acquainted with the facts inasmuch as the regular assistant mentioned is merely an office assistant, who is not paid by the College, but out of the apiary inspection vote of the Department of Toronto, while the classroom is the biology classroom in another building. The room for the accommodation of fifty colonies is on the sod, with a frame building ten by twelve feet. As the Government has the matter under consideration, it is to be hoped that it will decide to considerably increase the equipment of the apicultural de-

partment, which is in danger of being elbowed into the background by some of the larger but no more deserving departments.

Encourage Consumption

Editor, *The Beekeeper*.—As secretary of the National Beekeepers' Association, it affords me much pleasure to invite the beekeepers of Canada to cooperate with the National Association of the United States in launching a campaign of publicity to better educate the general public to the fact that honey is a good thing and that they should use it more freely. The details of our plans will appear in the leading papers for beekeepers.

I feel that this thing will appeal to all producers, wherever located, and that we can work together to this common end. I would appreciate very much receiving suggestions in regard to this publicity campaign.—Geo. W. Williams, Redkey, Ind.

Lambton Convention

At the annual convention of the Lambton Beekeepers' Association held in Sarnia recently, unusually interesting addresses were delivered. Mr. Jas. Armstrong, of Cheapside, spoke on "How to Produce Extracted Honey," and illustrated his remarks by means of a full-sized model of a standard beehive.

Prof. Morley Pettit advised beekeepers to develop home consumption first and to advertise honey in order to develop their market. He also advised cooperation with local fruit growers' associations in extending the western markets.

Isaac Langstrath, of Arkona, advocated a greater production of comb honey. A question drawer was conducted by Mr. Lucas, of Wyoming. A lecture was given in the evening by F. Eric Millen, who showed, by lantern slides, the important part played by the honey bee in the pollinization of fruit. The association will continue to buy supplies for its members as was done last year.

Items of Interest

The Beekeepers' Association of Lincoln and Welland Counties had a profitable season last year. They have elected the following officers: President, J. F. Dunn, Ridgeway; vice-president, J. E. Cohoe, Wellandport; secretary-treasurer, W. B. Bowen, Niagara Falls. At their annual meeting addresses were delivered by O. I. Herschiser, of Buffalo, on "Wax Rendering," and by Prof. Morley Pettit, of Guelph.

The reports received by Secretary Morley Pettit, of the Ontario Beekeepers' Association, up to April 17th, indicated that bees have wintered well and that clover conditions also seem to be fairly good. Secretary Pettit reports that members of the Association are renewing their memberships rapidly. Mr. Pettit recently tested the parcels post by sending a well-packed can of honey through the mail to the editor of *The Beekeeper*. The can arrived intact, with its contents in good condition, but the can was considerably dented in transit.

I take much pleasure in reading *The Canadian Horticulturist and Beekeeper*. I find in it much useful information on the culture of bees and the management of the apiary. It is instructive and interesting from the standpoint of both the advanced beekeeper and the beginner. I think it a fine magazine.—W. M. Walls, Pleasant Park, Ont.

PUBLISHER'S DESK

Just one year ago we published the first issue of *The Beekeeper*. The connection we have already established with our Canadian beekeepers and the friends we have made, has made the year a pleasant one for us. At the outset we did not anticipate that the circulation of *The Beekeeper* during the first year of publication would at the most exceed the one thousand mark. Much to our pleasure it has already almost reached the two thousand mark, and we hope to pass this figure within the next few months. The action of the officers of the New Brunswick Beekeepers' Association in appointing *The Beekeeper* as their official organ has assisted us in emphasizing the national character of *The Beekeeper*. We desire to make *The Beekeeper* truly representative of the beekeeping interests of Canada.

* * *

Because of the fact that we have received more support from the beekeepers than we anticipated a year ago, we have enlarged the paper this year by the addition of an extra page of matter in each issue and have improved it at considerable expense by obtaining a special front cover design. We are far short still of what we expect *The Beekeeper* will become within the next two or three years. As will be noticed by page 137 we are now carrying quite a few advertisements relating to the beekeeping industry. If this support continues we will soon be able to add some additional pages, which is something that we are most anxious to do.

* * *

Owing to our limited space we nearly always have two or three times as much material on hand as we are able to use in each issue. This month to our great regret we have been forced to leave out an unusually large number of interesting articles. Among others these include one entitled "Bees: the Fruit Growers' Friend," by R. S. Beckett, B.S.A., Hilton, Ont.; "Experiences with European Foul Brood," by Chas. Stewart, District Inspector of Apiaries, New York State; "Cooperative Experiments in Beekeeping," and "Notes from the National Beekeepers' Convention at St. Louis," by Prof. Pettit; "A Beekeeper's Model Workshop," by E. T. Bainard, Lambeth, Ont.; "The Use of Steam in the Workshop," by Denis Nolan, of Newton Robinson, Ont.; "European Foul Brood," by Warrington Scott, of Wooler, Ont.; "The Pollinization of Flowers by the Honey Bee," by Wm. Gibbs, Appin, Ont.; and several others. We expect to publish some of these in our June issue, which will contain a number of other interesting features, including a full report of the National Field Day to be held at Mr. Sibbald's apiaries on May 25th. This list of articles is published in order that our readers may understand something of the pressure on our reading columns and why it is not always possible for us to publish articles as promptly as we otherwise might.

* * *

One way in which our readers can help us to increase the size of *The Beekeeper* is by obtaining new subscribers for us and by buying from our advertisers and telling them that they saw their advertisements in *The Canadian Horticulturist and Beekeeper*.

See the advertisements on page 137.

Administration of the Fruit Marks Act

By F. H. Grindley, B.S.A., Assistant Chief, Fruit Division

THE chief work of the Fruit Division is the administration of the Inspection and Sales Act, Part IX., commonly known as "The Fruit Marks Act." This Act, passed in 1901, was the result of a desire on the part of progressive fruit growers for an improvement in the methods of marketing fruit, in order to prevent complaints by the consuming public against fraudulent packing. With the passing of the Act, fruit inspectors were appointed for its enforcement. In those early days, on account of the ignorance on the growers' part of the provisions of the Act, much educational work was found necessary. Consequently, the inspectors spent a great deal of their time among the growers, in orchards, in packing houses and at public meetings. It was not till several years later that the initial leniency shown towards growers was lessened, and the inspectors began to rigidly enforce the Act. At that time all reports of inspection were sent to the Fruit Division at Ottawa, and when a prosecution was advised by an inspector, such prosecution was not carried on until authorized by the Fruit Division. Between 1907 and 1910 all cases of prosecution in Ontario were handled either by the Chief of the Fruit Division or his Assistant, and even before those dates many of the Ontario cases were handled from headquarters.

NUMBER OF INSPECTORS INCREASED

With the extension of fruit growing areas, and the consequent increase in production, there came the necessity for increasing the number of inspectors, in order that a fair percentage of the fruit packed might be satisfactorily examined. Since

1905 this increase has been gradual. In 1905 there were seven permanent and five temporary inspectors. Last year there were sixteen permanent and thirty-five temporary inspectors.

In the summer of 1912, in order that supervision of the inspection work might be more complete, the country was divided into five districts, with a chief inspector in charge of each. This change accounts for the large increase in the staff, and the result has been extremely satisfactory, in that it has brought about greater efficiency in the administration of the Act,

THE SYSTEM OF INSPECTION

Under the present system of inspection, there are five chief inspectors, covering the five districts: Maritime Provinces, Eastern Ontario and Quebec, Western Ontario, Prairie Provinces and British Columbia. These five supervise and control the work of a staff of forty-five inspectors and are in turn directed by and report to Fruit Division at Ottawa. Weekly reports are received at Ottawa from the entire staff, so that a complete record is always on hand of their movements. Reports of inspections are not now, as formerly, all sent direct to Ottawa. The chief inspector in each particular district receives the reports from his own district, handling violations at his own discretion, and sending other reports to Ottawa after personal examination.

The detailment of the various inspectors throughout the season is arranged, so far as their number will allow, to cover the main points of production and export. The several centres in the fruit growing districts, the larger towns and cities, and the

Douglas Gardens

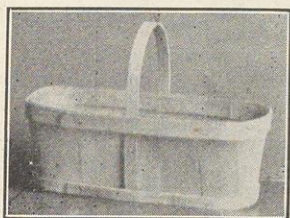
OAKVILLE, ONT.

We name below a few things that we desire to emphasize, viz.:

ANEMONE JAPONICA, 3 vars., each 15c, 10 for \$1.25.
 AQUILEGIA (Columbine), 2 sorts, each 15c, 10 for \$1.25.
 ARABIS ALPINA (Columbine), each 15c, 10 \$1.25, 100 \$10.00.
 ARTEMISIA LACTIFLORA (New), a fine plant, each 25c.
 ASTERS (Michaelmas Daisies), planted in spring they bloom the following fall, 12 vars., each 15c, 10 \$1.25.
 BELLIS PERENNIS, should be 10c each, 10 for 75c, 100 \$6.00.
 DELPHINIUMS, Gold Medal Hybrids, each 20c, 10 for \$1.50.
 HELENIUM RIVERTON BEAUTY and GEM, each 20c.
 HEMEROCALLIS, 3 sorts, each 10c and 20c.
 HEUCHERA ROSAMANDE, each 20c.
 KNIPHOFIA (Tritoma) PFITZERII, each 15c, 10 \$1.25.
 PANSIES, in colors for late blooming, each 5c, 10 45c, 100 \$4.00.
 PHYSOSTEGIA, 2 sorts, each 15c, 10 \$1.25.
 SHASTA DAISIES, 3 sorts, each 25c, 10 \$2.00.
 DAHLIAS, planty only, 10 sorts, each 15c, 10 \$1.25.
 GLADIOLUS, 3 unnamed sorts, 25 corvus, 60c, 75c and 80c.
 ANTIRRHINUM (Snapdragon), including Silver Pink, 10 60c.
 CHINA ASTERS, grown in pots, 6 sorts, 10 25c, 100 \$1.25.
 GERANIUMS, SALVIA, SCABIOSA, STOCKS, Etc.

JOHN CAVERS

Peerless Climax Fruit Baskets



Heaviest, Strongest and Best

In the market. Especially suitable for long distance shipping. Last year the demand exceeded the supply

Therefore Order Early

Canada Wood Products
Co.

ST. THOMAS, ONT.

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 spray 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

FAVOURITE FLOWERS from the BEAUTIFUL OLD-FASHIONED GARDENS of ENGLAND

KELWAY'S famous Hardy Herbaceous Plants are modern developments of the old English favourites. The cottage "Piny Rose" has become the Pæony, incomparable in form, colour and fragrance. The old-fashioned Larkspur has developed into the stately blooms of the Delphiniums; Gaillardias, Pyrethrums and the rest, all serve to bring back the charm of the old-world English garden. Special care is taken in packing plants to arrive in Canada in good order, and they can be relied upon to thrive with a minimum of attention.

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

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Kelway's Perennials
for
Canadian Gardens



Direct from
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The Royal Horticulturists
LANGPORT ENGLAND

Send—now—for a copy
of the Kelway Book—
and make your Garden
glorious

ports of Montreal, Halifax, St. John, Quebec and Vancouver, are all under supervision during the busy season. The prairie provinces are fairly extensively covered, and care is taken to inspect fruit imported from the United States, the grade marks on which must conform to those on Canadian packages. During the winter months, when navigation is closed at Montreal, and when Ontario fruit is being shipped from American ports, the Montreal inspectors, with one exception, are transferred to points in Ontario where fruit has been stored and inspections are then made of shipments from such points. At the end of the season the services of many of the Inspectors are dispensed with, only sixteen out of fifty-one being at present retained permanently. These men devote their time during the slack season, as far as possible, to orchard meetings and other demonstration work.

In 1912 the position of "Apple Packing Demonstrator" was created, and a man competent in packing and in platform speaking, now devotes practically his whole time at orchard and other meetings, demonstrating modern methods of fruit packing. The services of this man are always in demand, and much good has resulted from the work he has done.

No small task is the keeping of a thorough index, at Ottawa, of all inspection reports. Thousands of these are received during the season, and a tabulation is made of the grower's name and address, the number and kind of packages examined, and the date and result of inspection. This index has been kept since the inception of the Act of 1901, and has been of great value in many cases where a grower's record has been desired.

Imported Nursery Stock

The quantity of trees, shrubs and other plants, including ornamental and fruit trees, all of which are classed as "nursery stock," imported into Canada is increasing annually. According to the place of origin these trees are fumigated or inspected under the Destructive Insect and Pest Act before their entry is permitted, to prevent the introduction of insect pests.

To increase the facilities for importing trees into western Canada, the Minister of Agriculture established an additional port of entry and a fumigation station at North Portal, Sask., last summer. A new and enlarged fumigation station was also erected at St. John, N.B., to provide more accommodation and better facilities. Arrangements are now being made to erect an additional fumigation and inspection station at Niagara Falls, Ont., to meet the increased importations entering Canada via that port and destined chiefly to points in Ontario. The importation of nursery stock through the mails was prohibited from March 1st.

At a meeting in Morrisburg, Ont., of the St. Lawrence Valley Fruit Growers' Association, held on April 20th, it was resolved not to make another exhibit of apples in the fruit department of the Ontario Horticultural Exhibition in Toronto unless a rule be made prohibiting Government men, who act, assist, or advise as packers, from officiating as judges. One such official was said to have shown bias at the last show. In certain instances Baldwin apples were rated as a better apple than the McIntosh Red. Members of the Fruit Growers' Association of the St. Lawrence Valley contend there is no comparison between the two.

PURE - BRED ITALIAN QUEENS

AFTER JUNE 15th

Untested Queens \$1.00 each, \$10.00 a doz.
Warranted purely mated Queens \$1.10 each,
\$12.00 a doz. Tested Queens \$1.50 each, \$15.00
a doz. Breeding Queens \$2.50, \$5.00 and \$10.00
each. Liberal discount on large orders.
JOHN A. McKINNON - ST. EUGENE, ONT.

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We make a specialty of supplying Bees, Italian
Queens, supplies, etc., for Bee-keepers. Circulars
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ALISO APIARY CO.
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Italian Queens and Bees

NORTHERN BRED

Superior Wintress. Descriptive List free. Un-
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Plans, "How to introduce Queens," 15c.
"How to increase," 15c.; both, 25c.

E. E. MOTT, GLENWOOD, MICH., U. S. A.

THE BEEKEEPERS' REVIEW CLUBBING LIST

The Review and Gleanings one year, \$1.50.
The Review and American Bee Journal one
year, \$1.50.

All three for one year only \$2.00.
Canadian Subscribers add postage as fol-
lows: Gleanings, 30c.; A. B. J., 10c.

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Bred from Doolittles best Italian
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livery. One dollar each, six for
five dollars.

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Safe arrival guaranteed

Send your consignments of APPLES to the
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Artistic Plans, Sketches furnished for all
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Ornamental Trees, Shrubs, Conifers,
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Honey, Wax, Poultry Supplies, Seeds, etc.

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185 Wright Avenue, Toronto, Ont.

QUEENS

Tested, \$1.00 each; 3 to 6, 90c. each.

Untested, 75c. each; 3 to 6, 70c. each.

Bees per lb., \$1.50, no Queens.

Nuclei per frame, no Queens, \$1.50.

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Bee Supplies Bees and Queens

Improved Model Hives
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Italian Queens
Bees by the Pound Packages
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Highest Price paid for BEESWAX

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BEES AND QUEENS

By quickest Express Service only
12 hours to St. Louis, Mo. U.S.A.
Untested Queens 75c. each, \$7.50
per dozen. Extra select tested, will
make good breeders, \$2.50 each,
Nuclei, \$1.25 per frame, no queen.
Young bees, no queen but full
weight \$1.50 per pound, with
queen \$2.25. Five or more with
queens at \$2.00 each.

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MAYHEW, MISS., U.S.A.



BUY CARNIOLANS IN CARNIOLA

Pure Carniolan Alpine Bees
Write in English for Booklet and
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**Three Banded Red Clover
Italian Queens**

Bred from Tested Stock

Untested Queens, \$1 each, \$5 for six
Selected untested, \$1.25 each, \$7 for six

Tested Selected Guaranteed Queens,
\$2 each

Cash With Order

W. R. STIRLING

Box 214 Ridgeway, Ont.

Famous Queens Direct from Italy

Bees more beautiful, more gentle, more
industrious, the best honey gatherers.
PRIZES—VI. Swiss Agricultural Exposition,
Berne, 1895.

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fort, O. M. (Germany), 1907.

Universal Exposition, St. Louis,

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The highest award.

Extra. Breeding Queens, \$3.00; Selected,
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dozen or more Queens. Safe arrival guaran-
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PEDEVILLA, NEAR BELLINZONA ITALIAN SWITZERLAND

This country, politically, Switzerland Re-
public, lies geographically in Italy and pos-
sesses the best kind of Bees known.

Mention in writing—The Canadian Horticulturist and
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Northern Bred Hardy Stock



Italian Queens

from selected stock of
the best strain of
honey gatherers for
1914. Quick delivery.
Cash with order.

Prices—April till

June, Untested Queens, \$1.00 each;
6 for \$5.00; in lots of 25 or more,
75c. each. Selected Tested, \$2.00.
Breeders, \$5.00.

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AURORA, ILLINOIS, U.S.A.



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Sulfur Dusters

For Fighting Every Disease of Cultivated Plants

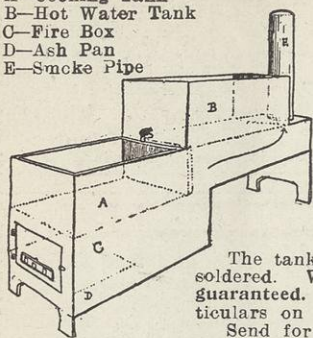
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Power Sprayers

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(Rhône), FRANCE

Manufacturer,
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A—Cooking Tank
B—Hot Water Tank
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Make Your Own Spray

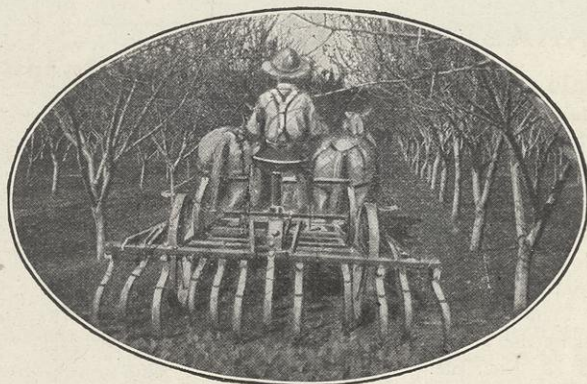
Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

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.

Send for pamphlet illustrating the finest pruning saw on the market.

STEEL TROUGH & MACHINE CO., Ltd., TWEED, Ont.



Cultivate Underneath the Branches With This Cultivator

A Massey-Harris nine-tooth Cultivator equipped with extensions, enables you to cultivate under the overhanging branches, close to the tree.

The attachment may be quickly removed when not required.

Frame and Sections are Angle Steel. Teeth are of Steel with Reversible Steel Points and attached so as to be readily adjustable.

Wheels are 29 inches high with $2\frac{1}{2}$ inch face and are on extension axles, permitting of change in the tread from 4 ft. to 4 ft. 10 in.

One lever raises and lowers both Sections.

MASSEY-HARRIS CO., Limited
HEAD OFFICES: TORONTO, CANADA

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SWIFT CURRENT YORKTON CALGARY EDMONTON
Agencies Everywhere

Annapolis Valley Notes

On April 16th, "The Valley" experienced a regular mid-winter blizzard. We have had no spring weather as yet, buds were not swelling, and summer seemed a long way off. The "oldest inhabitant" talks about the coldest spring on record.

In spite of the twenty below temperature in February, apple trees seem to have come through the winter in good condition. They give promise of an abundant bloom. Nova Scotia is noted for her regular bearing orchards, and all are looking forward to a bumper crop following the poor one of last season. Judging by the happy faces of the power sprayer agents, spraying will be almost universal this coming season; at all farmers' and fruit growers' meetings this past winter the spraying question was thoroughly discussed, and from what one hears the lessons of the past two seasons have been pretty generally taken to heart. As soon as our people really grasp the idea that spraying for spot is an insurance that cannot be neglected without disastrous results, both to the quantity and quality of their crop, the Valley will take the premier place in Canada for profitable apple growing.

The members of the cooperative companies are enthusiastic over the showing made by the United Fruit Companies for the season just closing. Organization continues. Six new companies were formed this spring. All are uniting themselves with the Central Association.

A "Good Roads Association" was organized at Kentville last month, having for its object the improvement of the country roads throughout the Valley. This is not an automobile organization, as in some other places, but has its chief support from the farmers who are badly in need of better roads leading across the Valley to the various shipping stations on the railway. Proper drainage of the roadbed, and the increased use of the split log drag will be encouraged.—M.K.E.

The New Zealand Trade

Canadian Trade Commissioner Beddoe, stationed at Auckland, New Zealand, reporting to the Department of Trade and Commerce, at Ottawa, relating to the sale of British Columbia fruit in New Zealand, writes as follows:

The Canadian shipper at first took the risk of consignment, and finally receiving large orders for cash. The position now is: That, whereas in the first instance the shipper demurred to send on consignment it was pointed out that such an expression of confidence in his own goods would assist in their future sale. The sales by auction were very satisfactory. Then the shipper wanted to send again on consignment, it was suggested that the goods having been favorably received, it would be better to quote a price f.o.b. Auckland, as the market might vary. Shippers hesitated to do this and the result was that last shipments from Vancouver included a large quantity of American apples, and the price of United States and Canadian went down. This is mentioned to illustrate the importance of accepting local advice.

Another point of importance is, that too much space is given to the American product on the Vancouver boats. It seems inconsistent that the Canadian Government should subsidize steamers to carry foreign products which compete with the Canadian on this market, thus tending to lower prices.

Renew Your Subscription Now

PERENNIALS

Every plant grown from seed sown last year, and developed wholly in the open air. Most of the plants listed will not be ready for shipment till after May 1st.

Large Clumps

10c each \$1.00 dozen

Sweet William—Choice Auricula Eyed
 Digitalis (Foxglove)—Large Flowered Mixed.
 Aquilegia (Columbine)—Select Long Spurred Hybrids
 Heuchera (Coral Bells)—Sanguinea.
 Polemonium—Richardsoni.

From 3 inch Pots

8c each 60c dozen

(Except Hollyhocks)

Arabis Alpina (Rock Cress)—Single.
 Orientale Poppy—Fine large Crimson Black Blotch.
 Excelsior Strain, an Extra Fine Mixture.
 Iceland Poppy—Mixed Colors.
 Aquilegia—Long Spurred Hybrids.

10c each \$1.00 dozen

Hollyhocks, Double—Chater's Finest English Strain.
 Mixed colors.

Medium Sized Roots

7c each 60c dozen

Chrysanthemum Maximum, Moonpenny Daisy (often called Shasta Daisy.

King Edward VII.

Calliopsis (Coreopsis)—Grandiflora.

Delphinium—A Fine Mixture.

Delphinium Chinensis—Blue and White.

Lupinus.

Polyphyllus Mixed.

Lobelia Cardinalis.

Sweet Rocket.

Sweet William—3 splendid varieties in mixture.

Digitalis Ambigua.

At 5c each 50c dozen

Forget-Me-Nots—Several Colors.

English Daisy—The Bride, white, very free flowering, long stems.

Pansies—A grand mixture from named varieties.

ALSO

Strong Potted Plants, 75c per dozen, \$5.00 per 100.

SALVIA—Drooping Spikes. The finest of the tall Salvias. Ready May 10.

PENTSTEMON—Select Scotch strain. Ready May 10.

SPECIAL

Beat your neighbors, and have the first ripe Tomatoes in your neighborhood. Full of fun and interest you will find it. Eat fine, fresh fruit from your own vines, instead of buying flavorless tomatoes at 15c per lb. Ready May 10th.

BONNY BEST—The best of the Extra Earlies. Very large potted plants. 12 for \$1.00; 25 for \$6.00.

EARLIANA—The earliest of them all. Large potted plants. 20 for \$1.00; 25 for \$4.00.

All our tomato plants are hardened off properly in open air. They have travelled in good condition 1,000 miles.

TERMS: CASH

Plants will be sent by express, unless otherwise arranged for.

RYERSE BROS., SIMCOE, ONT.

Double The Yield of The Garden

GEM GARDEN COLLECTION

This Complete Collection will stock a moderate-sized Kitchen Garden throughout the Season.
\$1.00, Postpaid.

3 lb. Beans... Dwarf Stringless Yellow Pod.	1 pkt. Onion... Early, Slicing.
3 lb. Beans... Dwarf Stringless Green Pod.	1 pkt. Onion... Early, Boiling.
1 pkt. Beans... Dwarf Bush Lima.	1 pkt. Parsnip... Long White.
1 pkt. Beet... Round Red.	3 lb. Peas... Earliest Dwarf.
1 pkt. Cabbage... Early.	3 lb. Peas... Medium Early Dwarf.
1 pkt. Carrot... Intermediate Red.	1 pkt. Radish... Early Round Red.
3 lb. Corn... Early Sugar.	1 pkt. Squash... Marrow.
1 pkt. Cucumber... Slicing.	1 pkt. Tomato... Early Smooth Scarlet.
1 pkt. Lettuce... Cabbage Heading.	1 pkt. Turnip... Round, White Table.

WM. RENNIE CO. Limited

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Also at Montreal, Winnipeg and Vancouver.

With Rennies Seeds



He's Big All Over And Good All Through

Big Ben is built for *endless* service. He has no "off-days," no shut-downs. His four years of existence have been one long record of on-the-dot accuracy. 7,000 Canadian dealers say that he does more *efficient work* for less pay than any other clock alive.

A Big Ben battalion, over 3,000 strong, leaves La Salle, Illinois, every day. Their sparkling triple nickel-plated coats of implement steel; their dominating seven-inch height; their big, bold, black, easy-to-read figures and hands; their big, easy-to-wind keys—all make Big Ben the world's master clock.

In return for one little drop of oil, he'll 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'll guarantee to get you up either of TWO WAYS—with one long, steady, five-minute ring if you need a good big call, or *on the installment plan*, with short rings one half-minute apart for ten minutes, so you'll wake up *gradually*, and he'll stop short in the middle of a tap during *either* call if you want to shut him off.

Big Ben is a mighty pleasant looking fellow. His big, open honest face and his gentle tick-tick have earned him a place in thousands of *parlors*.

The next time you go to town call at your dealer's and ask to see Big Ben. If your dealer hasn't him, send a money order for \$3.00 to his makers—*Westclox, La Salle, Illinois*—and he'll come to you prepaid.

Eastern Annapolis Valley

Eunice Buchanan

Last month I mentioned that I said no sign of aphids on the first batch of apple twigs brought into the house, but on a second lot of Kings and Blenheims brought in later there were aphids.

The demand for nursery trees is not great owing to scarcity of cash. Last year although the season finished with good prices for fruit, the apples were badly spotted and did not pack up to expectations; the year before also produced spotted fruit. However, most of the growers intend to spray more thoroughly than ever, and more than one air-tight sprayer is being imported from the United States.

The forests and shelter belts are rapidly falling before the axe, and already one feels the effects of the strong cold winds as they sweep along the Valley.

The spring is unusually late (some years we have peas planted by the last of March). Snow fell on April 12th, and the following day was very cold, with icicles hanging all day, although we have had days this year with the thermometer as high as 60 degrees.

At this time of the year one is tempted to compare the spring here with that of England, where the snowdrops come in February and the daffodils and narcissi are in full swing in April, and where the fruit trees blossom long before those in Canada; but when autumn comes the tables are turned, for the Canadian fruits are ready to harvest just as soon as the English.

Seed potatoes from Nova Scotia have now also been prohibited in Bermuda; so those growers who have saved their crops for better prices are apt to be disappointed.

Many Englishmen are filling the places of the native hired man (who does not find things as alluring in the States as formerly), so wages are not likely to go higher yet awhile (the highest is about \$40 per month and house). There are many applicants for work, and this year the farmers need to economize; many of them do not care to keep men all winter, or more than one. Pruning has been going on during March and April, but there have been days when the average farmer was puzzled to find a job for his men. The old buck saw and horse are resting on many farms while the gasoline engine cuts the cordwood into stove lengths.

Another cooperative fruit company has been formed in Cambridge, King's county, N.S., with Mr. J. G. Webster as president.

Australian fruit is arriving in England—this, and the poor condition of Nova Scotian fruit on arrival has resulted in a bad drop in prices. The highest being \$4.39 for No. 1 Nonpareils, and \$2.30 for No. 3's. Ben Davis ranging from \$3.76 to \$2.80; Gano, \$4.10 to \$2.80.

Experimental Work at Ottawa

Four new greenhouses erected for the Horticultural Division at the Central Experimental Farm, Ottawa, are nearing completion, and already two have been occupied. They are what is known as the *Pier-U-Bar Flat Iron Curved Eave Construction*, and will give about seven thousand five hundred square feet under glass. They are heated with hot water from sectional boilers and consist of a main house one hundred and seven feet, six inches long, and twenty-five feet wide, divided into two by a glass partition, and three detached houses twelve feet apart on one side of it, each fifty-eight feet six inches long and

twenty-five feet wide, and each connected with the main house by a glass portico. The main purposes to which these houses will be put are as follows:

Five different kinds of benches are being installed which will be tested for relative usefulness and desirability. On these and in the solid beds on the ground different methods of culture of flowers, vegetables, and of some fruits will be tried.

The cross-breeding of flowers, fruits, and vegetables will be carried on during the winter months and selections made from existing varieties or strains. A specialty will be made of the testing of florists' novelties and reporting on the same. Although tomatoes, radish, and lettuce are the winter vegetable crops usually grown, it has been found that other kinds of vegetables succeed well when forced, and experiments will be tried with a variety of crops.

Experiments will be conducted in the forcing of strawberries, grapes, and other fruits. This winter several hundred pots of strawberries are being forced with the object of learning which succeeds best.

Fifty pots of fifteen varieties of European grapes are being forced, it being believed that there will be a growing demand for these grapes in Canada. Being in pots the vines do not take up space permanently in

the houses, but can be moved about when necessary. In England grapes are successfully forced in this way. A large number of plants are needed for bedding on the ornamental grounds at the Central Farm, and the greenhouses will be utilized for propagating these.

Experimental Cold Storage Warehouse

The experimental cold storage warehouse for fruit which the Dominion Department of Agriculture is erecting at Grimsby, Ont., is now nearing completion. This warehouse, which has been erected according to the design of the Dairy and Cold Storage Commissioner, Mr. J. A. Ruddick, is intended to afford facilities for carrying on experiments in the cold storage of different varieties of fruit, and also in demonstrating the value of pre-cooling for long distance shipment.

The total refrigerated space is about fifty thousand cubic feet. There are four rooms on the ground floor, each with a capacity of fully two carloads of fruit. The basement floor contains one large room and a separate chamber for experimental purposes. The warehouse is equipped with what is known as Cooper's gravity brine system, with special facilities for a quick cooling in two or three chambers at a time.

STRAWBERRY PLANTS

For sale. Fine stocky, well-rooted plants. Eleven tested varieties. Write for list and prices.

S. H. RITTENHOUSE, JORDAN HARBOR, ONT.

Some of the finest gardens in the world have been arranged by

KELWAY & SON

The Royal Horticulturists

Langport, Somerset, England

FRUIT MACHINERY CO.

INGERSOLL, ONT.

Manufacturers of Fruit Sprayers

and a complete line of

Apple Evaporating Machinery

Our complete **POWER SYSTEMS** for evaporating, when installed by our experienced millwrights are the most practical, sanitary and labor saving to be found anywhere. Our prices and terms always reasonable.

Write for Illustrated Catalogue

HAND-MADE

FRUIT BASKETS

The Best in the Market

HEWSON & FARRELL

GRIMSBY Box 536 ONTARIO

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.

TRADE MARK

Wilkinson
REGISTERED

**PNEUMATIC
ENSILAGE**

and STRAW CUTTERS

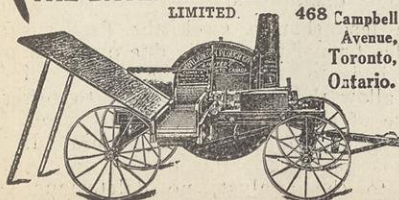
Our Climax "A" mounted is the only successful combination machine of this capacity on the market. It will cut and deliver green corn into the highest silo, or dry straw or hay into the mow. 13" mouth, rolls raise 8 inches and set close to knives, making solid compact cutting surface. Requires less power than any other of same capacity. No lost power.

Direct pneumatic delivery, no worm gears or special blower attachment. Knife wheel also carries the fans. No lodging on wheelarms, everything cut, wheel always in balance. Steel fan-case. Supplied with pipe enough to reach any silo, also pipe rock, tools, etc. Ask your dealer about them and write for catalog. We also make a "B" machine unmounted.

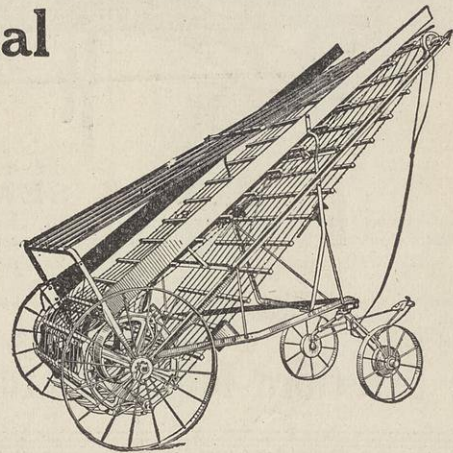
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The IHC Line GRAIN AND HAY MACHINES

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Binders, Cultivators
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Peg and Spring-Tooth,
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WHEN haying time comes you cannot control weather conditions, but you can make the best of them if you use the rakes, tedders, stackers, loaders, and sweep rakes sold by IHC local agents. With a line of IHC haying tools in your sheds you can come out of the least favorable weather conditions with the highest percentage of bright, well cured hay.

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Write the nearest branch house and get the name of the nearest agent handling IHC haying tools, and catalogues on the machines in which you may be interested.

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

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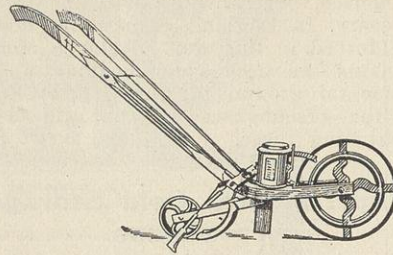
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Price \$7.50 delivered at your station.

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Ltd.

The fruit growers of the district will be afforded the facilities of the warehouse on payment of the usual charges for such service. The warehouse is conveniently located next the public school grounds in the village of Grimsby, and a siding from the electric railway has been laid down for convenience in shipping.

The services of Mr. Edwin Smith, B.S.A., who has been engaged during the past two years on cold storage and transportation work in British Columbia, have been secured to take charge of the establishment under Mr. Ruddick's direction. Mr. Smith has had special training in fruit work, and is well qualified to carry out the details of such experiments and demonstrations as may be undertaken. He will assume his duties about the first of May.

Poison on Apple Peel

Canadian Trade Commissioner J. E. Ray, stationed at Birmingham, Eng., has sent the following report to the Department of Trade and Commerce, at Ottawa:

The following paragraphs appear in the current issue of the London Daily Telegraph:

Some consternation has been caused by a letter which has appeared in the press on the subject of poison on apple-peel. Mr. Maurice S. Salaman, analytical chemist, has drawn attention to the presence of a deposit of copper sulphate (blue vitriol) with some admixture of lime on certain 'imported apples of excellent quality and flavor.' The analyst's letter says:

'Samples of imported apples of excellent quality and flavor were brought to me to-day, in my professional capacity, with an inquiry concerning what was described as a peculiar green mildew near the stalk. It proved on analysis not to be a mildew but a deposit of copper sulphate (blue vitriol), with some admixture of lime, and was evidently left behind in spraying the fruit against parasites.'

'The presence in appreciable quantity of rank poison, and this of a partially cumulative kind, in fruit largely eaten by children, is so grave a public danger that your assistance is urgently asked in calling attention to it.'

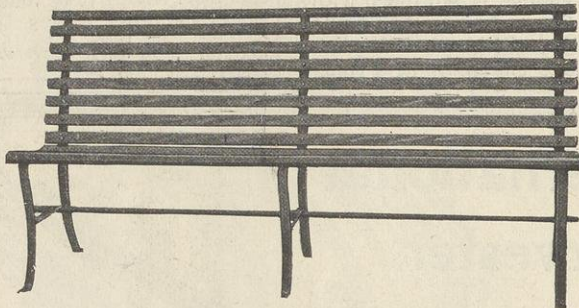
'Apples having any sign of green deposit in the stalk cavity should not be eaten unless peeled.'

'But surely some steps should be taken to stop the importation of fruit thus dangerously contaminated.'

An exhaustive examination of the apples now on the market revealed the fact that the only variety affected was the Albemarle Newtown. Unfortunately this happens to be the best flavored apple available at the moment. But all Albemarles have not a poisonous deposit in the cavity which holds the stalk. The bulk have been carefully washed before shipment from America. Nevertheless, nobody is anxious to take the risk of eating poisonous matter, and all that need be done is carefully to wash the apple if one is desirous of eating the peel. If in addition the peel is removed then the danger disappears.

In less than a week the first cargo of apples from Australia is due on the market, and it is to be hoped that the public will not allow the colonial growers to suffer because of the trouble which has arisen from the American Albemarle Pippin. In any case a peeled apple is quite safe. According to the analyst, no deleterious substance has been found beneath the skin.

HORTICULTURAL SOCIETIES.



PARK SEATS

Are as necessary to the improvement of your parks as flower stock. When making your plans for this year's park improvement, include our PARK SEATS.

We make well finished, durable Park Seats that will give satisfaction, at reasonable prices.

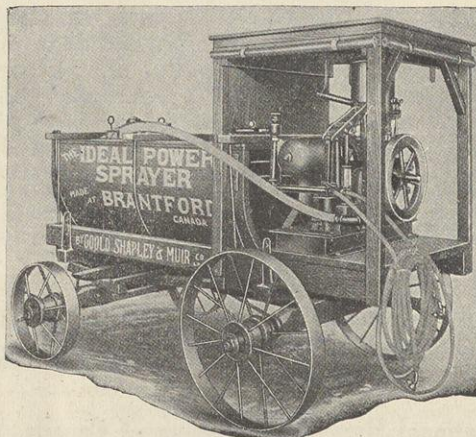
Among the parks already supplied are: Medicine Hat, Moose Jaw, Sault St. Marie, Welland, Windsor, Stratford and Toronto.

Catalogue "G" will give full information about this seat.

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Catalogues describing our different lines, sent on request

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CARNIOLAN QUEENS

Carniolans are excellent winterers, build up rapidly in the spring, enter supers rapidly, are gentle and the best of honey gatherers. Ask for our free paper, "Superiority of the Carniolan Bee."

Untested, \$1.00 each; dozen, \$9.00.
Full Colony in 8 fr. dovetail or Danz 10 fr. hive, \$10.00 f.o.b. here.

ALBERT G. HANN
Carniolan Queen Breeder - Clinton, N.J., U.S.A.

Superior Golden Queens

that produce workers for honey. The gentlest bees on the earth to handle and the yellowest. Untested, each \$1.00, six \$5.00. Tested, \$2.00 to \$3.00. Breeders, \$5.00 to \$10.00.

J. R. BROCKWELL. BARNETTS, VA., U.S.A.

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.

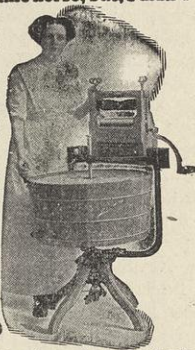
Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight, too. Surely that is fair enough, isn't it?

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 60 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. H. MORRIS, Manager, 1900 Washer Co., 357 Yonge St., Toronto, Ont.

**Mother's Day**

Mother's Day this year will be observed on May 10th. Probably no custom has met with such instantaneous and general approval in such a short space of time as has Mother's Day. Year by year the number of churches and other public institutions that refer to the practice of sending flowers or writing to our Mothers, or wearing flowers in their memory, that is encouraged by the observance of this day, has been increasing. This year the day is likely to be more widely observed than ever before. Horticultural societies should help on the good work.

Recent Publications

Copies of the following publications have reached The Canadian Horticulturist during the past few weeks: "The Apple in Pennsylvania: Varieties, Planting and General Care," being bulletin No. 128, issued by the State College, Central College, Pennsylvania; "Home-Made Cider Vinegar," by Walter G. Sackett; Bulletin 192 of the Agricultural Experiment Station, Fort Collins, Colorado; "Potatoe Diseases in New Jersey," being circular 33, and "An Analysis of Materials sold as Insecticides and Fungicides," Bulletin No. 262, of the New Jersey Agricultural Experiment Station, New Brunswick, N. J.

The Agricultural Experiment Station, Orono, Maine, has issued two bulletins, one dealing with "Woolly Aphid of the Elm," being Bulletin No. 220, and the other "Spraying Experiments and Apple Diseases in 1913," being Bulletin No. 223. The latter is particularly interesting.

The Connecticut Experiment Station, New Haven, Conn., is distributing Bulletin No. 182, entitled, "The Brown-Tail Moth." This bulletin is well illustrated and gives valuable information relating to this pest. It should be of special interest to fruit growers in those portions of the Maritime Provinces where this moth has made its appearance. Bulletin 181 by the same station is entitled, "Some Common Lady Beetles of Connecticut."

The Ohio Experiment Station of Wooster, Ohio, is sending out Circular No. 143, entitled "The San Jose Scale, The Oyster Shell Bark Louse and Scurfy Bark Louse," by J. F. Houser, and Circular No. 140, being an abridgement of Bulletin 264, entitled "Orchard Bark Beetles and Pin Hole Borers."

The Agricultural Experiment Station of the University of Wisconsin, Madison, has issued a valuable bulletin entitled "The Control of Damping-off Disease in Plant Beds."

The ninth annual report of the Ontario Vegetable Growers' Association is being distributed by the Ontario Department of Agriculture of Toronto, and the report of the proceedings of the 59th annual meeting of the Western New York Horticultural Society, is being sent out by Secretary John Hall, 204 Granite Bldg., Rochester, N.Y. This report deals with an unusually large number of interesting subjects.

"The Modern Gladiolus Grower," is the title of a new publication intended for both amateur and professional growers of gladioli, which is being published monthly by Madison Cooper, Calcium, N.Y. It contains articles of special interest to gladioli growers.

MILLER'S STRAIN ITALIAN QUEENS

By return mail after June 5th to 10th, or money refunded; bred from best red-clover strains in United States, in full colonies; from my Superior Breeders, northern bred, for business, long tongued, leather color or three banded, gentle, winter well, hustlers. Not inclined to swarm, roll honey in.

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A specialist of 17 years' experience.
Safe arrival and satisfaction guaranteed.

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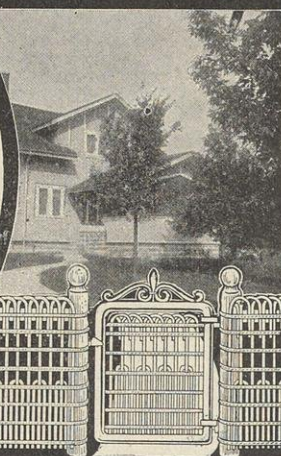
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New Cyclopedia of Horticulture

The Canadian Horticulturist is in receipt of the first volume of Prof. L. H. Bailey's New Standard Cyclopedia of Horticulture. The first volume contains some six hundred pages, and if the remaining five volumes of the set equal the standard set by this first volume the set will establish a new standard of excellence for works of this character. This new Cyclopedia of Horticulture (the second edition of the original Cyclopedia) has been freshly written in the light of the most recent research and experience. It is not merely an ordinary revision or corrected edition of the old cyclopedia, but is a new work, with enlarged boundaries geographically and practically. It supersedes and displaces all previous editions or reprints of every kind whatsoever.

It is the fullest and the most authoritative work of its kind and constitutes the most conscientious attempt that has been made to compress the story of our horticultural thought, learning and achievement into one set of books. The text is under alphabetical arrangement and is supplemented by a synopsis of the plant kingdom; a key to identification of species; a list of specific plant names with their meaning translated into English and their pronunciation given; a glossary with definitions of technical terms and a general index. Every name in the cyclopedia is also pronounced in its regular entry.

In its approximately four thousand genera, fifteen thousand species, forty thousand plant names, in clear and concise arrangement, this cyclopedia opens a knowledge of plants and growing things not to be found in any other horticultural work. It presents the combined labor and experience of the foremost North American authorities on horticultural subjects. The six volumes place at the disposal of the horticulturist, whether practical, amateur or scientific, an account of practically every subject which at any time may be of interest or use in his calling. Its range is wide, covering plants, flowers, vegetables, trees, tillage processes, tools and implements, cultural discussions, botanical history, geography, commercial markets and myriad items that only constant use will reveal. The scope of the volumes has not been confined to botanical subjects alone, but every subject in any way incident to the activities of the horticulturist has been covered, commercially as well as scientifically. The publishers are The Macmillan Company of Canada, Limited, 70 Bond Street, Toronto, Ont.

Mr. Wm. Armstrong, Niagara River Fruit Farm, Ontario, will this season introduce a new fruit package. This package will be a crate holding about one bushel of fruit. It will contain a number of small crates, each holding one dozen or more of say peaches. Each peach will be wrapped so as to expose to view a small portion of each peach in the crate, and thus facilitate immediate inspection by all concerned. This crate will be useful as a cold storage package, as it provides for a free circulation of air through every part. Twenty-five years ago Mr. Armstrong introduced a new thirty-six quart berry crate which proved a success.

The British Columbia Department of Agriculture had one of its representatives give a series of demonstrations of top working apple trees during April in several of the leading fruit districts of the province.

EARLY VEGETABLES AND FRUIT

Sold At
HIGHEST PRICES

We have special facilities that will ensure prompt handling of your Fruit this season. Market information freely supplied.

Write to-day and make arrangements with us.

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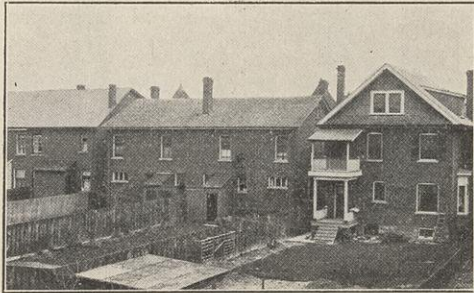
THE INCREASED NUTRITIOUS VALUE OF BREAD MADE IN THE HOME WITH ROYAL YEAST CAKES SHOULD BE SUFFICIENT INCENTIVE TO THE CAREFUL HOUSEWIFE TO GIVE THIS IMPORTANT FOOD ITEM THE ATTENTION TO WHICH IT IS JUSTLY ENTITLED.

HOME BREAD BAKING REDUCES THE HIGH COST OF LIVING BY LESSENING THE AMOUNT OF EXPENSIVE MEATS REQUIRED TO SUPPLY THE NECESSARY NOURISHMENT TO THE BODY.

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Back Yard Improvements
E. L. Dyer, Toronto, Ont.

In Toronto, through the efforts of Parks Commissioner Chambers, The Health Department, Civic Guild and Ratepayers' Association, a "clean-up and open-up" campaign has been started, and in some sections, neighbors are cooperating with each other to tear down the shabby, unsanitary, germ-breeding, old wooden fences, and erecting in their place, a neat, handsome, ornamental lawn fence.



How the Back Yards Used to Look

The views here reproduced show the old wooden fence, and two months later, the wonderful improvement and handsome appearance the ornamental fences have made. Here you see unsightly yards transformed into miniature parks. Fresh air and sunshine have full play and the shrubbery, vines and plants are in a healthy, thrifty condition.

An artistic fence like this around a house is like an artistic frame around a painting. It's not absolutely necessary, but nearly so. Home improvements of this nature cost so little, the wonder is that people generally have not adopted them. Modern conditions demand such improvements. Ornamental lawn fences in either iron or wire, are the only logical solution of the city backyard problem.



Improvement Some Ornamental Fences Made

Board fences keep out the sunlight and fresh air, afford a hiding place and dumping ground for garbage and filth, and are unsanitary. In some American cities by-laws against the erection of board fences are in force. Detroit is a notable example. The time is not far distant when Toronto and other cities will have similar by-laws.

Ornamental iron and wire fences let in fresh air and sunshine, and generally have the effect of turning dumping grounds into gardens with flowers, mudholes into green lawns, and transforming "eyesores" into beauty spots. They automatically cause people to obey sanitary laws by making them ashamed to have their back yards revealed as what they are to all who care to look.

A good orchard, well attended, is the most profitable branch of the average farm.—E. E. Adams, Leamington, Ont.



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A FARMER'S GARDEN

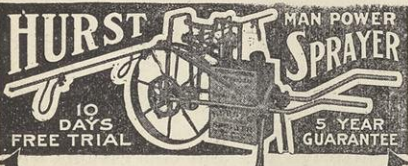
Helps his wife to plan her table in busy times. Saves work and worry, saves buying so much meat, gives better satisfaction to the help. A good garden will be almost impossible in your busy life without proper tools. They cost little and save much hard work.

IRON AGE WHEEL HOES AND DRILLS

will sow, cultivate, ridge, furrow, etc., better than you can with old-fashioned tools and ten times quicker. A woman, boy or girl can do it. Can plant closer and work these hand tools while the horses rest. 38 combinations from which to choose at \$3.00 to \$14. One combined tool will do all of the work. Ask your dealer to show them and write us for booklet, "Gardening With Modern Tools" and "Iron Age Farm and Garden News" both free.



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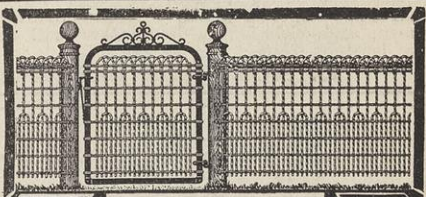
A practical hand machine for field and orchard spraying. Saves time, labor and money. High pressure, perfect agitation. High, wide-tired wheel makes pushing easy. Has horse hitch for hilly country. Made to last. Has brass ball valves, plunger, cylinder, etc., and 10- and 20-gallon rust-proof tank. Much larger capacity than hand sprayer, and costs much less than the horse-power machine. A great crop increaser.

READ THIS OFFER

I will send you this machine on 10 days' trial, without your advancing one cent. If satisfied with it keep it and pay on terms to suit. If not, send it back at our expense. WE PAY THE FREIGHT. This free trial backed by our 5-year guarantee and over 27 years' experience in making sprayers insure you complete satisfaction. Send today for my big

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This offer is made to the first buyer in each locality. Write me today—be the first—and I will send the offer and the book in the first possible mail.
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Can be put up on wooden or iron posts; does not require an expert. Is self-adjusting to uneven ground; does not lose its shape.

Cyclone Fence COSTS LESS than inferior makes because it is made in enormous quantities in one of the biggest fence factories on earth.

We carry a full line of Cyclone goods

Ornamental Fences and Gates; Flower bed border, Trellis.

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Violet King, Rose King, Royal White, Royal Lavender, Royal Pink, Royal Purple, Rochester Pink, Peerless Pink, Salmon Pink, Improved Oregio Pink, Queen of the Market White or Pink, Branching White, Rose, Pink, Lavender, Crimson, Mikado White. These are very truly the aristocrats of the Aster family. All plants sent by Express (unless otherwise arranged) to any part of Canada and guaranteed to arrive in good condition. Price, \$1.00 per hundred, packed and labelled separately in wet moss. Express prepaid on orders amounting to more than \$2.00. Special prices to Horticultural Societies. All plants cold frame (not hot-bed) grown, and with favorable weather will be ready last week in May. Order early as the quantity is limited.

C. MORTIMER BEZZO

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WHILE THEY LAST

In order to clear out the remaining copies on hand of **The Canadian Apple Grower's Guide**, we are making a clubbing offer with **The Canadian Horticulturist** of **less than half price**. This book is written by Linus Woolverton, M.A., and is one of the leading authorities on Fruit Growing, and should be in the library of every fruit grower.

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The Canadian Horticulturist 60

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THE CANADIAN HORTICULTURIST

PETERBORO, ONT.

Control of Steamboat Traffic

The Ontario Fruit Growers' Association, through their Transportation Committee and Traffic Officer, Mr. G. E. McIntosh, have for the past two years been carrying on an investigation of facilities afforded by the transportation companies for the handling of the fruit shipments of the province.

Included in a very complete report by Mr. McIntosh on this work presented at the annual meeting of the growers held in Toronto last November, were several recommendations for amendments to the Railway Act, whereby the jurisdiction of the Board of Railway Commissioners would be greatly extended. These were endorsed and submitted to Mr. J. E. Armstrong, the energetic member for East Lambton, who consented to bring them before Parliament.

This was done several weeks ago by Mr. Armstrong, in the introduction of Bill No. 85, the first clause of which compels all steamboats engaged in carrying freight from any port or place in Canada to another port or place in Canada to file their traffic agreements, tolls, classification of freights and traffic, with the Railway Commission. All questions of the places along the line of route where steamboats shall call for traffic, and the time of call, and the duration of stay, shall be subject to the approval and control of the Board.

It is interesting to note that there are over eight thousand boats in Canada which will be affected by this legislation, and of the total tonnage carried by these boats the agriculturists contributed nearly twenty per cent. Figuring the amount spent by the Government in keeping up the waterways, the average cost per ton for lake transportation in Canada in 1913 was 99.37 cents, compared with 55.19 cents for American traffic. It is only reasonable to expect that the people of Canada through the Government and Board of Railway Commissioners, should have a voice in the control of the steamboat companies, when we consider that the capital cost of Canadian canals up to the present time is \$105,656,037, and the cost of maintenance last year alone amounted to \$1,603,080.

For many reasons, therefore, this clause of the Bill is looked upon as one of the most important pieces of legislation advanced during the present session.

Another clause gives the Board control over all privileges and concessions given by any company to any person, the Board having power to order such privilege or concession be discontinued or modified or granted to any other person.

The last clause deals with the shipping of fruit in particular. In years gone by, men have been compelled to see their product, which has been carefully gathered and packed under the regulations of the Fruit Act, thrown in and out of cars and handed in a careless, reckless manner. Of the total shipments last season ten per cent, was damaged or pilfered. The railway and express companies seem utterly incapable to compel their employees to handle these products properly. This unfortunate state of affairs the Bill overcomes by imposing a fine on wilfully destructive employees.

With the adoption of Mr. Armstrong's Bill, one of the most embarrassing shipping problems for the fruit industry will be effectually solved.

That it is a popular piece of legislation is evidenced by the number of Boards of Trade throughout the province which have endorsed it and petitioned the Government

Where does it go?

is the most important question that should be asked, concerning the circulation of any magazine.

It's far more telling from the advertising standpoint than the question "How Many?"

It's quality rather than quantity that counts every time.

The Canadian Horticulturist

offers a high quality service to advertisers. It enters the homes of Canadian fruit growers and beekeepers, who are acknowledged to be the wealthy and progressive rural people of Canada.

When Making Your Plans

for next year, why not decide to include it?

"Ask and ye shall receive" detailed circulation statement and all other information at our disposal.

The Canadian Horticulturist

PETERBORO, ONT.

to have it become law, among the number being Toronto, Hamilton, St. Catharines, London, Sault Ste. Marie, Sarnia and Goderich, while several municipal councils have also sent in their approval.

The first clause of the Bill relative to navigation companies has been included in the Consolidated Railway Act, but the remaining clauses will come before the House again.

How Apples are Sold in Great Britain

Special Correspondent of the Canadian Horticulturist

In the fruit sales rooms of Great Britain a catalogue is made, generally about twenty or thirty barrels going to the lot, each lot of course being numbered. In a straight line of fruit, one may often see twenty or thirty lots of the same class of goods, but in a mixed lot various kinds are sold together in lots of twenty or more different kinds of apples. These mixed lots are not over popular with the buyers and growers should avoid mixtures as far as possible. On no account put two kinds of apples in the same barrel.

Out of each lot, or run of lots, of similar stuff, appearing on the catalogue, one or sometimes two sample barrels are sent up to the saleroom and each one is shot out for the inspection of the buyers as the previous lot is being bid for, so that all may see the quality of the goods all the way through. To save time the samples come up the hoist with the heads of the barrels knocked off, and are immediately turned right out into big baskets. At the end of the sale all the samples are sold together as one lot, and often at a very much lower price than the bulk has made, owing to their having been turned out. As soon as a buyer has bought all he wants he obtains an order from the office for the delivery of his goods in the usual way and is generally allowed a bare week in which to settle, the brokers naturally being very strict on the point of credit, although a firm may be good for very much more than the amount involved.

The selling by private treaty by those salesmen who, either from choice or otherwise, are outside the brokers' ring, does not call for much description. The goods are examined by the prospective buyer and are sold for what they are worth in either large or small parcels according to requirements. No particular selection or sampling takes place, but naturally the best and most perfect stuff makes the best prices. A barrel is perhaps opened here and there in the parcel, but with such dexterity that the goods are not upset nor in any way deteriorated for sale. Mention might be made of the tool used for opening the barrels. It is a short handled hammer of the adze shape, with a claw at one end and a square head at the other. It is very light, but in experienced hands quite powerful enough to get the head off a barrel with two or three well directed blows.

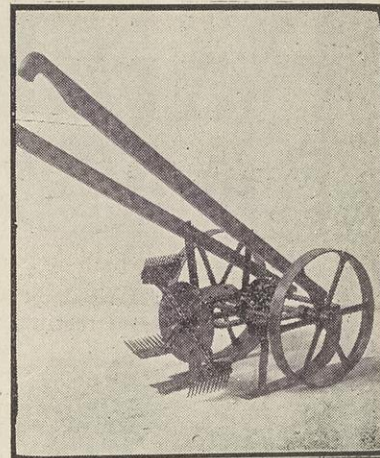
I would like to impress upon growers the vital importance of keeping their packing and grading well up to the standard. Competition is so keen amongst the retail trade, to say nothing of the dealers, that buyers will insist on having the best stuff if they are paying best price, and it is no longer possible to run a lot of inferior stuff in, even if it were politic. Growers should aim at making their own brand the best and most reliable they possibly can, and if they do that consistently there will be no trouble in disposing of the goods at this end, as no one has a better memory for the virtues, and more especially, for the failings of a particular mark than has the buyer.

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.

Onion Growers



Do you intend to have any weeds in your onions this year? If so, ask me for literature which describes a machine that will separate the weeds from the onions, practically doing away with most hand weeding. Don't delay. Act quickly if you want to secure a weeder this season.

R. G. Bruner, Manufacturer
OLINDA, ONT.

Repeat orders are the best recommendation

READ THIS

The Sherwin-Williams Co.
Mgr. Insecticide Dept.
Montreal

Dear Sir:—

I heartily recommend the use of Sherwin-Williams New Process Arsenate of Lead, and in proof of such, kindly accept my order for another 1,000 lbs., to be delivered to us with the 1,000 lbs. that I gave you some time ago.

Yours very truly,

FATHER LEOPOLD

Horticulturist at the Oka Institute, President of the Pomological and Fruit Growers Society of the province of Quebec.

THE SHERWIN-WILLIAMS Co.
of Canada, Limited

MANUFACTURERS OF INSECTICIDES

Offices and Warehouses:

Montreal, Toronto, Winnipeg, Calgary, Vancouver, Halifax, N. S., London, Eng.

Progressive Jones Says:

"Intensive Market-Gardening Means Intensive Fertilizing"

It is intensive market gardening that pays largest profits. If you want to make each plot of ground yield its utmost, I advise you to use Harab Fertilizers.

Harab FERTILIZERS

By fertilizing the Harab way you build up the soil as well as greatly increase and improve your yield. There are many different combinations of Harab Fertilizers, each of which is particularly suited to

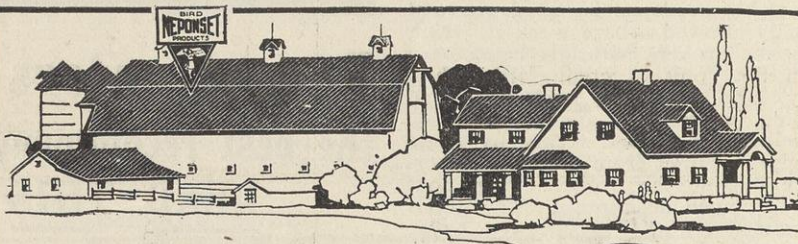
the crop for which it is recommended.

The Harris Abattoir Company will be pleased to send you their useful fertilizer booklet free. Send your name to-day direct to the Company or to nearest agency.



*Yours for bumper crops,
Progressive Jones*

The Harris Abattoir Co., Ltd.
Fertilizer Dept. Strachan Ave.
Toronto, Canada 21



NEPONSET Paroid Roofing

There's a NEPONSET Roofing for Every Building

GET Neponset Roofings—the "slowly made" kind. Then you are sure to get roofings that are slow to wear out. Then you'll never get a poor roofing when you need a good one.

Neponset Roofings are long on the roof—because long "in the making." This means more than you think. It means this: Maximum protection to your home—your stock—and your pocket-book. Protection against leaks—repairs—and that greatest danger of all—fire. Remarkable "year-in-and-year-out" protection—in cold or hot climates—at a minimum cost—this is the "blanket protection" slowly made Neponset Roofings *invariably* give.

There's a slowly made Neponset Roofing for every purpose. Neponset Paroid is the great roofing for fine farm buildings.

Other Neponset Roofings are—Neponset Shingles for residences; Neponset Proslate, the colored roofing.

Sold by dealers everywhere. Write for name of nearest dealer.

Surely Send for Roof Book—FREE

BIRD & SON (Est. 1795), 962 Heintzman Bldg., Hamilton, Ont.
Montreal St. John, N. B. Winnipeg Vancouver

Also makers of Neponset Wall Board, used in place of laths and plaster, and Neponset Waterproof Building Paper

SOCIETY NOTES

St. Thomas

Dr. Frank E. Bennett, of the St. Thomas Horticultural Society, with his usual enterprise, is organizing a party of enthusiastic horticulturists to visit Rochester on the eve of May 23rd for a couple of days, when the azaleas and rhododendrons are in full bloom. Lilacs will also be out, as well as some late tulips. The Park Superintendent of Rochester reports that this is the best time to see the wonderful sight these flowers present in that city. Parties of ten or more will be able to visit Rochester at the rate of a fare and a third. Several enthusiasts are going from St. Thomas, and it is expected that London will add to the numbers. Any horticulturist who would like to join this party are invited to write direct to Dr. Bennett.

His Royal Highness, The Duke of Connaught, has consented at the request of the St. Thomas Horticultural Society to plant an English oak in one of the parks on the occasion of his visit to St. Thomas on May 6th. The society has purchased a number of rare trees which will shortly be planted in Pinafore Park.

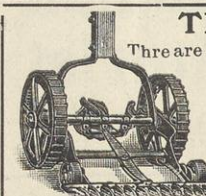
In the annual report of the Ontario Horticultural Association the name of Mrs. Potts, who gave an address relating to the teaching of horticulture to the children in schools is incorrectly given. It should be Mrs. R. B. Potts, 16 Bruce St., Hamilton. The paper by Mrs. Potts was highly praised when read at the convention. Societies or others desiring to get in touch with Mrs. Potts will be able to do so at the address given.

Items of Interest

An international conference on city planning will be held in Toronto, on May 25th to 27th. During the last five years national conferences on city planning have been held annually in various cities of the United States, and have aroused wide-spread interest. This is the first conference of the kind to be held in Canada. The Dominion and Provincial Governments are contributing to the expense of the proceedings. It is expected that many towns and cities in Canada will be officially represented.

"Gardens of Delight," is the title of a most attractive booklet being distributed by Kelway & Son, the Royal Horticulture Establishment, Langport, Somerset, England. It contains profuse illustrations, many of them beautifully colored, of leading English gardens. The illustrations are a revelation.

Chas. E. Woolverton
Landscape Architect
Grimsby, Ontario



THE CLIPPER

There are three things that destroy your lawns—Dandelions, Buck Plantain and Crab Grass. In one season the Clipper will drive them all out. Your dealer should have them. If he has not drop us a line and we will send circulars and prices.

CLIPPER LAWN MOWER CO.
Box 10, Dixon, Ill.

ation of the perfection to which the gardening art has attained in England.

Mr. J. J. Kelso, superintendent of Neglected and Dependent Children, Toronto, is planning to place from two to three hundred boys now in industrial homes to work on fruit farms in the Niagara District during the summer months. The money earned by the boys is to go towards the support of poor relatives or to the boys' own bank accounts.

Prof. Lloyd, of McGill University, gave an address recently before the Royal Canadian Institute in Toronto, on "Artificial Ripening of Fruit." In the course of his address he changed a bunch of bananas from a green to a ripe condition in less than an hour, by means of the fumes of a chemical substance. Prof. Lloyd claimed that the flavor, aroma and quality of the fruit were in no way injured, and that one of the greatest benefits to be derived through artificially ripening fruit is the fact that it makes it possible to transport fruit over long distances.

The death occurred recently of Colonel Wm. Windle Pilkington, V.D., D.L. Col. Pilkington was the head of the well known English firm of Pilkington Bros., Limited, who have been regular advertisers in The Canadian Horticulturist for years. This firm is one of the best known firms engaged in the manufacture of glass in the world. The home of the late Colonel Pilkington was St. Helens, England, where for many years he was one of the leaders in all public enterprises, and where he held many important positions.

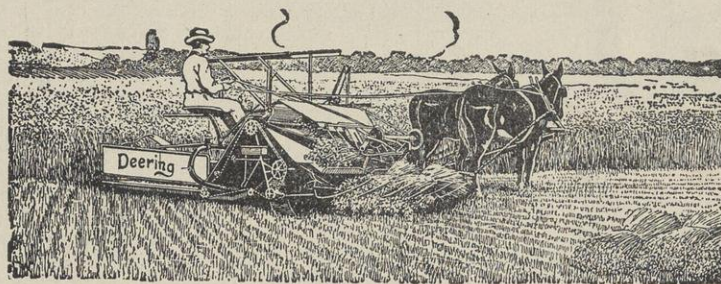
At an open meeting of the Burlington, Ont., Fruit Growers' Association, held recently, addresses were given by Prof. R. Harcourt, of Guelph, and Mr. W. T. Macoun, Dominion Horticulturist, of the Central Experiment Farm, Ottawa. Mr. Macoun stated that Nova Scotia is producing apples at a lower cost than any other part of Canada. British Columbia cannot and does not grow better fruit than Ontario, but they pack it better, and advertise it much more. A letter from Mr. A. W. Peart, of Burlington, was read dealing with the history of the Association and the great factor it had been in the promotion of horticulture in the district.

An effort made by the United Fruit Companies of Nova Scotia, Limited, to establish a Madison Cooper Plant, for cold storage and pre-cooling purposes this year, had to be abandoned owing to the work having been started too late to make it possible for the company to secure the necessary supply of ice. A cheap method, which it is understood has been successfully operated in various parts of the United States for pre-cooling, will be tried with the ice on hand.

At a meeting of the members of the Fruit Union of Summerland, B.C., held recently, a resolution was passed giving shareholders the privilege of shipping privately to consumers any variety of their fruit or produce providing the quantity does not exceed ten per cent. Growers who ship over ten per cent. will not have the right to expect the Union to handle the balance of their crop of that variety. In addition the directors will make whatever charge per box may be necessary towards meeting the cost of overhead expenses.

Reports from various sections of the Niagara district indicate that the peach crop this year, on account of the mild December, followed by the unusually cold spell during January and February, will be decidedly small.

Deering New Ideal A Money Saving Binder



THESE Deering binder features appeal to the farmer. The elevator, open at the rear, delivers the grain properly to the binding attachment. Because the elevator projects ahead of the knife it delivers grain to the binder deck straight. A third packer reaches up close to the top of the elevator and delivers the grain to the other two packers. A third discharge arm keeps the bound sheaves free from unbound grain.

The T-shaped cutter bar is almost level with the bottom of the platform and allows the machine to be tilted close to the ground to pick up down and tangled grain without pushing trash in front of the knife. Either smooth section or serrated knives can be used. The Deering knottor surely needs no recommendation.

The Deering local agent will show why Deering New Ideal binders are the standard of binder construction. See him, or, write to the nearest branch house for a catalogue.

International Harvester Company of Canada, Ltd

Hamilton, Ont.
Ottawa, Ont.

London, Ont.
Quebec, P. Q.

Montreal, Que.
St. John, N. B.

These machines are built at Hamilton, Ont.

BEEKEEPERS

The honey season will soon be here. Have you any Bees, Queens, or Bee Supplies for sale? Now is the time to sell them. A small advertisement in the next issue of

THE BEEKEEPER

will bring you ready buyers. Here's what one of our advertisers says:

Dear Sirs

In reply to your letter of the 15th April, we have to request you to take out our advertisement. We have received a large number of replies. It is unnecessary to add that we are very satisfied with The Beekeeper as an advertising medium.

Yours truly

HARTWICK & WHITE

RATES:—1 inch, \$1.40; 2 inch, \$2.80; 3 inch, \$4.20 per issue
Classified, 3c. per word, each sign or single number counting as one word.

Copy should be received by the 15th May

THE BEEKEEPER, PETERBORO, ONT.

SPRAYERS Are a Necessity and a Benefit.

They save your crop, increase the yield and improve the quality. Our Spray Calendar shows when to spray and what materials to use. Our "Spray" booklet shows 70 combinations of

IRON AGE

Bucket, Barrel, Power and Traction Sprayers for orchard and field crops and other uses. Built complete or in units—buy just what you need. Ask your dealer to show them and let us send you our spray booklet, spray calendar and "Iron Age Farm and Garden News" free.

The Bateman-Wilkinson Co., Limited
464 Symington Ave.
Toronto, Can.

Outside Pumps, Bronze Ball Valves, Hemp Packing, Easy to get at.



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.

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.

I BUY BEES STANDING. Myself pack and load. Owner pockets cash.—F. A. Allen, Philipsburg East, Que.

BEZZO'S FAMOUS PRIZE ASTERS—Read particulars on page x.

WANTED FOR THE SEASON—Young Man who has had experience to work as assistant in Queen rearing yard. State experience and wages expected.—John A. McKinnon, Queen Breeder, St. Eugene, Ont.

BUY THE CIRCLER, a new, up-to-date, hand engraved Aluminum leg band for fowl. Fits all sizes, simple, neat and durable. Send 25c for one dozen.—Wm. A. Curry, 28 Water St. E., Brockville, Ont.

WANTED—Prime swarms; hives furnished. Address Box 18, The Canadian Horticulturist and Beekeeper, Peterboro, Ont.

GOLDEN AND THREE-BANDED ITALIAN AND Carniolan Queens, ready to ship after April 1st. Tested, \$1.00; 3 to 6, 95c each; 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c. Bees, per lb., \$1.50. Nuclei, per frame, \$1.50.—C. B. Bankston, Buffalo, Leon Co., Texas, U.S.A.

FAMOUS NORTH CAROLINA BRED ITALIAN Queens for sale (red clover 3-banders). Honeygatherers, good as the best. Strictly reared from Geo. B. Howe's best breeders; mated with Root's, Moore's, Davis' Select Drones; bees that get the honey. Free from disease. Untested, one, 75c; per doz., \$7.50. Select untested, one, \$1.00; per doz., \$9.00. Tested, one, \$1.25. Select tested, \$1.50. Extra select tested, \$2.00. Breeders, \$3.00 and \$5.00.—H. B. Murray, Liberty, N.O., U.S.A.

FOR SALE—A bargain, one, two and half horse power Sprayer. Two seasons in use. Good state of repair. Complete, sixty dollars.—Lawrence Harvey, Wardsville, Ont.

WANT TO SELL YARD OF BEES or some one to run them near Toronto.—J. Alpaugh, Innerkip, Ont.

Top Working Fruit Trees

R. M. Winslow, Provincial Horticulturist, Victoria, B.C.

The fruit growers of the Okanagan Valley have shown a great increase of interest in making remunerative unsuitable varieties of trees by working them over to the best commercial kinds. Inquiries and requests to the Horticultural Branch of the Department of Agriculture have been far more numerous than in any previous year.

While top-working fruit trees, especially apples, is often justified by the increased returns after the new top is well established, there are certain conditions under which it is not advisable. I refer particularly to the top-working of black-hearted trees, or those which have been badly affected by fire blight. The wood of a black-heart tree is brittle, and much of it is dead; decay starts very readily in the cuts made for grafting, and the scions either fail to grow, or if they grow, make a poor union, and eventually break off.

The appearance of a tree severely cut back in the effort to control an attack of blight, naturally suggests top-working to a blight resistant kind. If blight were quiescent or absent from the district, top-working might be feasible, but when blight is active, the inevitable crop of water sprouts furnish the best possible conditions for blight, and effort to save the blighted stock on which to build a new tree is likely to meet entirely with failure.

Aside from blight or black hearted trees there is a large number of sound, healthy and vigorous trees, of non-remunerative or non-productive varieties; these may be grafted over to the better commercial kinds; in fact, it is highly desirable that they should be so treated.

Items of Interest

Sunscauld is found almost entirely in trees having an open habit of growth or where they are headed very high and pruned out severely in the centre.—S. E. Todd, Lake Huron District, Ont.

The use of iced cars for the carriage of fruit is increasing year by year and fruit growers are learning that the question of temperature in transit is of as much importance as the length of time occupied in carrying the fruit from one place to another.—J. A. Ruddick, Dairy Cold Storage Commissioner.

The cooperative purchasing of supplies has built up in our vegetable growers' association a spirit of brotherly love and mutual confidence that has been of untold benefit to us. Our members have increased, our finances have grown (until one year we paid out over one hundred and fifty dollars in prize money), and still had a nice surplus at the end of the year.—W. J. Kerr, Ottawa, Ont.

Since the creation of The United Fruit Companies of Nova Scotia, Limited, the fruit industry of Nova Scotia appears to have taken a new lease of life. The company has established a department in The Register, of Berwick, N.S., which is published weekly, and which keeps the fruit growers of the Annapolis Valley fully posted in regard to important matters relating to the fruit industry. This is creating greater confidence among the growers and assisting in bringing about reforms and improvements more rapidly than would otherwise be possible.

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

Also options on 1914 puppies for summer delivery.



JOHN DOWNHAM, "Box N, Strathroy, Ont.

THE
**STRATFORD
EXTENSION
LADDER**

It is the safest and best on the market. Fitted with automatic hooks that lock at every rung and unlock between the rungs.

It is
**LIGHT, STRONG
EASILY OPERATED
AND DURABLE**

IF Interested write for Catalogue E

THE
Stratford Mfg. Co.
Limited

STRATFORD, CANADA

Makers of Ladders for every conceivable purpose



If you buy a cheaper Arsenate of Lead "to save money" don't buy any at all and you will save all the money.



Neutral Arsenate of Lead

is not made to sell at a low price, but is produced by a process, that gives it qualities which makes it more economical and efficient than the Arsenates selling for less money.

THE
CANADA PAINT CO.
LIMITED

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



Send for this Unusual Greenhouse Catalog

JUST from the glimpse you get of these two pages, you can see how charming the general treatment must be, and how complete is the showing of each subject considered.

One thing that we think is decidedly in its favor, is that by far the greater number of subjects shown, are of modest size—say, from 33 feet long up to 100 feet. There are just enough of the larger subjects to give you an idea of the scope of our work.

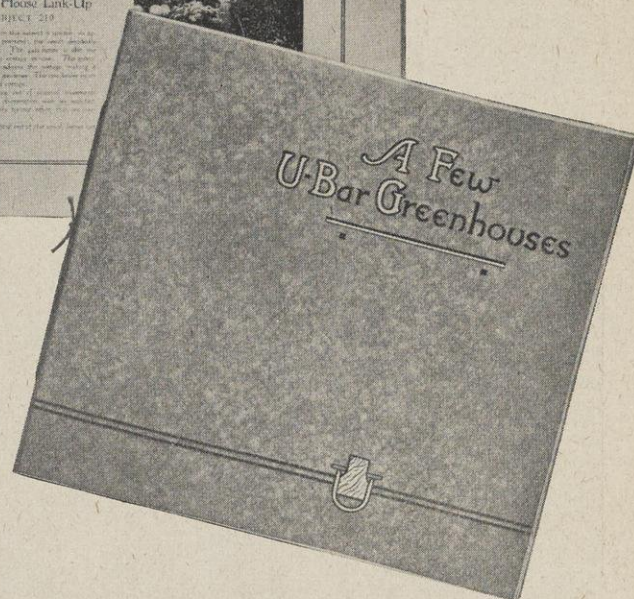
The text is free from any technical description, and reads along just like you and I would chat about it, if we were comfortably seated together talking things over.

If you are interested in having a greenhouse, or adding to the one you already have, you are welcome to this catalog.

U-BAR GREENHOUSES

PIERSON U-BAR CO

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



EXPERIMENT on ONIONS conducted by
Geo. S. Chapman, Lorne Park, Ont.



Fertilizers Applied Per Acre		Plots I	II	III
Muriate of Potash	-	-	160 lbs.	500 lbs.
Acid Phosphate	-	-	500 lbs.	200 lbs.
Nitrate of Soda	-	-	200 lbs.	200 lbs.

Order Your POTASH At Once

The Potassic and Phosphatic Fertilizers should be applied as soon as the land is workable.

Many disappointments with fertilizers are due to the fact that they have been applied too late for the crop to get full benefit from them in the first season. Remember that fertilizers are not used up in the first season, but are effective for several seasons. Nitrate of Soda should generally be applied as a top-dressing at planting time. Slower acting Nitrogenous fertilizers can be applied earlier with the other materials.

Muriate of Potash and Sulphate of Potash

can be obtained from the leading fertilizer dealers and seedsmen.

Write for our Free Educative Bulletins, which include:

- "Artificial Fertilizers; Their Nature and Use"
- "The Farmer's Companion" "Fertilizing Orchard and Garden"
- "The Potato Crop in Canada"
- "The Principal Potash-Crops of Canada" etc.

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

Pergolas In The Garden



THE ABOVE PERGOLA WAS MANUFACTURED BY US

Why Not Plan to Build a Pergola in Your Garden This Spring?

What is a Pergola? It might be termed a continuous archway with climbers overhead; a leafy canopy; a retreat for rest; an avenue near the home that stands out in dignity and adds to the beauty of all around by its open entrances and majestic stateliness.

The Pergola is one of the most modern and up-to-date methods of beautifying the home and its sur-

roundings. It adds a dignified beauty, a distinction and character which cannot be obtained in any other way.

The average Pergola is moderate in price and built under the direction of an experienced builder has great durability.

BATTS LTD. are making a specialty of Pergola construction and will quote prices on application.

BATTS LIMITED

368-400 Pacific Avenue

West Toronto

Manufacturers of Pergolas and Greenhouse Material