

Every Week—\$1 a Year

EXHIBITION NUMBER

Sept. 4, 1900

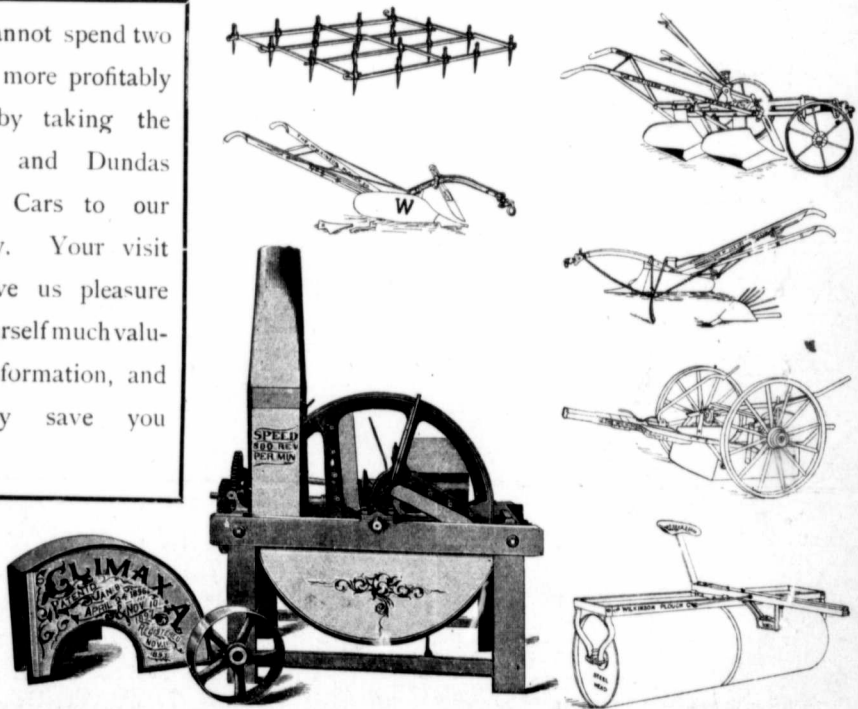
The

Farming World

A Paper for Farmers and Stockmen

During Your Visit to the Exhibition

You cannot spend two hours more profitably than by taking the Queen and Dundas Street Cars to our Factory. Your visit will give us pleasure and yourself much valuable information, and certainly save you money.



THE WILKINSON PLOUGH COMPANY, LIMITED - TORONTO

Office of Publication - - Confederation Life Building, Toronto



"This Cream Equivalent do smell beautiful. I a'most wish I was a calf."

Bibby's Cream Equivalent

REARS CALVES
WITHOUT
NEW MILK

This meal is fed to calves with or without separated milk, as a substitute for new milk. It has proved to be **ECONOMICAL** and **EFFECTIVE**, and can be relied upon to give entire satisfaction.

Our products are extensively used in the British Isles, **OUR MILLS BEING BY FAR THE LARGEST OF THEIR CLASS IN THE WORLD.**

Directions for use in each bag.

MANUFACTURED BY

J. BIBBY & SONS

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TORONTO

We Ask Your Support AND Co-operation in Teaching Principles

And introducing better methods of
MANURING so as to **Save Many Dollars** now annually **Wasted**

Write for our literature and give our representatives a fair, unprejudiced hearing.

CONSOLIDATED PHOSPHATES LIMITED, - - - **Board of Trade, TORONTO**

A SURE CURE and PREVENTIVE of Hog and Chicken Cholera and Contagious Abortion

IS **West's Disinfecting Fluid...**

(Circulars on these Diseases sent on application)

MANUFACTURERS

THE WEST CHEMICAL COMPANY,

Canadian Headquarters for "Standard" Dog Wash



THE CHEAPEST INSECTICIDE AND SHEEP DIP ON THE MARKET

15 Queen Street East, Toronto

One of our most
Popular Premiums
Four-Inch Reading Glass.

We make a proposition that easily places one of these
useful Reading Glasses within the reach of every
reader needing one.



The First

CHAPTER I.
PETER, an apostle of Jesus
 to the strangers scattered^d thro'
 Pontus, Galatia, Cappadocia, A
 Bithynia,
 2 Elect^e according to the
 ledge^d of God the Father, th
 tification^e of the Spirit, un
 sprinkling^g of the b
 Grace unto you
 3 Blessed^k be th
 our Lord Jesus

This cut illustrates our Four-Inch Reading Glass at its full size. It also shows how clear small type appears when viewed through its lens. People whose eyesight is not strong will find this Reading Glass a great comfort.

Members of the family also will find it a source of much enjoyment in examining photographs, flowers, etc. We offer a Glass of special value and utility. Fine French glass, lens extra large size, 4 inches in diameter. Metal mountings are nickel-plated.

- Any Subscriber renewing his own subscription may receive the Reading Glass, carefully packed for mail, for \$1.00
- Any Subscriber sending us one new subscription may receive the glass for only 75c.
- Any Subscriber sending us three new subscriptions will receive the glass Free.

Regular Price, \$2.50.

THE FARMING WORLD

Confederation Life Building, Toronto.

Use Handy Remittance Blank on Page 8.



REMAINDER
OF THIS YEAR

FREE

TO ALL
New Subscribers
TO
FARMING WORLD



Farming World
Premiums
are deserving
the study
of all readers.



**Canada's
Only
Weekly
Farm
Paper.**



How You May Secure a Communion Service



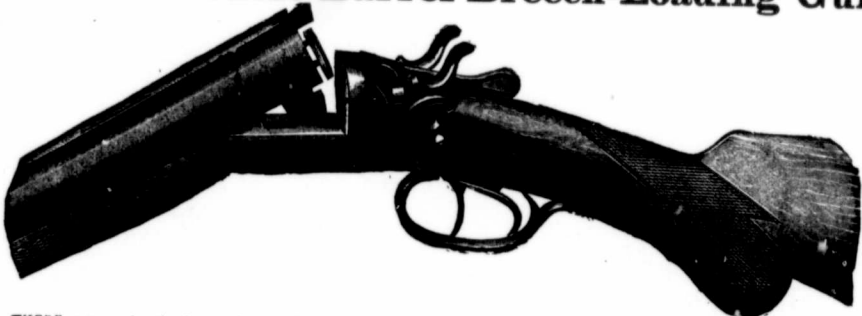
The Communion Set here offered is manufactured by one of the largest silver-plate firms in Canada, and is guaranteed the best quadruple-plate. The design, as shown by the above exact photographic illustration, is most appropriate. We have decided on this set only after fully satisfying ourselves that in quality, finish, and general appearance nothing better could be procured. The regular price is \$34.25.

OUR LIBERAL OFFER.

- 1.—The above set, consisting of one two quart flagon, one bowl, two plates, and two goblets, will be sent free upon receipt of sixty (60) new yearly subscriptions to THE FARMING WORLD at \$1.00 each.
- 2.—For thirty (30) new yearly subscriptions to THE FARMING WORLD and \$15.00 extra.
- 3.—For ten (10) new yearly subscriptions to THE FARMING WORLD and \$20.00 extra.
- 4.—For \$25.00 cash. Portions of the set or extra pieces may be supplied.

Good Shooting for
the Fall & Winter.

Our Double-Barrel Breech-Loading Gun



THERE are many who enjoy the sport that comes from a good gun. In other ways a gun is a useful article to have around the house. We have done a lot of looking round to get for the readers of THE FARMING WORLD a gun that we believe will please—and at a price that would mean an unquestionable saving for them. The gun which is here illustrated is a double-barrel breech-loading gun, with imitation twist barrels, extension rib, rebounding hammers, pistol grip, patent forend—a splendid 12-bore gun. This gun is sold by the largest dealers at \$12.00.

- Anyone sending a list of 30 new yearly subscriptions to THE FARMING WORLD will have one of these guns sent to his own address, carefully boxed and packed—the recipient simply paying the express charges.
- Or any subscriber to THE FARMING WORLD not in arrears may have one of these guns for \$8.50, and thus save a straight \$3.50 on the transaction, express charges being paid by the subscriber.

A DANDY RIFLE



EVERYONE has their own choice in the matter of firearms, and there are many who like a rifle. We have arranged to offer as a premium one of the celebrated Flobert rifles, with warrant action, blued barrels, pistol grip, 22-calibre—and that is sold regularly at \$5.00.

- Any subscriber sending us 15 new subscriptions to THE FARMING WORLD will receive one of these Flobert rifles free—he simply paying the express charges.
- Or any present subscriber not in arrears sending \$3.00 will receive one of these \$5.00 rifles, he paying express charges.

The FARMING WORLD Toronto

See Handy Remittance Blank on Page 8.

A DOLLAR BAROMETER FREE

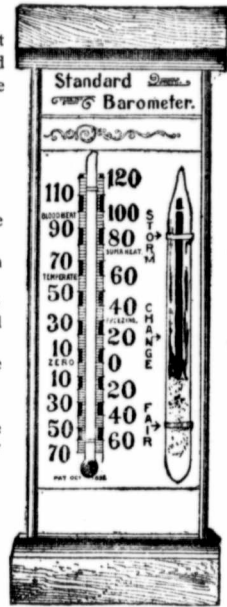
The Standard Barometer that we offer as a premium is one that is giving completest satisfaction to the many who have already taken advantage of our offer. It is a combined Barometer and-Thermometer—the thermometer telling you how hot it is—or cold—and the Barometer what the weather will be on the morrow.



WHAT THE STANDARD BAROMETER WILL DO

- 1.—If the weather is to be fine, the substance of the composition will remain at the bottom and the liquid will be clear.
- 2.—Previous to rain the substance will rise gradually and the liquid will be clear, with small particles moving about.
- 3.—Before a storm or high wind the substance will be partly at the top, and will have a feathery appearance, and the liquid will be heavy and in fermentation. In this it will usually give notice twenty-four hours before the weather changes.
- 4.—In winter, generally the substance will rise rather high, in snowy weather or white frost it will be white, with small stars in motion.
- 5.—In summer, the weather being warm and dry, the substance will be quite dry.
- 6.—To know what quarter the wind or storm comes from, you will observe that the substance will lie closer to the bottle on the opposite side to that from which the storm or wind comes.

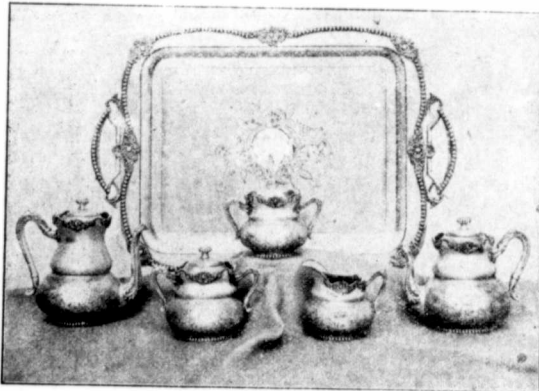
—\$1.00 is the value of this indispensable instrument. Anyone sending us one new subscription to THE FARMING WORLD will receive this Barometer free, or anyone renewing his or her subscription and adding twenty-five cents will have one sent free of any expense.



ACTUAL HEIGHT OF BAROMETER
9 INCHES

SILVER SERVICE

..... WITHOUT MONEY



GUARANTEED FINEST QUADRUPLE PLATE

Thanks to a generous proposition made us by a large manufacturer, we are able to supply a silver service, elegant and modern in design, and first-class quality, at a very special price. The set is in every respect suitable for presentation. It consists of six pieces—coffee, tea, sugar, cream, spoon-holder, and waiter. Portions of the set can be supplied. The regular price of the set is \$75, or omitting the coffee and the waiter, \$35.

THE FARMING WORLD

Confederation Life Building, Toronto.

Use Remittance Blank on Page 8.

Remainder of
This Year
FREE
to all
NEW SUBSCRIBERS
to
THE FARMING WORLD.

Our Offer

1—The complete set of six pieces will be sent to anyone securing one hundred and fifty new subscriptions to **The Farming World** at \$1.00 each.

2—The tea set, omitting the coffee and waiter, four pieces, for seventy new subscriptions to **The Farming World**.

3—Complete set, six pieces, \$55.00 cash.

4—Tea set, four pieces, \$25.50 cash.

Satisfaction guaranteed
or money refunded.

Four of our Newest Premiums

FOR 1900-1901

THE four articles here listed are our newest selection in the list of FARMING WORLD premiums. We have gone to a great deal of trouble to get something that would be specially useful to everyone. In offering premiums there is much in selecting articles that meet the general want and favor. You will say we have struck it happy in these four:



LADY'S BREAST WATCH

THOUGH an exact reproduction of the original, this cut by no means does justice to the handsome and dainty lady's outside or breast watch that we have selected as a new premium. It is a little beauty—pretty to look at, and so good a time-keeper as to make it a most valued possession for anyone.

- This watch will be sent post-paid to any subscriber sending us 8 new yearly subscriptions to THE FARMING WORLD, giving FARMING WORLD from present date to January, 1902, and 20 cents to cover cost of packing and postage.
- Or any subscriber, not in arrears, may have one for \$2.50.

Lady's Gold-Filled Watch

HERE is a lovely article for any lady to possess. What young man would not exert himself a little to secure such a watch for a lady friend? It is not gold, but gold-filled, and carries with it all the rich appearance of real gold—guaranteed to keep color for at least five years. It is an excellent time-piece, being fitted with first-class works—and guaranteed.

- Any subscriber sending 20 new subscriptions to THE FARMING WORLD, giving FARMING WORLD from present date to January, 1902, and 25c. extra to pay postage and packing, will have this watch sent to his address free; or send ten new subscriptions at \$1.00 a year, together with \$2.50 extra, and the watch is yours. A subscriber not in arrears may have one of these watches—sent post-paid to his own address—for \$5.50.



A GREAT BOY'S WATCH

THIS is the biggest kind of bargain. We have not been able to find anything like it outside of the one factory with which we placed the order. It is a nickel-finished case, stem wind and set, and will give good service for at least a year.

- Any subscriber sending 5 new subscriptions to THE FARMING WORLD, giving FARMING WORLD from present date to January, 1902, and 10c. extra to cover postage, will receive one of these watches—free. A subscriber not in arrears may have one for \$1.10.

HANDSOME BRONZE-IRON CLOCK

WE think this just a little beauty. It would be an ornament in any room in any home. It will give good service as a time-keeper—that we guarantee. It possesses a stop hand, which can be used in many useful ways. It will serve as an egg boiler. If the good housewife has put on some dish at a given hour, and wants to make sure that it is taken off within a specified time, this clock will mark the hour so that there need be no mistake. The principle of the "stop" watch that is so valuable is applied to this clock. We anticipate a very large call for it.

- Any FARMING WORLD subscriber sending three new subscriptions, giving FARMING WORLD from present date to January, 1902, and 25c. to cover postage and packing, may have one of these clocks. A subscriber not in arrears can have one sent post-paid for \$1.50.

THE FARMING WORLD

TORONTO

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OUR BOOK PREMIUMS

A good book is always welcome. Some books are indispensable because of their intrinsic worth—the real information they give—the purpose they fill as books of reference. The books we have selected for premiums recommend themselves largely because of their utility and thoroughly practical character.

The Ideal Cook Book More Popular than Ever



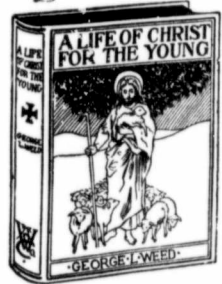
This is a book that has lots of staying power. Circulate a few in a locality and the demand is created for many more. It is the most practical cook book we know of. The receipts are of a kind that appeal to the common sense of the housekeeper. Grouped together in black-face type at the commencement of each receipt is a statement giving the kind and quantity of ingredients required. The chapter on "The Sick" is itself worth the whole price of the book—not forgetting the special chapter entitled "The Doctor," containing receipts from eminent authorities, and that will be found invaluable, when the doctor is not readily available—will dispense with his services some times. Size of page is 5 x 8 inches, bound in substantial oilcloth cover for the kitchen.

- Copy of the Ideal Cook Book will be sent free to any present subscriber sending one new subscription to THE FARMING WORLD,
- giving FARMING WORLD from present date to January, 1902;
- or to any subscriber not in arrears for 50c. The published price of the book is \$1.00.

Life of Christ for the Young Approved of by Leading Clergymen

This is an attractive book of about 400 pages, with seventy five full-page half-tone illustrations. The author is Geo. L. Weed, who is peculiarly fitted for the work, and writes from a personal knowledge of the Holy Land. He possesses a grace of style that makes it interesting to all children and hardly less so to adults. It is one of the most complete books of the kind that has been published. We have submitted this book to leading clergymen of different denominations, each of whom has pronounced it a most desirable book for wide circulation.

- Life of Christ for the Young will be sent free to any subscriber of
- FARMING WORLD who will send us one new subscription, giving
- FARMING WORLD from present date to January, 1902; or to
- any present subscriber not in arrears, postpaid, on receipt of
- 50c.



Bunyan's Pilgrim's Progress

A Classic of the Ages



This is one of the books of the ages, and one that never grows old—that generation after generation delights to read. In the edition we offer as a premium to FARMING WORLD subscribers there is a valuable memoir of John Bunyan, the famous author of the Pilgrim's Progress. The wonderful allegory itself occupies nearly 300 pages, set in large clear type, with illustrations on almost every page adding to the attraction of the text—bound in cloth, handsomely embossed, size 9x6 and 1 1/2 inches in thickness Regular price \$1.00.

- Bunyan's Pilgrim's Progress will be sent free to any subscriber of
- FARMING WORLD who will send us two new subscriptions, giving
- FARMING WORLD from present date to January, 1902; or to any
- present subscriber not in arrears, postpaid, on receipt of 50c.

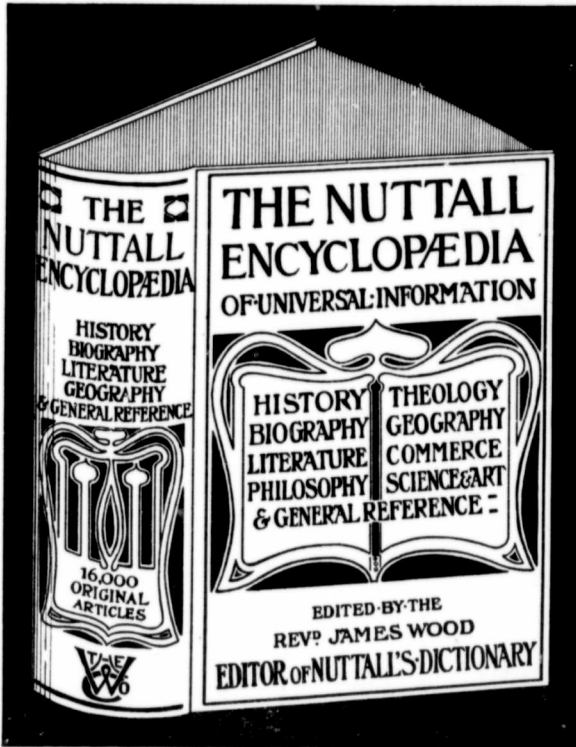
Home Nursing. By Eevelen Harrison

This is a new premium with us this year. The book itself possesses almost incalculable value in any home. What information is more important than that which will help us to increase the comforts of the sick and afflicted—and that will teach us to deal skillfully with those who are unwell? Just this information is to be had in Home Nursing. It is written by an experienced nurse, and in a manner that makes it useful to everyone—practical and scientific and yet free from anything of a technical nature.

- Home Nursing will be sent free to any subscriber of FARMING WORLD who will
- send us two new subscriptions, giving FARMING WORLD from present date to
- January, 1902; or to any present subscriber not in arrears, postpaid, on receipt of 50c.

The Farming World
Confederation Life B'ldg, Toronto

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The Nuttall Encyclopædia

A Book of Universal Information

Here is another new book for this season. This encyclopædia is edited by the Rev. James Wood, editor of "Nuttall's Standard Dictionary," and compiler of the "Dictionary of Quotations." It consists of over 16,000 terse and original articles on nearly all subjects discussed in the larger encyclopædia. It is the greatest one-volume encyclopædia in the world, and is a wonder in the immense amount of information contained between its covers.

- This Encyclopædia will be sent free
- for six new subscriptions to THE
- FARMING WORLD, giving FARM-
- ING WORLD from present date to
- January, 1902; or to any subscriber
- not in arrears for 75c.

THE FARMING WORLD - TORONTO.

Subscription price in advance, \$1.00 a year.
 Remainder of this year FREE to new subscribers for 1901.

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THE FARMING WORLD, 190....
 TORONTO

GENTLEMEN,—Enclosed find sum of \$....., for which send THE FARMING WORLD every week, from present date to January, 1902, to my address as below, and to addresses as per enclosed list. This will entitle me to premiums as follows:

.....

which send per terms of premium offer to my address as below.

Name.....

Address.....

BE SURE TO WRITE NAME AND ADDRESS PLAINLY

HOW TO SAVE YOUR MONEY

Don't buy from an agent or canvasser and pay double the price.

OUR "HOMESTEAD"
"VICTOR" AND
"PREMIER"
Sewing Machines

Are equal to any machine made in every respect, regardless of name or price.



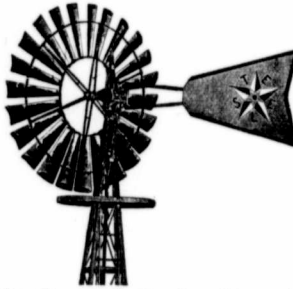
Prices from \$17.50 to \$38.50.

Send for our special Sewing Machine Catalogue. Free.

"THE STAR"
GALVANIZED
STEEL WINDMILL

For Power and Pumping. One-third heavier than any other mill made.

SIMPLE, AUTOMATIC,
SELF-REGULATING



Also Pumps, Tanks, Iron Pipe, etc.

Astonishingly low prices.
Our special Mill and Pumping Catalogue is free.

EVERY MAN HIS OWN COBBLER

The Home Repairing Outfit. A complete set of tools for Boot, Shoe, Rubber, Harness and Tinware Repairing. Forty-four articles packed in a neat, strong box; weight, eighteen lbs. Every family needs one. They sell like hot cakes. Price for the complete outfit, \$1.75.

EVERY MAN HIS OWN MECHANIC

A complete kit of iron-working tools. Just what is needed on every farm. Save time, money and worry by doing your own repairing on the spot. Twenty eight articles, weight of the complete outfit, 150 lbs. Price \$22.00. Send for descriptive circular.



Drop us a post card and we will send you full information about any of the above-mentioned goods by return mail. Please mention this paper when writing.

THE BAILEY DONALDSON CO

Dept. F. 30 Foundling St., Montreal, Que. Dept. "F."

"CANADA'S GREATEST SEED HOUSE"

NEW FALL WHEAT "EARLY ONTARIO"

FOR EARLINESS, HARDINESS AND PRODUCTIVENESS
this variety excels everything we have yet seen
and is a sure money-maker.

In this grand new wheat we are offering the earliest variety we know, and which ripens four days earlier than either Early Arcadian or Early Genesee. It is a hard, heavy, early maturing wheat, and is one of the best ever sent out. The heads are of good size, very compact, beardless, and with a white chaff. The grain is red, very hard, with a thin bran, and of excellent milling qualities. Straw of medium length, very strong and will stand up on any soil.

Its extreme hardiness will recommend it to many growers, as winter killing is the source of so many failures with fall wheat in this country. Heavy yields, straw cut well, and is free from rust. We are convinced that in this variety we are offering one of the best wheats ever introduced. Price, small lots by mail, post-paid, lb., 20c.; 3 lbs., 50c.; larger quantities by express or freight at purchaser's expense. Per peck, 50c.; bush, \$2.15; 5 bush, lots and over, \$1.96 per bush, bags, 20c. each.

"SATISFACTION" (NEW)

This grand wheat, which we introduced last year, has proved itself to be worthy of the high recommendations we gave it. The grain is large and light amber in color, hard and firm, with a thin bran. Heads are of remarkable size, beardless, white chaff, and very compact. A very vigorous grower, with a soft straw, hard where wheat is liable to lodge. It is very hardy, which quality should recommend it to all wheat growers. Per bush, \$1.50; 10 bush, lots, \$1.40 per bush, bags, 20c. each extra.

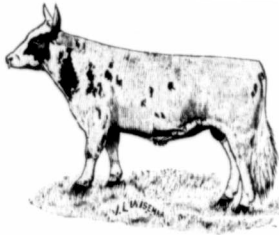
Wheat, Early Arcadian, per bush,	\$1.40
— Pedigree Genesee Giant ..	1.00
— Dawson's Golden Chaff ..	1.00
Fall Bye ..	.85
Timothy Seed, choice ..	2.35

Bags, 20c. each extra.



"EARLY ONTARIO"
THE STEELE, BRIGGS SEED CO., Ltd.
132 KING STREET EAST, TORONTO, ONT.

LIVE STOCK ANNOUNCEMENTS



Ayrshire Bull Calves

OF 1899

One Bull 5 months and young Calves 2 to 3 weeks from our best imported cows. Will sell at reasonable prices. Address

ROBT. HUNTER,

Manager to W. W. Ogilvie,
LACHINE RAPIDS, QUE.

See our Exhibit at Toronto, Ottawa, London

Ayershires, Guernseys, Yorkshires and Shropshires

ARE OUR LEADERS



All high-class pedigree stock. Those desirous of purchasing thoroughbred animals should write for particulars at once. Orders booked now in rotation for present and future deliveries. Address—



ISALEIGH GRANGE FARM, Danville, Que.

J. N. GREENSHIELDS, Prop.

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The Coldspring Herd



Offer for immediate sale four Boars fit for service, two Sows to farrow in August, some choice April Pigs, at prices that are right for the buyers.

NORMAN M. BLAIN,

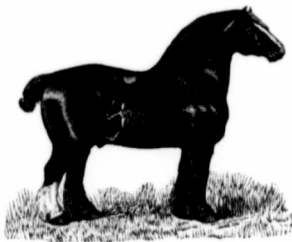
Brant Co. Coldspring Farm, St. George, Ont.

THORNCLIFFE

Stock Farm

The largest Stud of Clydesdales in Canada, headed by the Champion Stallion of all ages.

"LYON MACGREGOR"



Stallions and Colts

From the best blood in Scotland and Canada. Ayrshire bulls and heifers from imported stock. Jersey heifers and bull calves, sired by the prize-winning bull, Distinction's Golden. Best milking strains, with good teats. Terms reasonable.

A visit to Thorncliffe will well repay you.

ROBT. DAVIES,

Thorncliffe Stock Farm, TORONTO

Large English Berkshires

Are of the long bacon type. My herd is headed by three grand young boars, of different strains. My sows are all a grand lot of the long English type. Have twenty-four first-class young sows from four to six months old. Have a few young boars left for sale. Also the First Prize Boar under a year at London, and five other shows. One Yorkshire Boar, six months old, never beaten in his class. Price \$35.00. Pedigree furnished. Write for prices. Address, or come and see stock.

T. A. COX, Brantford, Ont.

GREEN RIVER HERD OF TAMWORTHS

Headed by first-class boar. Young stock for sale. Write us for prices.

LOCUST HILL STATION, MARKHAM, C.P.R. G.T.R.

P. R. HOOVER & SONS

Green River P.O., Ont.

Pleasant View

Bulls of the best milk and butter families only used.

Jersey Stock Farm

PICTON, ONTARIO.

BRUCE E. JOHNSON,

Breeder of Thoroughbred and Grade Jersey Cattle, Plymouth Rock Fowls and Pure Sable Collie Dogs.

P. O. Box 132.

Stock for sale at all times.

Large English Berkshires



I am offering my whole herd good show and service Boars. Six months up. Sows in farrow. Write for prices.

C. R. DECKER,
Chesterfield, Ont

MAPLE CLIFF DAIRY AND STOCK FARM

FOR SALE:

Breeders of—

Ayrshires—1 yearling and 6 bull calves, from 2 to 9 months old, sired by Gold King, 1387, and Duke of York 2nd, 2301, imported.

Imp. Berkshires—Young pigs, pairs not skin.

Tamworths—Boars and sows, 6 to 8 months old, from Toronto and Atlantic winners. Young pigs, pairs not skin.

R. REID & CO., : HINTONBURG, ONT

FOR SALE Maitland Stock Farm

Large English Yorkshires Pigs of the best types. Young stock on hand from one month to ten months old. Prices to suit the times.

Francis Russell, Cedarville, Ont.



JOHN DRYDEN

BROOKLIN, ONT.

BREEDS

Cruikshank Short Horns
AND
Shropshire Sheep

SIX YOUNG BULLS of extra size and quality are now offered at reasonable prices.

Brookbanks' Special Offering

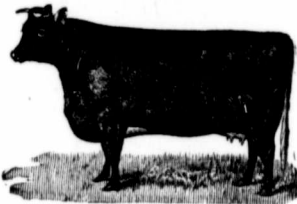
7 Holstein Bulls (over 1 year)
7 Holstein Bulls (under 1 year)
15 Females, any age desired, bred to one

of our great stock bulls, Calamity Jones Paul, Homestead Albini DeKol, or Count Calamity Clay, three of the greatest bulls in America. Must reduce the herd. Prices cut to make them go. Liberal terms to large purchasers. State just what you want, age, time to calve, etc. We can suit the most fastidious. 70 head to select from.

GEO. RICE,

Currie's Crossing, Oxford Co., Ont.

Arthur Johnston



offers for sale at moderate prices SHORTHORN CATTLE.

11 imported and home-bred bulls,
13 imported cows and heifers,
35 home-bred cows and heifers,

Many of the latter from imported cows and by imported bulls. Catalogues on application.
£37 My post-office and telegraph office is Greenwood and my railroad stations are Claremont, on the Canadian Pacific R. R., and Pickering, on the Grand Trunk R. R., 22 miles East of Toronto.

Hillhurst Stock Farm

ESTABLISHED 1861

Scotch Shorthorns

Sires in Service:

Scottish Hero and Joy of Morning

Bred by W. Duthie, Collyshe.

Oldest Stud of Hackneys in America. Shropshire, Dorset Horn and Hampshire Down Sheep.

M. H. COCHRANE,

HILLHURST STATION, COMITON Co., QUE

I. DAVITT & SON

breeders of Clydesdale horses and Shorthorn cattle. Stock for sale at all times.

Freeman, P.O.

Farm: ½ mile North of Burlington Station.

OXFORD DOWN SHEEP

Durham Cattle. "Milking Strains"; Yorkshire Pigs; Plymouth Rock Poultry, John Cousins & Sons, Harriston, Ont.



When writing to advertisers kindly mention the Farming World.

**FOR SALE AT
BONNY BURN
STOCK FARM**

Choice Shorthorn Bulls and Heifers, also



Shropshire Sheep, Shearlings and Lambs; both sexes, with A1 breeding, and at very moderate prices.

D. H. RUSNELL
Stouffville, Ont.

**CLYDESDALES
SHORTHORNS
SOUTH-DOWNS**

Always on hand and for



sale. The choicest collection of Clydesdale stallions and mares on this continent, representing such noted sires as Prince of Wales, Danby, MacGregor, Lord Lyon, McKeans, Prince Charlie and others.

THOS. GORD Richmond, P.O.
Station—SPITTSVILLE, C.P.R.

**Maple
Grove**



Yorkshires and Tamworths

Of the long bacon type, all bred from choice strains. Also a grand Berkshire Boar of the Baron Lee strain. This hog won second at Toronto and first at Quebec; will be sold cheap. All stock guaranteed. Write for particulars or call and see stock.

T. J. COLE,
Box 188, Bowmanville, Ont.

**Ayrshires
FOR SALE**

I have for sale two first-class bulls fit for service. Also bull and heifer calves. All sired by White Prince (Imp.), and from (Imp.) cows and cows sired by Silver King (Imp.). Prices right.

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A PAPER FOR FARMERS AND STOCKMEN.

Managing Director, D. T. McADAM
Editor, J. W. WHEATON

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TORONTO

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The Farming World

For Farmers and Stockmen

VOL. XVIII.

SEPTEMBER 4th, 1900.

No. 1

Eighteen Years Old

Outlook Brighter than Ever Before

BEGINNING with this issue, THE FARMING WORLD enters upon its eighteenth year of publication. There has been marked progress and advancement during all these years, and the paper never stood higher in the estimation of the leading stockmen and farmers than it does to-day. The year just closed has in every way been the most successful in its history, and the outlook for the future is exceptionally bright.

THE FARMING WORLD is still alone in the field as a weekly agricultural journal, and fills a place that is supplied by no other farm paper in the Dominion. Its weekly market review, and its columns filled each week with up-to-date and thoroughly practical articles on every phase of farm practice, are greatly appreciated by our farmers, as shown in the increased confidence in the paper and a growing subscription list.

For the coming year our policy will be one of advancement. The many departments, including the Farm Home, Farm Implements, Studies in Nature, will receive every attention, and made, if possible, to render better service in the constituency they represent. Other departments are in contemplation, the aim being to make the paper, as its name implies, a thoroughly up-to-date and comprehensive farm journal. As in the past, no phase of agriculture will be neglected; the dairy, the farm, live stock, poultry, etc., will receive every attention. Can we not, therefore, count upon the active co-operation of every subscriber and reader in endeavoring, before the close of the century, to double our growing subscription list? In this connection, do not fail to read the splendid premium offers in this issue.

The Industrial Fair

The Toronto Industrial Fair for 1900 opened on Tuesday last under most favorable auspices. The weather was all that could be desired, the attendance was larger than at any former opening day, and when Premier Ross touched the button which set the machinery in motion and formally opened the great Fair the exhibits were well in place and the grounds had taken on that gala appearance so characteristic of Canada's great Exposition.

The display of agricultural products is well up to that of other fairs and the exhibits of live stock, and especially of cattle, far in excess of that of any former year. At the time of writing the judges had begun their duties, which were in no way light. Competition was keen in most classes and the high quality of the animals shown made it hard to decide upon the winner. The display of dairy products is not as large as last year, though a very creditable

exhibit is to be seen in the dairy building. The butter-making contest, which begins this week, will prove an interesting feature of the show. Visitors should not fail to see this.

We have not space to say anything further regarding the exhibits. A full report will appear in next week's issue. THE FARMING WORLD tent, located as usual opposite the Farmers' Institute tent, and near the cattle ring, is open to our friends and visitors from the country. Pens, ink and paper will be on hand for breeders and others who may wish to use them. Don't fail to give it a call.

Canadian Quarantine System

Most Canadian breeders are more or less familiar with our quarantine system. If they have not made importations of live stock, they doubtless understand somewhat of its methods, and the nature of the work it is intended to do. Canadian quarantine regulations had their beginning fully a quarter of a century ago, and it may be of interest to the younger generation of breeders and farmers to know something of the origin of this system, and what it has accomplished in preventing the spread of contagious diseases among the live stock of the Dominion. We are therefore pleased to be able to furnish our readers in this issue with a comprehensive review of the system, and in connection therewith a sketch of Dr. Duncan McEachran, the originator of the system, and the gentleman who has had to do with its management and control ever since. A careful perusal of these will convince one that we have a comprehensive and effective system that has rendered excellent service in preserving our country comparatively free from virulent and contagious diseases among live stock.

A couple of years ago the quarantine system was subjected to some severe criticism, and a very bitter feeling existed towards it among breeders, because of the attitude of those in charge towards the tuberculin test, and its application in connection with the importation of pure-bred cattle from Great Britain. It was claimed, and not without good reason, that the too strict regulations enforced in regard to this test had the effect of practically shutting out the importation of pure-bred stock so necessary in order to develop our export cattle trade, and to maintain the high standard of Canadian herds. It is, however, gratifying to know that the action of the Government in appointing competent veterinarians to test the cattle in Great Britain before being shipped has served to largely remove this difficulty, and made it possible for the very large importations of new blood of the past year or two to be made. Any change of policy on the part of those in charge of our quarantine system that would tend to hamper the importation of new blood into our flocks and herds would prove a serious detriment to the important live stock interests of this country, and would meet with the strongest opposition, and justly so, from Canadian breeders. The more rational methods adopted of late years in treating tuberculosis make a wholesale slaughter of affected animals unnecessary. The experiments conducted under Dr. McEachran's direction at the farm of W. C. Edwards & Co., Rockland, Ont., this season, go to show that by proper segregation of the animals in well-ventilated stables the disease can be kept in check if not eradicated.

Hon. John Dryden

Ten Years as Minister of Agriculture for Ontario

Ten years is not a very long period when the history of nations is considered. When, however, we consider the individual, the locality or even the province, it is quite a long time to look back over. It is ten years this month since the Hon. John Dryden was appointed Minister of Agriculture for Ontario. Glancing over this decade of years one marvels somewhat at the progress that has been made; progress in mining development, in manufactures and fine arts, in utilizing our timber resources, in opening up new districts and new lands for the settler, in developing our agricultural resources and in improving and bringing to a higher state of perfection the quality of the products of the farm. Ten years ago the travelling dairy, the dairy school, the travelling spraying delegation, the experiment fruit station, the good roads movement, the pioneer dairy farm, a permanent superintendent of Farmers' Institutes, cheap freight rates for pure bred stock, and any extended movement in inter-provincial trade were not in existence and many of them hardly dreamed of. To-day the farmers of this province are reaping the benefits of these important agricultural movements, several of which have served their purpose and are not now being practised.

But let us get back to the beginning of these great agricultural forces that are wielding such influence in the province to-day. Who has been the prime mover in it all? Who has inaugurated these movements and brought them into action? Has it not been the gentleman now at the head of the Department of Agriculture in Ontario, the Hon. John Dryden? Not only has he been the originator of many of these forces, but it has been largely due to his good tact, perseverance and foresight that they have been so successful and of such great benefit to the country and the province. Is it not, therefore, quite in keeping with this the tenth anniversary of his appointment as Minister of Agriculture, that he should receive full recognition for his splendid services in carrying out these movements and the great work he has done in the interests of agriculture in this province. Truly Mr. Dryden has accomplished a great deal for agriculture in these ten years, and, from what we know of the man, his aspirations and his ambitions, the end is not yet. With his practical zeal for the welfare and prosperity of all classes of farmers, he is this season undertaking some new lines of work. An experiment is being tried in shipping fruit to Great Britain in cars and ocean vessels fitted up with the most approved cold storage and ventilation arrangements, which, if it prove successful, cannot but be of great value to the fruit interests of this province.

The Hon. John Dryden is personally known to a great many farmers and breeders in Ontario who are more or less familiar with his life and work. But a brief sketch of his earlier life and the incidents in connection with it that have tended to mould his character and prepare him for the important position he now occupies may be interesting just here. Mr. Dryden was born in the township of Whitby, Ontario County, Ont., in 1840. His father, the late James Dryden, was a native of Sunderland, Eng., and came to Canada with his widowed mother in 1820. James continued to live with his mother and stepfather until coming of age, when he purchased a farm for himself, subsequently purchasing another 200 acres, which formed the nucleus of the now famous Maple Shade farm, of 420 acres, the property of the Hon. John Dryden.

The subject of this sketch was educated primarily at the common school in the neighborhood, subsequently finishing at the Whitby Collegiate Institute. At the age of nineteen he returned home and entered into an arrangement with his father to work the farm on shares. Later he added by rental his uncle's farm and another lot which he eventually purchased. From this beginning he has been trained in practical agriculture, resulting in his becoming a thorough cultivator of the soil and a stock raiser of nation-

al repute, with few equals to be found in America. He became interested very early in pure-bred stock and has been one of our largest importers of Shorthorns, Clydesdale horses and Shropshire sheep. Latterly his efforts have been confined chiefly to Shorthorns and Shropshires. He possesses to-day probably one of the finest herds of Cruickshank Shorthorns on the continent.

It is generally considered that the stepping stone to political life is through the local school board and the township and county councils. This is probably true in Mr. Dryden's case as we find that he served his township and his county well for many years before entering upon the larger field of provincial politics. But we are not at all concerned as to the factors which have moulded his political life. That must be left for others to deal with. Our interest just now is in those factors that have contributed to his success as a capable administrator of the Department of Agriculture for this province. Foremost among these it will be noted that "he was to the manner born."



Hon. John Dryden.

He was raised on the farm and was early trained to understand and practise all kinds of farm work, and perhaps more than anything else to the fact that he is a farmer to-day is due the marked ability he has shown in his present position. By being a practical farmer and understanding the conditions of the farm and the needs of the farmer he has been able to so adjust the work of his department, to advise such legislation and to carry out the practical movements already enumerated in such a way as to raise the standard of agriculture in the province to the high plane both in theory and practice which it occupies to-day.

Had we the time and space at our disposal it would be of interest and value to trace Mr. Dryden's work more in detail through these years. Under his fostering care the Ontario Agricultural College has become a greater factor in promoting higher and better methods of farming; the work of the Farmers' Institutes has greatly expanded and been made more effective; the Dairy and Live Stock Associations have been given a new impetus and every branch of his depart-

ment brought more in touch with and made to do better service for the farmer and his calling. In the field of new legislation Mr. Dryden's record has been good, showing that careful forethought and practical insight in all matters affecting his work so characteristic of the man. We can do no more here than merely refer to these matters. We think we have said enough, however, to show that Mr. Dryden's ten year's work as Minister of Agriculture has clearly demonstrated his eminent qualifications for the position, and the wisdom of choosing a practical farmer to administer this important department of our local Government.

The Dominion Department of Agriculture

The Canadian farmer is fortunate in that the Government of the day, both Dominion and Provincial, make large expenditures annually for the furtherance of agriculture. Sometimes the value of such work is not fully realized unless special attention is directed to it. We purpose, therefore, giving a short review of the work of the Department of Agriculture at Ottawa for the past few years, in order that our readers may know something of how the moneys appropriated for this branch of Government are being expended.

Since 1896 the office of Minister of Agriculture at Ottawa has been occupied by the Hon. Sydney Fisher, whose practical knowledge of agriculture and sound judgment on all matters affecting the interests of the farmer have borne good fruit in the administration of this department. He has proven a sagacious, energetic and far-seeing Minister of Agriculture, and his work has already shown itself in the largely increased exports of agricultural products and the greatly improved conditions under which these products can be conveyed to the consumer, wherever he may be found.

Speaking generally, the Department of Agriculture at Ottawa is concerned chiefly with three things: The quality of farm products, the facilities for their conveyance to the markets in prime condition, and with the extension of our export markets. From these three standpoints this subject will be dealt with as fully as possible under the circumstances which compel us to be brief.

QUALITY OF THE PRODUCTS.

In this connection a large amount of work has been done. This has been chiefly along the line of experiments conducted by experts and the circulation of the results through the annual reports, bulletins and lectures. The experiments of perhaps the most far reaching importance

undertaken by direction of the present Minister are those connected with tuberculosis in animals; with the curing of cheese; the curing of tobacco; the proper feeding of bacon hogs with a special view to the prevention of soft pork; the fattening of chickens for the English market, and trial shipments of poultry and fresh fruits. Reports in regard to these various lines of work have appeared in the annual reports and elsewhere and show the great benefit to the country resulting therefrom. The legislation in connection with dairying such as the Act to compel the branding of the word "Canada" on every cheese and package of butter sent to Great Britain, and the registration of cheese factories is along the line of improvement in quality. The San Jose Scale Act of 1898 and the work authorized by the Minister towards preventing the spread of this pest have greatly aided the fruit industry. The work of the Experimental Farms, which is noted extensively elsewhere, has had a marked effect upon the quality of our farm products.

TRANSPORTATION.

No more important work has been done during the past few years by the Department of Agriculture at Ottawa than that in connection with facilities for conveying our farm products to the markets in prime condition. A very great deal has been accomplished in this direction, which lack of space forbids us to deal with in detail. Previous to 1896 a beginning was wisely made in the establishment of ice-cold storage on ocean steamships and in starting refrigerator cars from a limited number of dairy sections. In 1896, under Mr. Fisher's direction, this cold storage accommodation was doubled. Mechanical and chemical refrigeration was put in in place of the ice-cold storage fittings formerly used, and the whole system equipped in the most modern way. An appropriation of \$100,000 a year for three years was secured for this purpose. Out of this sum the Minister was able to sufficiently subsidize the



Hon. Sydney Fisher.

steamship companies to induce them to install the expensive Linde refrigeration plant, to extend very considerably the railway cold storage facilities and to grant \$100 to creameries to assist in putting in cold storage plants at the factories where the butter is made. Three hundred and seventeen creameries have already availed themselves of this bonus, and the number of steamships fitted up with the Linde system was increased to 23 in 1899 and 28 in 1900.

In connection with the transportation of food products, inspectors have been employed at Montreal and in Great Britain to look after the cold storage facilities and the condition of products while in transit. This work of inspection has been greatly extended this summer and made more efficient by

the appointment of Mr. J. A. Ruddick as official referee at Montreal, who will watch the condition in which shipments of dairy products arrive, and reports to means and methods for greatly improving the forwarding of dairy products to the consumer. The inspection in England has also served in a very effective way to make our products known and to find out wherein the quality and style of package used is lacking. This summer the introduction of ventilation fans in vessels carrying cheese has very much improved the carrying of this product. All this is along the line of improving the transportation facilities and conveying our products to the consumer in Great Britain in the best possible condition. While a great deal remains to be done there can be no doubt that the efforts of the past few years in this direction have been of very great value to the producer of Canadian food products.

EXTENDING THE MARKETS.

It has always been a definite policy of the Government at Ottawa to make this country and her products better known in England. Pioneer work along this line has largely devolved upon the Minister of Agriculture and those connected with his department. In this respect the present Minister has displayed unusual vigor and energy. By repeated visits to Great Britain and by the employment of agents there to make their good qualities known, a great deal has been accomplished towards increasing the demand in the Old Country markets for Canadian food products. To show what has been accomplished in this connection we cannot do better than quote a few figures from the blue books giving the increase for the past four years in the value of a few of our leading exports. The figures are for the year ending June 30 in each case:

	1896	1897	1898	1899	1900
Cheese	\$13,959,571	\$14,079,239	\$17,572,763	\$16,776,765	\$19,856,324
Butter	1,052,089	2,089,173	2,046,686	3,700,873	5,122,556
Eggs	807,086	978,479	1,255,304	1,267,063	1,457,902
Bacon	3,802,135	5,000,393	7,291,085	9,953,582	12,471,497

OTHER IMPORTANT FEATURES.

We give elsewhere a review of our quarantine system. An act of Mr. Fisher's in this connection is specially worthy of note. Under an Act of Congress of 1890 empowering the President of the United States to impose restrictions in certain cases upon the importation of live stock all cattle imported from Canada after February 1893 were detained for ninety days at one of the established quarantine stations on the International line. This practically excluded Canadian cattle from the American markets. In December, 1896, Mr. Fisher bent his energies in the direction of having these restrictions removed and with such success that in February, 1897, the ninety day quarantine was raised and the American markets were open to the Canadian farmer and breeder as they were previous to 1893. This removal has proven of great value indeed to our farmers and breeders and has been heartily endorsed by most of the live stock associations. Its effect upon our cattle trade with the United States can best be given by a few figures. For the four years and a half under quarantine the total number of cattle exported from Canada to the United States was 762, valued at \$52,666; while for the three years since the removal of the quarantine 254,503 animals have been exported at a valuation of \$3,710,066. The average price of the animals also shows a marked increase. For the last eighteen months previous to removal the average price was \$8.32 and for the last eighteen months since removal \$15, an increase of \$6.68 per head.

It has been the policy of the present head of the department to foster live stock husbandry as much as possible. A couple of years ago, as noted elsewhere, a person specially trained in this branch of Agriculture was appointed to the staff of the Central Experimental Farm. One of the latest acts of Mr. Fisher in this connection is the appointment of Mr. F. W. Hodson as Live Stock Commissioner. This departure has received the hearty indorsement of the live stock associations. Mr. Hodson

entered upon his duties last January and has already made himself familiar with the conditions effecting live stock in the various provinces of the Dominion. He is endeavoring to introduce into the other provinces the same methods of Farmers' Institute and Live Stock Association work as have been so successful in Ontario.

Some of the later work of the Department of Agriculture worthy of note has been the shipments of products to South Africa. In all, products, including hay, flour, beef, jams and oats were forwarded up to August 18, 1900, to the value of \$417,730.88.

The Act passed last session, providing for the incorporation of live stock record associations, is one that is far-reaching in its effects, and cannot but be of value in bringing that recognition to our live stock records from other countries which their importance demands. Another bill introduced by Mr. Fisher last session, and which, we are sorry to say, was not allowed to become law, owing to the opposition of parties interested in the trade, was that providing against fraudulent packing of fruit. It provided for the proper grading and inspection of fruit, particularly apples, and was introduced with a view to preventing the fraudulent packing of fruit and guaranteeing to the British consumer an honest and a standard quality of product. It is to be hoped that another session will not be allowed to pass without some effective legislation in this particular being enacted.

The distribution of seed grain has always formed an important feature of the Experimental Farms system. A new departure was inaugurated this season at the request of the Minister. Formerly, the amount sent to each individual was three pounds. With a view to obtaining better reports from the farmers testing these seeds, the amount sent out in a number of cases has been increased to sufficient to sow one-tenth of an acre. More than 4,200 farmers have been supplied with these larger packages.

There are other features of the Department's work of greater or less importance to the farmer that we might touch upon, had we the space to do so. We have given enough, however, to show that the public funds appropriated for the purposes of the Department of Agriculture at Ottawa are being wisely and carefully administered and, as we have shown, in a way that has largely increased the demand for Canadian food products in the Old Land and greatly improved the facilities for conveying these products to the consumer in prime condition.

Influence of Shorthorns in Ontario

By the Hon. John Dryden, Minister of Agriculture, Toronto

In the early settlement of a country such as this province, the cow brought by the first settlers is almost certain to be chosen for her milking qualities. Usually she is brought a considerable distance, and as, in the beginning, she is used only for milk and butter, no one would think of bringing a non-producer in these respects. Accordingly the cows found in most sections of Ontario in the early days were noted for their milking qualities, and in conversation with a gentleman who came from Ayrshire, Scotland, he frankly stated that he could gather up within a few miles of his Canadian home as good a herd of milking cattle as could be gathered in an equal area in his native country, which is so noted for milking Ayrshires.

Many of the counties in Ontario were settled almost exclusively by emigrants from Scotland, England and Ireland. All these settlers were familiar in the Home Land with the value of Shorthorns for beef production. It is natural, therefore, that in the early days they should turn their attention homeward with the view of supplying male animals for crossing purposes which would give a superior quality of beef, which then commanded a good price. Some of these men at considerable cost brought in early

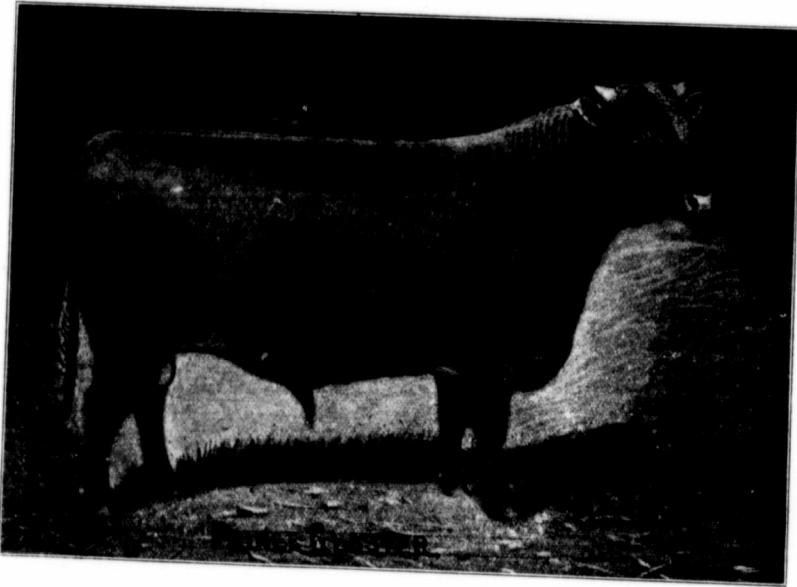
importations of Shorthorn blood, which was freely introduced into the then settled portions of the province. Both pure-bred and high-grade animals were sought for, until it could be said that the Shorthorn blood had permeated the entire cattle stock of the country. For many years no other pure-bred males were generally used, the result being that the province became noted for its beef production, and when enterprising dealers conceived the idea of carrying them across the ocean alive, it was easy to secure a suitable supply from all parts of the province. At the same time it was true that it was quite as easy to secure a herd of grades equally satisfactory for milk production.

During the latter part of the century now coming to a close, beef was for many years somewhat of a drag upon the market, while, at the same time, dairy products maintained their full price, and in some cases made an advance. The result was that the farmers turned their attention away from the beef breeds to the various breeds that were

tion. An impetus has therefore been given to all the beef breeds. Unheard-of prices in recent years are now being paid at many of the auction sales where these cattle are offered. An increasing demand is seen for good Shorthorn sires as being least likely to disturb the milking propensities of the dairy cows.

Not many years ago in a short article I wrote for one of our Canadian journals, I stated that it was then an opportune time to lay the foundation for a good herd of Shorthorn cattle, as prices were extremely low and must increase in the near future. I did not realize that the time would come so soon. It is now at hand, and none of our farmers need hesitate to take advantage of such opportunities as they may possess in order to improve the grade of their herds, especially as to beef production.

I think it will be unfortunate, however, if at the present time too many turn away entirely from the dairy industry in order to catch the profit which now comes from the breeding of beef. They have an opportunity at the present



PRINCE GLOSTER is a pure Cruickshank bull of the Duchess of Gloster family, tracing to Miss Duchess of Gloster 12th, by Champion of England, imported in 1871 by Hon. John Dryden, along with the famous Mimulus by the same sire. This calf was bred by S. C. James, of New Sharon, Iowa, and has been recently purchased by Mr. Dryden at a long price for service on the richly-bred young heifers at Maple Shade Farm. He possesses rare quality and his pedigree shows rich breeding, and we shall watch with interest the result on Mr. Dryden's herd.

used specially for dairy purposes. These breeds, being intended only for milk production, became equally generally introduced into the herds of the province. The result reached was that a general complaint was heard from the drovers and others, who declared that our cattle for beef purposes were deteriorating very rapidly, and that it was almost impossible to purchase a large number of beef cattle in any of our markets. In addition to this, a considerable quantity of unsaleable animals were being sent to the market—evidently the result of crosses of the dairy breeds. Within the last two or three years a decided reaction has set in. This reaction covers not only this province, but exists over the Dominion and the United States as well. It is now seen that there is a scarcity of cattle suitable for the supply of beef. The best beef in Chicago sells readily at six cents a pound, live weight, all the year round. It was easily seen that this state of the market would turn the attention of farmers generally away from dairy breeding to the breeding of cattle for beef produc-

time to continue in the dairy industry and to increase the annual output of each one of their milking cows. It has come to our notice that a considerable demand exists (which will probably increase from year to year) in the great Northwest for stockers for ranch purposes having beef characteristics. No man engaged in ranching will undertake to fatten a Jersey steer. Possibly he would not like a Holstein or an Ayrshire, but he would probably be induced to purchase a calf sired by a beef-bred bull, whose dam was either an Ayrshire or a Holstein. This line of breeding may be undertaken by any of our dairymen, and in order to take advantage of it they should turn their investigations in this direction at once.

It has come to my personal knowledge that contracts can now be made covering five years in the future for a supply annually of five thousand calves, or yearlings as they are called in the West, provided they are sired by beef bulls. I assume that as high as \$15 to \$20—and if a better grade could be secured, even more than that—would

be paid in the range country for this class of cattle. If, therefore, the farmer who furnishes milk to the creamery can add to the return of his dairy cow from \$15 to \$20 annually, without deducting anything from the butter product, it is easily seen what a real addition this will be to the annual income from our dairy herds.

Without depreciating in the slightest degree any of the different beef breeds of cattle, it will, I judge, be admitted that for combination purposes none are quite as valuable as the Shorthorn. So long, therefore, as beef cattle can be sold in the Chicago market from six to seven cents per pound live weight, and so long as the demand for stockers at the high price named continues, just so long will there be a demand for good Shorthorns, and it is gratifying to know that so many enterprising men are ready to furnish the animals that will be required in the future, and will be so useful in building up the stock industry of this country.

The Local Fairs Problem

Parties interested in the welfare of the local or township fair will read with interest the article by Mr. F. W. Hodson in this number on the results of organized effort in this province. In this article he deals with the local fairs problem in a clear and straightforward way, and advises a plan for their betterment which is certainly worthy of careful consideration. There is no doubt but that many of our local or smaller fairs are not doing the work or rendering the service they should for the time and money expended upon them.

The best methods of dealing with these and making their work more effective is a live problem to-day as it has been for several years past. Whether incorporating the management of the local fairs with that of the Farmer's Institute System will solve the problem will be for those interested to deal with. It would certainly be an easy and simple way to overcome the difficulty if such a transfer of authority and co-operation of interests can be brought about.

There would undoubtedly be a great saving by such a reorganization if it could be carried out satisfactorily by the Government which Mr. Hodson puts at \$20,000 annually. This is no small amount and if the work as it is claimed can be more effectively done, we say by all means give it a trial.

We have neither the time nor space to deal with this matter as we would like in this number and will have to defer it for some future issue. In the meantime we would be glad to hear from parties interested as to what they think of Mr. Hodson's proposal. He has made a careful study of this whole question and is in a much better position than many to deal effectively with it.

At present there appears nothing very insurmountable in the way of bringing about this reorganization of our smaller fairs.

Agricultural Experiment Station Work

An important feature in agricultural development during the last quarter of the century is that of experimental farms and agricultural experiment stations. In nearly every country to day, where agriculture forms a leading feature in its development, we find an experiment station of some kind investigating and solving problems connected with the farm and farm management. This line of work has, perhaps, spread more rapidly in the United States than elsewhere. There every State in the Union has its agricultural college and its experiment station. In Europe the experiment station is an important feature, more particularly in Great Britain, France, and Germany, and it is here that we find the most exhaustive and perhaps conclusive experiments conducted, the aim seeming to be not so much the securing of data that the farmer may quickly and readily adapt for his own benefit, as in searching great

agricultural problems to their very core. On this continent the immediate aim of the experiment station is different, and seems to be directed towards making the experimental work conducted of present value to the farmer. In a new country the latter aim may perhaps be the best one to follow. Its national progress depends in no small degree upon the success of its agriculturists and experimental work that can be made readily available in enabling the farmer to at once take up the best methods in farm practice will be considered the most valuable. On the other hand, the real value of the thoroughly exhaustive and long-continued investigations of the old land must not be under-estimated. There is the greatest satisfaction, both to the investigator and the one for whose benefit he is working, in having a subject so thoroughly investigated and studied that there is no room whatever for questioning the accuracy of the results obtained. It must not be supposed, however, that results more quickly obtained are of less value. They may be just as accurate as far as they go, but the tendency to give something to the public quickly often destroys the value of experimental work before thoroughly conclusive data are obtainable.

In Canada, agricultural experiment station work has received its greatest development within the past fifteen years. The progress made in that period has been remarkable. Many problems of vital importance to the farmer have been solved, and a mass of information obtained that has been of inestimable value in enabling him to make his business more profitable. There are some, no doubt, who see little of value in such work; but let the work carried on at the Dominion Experimental Farms, the Ontario Agricultural College, and other institutions of a similar nature in the other provinces be discontinued for one year, and see what a demoralizing effect it would have on the agriculture of the country. Let no reports, bulletins, etc., be issued; discontinue giving information and asking questions by correspondence; in short, let all these aids to agriculture have a year's holiday, and watch the result. We think there would come up from the progressive farmers all over this country such a wail of distress as would take years of patient toil to overcome. They would be lost on a great sea of twentieth century agricultural problems, with no beacon light to direct them to safety and prosperity. The experiment station is, then, a necessity in modern agriculture, and for an agricultural country to undertake to carry on its work and make the most of its resources without it would be to court failure.

Elsewhere in this issue is given an illustrated review of the work of the Dominion Experimental Farms. A careful perusal of it cannot but convince one of the great value to the country to be derived from investigations and researches peculiarly adapted to the conditions of soil and climate affecting the Canadian farmer.

Canada at Paris

We present our readers in this annual Exhibition number with an illustrated description of Canada's display at the Paris Exposition. Mr. W. H. Hay, who prepared this matter for us, was sent to France by the Dominion Government to take charge of the decorations and arrangement of the agricultural exhibits. That he has shown great artistic skill and rare ability in his work is shown by the illustrations in this number.

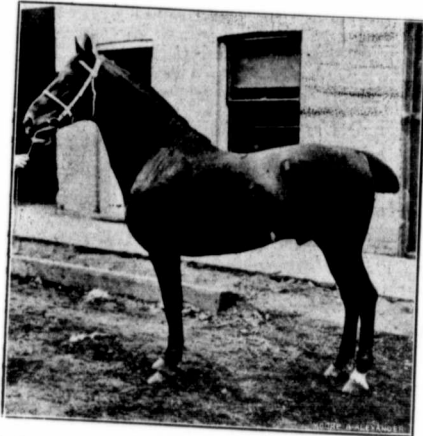
We subjoin the following extract from a letter received at Ottawa early in June from Mr. W. A. MacKinnon who is looking after Canadian food products at the Exposition:

And here it may not be amiss to state that the opinion, so generally expressed as to be correctly called universal, is that Canada has an exhibit to be proud of, exceedingly practical, and arranged in the best of taste—an "exposition" in the true sense of the word. Many of the so-called expositions, particularly in the colonial sections, are nothing more than collections of cheap goods, curiosities or souvenirs for sale, not at a fixed price, but at whatever can be obtained from a gullible public. From such pavilions as these the visitor comes to "Canada," to find a serious, business-like display of the resources and products of a great country, and it is easy to see how we profit by the inevitable comparison.

Horse-Breeding in Canada

By the Hon. Sydney Fisher, Minister of Agriculture, Ottawa

Having been requested to lay before your readers some remarks upon horse-breeding in Canada, I have great pleasure in taking advantage of your "Exhibition Number," through the large circulation of which I may hope to reach a great many of our farmers and horse men. While I fully appreciate the ability and success of leading horsemen in



Squire Rickall—Hackney Stallion, First Prize and Sweepstakes, Canada Horse Show, 1900. Owned by R. Beith, M.P., Bowmanville.

Canada who have shown their capacity in the business by carrying off many prizes in foreign countries, and by having made large profits for themselves in the business of exporting horses, I venture to say that the breeding of horses in Canada to-day is less carefully attended to and less systematically managed than is the breeding of any other class of our domestic live stock. This is, perhaps, not to be wondered at, as the securing of first-class stallions is a much more expensive undertaking than the purchase of very good bulls, or rams, or boars, and the fee necessary to be paid for the services of a first-class stallion appears to be more of a tax upon the breeder than what he is required to pay for the use of the cheaper male animals of other classes. It is, however, very much more important that a careful selection should be made of the father of the colt, because in the first place each young horse becomes individually a more valuable animal than each individual of any other class of domestic animals. The farmer who breeds him has to keep him and handle him and train him for a long time before he is saleable. The breeder has to spend more money and attention and care upon him before he can get a return or before he even knows whether he is to be a success or a failure. It consequently is very much more important that the breeding of the young animal should be correct and that no mistake should be made, no pains spared and no expenditure shrunk from in the initial steps of the production of the finished animal, and yet I venture to say that there is less care taken and less complete judgment exercised in the choice of the stallion than is used by the average farmer throughout the country than in the choice of his bull or his ram or his boar.

The man who is to make a success of raising horses must make a name for himself either locally or over a wider area. To do this he must pursue the business for some years, just as to make a name for good hogs or good calves or good lambs he must show that he knows how to do it,

and that young stock from his herd or flock is desirable. Steady, definite work is necessary for this.

In horse-breeding, as in the breeding of all classes of stock, system is a requisite. When a farmer decides to breed horses he must, first of all, decide on the class of animal he wishes to produce—a heavy horse for work purposes, a general-purpose horse, a fancy carriage horse or a saddle horse. This decision should be somewhat influenced by the neighborhood in which he lives. If the section of the country is specially adapted for any one particular class of horses it would be folly for the farmer to insist upon trying to produce another class. If a number of his neighbors are engaged in breeding one particular class of horses it would be the part of wisdom for the beginner to breed horses of the same class which he finds generally in his neighborhood. When he markets his produce he will find a great advantage if there are to be found several hundred of the same class of horses in his county or district. When a dealer wants Clydesdales or Grade Clydes he can afford to pay a better price for each individual if he can find a carload in a day's drive than if he has to spend a week to find the carload, and, perhaps, have to load them at several different stations. This advantage is exemplified in the United Kingdom, which country is the home of the best classes of nearly all of our domestic animals. Certain Shires or localities are known for certain classes of animals.

The Clydesdale horse is not the product of an individual breeder, but is the product of the valley of the river Clyde, where a number of canny Scotchmen, breeding in the same lines for a number of generations, produced an animal with special qualifications and characteristics so good and so strongly marked that it is now famous the world over.

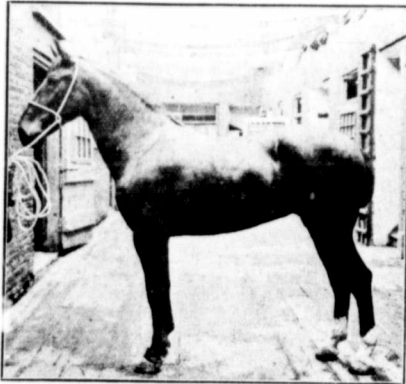
The Shire horse was produced in the same way in the Midlands of England, the Hackney in Norfolk and in Yorkshire, and so on.



Hero—First Prize at Canadian Horse Show, 1900, for Horses Suitable for Mounted Infantry. Owned and bred in Canada.

As a fact in the history of breeding, the same is true of other animals than horses. The short-horn cattle are the product of the county of Durham and the adjoining north portion of Yorkshire, the Ayrshire cattle of the county of

Ayr and the Herefords of the County of Hereford, the Shropshire sheep of the Downs of Shropshire, the South-downs of the southern counties of England, the Berkshire pigs of the county of Berks and so on.



Cassandra—First Prize for Artillery Purposes, Canadian Horse Show, 1900.

What has been the experience of the farmers of the Old Country through generations and centuries can well be taken as an example for us to follow. We have had instances of this kind in Canada, instances in which these good principles unfortunately have not been persisted in by the people concerned, and are to-day to be taken more as examples of how not to do it than of how to do it rightly and successfully. For instance, the French Canadian pony was a distinct type of a very useful little animal, horses that had wonderful stamina and constitution, great docility, and remarkable vigor and strength for their size, exactly suitable for the economical doing of the work the people of the Province of Quebec at that time wanted done by their horses. Had we to-day thousands of these horses in the Province of Quebec a ready, profitable sale could be had for them. Unfortunately, the people, unappreciative of the true value of their possession, ignorant of the principles of breeding, imposed upon by the specious representations of glib-tongued strangers, crossed these animals with all sorts of mongrel sires, with the result that the last twenty-five years has brought about the absolute extinction of the breed and left a lot of very inferior animals of no fixed type, no real utility and no easy sale.

Another instance is shown in the history of the Morgan horse. Over a hundred years ago a certain Colonel Morgan bred a lot of the above mentioned Canadian mares to a good specimen of the English thoroughbred horse, and, working upon systematic lines, produced the Morgan horse so favorably known for many generations throughout the New England States, and so splendidly adapted to the light driving required by the people of that hilly country. These have been crossed out of existence by the introduction of all sorts of what were supposed to be improved stallions, generally mongrels, and used without regard to system or type. The Morgan horse has been replaced by a mixture of everything, but nothing as good as himself.

Again, nearer home we have another instance. The people of Huntingdon and Chateaugay counties, in the Province of Quebec, started in some thirty or more years ago to breed Clydesdales, and soon after that it was quite easy for a dealer to pick up in a few days several carloads of good grade Clydes in these counties. Instead of keeping their system, which was on the whole very profitable to the farmers, they introduced some new blood, and, mixing their type for one generation with one class and the next generation with another class, they have run out their characteristic stock, and to-day it would be difficult for a buyer to find a carload of good typical grade Clydes where

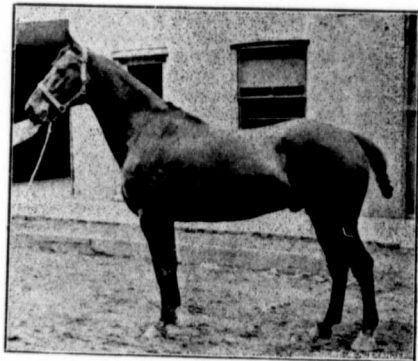
a few years ago he could have easily bought a dozen carloads.

Studying, then, from these examples of want of success and the older examples of the success of our forefathers in the old lines, I would urge upon horse breeders in this country to choose a particular class of animals which would be suitable to their neighborhood or district, and stick systematically to that class, so that one section or county may be known for a certain class of horses and another section for another class.

This leads me a step further to say that when a man has chosen a certain class of animals to which to pay his attention, let him stick strictly to that class or breed, and not expect by indiscriminate crossing to make an improvement on the well established breeds. These breeds are the product of generations of careful thought and study applied to the breeding of these animals, and it is much better for our farmers to start with the stock which the able founders of these breeds have supplied him with, than to try now to make a new beginning in a most difficult field.

When it comes to discussing the choice of the breed which a farmer may take to, I would not venture to prefer one breed to another. His choice must be indicated partly by his own individual likings, but more by the surroundings of his farm and by the market demands which he may find. The surroundings of his farm are probably permanent; the market demand varies somewhat. Therefore, I should say that the chief factor in deciding the breed a man should take up would be the situation and surroundings of his farm. This includes, of course, the class of animals chiefly bred in the neighborhood. Having chosen the class he intends to produce, let me warn against a frequent fault, namely, unnecessary change in the sire. If a new stallion is needed in a neighborhood, choose one whose stock is in evidence. If there is within reach a horse whose stock is known to be good, use him in preference to any showy, young horse about whose produce nothing can be known. Blood is necessary, and goes for much, but experience and actual performance shown in a string of first-class colts goes for more. If a neighborhood is fortunate enough to have the service of a good sire, let the farmers there combine, if necessary, to keep a tight hold on such a valuable possession.

There are one or two general principles which I would like to dwell upon. Of late years there has been an idea abroad that electrical cars and various mechanical motors were going to largely do away with the necessity for horses. While these may to a certain extent modify the market, I do not believe that they will do away with the necessity or desire for horses. There will still be required a large number of heavy draft horses for both city and



First Prize at Canadian Horse Show, 1900, for Cavalry Purposes. Bred and Owned in Canada.

farm work. There will still be required a large number of what are known as "vanners" or general-purpose horses,

and, above all, as the country gets richer and the towns increase in size, there will always be required a large number of pleasure horses for both riding and driving. Under these circumstances there is a considerable choice for the breeder as to what particular line he will take up.

There is another recent development in the horse market which appears likely to lead to great results. The course of the South African war has indicated that mounted infantry and mounted men generally are more likely to be needed in the army of the future than of the past. Artillery is certainly playing a larger role in battle, and many guns means many horses. Mobility of forces is evidently more important than it was heretofore thought to be. This will create an increased demand for artillery, cavalry and mounted infantry horses. We have to-day the spectacle of an English officer purchasing over three thousand horses in Canada in about three months, while our own contingents have taken nearly two thousand horses to South Africa. It is to be hoped—and there is some prospect of the realization of this hope—that Canada will become a permanent purchasing ground for military horses.

For the last year my attention has been particularly drawn to our horses. I have watched carefully large lots presented for sale, and have noticed the general character of the animals. There are one or two defects which are conspicuous by their frequent occurrence—a general tendency to coarse, heavy heads and almost universal shortness of neck, with frequently too great thickness, with a wrong proportion of the length above and below, the upper line of the neck not being long enough in proportion to the lower, and, consequently, the whole set of the head and neck being inferior; a very general excessive length in the barrel and loin, indicating a weakness of carrying power, and making a general inferior action. There is also a tendency to lightness of bone below the knees, showing that where animals of quality have been used as sires sufficient attention has not been paid to largeness of bone.

For the classes of horses above referred to, namely, military, vanners, carriage and saddle horses, quality is necessary. The brood mares of Canada to-day are conspicuously lacking in quality, and the only way in which I can see that this difficulty can be overcome is to secure an infusion of English thoroughbred blood. The most conspicuous need in Canada is for the proper class of English thoroughbred. I say this advisedly—the proper class. Long-legged, weedy race horses are not wanted for general sires in the country; short-legged, strongly built, big-boned thoroughbreds are what we need. I cannot do better in this connection than to refer to and endorse the statement made some weeks ago in THE FARMING WORLD by Major Dent, the officer who has been purchasing for the Imperial War Office in Canada.

In speaking thus of the infusion of English thoroughbred blood, I have by no means confined myself to the production of military horses. The foundation just referred to is as necessary for pleasure horses, while vanners and general-purpose horses are much better for it. I never thought myself of going so far in this direction, but I was not much surprised when I was informed some months ago that one of the most successful Clyde breeders in Canada, who has taken a large number of prizes in his class, started his stock of Clydesdales from a pair of mares which were half thoroughbred. It is not to be wondered at that the English thoroughbred properly selected and chosen should do so much for his progeny. He is the direct product of the Arab horse, who has centuries of recorded pedigree, and has, for generation after generation of men, been the object of the most careful selection and earnest solicitude of the people who have created him.

We are, therefore, in bringing in the blood of the English thoroughbred, taking advantage of the results of centuries of careful thought and study. The introduction of these horses is what is most needed to give us the class of mares required. I believe that the kind of stallion that we need for this purpose can be procured in the Old

Country at moderate prices. Enormous sums have to be given for racing sires, but that class is not needed by us for our general work. What we need is such as are chosen for the Royal Bounty, horses picked for the purpose of raising hunting and cavalry horses.

With reference to the illustrations given in this number, I might say that the prizes given at the Toronto Horse Show by myself, as Minister of Agriculture, were intended to bring out and establish among horsemen the type of animal required for artillery, cavalry and mounted infantry purposes. The horses illustrated are the winners of these prizes. They are not in each case everything that might be desired, but they are good specimens of their respective classes.

A breeder must have in his mind's eye what he wants to produce. He must understand sufficiently the laws of heredity to know what to use for the purpose of producing a certain type. A horse breeder must pick what comes nearest to his ideal. The enterprising horse breeder will go far afield to purchase what he requires, and those who have done so in Canada have reaped a profit on their investment. The men who to-day stand at the head of the horse-breeding industry in Canada are men who have boldly purchased at heavy expense what they knew was required to produce a certain article—an article for which they were sure they could get a remunerative price. If we can impress upon our average farmer who wants to raise a colt or two a year that it pays him to use a stallion of a given type, the men who have taken the lead in horse-breeding will get such stallions and place them at the disposal of the farmers. We must disabuse our people of the idea that any good-looking entire horse is good enough to use for service. I believe that this is the true battleground on which the fight for improvement has to be made, and I trust that what I have said in this article may help in that battle.

I do not propose to go into any details of the management of mares or colts, but I would like to urge the proper training for young horses. Our Canadian horses, as a rule, are extremely docile, and our people are to be congratulated on the fact that they "train" the horses, and do not "break" them, as is too much done in the Old Country. There is, however, a lack of finish in the training of our horses.

Horses for military and pleasure purposes need a good deal of training, and if the breeder will take a little time and trouble in doing this he can reap a large profit, which nowadays he generally leaves for the dealer to secure. The purchaser desiring a pleasure horse wants one that it will be a pleasure to ride or to drive, and not one with which he has to fight or which knows nothing. It would take but an hour or so a day of patient work for a few weeks to train a horse so as to add \$25, \$50 and, in some cases, \$100 to his value in the market. We have an illustration of this in the prices obtained by the horse dealers who show at the Toronto and New York Horse Shows, where they win the prizes chiefly through the manners and training of their animals, in many cases beating superior individuals which have not had the advantages of this training.

To conclude, I express the hope that some enterprising horsemen will purchase in the Old Country a number of good, strong thoroughbred stallions and bring them here for the purpose outlined in this article.

Our Common Game Fishes

By C. W. Nash

(ILLUSTRATIONS BY THE AUTHOR.)

Fifty years ago the Province of Ontario was blessed with as abundant a supply of valuable food fish as any country in the world. A supply that seemed at that time to be practically inexhaustible and which would no doubt have proved to be so had the early settlers and fishermen exercised proper moderation in the methods they adopted for taking them. Not only were their methods of taking fish

wasteful and destructive to the last degree, but with a reckless imprudence that is difficult to understand the people seem to have destroyed the fish-producing possibilities of large numbers of our best streams and lakes either by so polluting the water that no animal life can exist in it, or else by so clearing the banks of the streams, and springs which fed them, of every tree and bush that sheltered them,

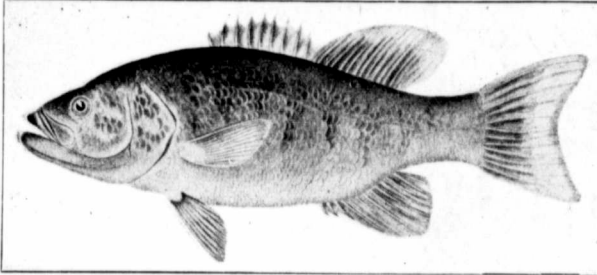


Fig. 1, Small-mouthed Black Bass.

that they are now dried up all the summer and are raging torrents filled with surface water in the spring, down which the fertilizing elements from the fields are swept to the lakes below.

Some day our farmers will wake up to the necessity there is for re-planting the banks of their streams and spring holes, and then we shall hear less about the trouble from drought in summer and the leaching of the best part of manure from the fields in spring. When this is done good fish will become common where now it is a rarity.

However, I did not start out to write an article on the want of forethought which threatens to cause the destruction of our once valuable fisheries, but rather to give an account of the habits of some of the game fish which may yet be found in our inland lakes and streams.

SALMON AND TROUT.

Foremost among the game fish of the world stand the members of this family, but as with us in the settled portions of the province they can no longer be considered common, I can only give them passing notice here.

The sea salmon (*salmo salar*) was at one time abundant in Lake Ontario and the streams flowing into it, particularly so in the Don and Credit rivers; but the pollution of the water, and the filling up of the spawning beds with sawdust and other refuse, has caused this valuable fish to abandon its habit of running into the waters of our province, though in 1898 I received records, which I believe to be authentic, of the capture of four at various points in Lake Ontario; so perhaps when the law for the preservation of streams is properly enforced, and our waters again become clean, this grandest of all fish may return to its old haunts.

The Brook Trout (*Salmo fontinalis*) is still abundant in nearly all the uncleared districts of the province, but except where preserved is not often to be found in the older settlements.

In order to thrive properly, trout must have water that is both clean and cool and where this can be provided there is no difficulty in maintaining a stock of fish the number and size of which will be governed entirely by the extent of the food supply. Fish, like all other animals, must have a sufficiency of nutritious food if they are to attain their best development; all waters will provide a certain quantity naturally, and this natural food can be increased by cultivation and stocking so that no further care in that direction may be necessary; where this is not done artificial feeding must be resorted to. This

method, however, is not often very satisfactory, and never produces trout equal to the fish found in their natural state.

Besides the above there are two species of Lake Trout, or Salmon Trout, found in the province, both of which are of great commercial value. Both species may be caught by trolling, or by fishing with live bait, but neither of them afford regular sport to the angler and so cannot be considered game fish in the proper sense.

THE BASS.

It is amongst the representatives of this family that anglers of all grades of skill find their greatest sport. The successful business man, who, provided with the finest of tackle and angling appurtenances, spends his well-earned vacation every summer on some of the back lakes, goes there because he feels certain that he will, on most days, be able to catch his fair share of good fish, and may perhaps get a big one; and should he be lucky enough to land a six pound small mouthed Black Bass who then so happy as he? Everything else is forgotten for the time being and

he is absorbed in the success of the day. The small boy, too, with a pole cut from the nearest bush, a long string borrowed from his mother's kitchen, and a hook of any sort obtained somehow, seeks happiness in the same way and frequently finds it, for he is not so particular as to size and fighting qualities; what he wants is fish, and if the Black Bass won't bite, well the Rock Bass will and so he fills his string with them and goes home triumphant, although he may have a little unpleasantness awaiting him when he gets there, because his sporting instincts have caused him to forget that there were numerous chores to be done.

Of all our fish, the one that stands highest in the estimation of the majority of people who go a-fishing is the small-mouthed Black Bass (*Micropterus dolomieu* Fig. 1) commonly known in the province as the Black Bass. Its high repute is due entirely to its game-fighting qualities when hooked, and in that respect it is, I believe, at equal weights the superior of any fish that swims. It principally inhabits rocky or gravelly streams and lakes and is abundant in the waters of the Trent Valley, the Muskoka district and throughout the north westerly part of Ontario.

When on the feed, no fish is more voracious than this. Nothing that has life in it and can be taken in its capacious jaws comes amiss to it. I have heard of some curious things having been taken out of the stomachs of Black Bass at times, amongst others a half grown mink was found

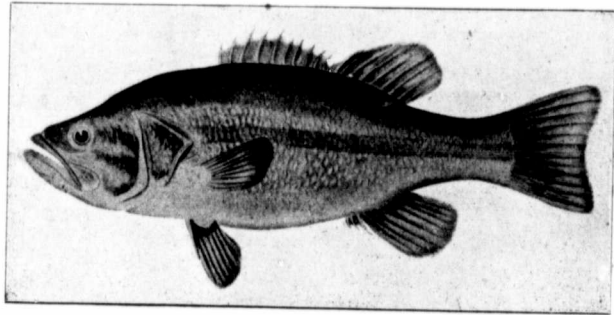


Fig. 2, Large-mouthed Black Bass.

in one by a friend of mine a year or two ago. Crawfish, worms, insects, frogs, and small fish of almost any kind that are not spiny, constitute its food in general and any of them may be used as bait. I prefer shiners, frogs, or grasshoppers in the order named. Crawfish and dew-worms are both good, particularly so in some waters, but

crawfish are hard to keep on the hook and dew-worms are too slimy for my taste.

Bass may also be taken with any medium sized spoon or the artificial minnow. Of course these baits must be kept moving. Casting with a rod and working the artificial bait through the water by a series of pulls sometimes affords sport, but trolling is a poor affair and only justifiable when fish are wanted and there is no other way to get them.

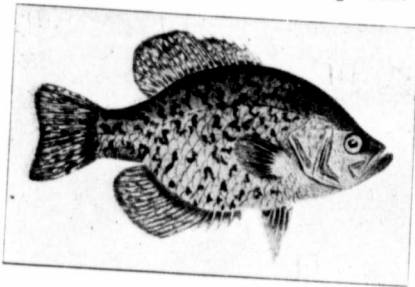


Fig. 3, Speckled Bass.

During the winter bass bury themselves among weeds or under convenient logs or rocks and lie there dormant or partially so until early in March when they move about again and begin to feed. In May they form their nests which are shallow depressions cleared out on some sandy or gravelly spot near or amongst the weeds. In these depressions the eggs are deposited, the parent fish remaining over the nest and guarding it until the young are a few days old, after which the fry scatter along the shores in shallow water in an instinctive effort to avoid their numerous enemies, amongst which the larger members of their own family are perhaps the most dangerous.

The black bass in our waters sometimes reaches six pounds in weight, fish of that size are uncommon and anything larger than that very rare. These large fish, however, are not as game as smaller ones, and a three-pounder, if in prime condition, will give the best sport of any.

All fish vary very much in coloration and somewhat in form in different waters, and this peculiarity is very noticeable in all the bass family. The species under consideration is sufficiently well known to need no detailed description but as it is sometimes confused with the large-mouthed black bass I may as well point out the marks of distinction between them. In the small-mouthed species the angle of the mouth does not extend beyond the eye, in the large-mouthed it does. The small-mouthed is marked by irregular blotches or bands extending from the back downwards over the sides; sometimes these are clear, at others they are indistinct, but can generally be seen when the fish is first caught. The large-mouthed black bass has a more or less distinct black band extending from the gills to the tail; this is generally very noticeable in the fish when fresh taken.

The large-mouthed black bass (*Micropterus salmoides*, Fig. 2) is blessed with as many aliases as a professional burglar. In some localities it is the black bass, in others it is called green bass, yellow bass, Oswego bass, etc. It is much more widely distributed than its small-mouthed cousin, and will live and thrive in waters which are quite unsuited to its relative. For this reason it is a splendid variety with which to stock ponds. Like the last it is a very voracious fish and must have a good supply of food to grow on, but if this is provided and the water is kept fairly pure it is sure to succeed. It is not so game as the small-mouth, but excels it as a table fish.

In the waters it frequents, its favorite haunts are holes, about weed beds or near sunken logs, and they are particularly fond of lying under the floating leaves of water lilies. When hooked in such places your tackle is liable to suffer, for they usually make a rush for cover and get well tangled up among the stalks and break away. If, however, you can keep your fish in clear water he soon

gives in, and, as compared with the small-mouth, he becomes an easy prize.

All the methods of fishing for the small-mouth are usually successful with this species, though I have found a small frog by far the most killing bait in most waters.

The large mouth grows to a larger size than the other, some-times in our waters reaching eight pounds weight, and fish of six pounds are not rare.

The speckled bass (*Pomoxys sparoides*, Fig. 3), sometimes called grass bass, calico bass or silver bass, is an excellent table fish and one that is well fitted for stocking ponds. It is found in quiet, still waters, and is quite abundant in some of the marshes, bays and slow streams of Lakes Ontario and Erie. These fish do not attain a great size, the largest I ever caught not exceeding two pounds, but they are usually of good flavor and are well worth more attention than they receive. As game fish they cannot take high rank, yet, if caught with light tackle, they afford fair sport. In landing them a light hand is required, or a good many hooked fish will be lost, their mouths being very tender and easily broken away.

They usually frequent shady spots, under overhanging weeds, and are apt to congregate in shoals in such places, so that if one is found you are pretty nearly sure to get more near the same spot.

The best bait for them is a lively minnow, but they will also take worms and grasshoppers, and in the evening will rise freely to a light-colored fly, if you happen to strike them when they are roaming about for food near the surface.

The rock bass (*Ambloplites rupestris*, Fig. 4). Who that has ever fished does not know the plucky, greedy, little rock bass, the bulldog of the finny tribe, the joy of the school-boy, and the despair of the man fishing for black bass when bait is scarce. It has always seemed to me that on such occasions the rock bass knew it and followed me up to steal my minnows, no matter how big they were, I have seen them many times tackle my bait fish when it was just about as long as themselves, and they got away with it, too. On the table the rock bass is not by any means to be despised if taken out of clear water; if caught from amongst weeds they are apt to have the flavor of their surroundings.

They are to be found in nearly all the waters of the province, and every school-boy knows how to fish for them. For bait a minnow, worm or grasshopper will do, and the closer you fish to the weeds around some shady hole the surer you are to attract a fish in the daytime. Towards evening they may be anywhere, for at that time they travel about in search of what they may devour, and will then take anything that is not too big for them if it only moves.

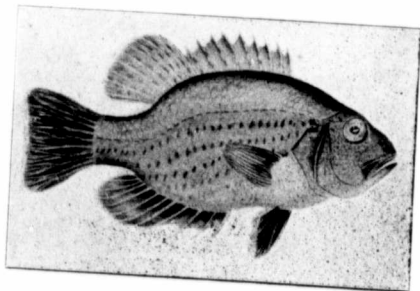


Fig. 4, Rock Bass.

At such times they rise to a fly well, or it may be caught with a small spoon spun near the surface.

The various species of sunfish belong to the bass family and afford an enormous amount of summer sport to the small boy. A stick, some string, a hook and a worm in the hands of a brown-faced, bare-footed lad, will always suffice to produce a string of sunfish and much happiness to the owner thereof.

THE PIKE FAMILY.

This family is represented in Ontario by two species of interest to the angler, they both grow to large size and possess fighting qualities of the first order. I know quite well that many enthusiastic bass fishermen will dispute this and will assert that a three-pound black bass has more real fight in him than any lunge or pike that ever wore scales. Well! every one has his fancy in fishing as in other things, and I believe in the big fish and like to catch them, if I can.

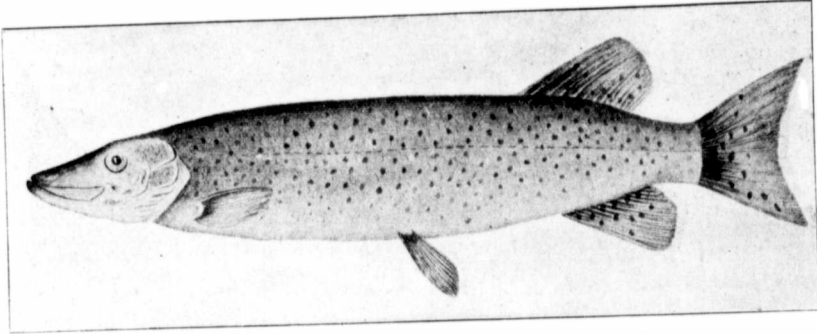


Fig. 5, Muskallonge.

The muskallonge ("*Esox nubilior*") Fig. 5. is not very regularly distributed over the province, it is perhaps more abundant in the St. Lawrence about the Thousand Islands and in the waters of the Trent Valley than elsewhere, though there are still a good many in some of the small inland lakes.

The great majority of the lunge that are taken are caught by trolling with a spoon, and as I have said before I do not see much sport in that. Some few others are captured fairly enough with rod and line by persons who are fishing for bass in the hot months of the summer, and even at this time of the year those who have experienced it, generally find they have plenty of sport on their hands in landing a twenty pound muskallonge or even one of half that weight, but at this season the fish are not at their best; the real season for lunge and pike is from about the first of October until the water freezes over, then they are in the height of vigor and condition and will test the angler's nerve and tackle too before they are landed.

I have often been asked what is the difference between a muskallonge and pike, so may as well point it out here. The

The best bait for lunge is a good-sized sucker, hooked through the back under the dorsal fin so that it will work attractively in the water. On getting a run give the fish sufficient time to swallow the bait and then strike sharply in the opposite direction to that in which the fish is running. If you are not in too big a hurry the chances are you will hook him and then all depends on your skill in handling him whether you land him or have a general smash-up.

The tackle used for both pike and lunge is generally

far heavier than is necessary. Any line that will do for bass is sufficient for them, but you want more of it sometimes; at any rate you should have forty yards on your reel. You won't always want it all, but when you do, you want it badly.

The Pike (*Esox lucius*. Fig. 6) is to be found more or less abundantly in nearly all the waters of our province and is a really good fish when angled for in fair sportsmanlike fashion at the proper season.

What I have said about the lunge applies equally well to this fish except that your bait should not be so large. A bright chub, shiner, or sucker of about three and a half inches in length is about the correct thing, and should you happen to cast one of these anywhere near a feeding pike at any time after the first of September, you will probably hear from him, and then if you don't land him, the fault will be yours.

In fishing for either of these fish don't use gut hooks, if you do their sharp teeth will cut it. Have your hooks whipped on gimp and change them frequently after they have been in the water, for you will find that the

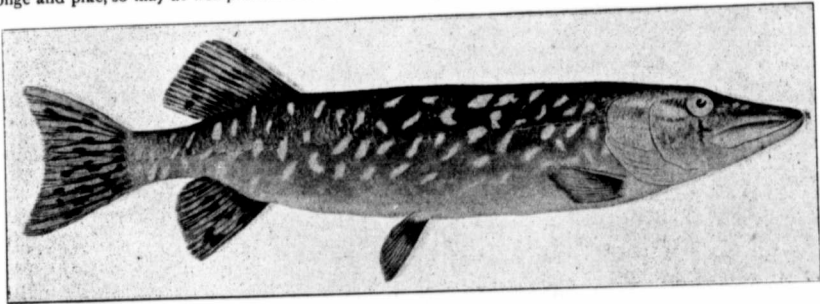
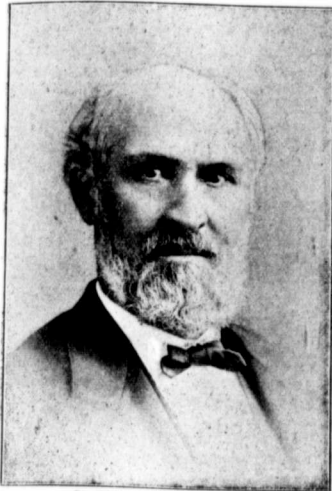


Fig. 6, Pike.

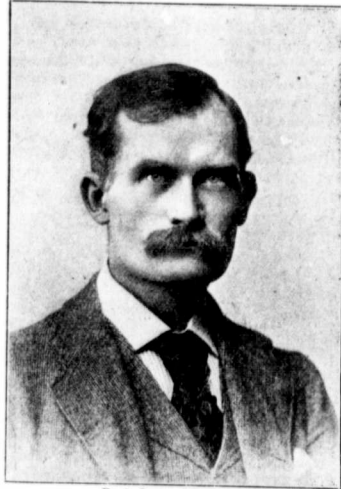
two fish are of much the same shape and the arrangement of their fins is the same. In color the muskallonge has dark spots (brown or black) on a light ground and the pike has light spots (yellowish) on a dark ground, these markings vary greatly in different individuals, but the characteristic coloring is sufficiently well marked to be recognizable. Furthermore, the muskallonge has scales only on the upper part of the cheek and gill covers, while on a pike the scales cover the cheek and part of the gill cover.

gimp quickly rots just at the junction of the gimp and the steel of the hook. I have lost many a good fish by carelessness in this respect.

The season for pike and muskallonge is just coming on and those who are fortunate enough to live near water containing either of these fish may take a day and try them. If so, and they have luck, they will, I believe, find that I have over-rated neither of them when I class them among game fish of the first order.



Sir William C. Macdonald



Prof. James W. Robertson

Sir William C. Macdonald is a native of Prince Edward Island. For over forty years he has been a resident of the city of Montreal. He has given largely of his time, thought and wealth to the advancement of education in Canada. He has long been one of the governors of the McGill University, and his gifts to this institution exceed two and a half millions of dollars. They have been bestowed with a careful discernment, as the real benefactor is he who leads the people to exert themselves in right directions. Thrice happy in his manner of loving and helping his fellows and his country is he who leads its youth to seek knowledge, wisdom and ability, and at the same time provides opportunities whereby they are enabled to do so successfully.

Last year Sir William and Professor Robertson agreed upon a scheme, whereby it is hoped that manual training may be introduced into the public schools of all the provinces of Canada. Sir William has provided the necessary funds; and Professor Robertson has undertaken to carry out the plan. We are able to present our readers with an article on the subject; and also with portraits of these two co-workers for the weal and honor of Canada.

Manual Training in the Public Schools

By Prof. Jas. W. Robertson

Commissioner of Agriculture and Dairying, Ottawa



HE real controlling influence which shapes the direction of education flows from the ideals of the people and those who lead them in educational matters. What do they desire that the children shall be when they grow up? On that question turns the educational system and methods. If the supreme desire be that the children and grown people shall be happy and capable in the sphere of life in which they are to live, then the education and educational processes will be directed to attain those ends.

We all know schools have a two-fold use; the imparting of knowledge and the drawing out of the natural abilities and capacities of the pupils; but it is the teacher—the human element in the school and in the system—that counts for most. The personal qualities of the teacher are the prime power outside the pupil which make for educational culture—that is for growth by a leading out of the powers of the child. The main endeavor should be to lead out the mind by nourishing ideas rather than to cram in an unprofitable knowledge of facts.

BOOKISH SCHOOLS.

It has been said that the schools, where book studies are the only or chief ones, turn the children from contentment with occupations in which bodily labor plays an important part, and also incline them to leave rural homes for cities and clerical and professional pursuits. Doubtless one of the many causes which have helped to bring about a distaste for manual and bodily labor has been the too

exclusively book and language studies of the common schools.

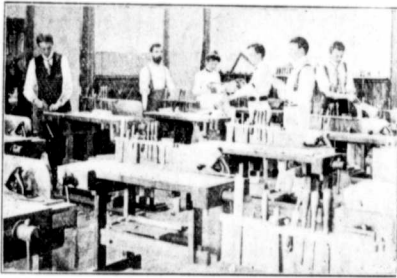
Much has been written about the danger of over-educating the rural population and thereby leading them to leave the farms. I do not think it is possible to over-educate anybody. On the other hand it is easily possible and has been quite common to over-school boys and girls as well as grown people.

When a spirit of bookishness—bare scholasticism—rules the primary schools, the high schools, the colleges and the universities, it is likely to leave the young men and women able to pass examinations on paper, and that is nearly the measure of the enlargement of their ability through such education—falsely so called. But when scholarship and practical and manual instruction join hands in the schools to train the whole child, and not merely the memory and language faculties, the children will leave school facing aright, capable and happy in making the right things come to pass, at the right time and in the right way.

TRAINING SCHOOLS.

Education begins with the child's life, and should continue of the right sort throughout. It seems unnecessary and wholly undesirable that the school period should be different from the years which go before and follow it in its influence on the development of some of the most important faculties. Before the child goes to school it is receiving most of its education by its senses bringing it into conscious relationship with the material world around it and by doing

things with its hands. After the boy and girl leave school they are required to do things with their hands and to recognize and control their relationships to the things about them. It is too much to expect that education in the school period, while imparting information and developing the general intelligence, should have cultivated their senses to be keen and alert and to report accurately and fully on what lies all round them. That prepares the mind for frequent experiences of "the joy of clear apprehension."



Corner of Manual Training Room, Summer Course for Teachers at Brockville, Ont.

None the less should their hands and eyes be trained to obey readily and skillfully the desires of the mind. These (systematic training of the senses, of the hands and eyes, and of the mind) are some of the objects of practical and manual instruction. Manual training is a means of developing mental power, and not a short cut or a long step towards a trade.

THE KINDERGARTEN.

Kindergarten takes its name from two German words signifying a children's garden. It has come to indicate the method of teaching and training and also the place where these are carried on. A gardener does not furnish plants with leaves and fruit to be attached to them. He does everything necessary that they may grow. Since the order of mental growth is desire, action, sensation, thought, the desire of the child must be quickened towards an action or series of actions, having an educational value. Thus mental growth begins and thus mental power is gained. The spirit and the principles of true kindergarten teaching should continue throughout the whole educational course, even if that lasts during the allotted three score years and ten.

NOT TRADE SCHOOLS.

Manual and practical instruction (under the name of schools of industry) was advocated a century ago mainly as a means to fit the children of artisans to earn their own living successfully. These schools were more generally promoted in Germany than elsewhere and were not educationally a success. Manual and practical instruction is now recommended as an educational means for developing intellectual and moral qualities of high value in all children, without particular regard to the occupations they are to follow afterwards. It is not technical education, although it gives, during the period of general education, the necessary preparation whereby anyone may derive the full measure of benefit from technical instruction at a later age.

DIFFERENT FROM APPRENTICE WORK.

The manual training room is not a workshop where operations are carried on with a view to the commercial value of the articles turned out. A workshop is a money-making institution, whereas a room for manual training in connection with a school is for the training and developing of the children, without regard to the intrinsic value of the work turned out, or to the length of time required to make any particular object. The course is really a series of exercises so arranged as to have educational results.

THE BEGINNING IN LONDON

Manual training in the primary schools was begun in London about 1886. As woodwork was not then recognized by the English Education Department as a subject to be taught in elementary schools, the School Board was unable to use public monies to maintain it. Next year a grant of one thousand pounds was obtained from the Drapers' Company through the City and Guilds' Institute. A joint committee was formed whereby the funds were administered. The manual training was found so thoroughly useful and acceptable that it was speedily extended. In 1890 woodwork was recognized by the English Education Department as a school subject. The School Board was thus enabled to expend its own funds upon this branch of school work, and in the same year money was provided by Parliament for grants for it from the Imperial Exchequer.

WHAT I SAW IN ENGLAND.

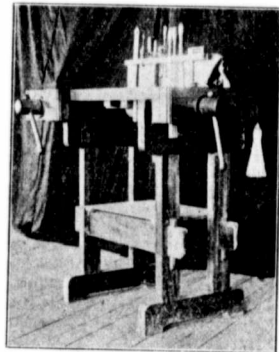
In both of the two past years, I have visited some of the primary schools in London, Liverpool, Manchester, Birmingham, Leeds and other places. So far as I could learn, the manual training centres established in England in 1890, did not provide for the boys from more than 50 schools. It is estimated that in 1900 the manual training centres in England alone provide for the boys from about 5,000 schools.

At a typical school which I visited, the room was fitted with some twenty benches, each provided with about a dozen woodworking tools. There was also a supply of general tools for the room in addition to the particular tools at each bench. One instructor took charge of the twenty boys. Each boy attended half a day per week. Consequently, the manual training room in that instance provided facilities for 200 boys, there being ten half days in every week.

BENCHES AND MODELS.

The benches are of convenient height and size, and each one is fitted with a rack for the holding of tools, and also with tools. Some of them are also fitted with a simple device for the holding of the drawings, so that the work with the tools may proceed with the drawing in full view all the time. General class instruction with the aid of a blackboard, is given by some teachers in a fifteen minutes' talk, before the particular work of the half-day begins; and instruction is given also to each of the pupils individually as the work at the benches proceeds.

A series of articles technically called "models" are made by the boys. The things are articles of use, and are known to be such by the pupils. Each one is wholly



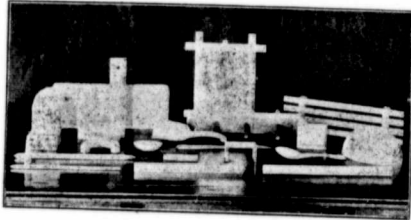
Bench and Fittings.

made by the pupil. When the teacher needs to give practical demonstration, he gives it on another piece of wood, and not on the piece on which the boy is working. It is not much learning, but much interfering, which makes anybody mad. The pupils make the objects by copying directly from the actual models. They also make drawings

of the models from measurements, and make the objects from the drawings.

NATURE OF THE MODELS.

In some schools the first object to be made is a wedge or flower stick or plant label. These involve (1) cutting to an exact length, (2) cutting the ends square by the use of a fine saw, (3) reducing to the proper thickness and



Manual Training Models, Nos. 1 to 20

width, and (4) making a taper with the same angles as those of the model. In other schools a small pointer is the first model; and in others some object equally easily made. The first article is easily made; the second introduces some slightly different use of a tool or the use of some different tool; and so they proceed, arousing, training and gratifying the child as he makes all of each one himself.

HAND AND EYE TRAINING.

The manual training includes practically as much drawing with a pencil on paper as it does woodwork by the use of tools. It is really hand and eye training. It is not in the nature of a new subject or study to be added to an already over-burdened school course. It is in the highest sense a recreation for the mental powers of the boys. Its purpose is to train the child with system and care, to observe, to interpret, to construct and to describe.

The course of instruction lasts for three years, and each boy gives half a day per week to it.

In some cases the manual training rooms are in the ordinary school building; in other instances, the manual training is carried on in a separate building, which serves as "a centre" for the boys from two, three, or more schools in the locality.

THE BOYS LIKE IT.

I learned that the attendance of the boys at the manual training was more regular than at any of the other classes during the week, and that discipline was not hard to maintain.

I observed that the children were deeply interested in their work. A casual glance of observation was all they gave to the visitors. A spirit of earnestness, self-reliance and careful perseverance seemed to pervade the school. The teachers told me that in accuracy of observation and clearness and accuracy of expression there was a noticeable improvement in the children after they had gone through the manual training course.

THE REFORM IS FAR-REACHING.

This manual training movement is only part of the educational reform which is making headway in Great Britain and other European countries. In 1897, a Royal Commission was appointed to determine how far and in what form manual and practical instruction should be included in the educational system of the primary schools under the Board of National Education in Ireland. The report of that Commission is a most instructive document, in which they point out certain changes in other parts of the system of national education which they think will become necessary with a view to the development of manual and practical instruction. The order in which they consider these changes, is as follows: kindergarten, educational handwork, drawing, elementary science, agriculture and some others.

AS IT WILL AFFECT AGRICULTURE.

The kindergarten system has already been quite generally adopted in many of the Canadian schools, and manual training is intended to include educational handwork and drawing. Elementary science is finding a place in many of the Canadian schools under the name of nature studies.

Regarding agriculture, the report of the Commission says: "We do not think that agriculture as an art, that is to say practical farming, is a subject that properly belongs to elementary education. At present the study of what is called the theory of agriculture is compulsory for boys in all rural schools, and is highly encouraged by fees. But our enquiry has shown that this study, consists for the most part, in committing a text-book to memory; and we have come to the conclusion that it has little educational or practical value. We recommend instead that the course of Elementary Science to be taught in rural schools, should be so framed as to illustrate the more simple scientific principles that underly the art and industry of agriculture. We also recommend the maintenance and extension of school gardens, as a means by which these scientific principles may be illustrated and made interesting to the pupils."

The gift of Sir William C. Macdonald to provide prizes for boys and girls in the seed-vrain competition is in accord with the recommendations of these Illustration School Gardens.

The Progressive Agricultural Branch of the Manual Training Fund has great possibilities of usefulness. Over 1500 boys and girls have entered the competition; and there is no saying whereunto its educational influence may grow.

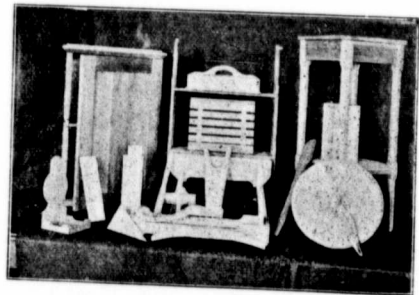
THE CHANGE TO BE GRADUAL.

The Commissioners go on to say:

"We think that the changes recommended ought to be introduced, not all at once, but gradually and tentatively. They should be tried first in the large centres, and afterwards extended to more remote districts. It would be necessary, at the outset, to engage the services of experts, from outside the present staff of the National Educational Board, whose duty it would be to organize the classes, and to aid the teachers with their counsel and instruction. But we have no doubt that this work, after a little time, could be taken up by the ordinary staff of the board. Again it is obviously important that all teachers should be trained in the new subjects; and the programme of the training colleges must be framed to this end, with as little delay as possible."

THE PLAN FOR CANADA.

The plan which the generosity of Sir William C. Macdonald, of Montreal, has made it possible to adopt for introducing manual training in the public schools of Canada was based very largely on the information and recommendations of that report. It is intended to furnish an object lesson of manual training in the public schools of at least one town or city in every province in Canada for a period of three years. Sir William has also provided a fund sufficient to permit the teachers in training at one Normal school in every province to receive instruction by thoroughly qualified instructors.



Advanced Models

Under the Macdonald Manual Training Fund, I was able to arrange for the opening of a manual training school at Fredericton, N.B., in April of the current year.

The school authorities provided a room. All the other expenses were borne by the Macdonald Manual Training Fund. A Saturday forenoon class for teachers was also

provided. It was taken advantage of and highly appreciated by them.

A manual training school was also opened in April in Brockville, Ont. The School Board arranged for a commodious room, and, as in Fredericton, the expenses were met from the Macdonald Manual Training Fund.

A summer course for teachers has been provided during the holidays at Brockville, Ont., and Fredericton, N.B.

TEACHERS FROM ABROAD.

To introduce this improvement into the school system of the various provinces of Canada, with the best possible results, it has been necessary to engage teachers who have been specially trained and who have had experience elsewhere. At this date seven teachers who have come to Canada from Great Britain are engaged in giving manual training, or in preparing for the opening of their schools early in September. Two instructors have been engaged in the United States. Seven others are expected to arrive from England before the end of September. These will complete the number of teachers of experience who are required in the various schools where manual training is being established. Several assistant teachers will be engaged in Canada, who will have an opportunity to become thoroughly proficient as full instructors.

THE PLACES IN CANADA.

So far as the places are arranged for at present, they are Ottawa, Ont.; Brockville, Ont.; Waterloo, Que.; Knowlton, Que.; Fredericton, N.B.; Truro, N.S.; Charlottetown, P. E. I., and Summerside, P. E. I.

I intend to make similar arrangements with the school authorities at Winnipeg, Man., Calgary, N.W.T., and Victoria, B.C., to have manual training in connection with their public schools before the end of October of the current year.

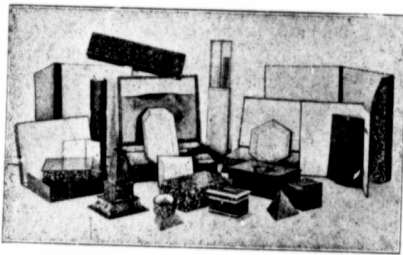
All the boys of suitable age attending the public schools in those places may have the benefit of the course of instruction free, and practically without expense to the School Boards.

As soon as practicable, an equal opportunity will be provided for the boys in the Public schools at Regina, N.W.T., and for the teachers in training there.

The teachers in training in the Normal School at Montreal will be afforded the same privilege as those in the other provinces.

Altogether, provision will be made for about 5,000 boys and 600 teachers attending Normal Schools, to receive manual training during each of three years.

In choosing the places to receive the offer of these manual training schools, consideration has been given to the desirability of selecting centres from which the movement could spread most readily throughout each province,



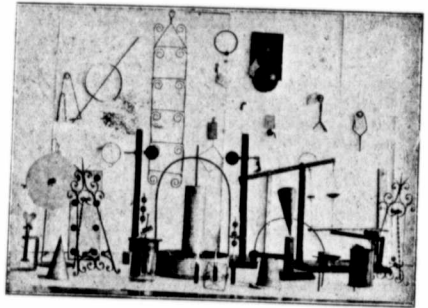
Cardboard Models, Elementary

and most quickly and effectively benefit its school system and its children.

POWER TO OVERCOME OBSTACLES.

Manual training develops in children habits of industry and leads them to thoughtfully adjust their acts to desired ends. That of itself is of great educational value. It brings about the mental habit of appreciating good work for its own sake, and is quite different from that sort of education which consists in informing the pupils about the

facts within a definite area of knowledge in order that they may be able to pass examinations on the subjects included within it. The so-called dull boys, who are not quick at book-studies, have in many cases been found to show great aptness in the manual training part of education. It pre-



Metal Work Moulds

vents them from being discouraged with school life, and from feeling any sense of inferiority to the quick children. It gives them self reliance, hopefulness and courage, all of which react on their mental and physical faculties. It also is a soothing and strengthening corrective to the quick and excitable children who become over-anxious about examinations on book-studies.

The glow of satisfaction—akin to the joy of triumph—from having done something well has a stimulating effect. Is it different from what is revealed by the sacred historian when he wrote: "And God saw everything that he had made, and, behold, it was very good?" Indeed, one can hear the echo, if he will, of that divine satisfaction in the murmur of the waves, in the rustle of the leaves, in the soft, the almost silent cadences of the ripening grain, in the singing of the birds, in the trees of the forest clapping their hands, and in the lullaby of the sunshine and breezes to the cattle on a thousand hills. It is a good thing to let every boy and girl become partaker of this divine joy in their own work. The reaction gives mental power, power to overcome obstacles; and the power to overcome obstacles is perhaps the most desirable mental quality, inherited or acquired.

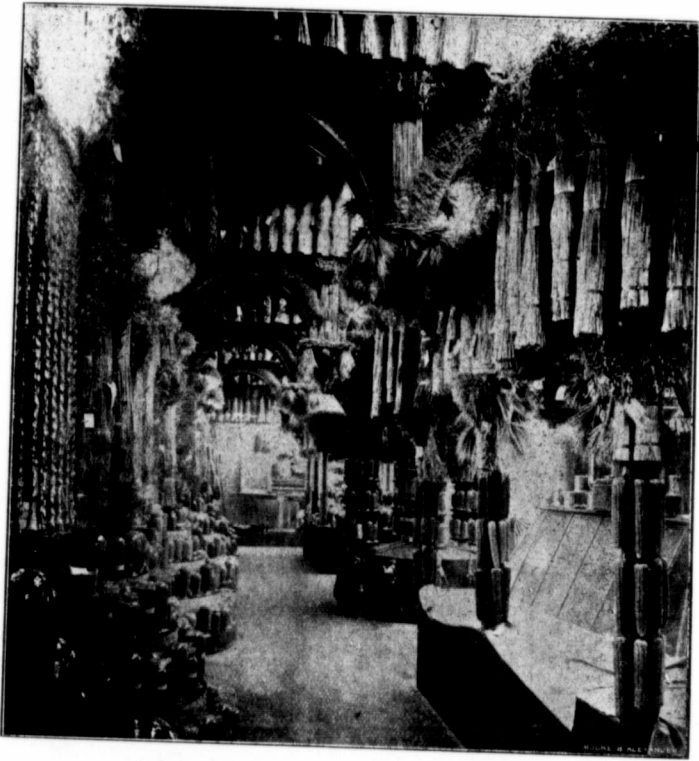
Keep Sweet

"Suppose a world of troubles do
Annoy you day by day;
Suppose that friends considered true
Your trust in them betray;
And rocks may bruise and thorns may tear
Your worn and weary feet,
And every day you meet a snare—
Keep sweet.

"Suppose you have not each desire
That forms within your mind;
And earth denies you half your hire,
And heaven seems quite unkind;
And you have not the best to wear,
Nor yet the best to eat;
You seem to have the meanest fare—
Keep sweet.

"A sour heart will make things worse
And harder still to bear,
A merry heart destroys the curse
And makes the heavens fair,
So I advise, whate'er your case—
Whatever you may meet,
Dwell on the good—forget the base—
Keep sweet."

—H. C. Martin.



Agricultural Trophy, Canadian Exhibit, Paris Exposition

Canada at Paris

Our Fine Display of Agricultural and Dairy Products

By W. H. Hay

Secretary Dominion Experimental Farms, Ottawa



THAT Canada is a great country, rich in agricultural resources of almost endless variety, and unexcelled in quality, is fully demonstrated at the great Paris Exhibition.

In a country of such magnitude, covering as it does a distance of over 3,000 miles, from ocean to ocean, it has been no small undertaking to select the very best material from this vast storehouse of wealth. The question was not so much what to select, but rather what to reject out of such an abundance of good material. However, the Hon. Sydney Fisher, Chairman of the Commission for Canada, and the members of that Commission have shown excellent judgment in the selection of the material that goes to make up the finest display of agricultural and food products at the Exhibition.

GRAINS, GRASSES AND FODDER PLANTS.

The farmers of Canada are to be congratulated upon the excellent collection of grains, grasses and fodder plants sent forward from the different provinces of the Dominion, and particularly from Manitoba and the Northwest Territories. The grain itself is a credit to the country, and the careful manner in which the specimens were put up and

labelled goes to prove that the men in charge are experts in this important work. The samples of threshed grain could not be of better quality and I was pleased to find that great care had been taken to have every sample free from weed seed, which is a very important consideration in preparing specimens for exhibition purposes. Much of the grain shown by foreign countries was badly mixed with weed seeds.

The collection of grain sent by the Manitoba Government was simply immense. There were 145 samples of one-quarter of a bushel each, of wheat, oats, barley, peas, beans, buckwheat, spring rye, corn, flax, sunflowers, millet, clover and timothy, every sample being the best obtainable in the country, which means the best that can be produced anywhere in the world. Besides the collection of threshed grain, the Manitoba Provincial Government sent eight large cases containing sheaves of grain and grasses, all of which were first class and a credit to the "Land of the Maple." The other provinces all made good exhibits of agricultural products, there being altogether 187 cases, which when displayed in one great collective exhibit made a grand display. The exhibit occupied a space of about 70x20 feet. The grains and grasses were shown in bunches

and sheaves on the walls; on arches and pyramids, in fact in almost every conceivable manner, the object being to have it look as artistic and attractive as possible but more especially to show that we have such products in great abundance. The large sheaves of wheat, oats, barley, and grasses, from Manitoba and the Northwest Territories, showing as they did the immense length of straw, bright as Klondike gold, bore silent but convincing evidence of the fertility of the soil and the wonderful climate of the country which could produce such magnificent specimens.

The threshed grain of all kinds was shown in bottles of almost every size and shape, also in open bins so that it could be handled and sampled by any person, so inclined. Every specimen was carefully labelled, giving the grower's name and locality, and in many cases giving the yield per acre, which must prove a surprise to many when they learn that we can succeed in getting from 75 bushels to 115 bushels of oats, and from 25 to 45 bushels of wheat to the acre; and such wheat! We had one lot of fifty bushels of the world famous Red Fyfe, grown at Hartney, Manitoba, that weighed 65 lbs. to the bushel.

plant and insulation is shown by the fact that very few of the apples have had to be replaced notwithstanding the fact that they have been on exhibition for over a month. The cheese and butter is also in perfect condition. The case, standing as it does near the entrance, with its tempting display of beautiful apples, attracts a crowd of visitors at almost all hours of the day, thus proving the success of this novel method of showing this class of goods. Other exhibits in this department worthy of more than passing notice are the excellent displays of honey, tinned and potted fish, canned goods, flour and oatmeal, maple syrup and sugar. These exhibits are all tastefully arranged, and are daily surrounded by crowds of sightseers who express surprise at the great variety of products shown here, many of which they had supposed could only be produced in tropical countries.

TOBACCO.

The large exhibit of tobacco, both in the leaf and in the manufactured state, attracts a great deal of attention and goes to prove that Canada is not such a cold country after



Canadian Exhibit in the Horticultural Pavilion, Paris

OUR FOOD PRODUCTS.

The display of food products is one of the most interesting features in the Canadian building. In the selection of the goods that go to make up this magnificent exhibit much thought and care was exercised in securing not only the best but as large a variety as possible of such products as we have in abundance for export. This is an important feature in exhibition work and is very often lost sight of in the preparation of the products of various kinds. A large refrigerator case, with glass on the four sides, contains the chief perishable food products, perfectly preserved at a temperature of from 37 to 40 degrees. In this case are shown varieties of apples, in original packages, boxes and barrels, just as they were shipped from Canada. Beautiful specimens of the famous old Northern Spy, russets, and British Columbia pippins are shown on shelves suspended by chains from the top of the case. Grouped about on the floor of the case and on slightly elevated shelves are specimens of our best Canadian cheese and butter. Our rapidly-growing poultry industry is also represented here by four cases of selected eggs. The refrigerator case is unique inasmuch as it represents the only cold-storage plant in operation at the Exhibition. The efficiency of the

all when specimens of this tender plant can be grown to such perfection.

Not the least interesting of our exhibits is the very meritorious display of hops, flax and wool, but space fails to tell of these varied and extensive collections.

It is only by comparison that we are enabled to judge of the quality of our exhibits, and I may say that, after careful inspection, in my opinion no other country has such a wide range of products, all of superior quality and arranged so as to show to the very best advantage.

Germany occupies a very important place in all sections of the Exhibition. In the section allotted to agriculture she has one of the most interesting exhibits, one main feature of which is the numerous charts (photographs) that are used to illustrate the value of different fertilizers for grain, clover and root crops. The specimens of grain shown are good, particularly the samples of oats and barleys, which are probably as good as any at the exhibition. The finest collection and best specimens of Indian corn shown at the Exhibition are from Roumania. This country exhibits a great many varieties of wheats, but mostly of a soft character. The barleys and oats are good, and the finest collection of white beans that I have ever seen are here exhibited. Austria shows some good speci-

mens of rye and grasses, also a great many varieties of hops. None of the grain samples are very choice, excepting the barleys, and they are good. The model types (in wax) of potatoes and other roots are most interesting. Hungary has an extensive exhibit of grain in the straw. Much of the straw, however, is dark in color, and this detracts very



A Section of the Agriculture Court, showing Canadian Exhibit of Grains

materially from the general appearance of the exhibit. The special feature of this exhibit is the small models of live stock—horses, cattle, hogs and poultry—which are all very interesting. Some very excellent samples of silk, flax and wool are shown. Taken all in all this exhibit will compare most favorably with those from other foreign countries.

Russia shows some good grains, particularly wheats which have the appearance of being hard and of good quality.

Greece exhibits for the most part, wines, tobaccos, oils, silk and cotton stuffs. The tobaccos are very bright in color and appear to be of much finer quality than any of the varieties grown in Canada.

Sweden has a most interesting exhibit of the products of the commerce and industry of that country. The collection of grains and cereals while not very large is all of good quality. This country so famous for her textile products has workmen giving practical demonstrations of the various processes of manufacture employed in Sweden.

The United States exhibit of agricultural products is comparatively small when we consider what a vast country they have to draw from. Very little grain is shown but what they have was well selected. The special features of this exhibit are the model pork-packing establishments showing the various departments through which "Mr. Porker" has to pass after entering the establishment, until he graduates in the form of ham, side bacon, head cheese, lard, etc. A model refrigerator car is also shown to demonstrate the best means of transportation of perishable food products.

AGRICULTURAL IMPLEMENTS.

Canada leads the world in this class of exhibits. Our large manufacturers of farm machinery are taking most of the first prizes at the Exhibition. The farmers of Canada should make a note of this and when purchasing an implement of any kind be sure that it is Canadian make and they will have the satisfaction of knowing that they have got the very best on the market.

MINERALS.

The mammoth collection of minerals which has been selected with great care from every province of the Dominion is a source of great interest to the groups of sight-seers who may constantly be seen gathered around the cases containing the gold and other precious metals, speculating as to the probable value of the many beautiful specimens.

FORESTRY.

That the forest wealth of Canada is very great may be gathered from the fact that in 1891 the total value of the raw products was over \$80,000,000. The Canadian forestry exhibit at Paris is of a very high class. Here may be seen the pine, spruce and hemlock, oak, elm, maple, beech, birch, butternut, hickory, basswood, cherry and in fact specimens of every known wood of value, in the form of logs, slabs, and finest finished panellings, making a fine business like display that appeals particularly to the commercial man.

CARRIAGES.

The showing made in carriages from Canada attracts a great deal of favorable comment, and will, I think, lead to the development of considerable trade with foreign countries, as the hickory, which is so extensively used in the make-up of the running gear, is so light, yet strong, that by its use vehicles of much less weight and consequently of a neater appearance, can be constructed. Other countries do not seem to have any wood equal to the Canadian hickory for purposes of this kind.

FISH AND GAME.

The fishery and game exhibit is most excellent. It is made up of a collection of most of our Canadian birds, specimens of fish from ocean, lake and river, heads of animals, and some magnificent specimens of the principal fur-bearing animals of the country all mounted and arranged in such a manner as to make them true to life.

EDUCATIONAL DEPARTMENT.

The educational section of the Canadian exhibit is attracting well merited attention, and well it might, for in



A View in the Forestry Court, Main Building

this section may be seen one of the most complete collection of books relating to the educational system of our Canadian schools, photographs of all the principal colleges and large educational institutions in Canada, with charts showing the growth and development of the public school

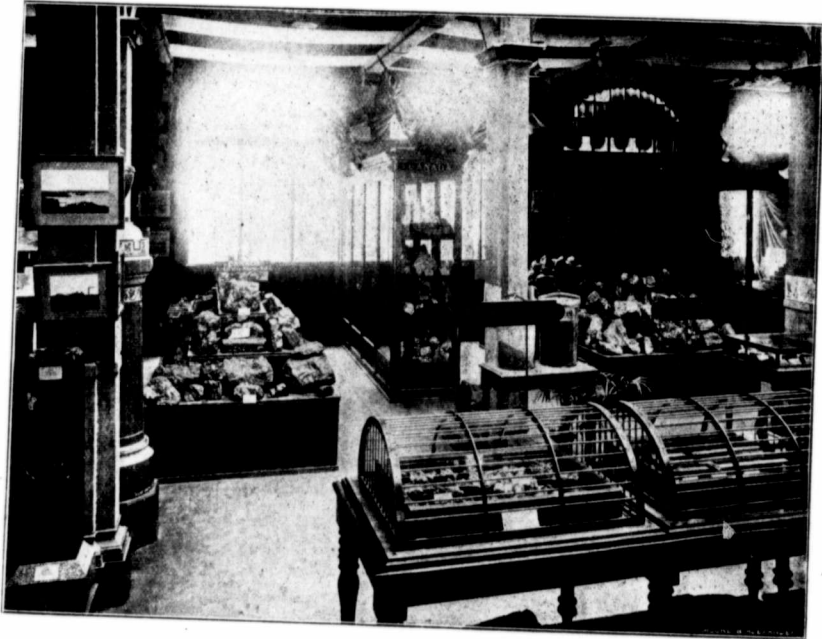
system, also specimens of work done by the pupils of the schools; works by our best Canadian authors; and a host of other things too numerous to mention in particular, but all of interest to the many visitors who keep the attendants busy answering questions.

OTHER DEPARTMENTS.†

Our exhibits of textiles and manufactured goods, such as furniture, hardware and musical instruments, are well worthy of special mention; but time and space will not permit me to go into detail regarding these very excellent displays, which go to prove that Canada not only can produce the raw material, but can turn out the manufactured articles second to none.

On the whole, Canada has made a grand showing at the great exhibition. The magnificent display is indeed one great object lesson of the most interesting products of the commerce and industry of the country, and in many respects is a revelation to thousands of visitors who were not previously aware of the extensive resources of the Dominion. Word comes by almost every mail of some special award of merit being granted to Canada for the excellence of her products.

Our Canadian representatives at Paris are doing valuable work in giving information to visitors, and, more particularly, in opening up new avenues of business for our rapidly increasing trade, which is expanding in almost every direction.



Canada's Display in the Mining Court

Dominion Experimental Farms

In the Dominion Experimental Farms Canada has, perhaps, one of the most extensive systems of agricultural experiment stations on this continent. We know of no other system under one central management that covers such an extent of territory and such a variety of climatic and soil conditions. The work must needs be of a very varied character, demanding wide experience and an intimate knowledge of the agricultural capabilities of the whole Dominion on the part of those in charge of the various departments of the farm system. That the director and those under him possess these qualifications to a very large degree is shown by the work accomplished and the fund of valuable information that has been forthcoming from this institution during the past decade. But however capable such officers may be, it takes time to get so elaborate a system in good working order and to make it of the highest value to the farmer. For this reason we believe the Experimental Farm system of the Dominion is in a position today to render better service to the Canadian farmer than ever before. The work of organization is now complete, the Farms have been brought up to a high state of cultiva-

tion, the various departments are well equipped; and profiting by the knowledge obtained and the experience of the past, the future, we think, has in store much better work from the Farms than the past has given us. In making this statement no reflection on the services of the past is intended. These have been many, and, as thousands of farmers in all parts of the Dominion can testify, have been of very great benefit to the agricultural interests of the country.

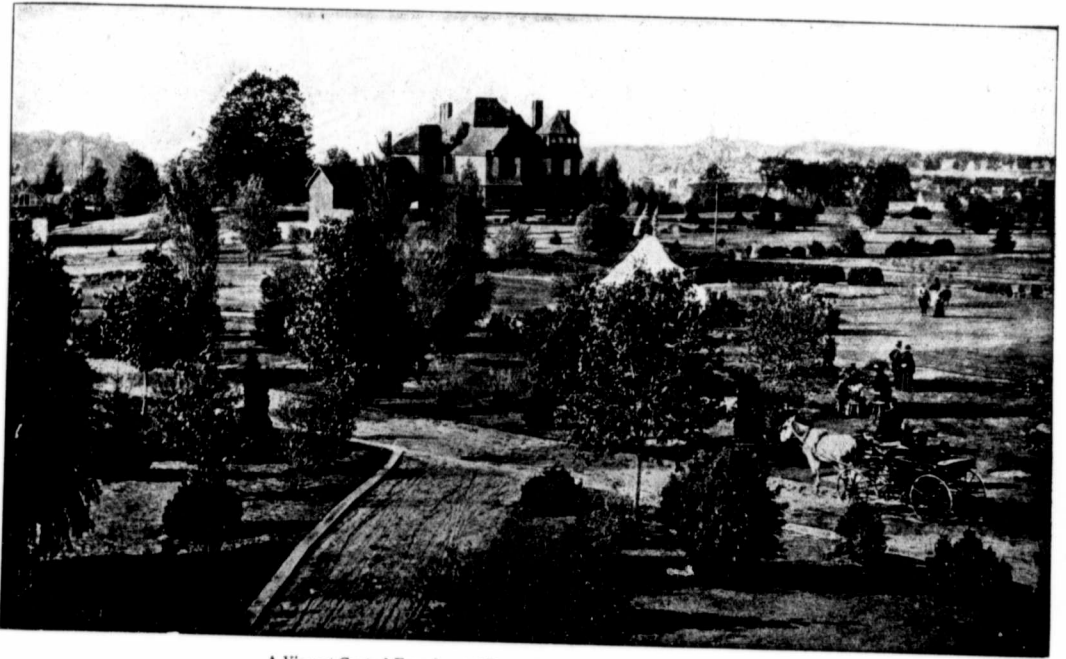
The Dominion Experimental Farms were organized in 1887. They comprise the Central Farm at Ottawa, which, in addition to being the headquarters, was designed specially for Ontario and Quebec, containing 500 acres; the Farm at Nappan, N. S., for the Maritime Province of 310 acres; the Brandon Farm of 670 acres for Manitoba; the Indian Head Farm of 680 acres for the Northwest Territories, and the Agassiz Farm of 300 acres valley land and 800 acres mountain, for British Columbia; making a total of 3,260 acres. The Farms were selected more with a view to their convenience of access rather than to suitability of soil and surroundings, and consequently many of the lands selected were below the aver-

age of the general quality of the farming lands in the different sections where they were established. Thus, while it proved a rather serious drawback to making a good showing in the first few years, it afforded a splendid opportunity to demonstrate by good management what could be accomplished under adverse conditions. This was particularly true in the selection for the Central Farm at Ottawa. Its condition at that time is well described in the first report of Dr. Saunders, from which we take the following :

"On taking possession of this Farm, which comprises a number of small holdings, the dividing fences were found to be well packed with surface stone collected from the fields; there was also many heaps at different points and large boulders scattered over the surface. In every field there were also many stumps, chiefly pine, either single or in groups, while at the rear end of the farm there were about 140 acres on which the pine stumps were very numerous and the greater part of this area was also covered with a second growth of poplar and birch. With the aid of dynamite, which has been freely used, all these stumps—some four or five thousand in number—have been

regard to forest questions. This line of work served the double purpose of an experiment and of adding beauty and picturesqueness to the landscape. The arboretum of the Central Farm is to-day the delight and pleasure of everyone who is privileged to visit it. It has clearly demonstrated the very great value to the country of having every farm adorned with useful and ornamental trees and shrubs.

The Central Farm at Ottawa as well as the branch Farms are now well equipped with farm buildings. Adequate provision is made at each place for keeping all kinds of live stock and for making extensive feeding experiments, with a view to finding out the kinds of feeds and animals most profitable for the farmer. In this line of work perhaps as much has not been accomplished as might have been expected. A better day has come, however, and the appointment of J. H. Grisdale in 1899 as Agriculturist has opened the way for more and better work in the interests of live stock husbandry.



A View at Central Experimental Farm, Ottawa, showing Director's Residence

entirely removed, the second growth trees rooted up and burnt, and the whole of this heretofore waste land brought under the plough and it is now ready for crop."

From this seeming chaos have come green fields, fertile acres, rich pastures and beautiful landscapes, lasting tributes to the energy and skill of the busy Farm staff. But the selection in one or two essential features was a very wise one, considering the purposes for which it was intended. The land has that desirable variety of soil which makes it very suitable for the purposes of an Experimental Farm, including within its area every grade from heavy clay to light sandy loam. Much of the larger part, however, is either a dark sandy loam of good quality, or a friable clay loam.

By the application of up-to-date methods suitable for this varied condition of the soil, every foot of this land has been brought under cultivation for experimental work. In the earlier years much attention was given to the testing of trees and shrubs with a view to attaining definite data in

AGRICULTURAL DEPARTMENT.

In this review space will not permit us to give in detail a history of the work carried on at the different Farms since they were started. A short review bearing more particularly upon the work of recent years must suffice. The moving spirit in it all has been the Director, Dr. Wm. Saunders, who has ably filled this responsible position since his appointment in 1887. For the three years intervening between Prof. Robertson's retirement as Agriculturist in 1896 and the appointment of Mr. Grisdale in 1899, Dr. Saunders in addition to his other duties has looked after the work in this department.

It has been chiefly along the line of increasing the products and improving the quality of the more important farm crops. In this connection the effect of different fertilizers, and combinations of fertilizers, on the growth of the various cereal and root crops have been given some attention. Another important line of tests has been the growing of different varieties and quantities of clover with

grain and plowing the crop under late in the autumn or in the following spring. The best results have been had by sowing ten pounds of red clover per acre. Experience has shown that clover can be sown with advantage with wheat, barley or oats. When cattle are available the clover can be economically pastured in the autumn and the uneaten portions plowed under at the close of the season. Several varieties of cereals have been brought from other countries for trial and many others have been produced at the Experimental Farms by cross-fertilization and selection. The number of new varieties that have been produced in this way now amount to nearly 1,000. These are thoroughly tested and the less promising ones discarded.

The new varieties of promise are then grown more extensively and samples sent out every year to farmers. Last spring 28,082 3 lb. packages and 3,127 packages, containing a sufficient amount of seed to sow 1-10 of an acre were distributed, making a total of 31,209 packages. As a result many farmers in all parts of the Dominion are now cultivating varieties produced from these samples that have proven much more productive than varieties previously grown, and by which they have been enabled to make their farming operations much more profitable. The work in this

timothy; fifth year, hay. A system of shallow cultivation is being followed.

The exact cost of the production of different crops is being ascertained. Experiments are being conducted with the view of determining the value of different kinds of roughage and grains in the production of milk, beef, pork and mutton.

Some work with pigs along the line of ascertaining the causes of "soft" bacon has been in progress for over a year. Different lots of pigs were fed last year, and others are being, or will, again this year, be fed on clover, rape, mangels, sugar beets, turnips, pumpkins and artichokes. The cost of producing pork on these different roughage rations, as well as the quality produced, is receiving careful consideration. The effects of different cereals as oats, barley, corn, and legumes—as pease and beans—upon the quality of the meat is being investigated, and the fat from the pigs fed on these different rations is being analysed in the chemical department to ascertain differences in composition resulting from different rations. Rations of pure corn were used in some cases; rations excluding corn in other cases; rations containing 25 per cent., 50 per cent. or 75 per cent. in still others. The results so far would indicate that where corn enters the ration, and is not accompanied with a certain proportion of milk, that an inferior quality of pork is produced.

Some work with sheep, pure-bred and grades is being done, chiefly with the view of showing the advisability of the average farmer grading up his flock.

A large number of steers are fed experimentally each year. Last year an experiment in dehorning steers was conducted; this experiment it is intended to repeat. An experiment with steers on the comparative economy of feeding them heavily from their birth as compared with maintaining on a good growing ration was inception in April, and will be carried on for two years, or till the steers are slaughtered.

The dairy herd records are being kept, and the comparative value of each cow as an investment for money-making ascertained. An experimental dairy is maintained, and the farm product of milk manufactured into butter.

Associated with Mr. Gridale in his work is Mr. John Fixture, the Farm foreman. Mr. Fixture has occupied this position almost since the Central Farm was started. He is possessed of a most practical knowledge of the various branches of the work of the Farm, including the experiments, and no more pleasant or profitable time could be spent than a half-day with Mr. Fixture in a drive over the Farm. The information to be gained from such an outing would be hard to duplicate.

HORTICULTURAL.

Since the Experimental Farm system was first organized horticulture has played a most important part in its work. This department is presided over by W. T. Macoun, Horticulturist, who also gives his attention to the study of plant diseases. Mr. Macoun may be said to be a product of the Central Farm. For a number of years he was assistant to the Director, having immediate charge of this extensive work in cross fertilization. In this connection he obtained an intimate knowledge of the work in the horticultural department, and was in every way fitted to take up the work on the retirement of Prof. Craig a few years ago. This department includes the orchard, vineyard, small fruits, vegetables, tobacco, forest belts and arboretum. The orchard comprises about 46 acres, in which are tested a large number of all kinds of fruit trees, special attention being given to Russian varieties with a view to their adaptability to our northern climate. A great many varieties of vegetables have been tested. The cultivation of the tobacco plant has been given some attention. The whole scope of the work has been along the line of finding out for the farmer the best varieties of fruits, vegetables, etc., to grow, and the best methods of cultivation, etc., to follow in order to obtain the best results from them. The Horticulturist also examines and reports upon specimens of new fruits sent to him, besides discussing the work of his



A Corner in the Chemical Laboratory, Central Experimental Farm

department since Mr. Gridale's appointment as it is being conducted at present is briefly summarized as follows:

Two classes of experiments are conducted, viz., the economic production of feed or vegetable matter, and the economical or profitable conversion of the roughage and grain so produced into flesh or dairy products.

In the production of forage and other crops the most important points to consider, if we are to hold our own and improve upon it, are the maintenance and increase of soil fertility. With this end in view, work along the line of methods of cultivation and crop rotations has been recently inception. Humus being the most important constituent of a fertile soil, the aim of any system of rotation or method of cultivation that hopes for success must have as its basis (1) the increase of the total amount of this matter in the soil; (2) the retention of the humus where most easily reached by plants; (3) the maintenance of the soil in a perfect physical condition.

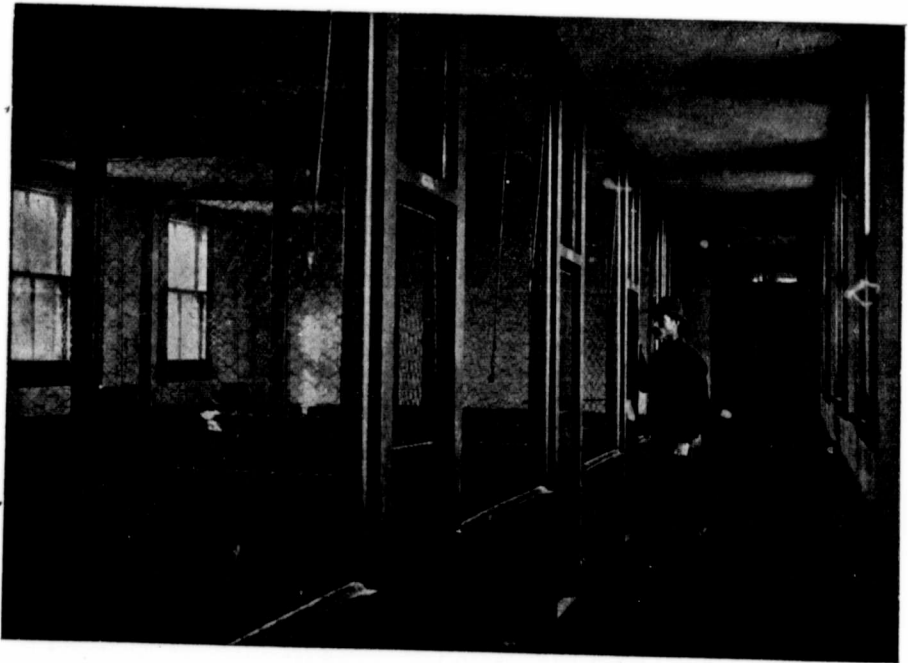
With these points in mind, a five-year rotation has been adopted as follows: First year, pasture; second year, grain, with clover or pease; third year, corn and roots; fourth year, grain, and seeded down with 10 lbs. clover, 12 lbs.

department and the results of experiments at fruit growers and farmers' gatherings.

Perhaps during the past year or two the most important work conducted has been in connection with testing remedies for destroying or preventing injurious insect and fungus life on fruit trees. Experiments are being conducted with trees at the Farm infested with oyster-shell bark-louse, and at Niagara on trees affected with San José and New York scales, to determine, if possible, the best time to whitewash the trees to get the best results. The formula used last winter was 6 gallons skim-milk, 30 gallons of water, 60 lbs. of lime, and 10 lbs. of salt. The use of lime in whitewashing the trunks and large limbs of trees is an old custom, and still adopted by a few. It was supposed to have a very beneficial effect on the tree, but as to what these effects really are is not definitely known. The tests with spraying to destroy the oyster shell bark-louse, though resulting in greatly decreasing its ravages, have not been successful in thoroughly eradicating this pest. Some extensive work has been done in connection with "dry rot," "brown rot," or "Baldwin spot" of the

charge of this very important branch since 1887 and the work accomplished by him has been of great benefit and value to the farmers of the country. Mr. Shutt has associated with him as first assistant, Mr. A. T. Charron. Owing to the large increase in the work of this division it became necessary last autumn to appoint a second assistant chemist. Mr. H. W. Charlton, B.A.Sc., acts in that capacity.

As is well known by every reading and thoughtful farmer, agriculture is very largely a branch of chemistry—the science which tells of the nature of matter and sets forth the principles of plant and animal nutrition. It thus affords information of the greatest value on the two subjects—the needs of crops and stock—which, apart from the commercial aspect, practically comprise farming. During the past thirteen years the Chemical Division of the Experimental Farm has done most useful work, not only in a directly educational way by correspondence and lectures, but also by carrying on original investigations and research and in making analyses of soils, cattle foods and fodder crops, dairy products, naturally-occurring fertilizers, insecticides, and other substances with which the farmer works.



A Section of the Poultry House, Experimental Farm, Ottawa

apple. The conclusions reached thus far is that this rot effects 60 varieties of apples, the Baldwin being the worst affected. The rot is found from the Atlantic to the Pacific, but is more prevalent in Eastern Ontario, Quebec, British Columbia, and the Eastern States. No effective remedy has yet been found for this trouble. Considerable work has been done in testing the effect of whitewash in preventing the swelling of buds on plums, cherries, and apple trees. The results showed that the retarding of the swelling of the buds was quite marked on the plums and cherries. The whitewash appeared to have little effect upon the apple buds, as they do not swell till late.

CHEMICAL DIVISION.

The presiding genius in this department is Mr. Frank T. Shutt, M.A., F.R.S.C., and it is needless to say that he is a thorough and painstaking investigator. He has had

It would be quite impossible to review all the results obtained by this division of the Experimental Farm system, for they fill the pages of many reports and bulletins; we shall, therefore, content ourselves with an outline of one or two of the more important lines of research which have been followed during the past two years.

We may first give some of the more salient points brought out by a comparative study of manures rotted under conditions of exposure and protection. Exposure to rain, even when the manure was kept in a well-built wooden bin, resulted not only in the loss of a very large amount of potash (about one-third of the total amount present disappeared within 12 months), but also in the dissipation of one-third of its nitrogen and a very large proportion of its organic matter—a constituent which subsequently forms that valuable component of fertile soils, humus. Further, the exposed manure lost one-sixth

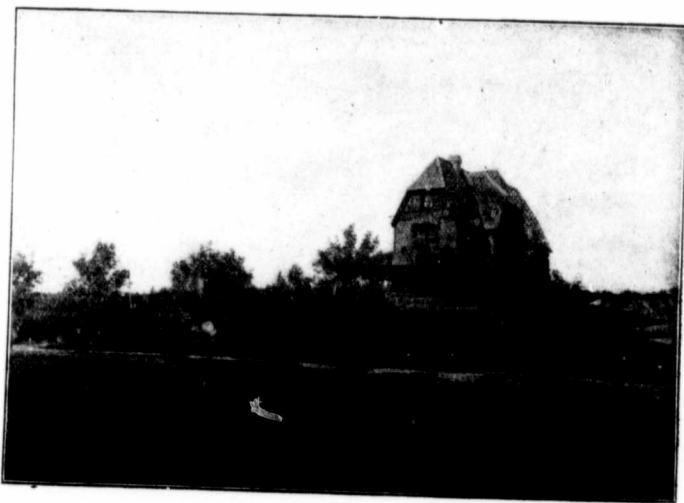
of its phosphoric acid. The "protected" manure, kept moist and thoroughly compacted during fermentation, during the same period lost about one fifth of its nitrogen. There was no leaching away of potash or phosphoric acid. The loss by oxidation of organic matter was 10 per cent. less than in the case of the exposed manure.

As regards the greater availability of the plant food brought about by fermentation, it was evident from this investigation—which was carried on for 14 months—that there is no benefit gained by rotting the manure for a longer period than three months. The best conditions under which manure can be rotted are: (1) protection from leaching rain; (2) a non-absorbent, e.g. cement, floor, and, (3) keeping the mass moist and compact. Further experiments showed that the addition of gypsum to the manure heap was not of much use, and that the right place to employ it was in the stable, where the greater loss of ammonia occurs.

We shall now briefly refer to a very exhaustive investigation which has been carried on by this division to ascertain the cause of "softness" in pork. This is a most important problem to solve, as Canada is now exporting several millions of dollars' worth of pork annually to Great Britain, and much of that now produced is too soft

inspector's report alike showed that the firmest quality of fat was produced by a mixture of oats, peas and barley, in equal parts. The citation of these few results will be sufficient to indicate the value of such work, the reader being referred to the publications of the Experimental Farms for fuller details. Clover, rape, mangels and sugar beets are being tried this year to ascertain their effect on the pork, and also an experiment is in progress to learn if skim-milk fed with the corn will counteract the bad effect of this grain.

This year a most interesting experiment is being made, under direction of the chemist, on the branch Farms at Brandon, Man., and Indian Head, N.W.T., to ascertain the effect of fallowing on a soil's retentive power for moisture. Month by month samples of soil are taken to a depth of (a) one to eight inches and (b) eight to sixteen inches, from areas fallowed and cropped, respectively, last year. These are then sent to the laboratories at Ottawa, where they are analyzed. The data in one instance show that the fallowed land of 1899 contained in May, 1900, eighty-three tons and in June, 1900, thirty-seven tons more moisture per acre than that which was cropped in 1899. Similar results were obtained from the other station. Comment on the value of such work as this would



View of Superintendent's Residence, Experimental Farm, Brandon, Man.

for that market. Pork fat consists of stearine and palmitin—fats that are solid at ordinary temperatures—and olein, which is a fluid fat. A preliminary experiment showed that "softness" was due to what we may term an excess or abnormal development of olein. The next step was to ascertain the conditions, character of feed, etc., which brought about this excessive olein production. To this end nearly 200 pigs were put under experiment and fed in lots of ten (under the control of the Agriculturist), with various rations, including cornmeal, beans, oats, peas and barley, and mixtures of these grains. At different stages of growth these pigs were slaughtered, the meat graded and the tissues analyzed. The chemical data are most instructive and interesting. Though the work is still in continuance, so that corroborative evidence can be obtained, several important points have been reached. An exclusive corn diet led invariably to soft pork, the fat containing very large percentages of olein. From another standpoint, corn without other grain foods is not to be advised, for, being poor in bone and muscle-forming constituents, the pigs make exceedingly slow growth. It is neither a practical nor an economical feed. Further, when beans form the greater portion of the ration, the pork will contain too much olein to be "firm." Both analysis and

be superfluous, for those who know anything of farming in the Northwest know that success in wheat growing is not a question of enriching the land—for that has already been done by nature—but that it rather depends on two factors, the absence of frost and the presence of sufficient soil moisture. If the latter can be assured by any system of culture, it is by such experiments as these, that the truth will become known and a great benefit conferred upon our Western farmers, who this year have suffered so severely through drought. Incidentally, Mr. Shutt is tracing the degree of nitrification of the humus in these soils throughout the summer, so that we may expect to have important information very soon as to the relation of soil moisture, temperature and the production of nitrates—a question over which there has been considerable dispute.

Lack of space forbids us entering further into this domain of research and its practical bearing on every-day farming. Those who read the Farm reports will be aware of the useful work the chemist has done in recent years in solving the problem of the maintenance of soil by legumes; in pointing out the deficiencies of exhausted soil, and the most economical means of replacing them; in furnishing reliable information regarding the relative feeding value of our grasses, fodder crops and grains, and in many other

ways adding to the store of accurate knowledge regarding Canadian agriculture.

DIVISION OF ENTOMOLOGY AND BOTANY.

This division of the farm work is under the management of Dr. James Fletcher and his assistant, Mr. J. A. Guignard. The investigations carried on in this branch with regard to insects and plants have a very practical bearing on the welfare of Canadian farmers. The losses resulting from the attacks of injurious insects, which could be prevented were a knowledge of entomology more general, are so great in all crops grown that it becomes an important matter for farmers to know what are the best methods of fighting against these enemies, so as to reduce as much as possible the amount of their injuries. Before the best remedy can be discovered for any pest, it is frequently found necessary to work out the whole life-history of the insect, so as to learn the time or stage of its development when it is most vulnerable.

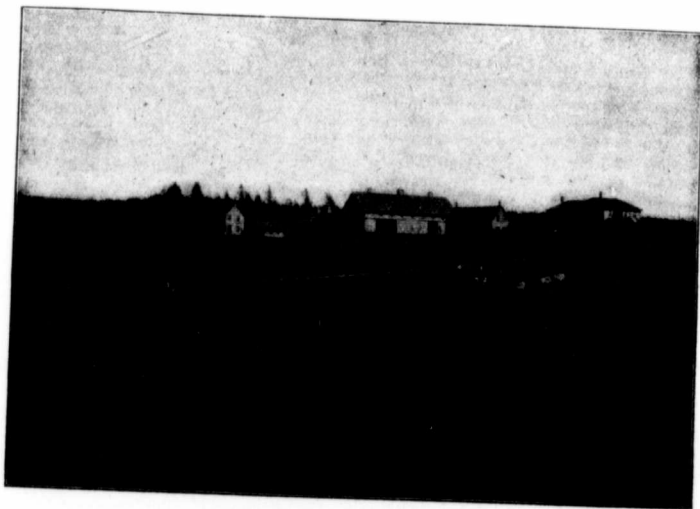
As is well known, the lives of all insects are divided up into four well-marked periods, during each of which their habits are entirely different. These are: (1) the egg, (2) the caterpillar or larval stage, during which, as a rule, they are most injurious; (3) the chrysalis or resting stage, in

Among special investigations carried on in this division and bearing directly upon the yearly incomes of farmers, mention may be made of the following, all of which have been treated at some length in the annual reports of the division:—

Spraying with the arsenites, especially against the codling moth and the plum curculio, the clover-seed midge, pea weevil, Hessian fly, wheat-stem maggot, wheat midge, grain aphid and army worm, on field crops; granary weevils, Mediterranean and flour moth. Among insects troublesome in gardens complete accounts are found of the cabbage maggot, cabbage worm, cut worms, turnip flea, and the red turnip beetle of the West.

Fruit insects have received much attention, notably the plum curculio, codling moth, canker-worms, cigar case bearer, eye-spotted bud moth, borers in the trunk and bark of fruit trees, bark lice and other scale insects, including the San José scale, and pear-leaf blister mite.

The botanical work of this division embraces the formation and care of the herbarium of Canadian wild plants, the nucleus of which was Dr. Fletcher's own private collection of about 3,000 species, which he presented to the Experimental Farm when he joined the staff, but which has been materially added to by collections year by year and also



A Scene at Experimental Farm, Nappan, N.S.

which, except in a few orders, the insects lie quiet and are without the power of motion, and lastly (4) the perfect insect. Some insects are injurious in three of their stages, but the larger number in one only, so that, unless we can know them in all their forms, in which they sometimes differ very much in appearance, we may lose our best opportunities of destroying them, from not recognizing them as enemies. It would, of course, require more time and study than farmers can give to such matters for them to learn enough of the habits of all the insects they are likely to meet with in order that they might always know what is the proper remedy to apply when an injurious insect makes its appearance on their crops. What concerns a farmer most is to recognize the nature of his enemy by the state of his crops, and thus discover the best means of putting a stop to its ravages or to be able to describe the injury intelligently when asking for remedies from those who make a special study of these matters. The appreciation of the value of this division of the Experimental Farm work by the farmers of Canada is shown by the fact that upwards of 3,000 letters are received in the year referring to the subjects studied by the entomologist and botanist.

through the generosity of friends, notably Prof. John Macoun, Naturalist of the Geographical Survey, and his son, Mr. J. M. Macoun, the eminent Canadian botanist. Additions are also often made to the herbarium from the many collections which are sent in for identification by botanists in all parts of Canada. These collections are named by the botanist and returned to the owners, who, however, have always readily presented specimens of any plant asked for; and this is also the case with regard to insects sent in by correspondents and many valuable additions have thus been made to the museum.

An important subject to which a great deal of time has been devoted, upon which valuable reports have appeared and concerning which many hundreds of letters have been written is noxious weeds, and their eradication. No less important are the studies of some fungus diseases, such as club root of the cabbage, potato blight and the smuts of small grains. No more important and valuable work has been accomplished for the Canadian West than what Dr. Fletcher has done in endeavoring to cope with the noxious weed nuisance on the western prairie.

Grasses and other fodder plants have been grown exten-

sively and continually by the botanist since the inception of the Experimental Farm system, and incalculable good has resulted from the many experiments which have been carried out with native and introduced species. All grasses advertised in seed catalogues both in this and in other countries have been secured and tested at Ottawa.

In this way not only have valuable species been discovered but the unsuitability of many to the Canadian climate has been pointed out. Of these several were formerly sold in large quantities to our farmers. Two grasses only of great interest can be mentioned. The awnless brome grass, now so well known, owing to its adaptability to the vast prairies of the West, and owing to its rich hay and succulence as pasture, was originally introduced into American agriculture through our Experimental Farms. A native species which has proved to be very valuable under cultivation in Manitoba, is the Western rye-grass, which makes hay of the highest quality in Manitoba, but farther west is known as the celebrated "bunch grass."

Some of the more recent investigations in this division of great importance have been conducted with the Hessian fly, pea aphid, asparagus beetles, black violet aphid and the clover mite.

POULTRY DIVISION.

The great importance which the poultry and egg industry has of late years assumed makes the work of this division of great value to farmers. Mr. A. G. Gilbert is in charge of this branch. He is a thoroughly up-to-date poultry man, always ready and willing to give his services where the interests of the farmer are concerned: a suitable poultry house fitted up for conducting experimental work of all kinds in connection with this branch is at the service of the manager; to cover the whole of the work done by this branch would take too much space. We will refer in detail to a few of the more important tests made. An experiment to find out the difference in laying qualities of old hens and pullets was begun two years ago and was continued last winter. Without going into details it may be stated that the results showed that up to the end of May, 1899, the pullets—with the exception of the Black Minorca—laid more eggs than the old hens. But it was also shown that the eggs of the older hens were larger and commanded a higher figure. In the four winter months of December, January, February and March, 1898-99, pullets numbering 47 laid 1,756 eggs, as against 1,390 from the same fowls during the same months of 1899-1900, one year later, and when the layers were one year older. The point to be settled is, does the difference in the price of the eggs compensate for the lesser number laid by the old hens? As eggs are sold at present, without any regard to weight per dozen, it really does not seem a matter of importance, but Montreal grocers who buy new-laid eggs in winter pay more for the larger eggs of even size. Perhaps the difference in price may be put down as 25 and 30c. per dozen, for pullets' eggs, as against 40 cents for the larger eggs of the hens. It may be said that both methods of management have their votaries and it will so likely continue, until eggs are purchased by weight. Meanwhile, it has been pretty fairly settled, by experiment, that it does not pay, except in the case of some of the Spanish family, to keep hens over two or two and a half years of age for layers. This does not refer to breeding stock. It may be interesting to note the weight of eggs from hens and pullets, as given in the following table:

DIFFERENCE IN WEIGHT OF EGGS FROM HENS AND PULLETS.

	Hens.			Pullets.		
	Lbs.	Oz.	Lbs. Oz.	Lbs.	Oz.	Lbs. Oz.
Barred Plymouth Rocks ..	1	9	10 1 12	1	5	10 1 6
Wyandottes ..	1	9	" 10 1 10	1	4	" 1 6
White Leghorns ..	1	10	" 11 1 11	1	6½	" 1 7½
Brown ..	1	9	" 11 1 11	1	4	" 1 5
Black Minorcas ..	1	12	" 1 13			
Andalusians ..	1	11	" 1 12			
Light Brahmas ..	1	9½	" 1 13			

In connection with the foregoing experiment it will be noticed that it was conducted during the winter period of high prices.

Much has been said as to the fattening value of whole and ground grains. Previous experiments along this line had shown that when fed to pigs the ground grains were the most potent fattening factors, at least cost. In order to ascertain the effect on poultry, three groups of five cockerels, each of the following breeds, viz.: Barred and White Plymouth Rocks and Silver-Laced Wyandottes were placed in separate pens with limited outside run. Each bird wore a numbered leg band. The groups were composed and fed as follows:—

Group 1.—Five Barred P. Rocks fed 3 times per day on a ration of whole grain, composed of two parts wheat, one part barley and one part corn.

Group 2.—Five white P.R. cockerels, fed on same kind of grain, as given to No. 1, but ground fine and made into mash.

Group 3.—Five S. L. Wyandottes; fed on mash twice, and whole grain once per diem.

Each group of five birds was given 12 ozs., 4 ozs. three times per day. Value of the food was found to be one cent for the ¾ lb. for each group, or 3 cents per day for the fifteen birds.

The total gain in weight made in 14 weeks, by the different groups were as follows:

No. 1 Group.....	18 lbs. 12¾ ozs.
No. 2 "	20 " 3½ "
No. 3 "	15 " 4½ "

The results of the experiment went to show that No. 2 group of 5 white P. Rocks fed on the same grains as given to No. 1 group—but ground fine and mixed into mash, made the most gain.

The cost per pound of increased weight in the case of feeding the mash, was 4½ cents. per lb., as compared with 5¼ or 5½ cents per lb for No 1 group. There was a calculated saving of 8 per cent., or quite enough to pay for the extra cost of grinding the grain.

Another interesting fact in connection with this experiment made itself apparent. After the tenth week of limited confinement, the cockerels were allowed wide range in the fields where they made better progress than before.

This latter point is a most important one to the farmers of the country, because it shows that with proper feeding and care (from time of hatching) and the run their chickens usually enjoy, there should be no difficulty in having the fleshy chickens now so much in demand.

In addition to these two experiments which we have given pretty fully, successful experiments have been conducted in testing the fattening qualities of different cross-bred chickens, egg preservatives, artificial incubation, etc., which we have not the space to deal with here. Particulars in regard to some of these will be given in our regular issues from time to time.

NAPPAN FARM.

The branch Farm for the Maritime Provinces is located at Nappan, N.S., not far from the dividing line between New Brunswick and Nova Scotia. The selection was not altogether a happy one. The soil is poorer than that of the surrounding district, and the Farm is so cut up by the railway as to make the fields irregular in shape. It is devoted mainly to dairying and growing roots and fodder crops. Some experiments in underdraining, both uplands and marsh lands, have shown a marked improvement in the crops. Some valuable experiments have lately been conducted in the feeding of cattle for the production of milk and beef and in the fattening of swine. By the liberal application of manure and the plowing in of clover a considerable portion of the Farm has been made very productive. Guernseys, Ayrshires and Holsteins and select grades of good dairy type are kept. Berkshires, Tamworths and crosses are utilized for experiments in the swine classes.

This Farm is under the superintendence of Mr. R. Robertson, well-known to breeders of high-grade Ayrshires in Quebec and Eastern Ontario. He is doing excellent work in the handling of both crops and live stock. The horticultural department is in charge of Mr. W. S. Blair.

BRANDON FARM.

The branch Farm at Brandon, Manitoba, was selected several years ago. The services of Mr. S. A. Bedford, a farmer of wide experience in the prairie province, were secured as superintendent, a position which he has filled to the satisfaction of the Government and the farmers of Manitoba. The selection of the land in this case seems to have been a wise one when the purposes for which it was intended are considered. It adjoins the city of Brandon, on the main line of the Canadian Pacific Railway, and about the centre of the great wheat-growing portion of the province. It has a variety of soil and other conditions which have been utilized to the best interest of the farmers in the province. Tree growing has been made a specialty with the result that avenues through the Farm four miles in length are lined with rows of trees, mostly native maple, which are making rapid growth. Elm, ash, maple, cottonwood and Russian poplars all do well. The barns and farm equipment are in good shape, while live stock is not the least important feature of the work. Some useful experiments have been conducted with such feeds as are available to the Manitoba farmer. The summer fallow has received a thorough test and has been proven a splendid line of practice for the Western farmer to follow in eradicating lands and retaining moisture in the soil. A great many grasses have been tested and the total cost of the Farm has been amply repaid if nothing further were accomplished than demonstrating the usefulness of the awnless brome grass to Western farmers.

INDIAN HEAD FARM.

The branch Farm at Indian Head, N. W. T., is located on a bare open plain many miles from timber on the main line of the C. P. R., about 300 miles west of Winnipeg. Mr. Angus McKay has been superintendent of this Farm since it was established. Previous to that time he had farmed for several years in the district and is therefore well acquainted with the requirements of the country from an agricultural point of view. The Farm is well adapted for wheat growing. The soil with the exception of 100 acres of heavy clay is a very uniform, rich black, sandy loam with clay subsoil. As at Brandon, considerable attention has been given to tree planting. Of late years the development along this line has been most marked. There are today numerous plots of vigorous growing shelter and ornamental trees growing in different parts of the Farm and in addition nearly a dozen miles of roads lined on both sides with avenue trees or hedges. Mr. McKay has demonstrated that the success of tree growing depends largely upon summer following the land before planting. The summer fallow in connection with grain growing and the cultivation of the awnless brome grass have been made a special study at this Farm and the results have been excellent.

AGASSIZ FARM.

This Farm is located at Agassiz, B.C., seventy miles east of Vancouver on the line of the C. P. R. The superintendent is Mr. Thos. A. Sharpe who has done faithful work in this capacity. The adaptation of the Farm to suit the needs of the province in which they are located made experiments in fruit growing an important part of the work of the Farm at Agassiz. Over 2,600 varieties of large fruits have been tested in order to find out the varieties best suited to the climate and soil conditions of the Pacific slope. Of this number 1,200 are apples and from these a number of varieties have been secured which do well in that country. Plums, pears and cherries do well, but, strange to say, peaches, as a rule, are a failure. A number of tests of walnuts, chestnuts and filberts have been made. English walnuts do very well. The growth of timber trees is being thoroughly tested. The strongest growers are the maples, elms and white and Austrian pines. An interesting test has been made of apple trees grown on the sides of the mountains and in the valley. Results so far have shown a more vigorous growth on the hills than in the valleys.

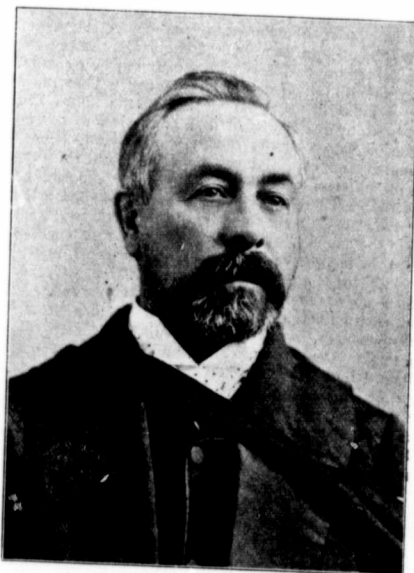
The Cattle Quarantine System of Canada

Every agriculturist in Canada has an interest in the health of animals, but fortunately for him it has so far been a passive one. Unlike his brother farmers in European countries he has enjoyed almost complete immunity from the ruinous effects of contagious diseases in animals; probably most of us have not asked why. We purpose in a short article written up from authentic records which we have been able to consult to inform the younger portion of our readers how the cattle quarantine originated.

The first record of any suggestion of cattle quarantine is found in a letter addressed to the Minister of Agriculture, dated Montreal, 28th September, 1875, signed Duncan McEachran, which we here reproduce.

MONTREAL, 28th Sept., 1875.

SIR,—The consideration of contagious diseases and infectious diseases with a view to prevent their introduction into this country is a subject to which my attention has long been directed. Having had considerable experiences of them



Dr. Duncan McEachran

in Britain before coming to this country and during my recent visit to Europe I visited several farms to familiarize myself with foot and mouth disease, and from numerous conferences with professional men on the subject I gathered what practical information I could relative to them and the best means of dealing with them. By the careful study of the works of Fleming, Gamgee and others, I hope I have prepared myself to be of some service to the department in taking the proper measures in endeavoring to preserve our valuable herds of farm stock free from contagious diseases of a preventable character.

It is a well-established fact that "cattle plague," "pleuro pneumonia," "foot and mouth disease," "small pox in sheep," were all introduced into Great Britain by stock imported from infected districts on the continent of Europe, that they spread entirely in the lines of commercial communication, and that they are propagated by contagion and contagion alone.

For want of proper preventative measures these diseases have from time to time been introduced and spread over the British Isles bringing death, or almost equally ruinous

deterioration in value of the entire stock as for the time being to paralyze the agricultural industries of the country, and create dearth and destitution among the laboring classes. The annual loss to the Mother Country is counted by millions of pounds sterling.

Our country is essentially agricultural; the stock interests represent a very large proportion of our wealth. So far, we have enjoyed almost perfect immunity from such diseases. This fact alone has directed the attention of other countries to Canada as a rich source of meat supply, and the industry properly preserved and judiciously encouraged will doubtless soon become a rich source of revenue.

That active steps are necessary need not be doubted. When we know for a fact that in England owing to the unusual prevalence of such diseases it is almost impossible for animals to be shipped from an uninfected district, and that it is quite possible for an animal on being shipped presenting no symptoms by which the disease could be recognized, the stage of incubation, (period elapsing from introduction of disease germ till development of symptoms) in foot and mouth varies from twenty-four hours to twelve days; cattle plague, usually about five or six days, but by many it is said to extend to sixteen or eighteen weeks, and, further, that it is a fact that hay, straw, blankets, halters, clothing of attendants, etc., may be the medium of conveying and propagating the contagion, the presence of which in these articles no inspection or examination can determine till the effects declare the fact. That the effect of a visitation of the least virulent of the above diseases to a herd, by death, loss of flesh and injury to the constitution, cessation of the secretion of milk, abortion, want of conception, etc., reduces its value to one third or one-fourth. That these diseases with proper precautions are preventable, I have every reason to believe. The length of time elapsing from the time of shipment to their landing in the country, with the tendency for sea-sickness to lessen the incubative period, are all favorable to an early development of the symptoms after landing, and, thereby, enable us to shorten the duration of quarantine. Our cold, clear climate during winter, and our dry atmosphere during summer, in my opinion, would make such diseases more controllable than in the humid, heavy atmosphere of Britain. But, on the other hand, we know from experience of epizootics among horses, once the disease is propagated, these very circumstances favor the spreading in a most extraordinary degree.

I have taken the views of our most extensive importers, and find that a system of quarantine would meet the approval of all of them.

Should the department desire it, I will be happy to lay before them, either by letter or interview, some suggestions as to how this could be carried out without disturbing the cattle trade of the country, but, on the other hand, securing it by preserving a clean bill of health to our valuable herds, believing, as I do, with Professor Gamgee: "That it is of the highest importance to protect the property of our people, to prevent an improvident waste of life and money and submit a choice of evils to some interference with the freedom of the subject whenever the doings of one man or a few are likely to injure the million," an interference which would be approved of most by those whom it would most affect. Doubtless, the carrying out of a thorough system of inspection, quarantine and disinfection would occupy time and cost money, but the advantages to the country would be very great.

The above is most respectfully submitted by

Your obedient servant,

(Signed) D. McEACHRAN,

The Hon. The Minister of Agriculture,
Ottawa, Ont.

Fortunately, this letter was backed up by the leading cattle breeders and importers of that date, particularly the late Hon. George Brown and the late David Christie, Senator Cochrane and others, and resulted in the acceptance of the proffered service and the taking of the initial steps, at first permissive detention with the consent of the

owner, followed shortly after by the utilization of Fort No. 3 at Point Levis and the erection within its yards of suitable sheds for receiving and keeping cattle, sheep and swine, first for eight days, but shortly after, ninety days for cattle, on account of the prevalence of pleuro-pneumonia in Britain, the period of incubation for which being usually three months' duration.

The utility of a quarantine system being demonstrated, stations were subsequently established at Halifax, N. S.; St. John, N. B.; Charlottetown, P. E. I.; Sarnia, Ont.; Emerson, Man.; Estevan, Assiniboia; St. Mary's, south of Macleod, Alberta; Huntingdon and Victoria, B. C.; besides numerous inspecting stations at which no regular stations have yet been established—all of which have been extremely valuable in preventing the introduction of diseases of animals.

The extension of this exportation of live stock necessitated the supervision of the steamships as to space and ventilation and the inspection of the stock before being shipped. For this purpose special inspectors were appointed at the shipping ports.

It was found necessary to investigate all reports of disease within the country and to deal with them with a view to eradication and prevention. Such diseases as sheep scab, parasitic mange in cattle and, particularly, tuberculosis.

Hog cholera and swine plague have been actively dealt with from time to time. This necessitated the appointment of no less than 26 permanent inspectors and 209 appointed, but only employed as required. Pathologist and assistant pathologist—an experiment station and bacteriological department all contribute to the efficiency of the Cattle Quarantine System of the Dominion.

It now forms a most important branch of the Department of Agriculture; the value of which to the stock-breeders more directly, but no less to the cattle shippers, railroads, steamships, bankers and merchants generally, would be difficult to estimate, as is always the case in dealing with prevention of loss; the following figures from the statistical year book 1897, however, may furnish food for thought:

"In Canada 45 per cent. of the population is engaged in rural pursuits. The railroads depend on agriculture for one-fourth of the freight they carry and the canals one-third. Canada's merchant marine depends chiefly upon the produce of the farms and ranges, and more than one-half of the total exports are agricultural products.

EXPORTS FOR THE YEAR 1897.

	Value.
Horses.....	\$1,710,922
Cattle.....	7,159,365
Sheep.....	1,002,611
Swine.....	4,053
Other animals and poultry.....	111,349
Agricultural products.....	\$ 9,937,723
	45,545,869
Total.....	\$55,533,592

There being no census of animals for the Dominion taken since 1891, we were obliged to make use of the figures obtained that year to illustrate the magnitude of our animal population:

	Number.
Horses.....	1,470,872
Cattle.....	4,120,586
Sheep.....	2,363,761
Swine.....	1,733,630

• To these probably 10 per cent. may be added to represent the figures of this date.

If our live stock and their products assume such large proportions, and their exportations form such an important item of our foreign trade now, what may they not reach in the future? When, by the rising tide of immigration, our great fertile regions now unpeopled are brought under cultivation and made to yield of their abundance, it will swell the volume of exports several hundred per cent. more than they are to-day, both in animal and agricultural products. We can by very little thinking foresee the vast interests at stakes in this country, which is destined to become the foremost food-producing country on the globe."

The following statistics from Fleming's Veterinary Sanitary Science and Police will serve to illustrate what has happened where preventive measures were neglected.

CATTLE PLAGUE.—Great Britain 105,566, 279,023 reported sick, 233,622 died or were killed, 40,165 recovered.

CONTAGIOUS PLEURO-PNEUMONIA.—In Great Britain, from 1834 to 1880 it is estimated that there perished considerably more than 1,000,000 head valued at \$60,000,000.

In Australia.—The losses during thirteen years were about 30 to 40 per cent. of the whole number of cattle, or about 1,404,097, valued at \$42,500,000.

FOOT AND MOUTH DISEASE.—Although it is not a very fatal disease, it is very contagious, and usually affects 9-10ths of the animals in the district and entails great losses from loss of flesh, loss of milk, resulting sterility, embarrassment of traffic, cost of nursing, cost of inspection and other heavy expenses.

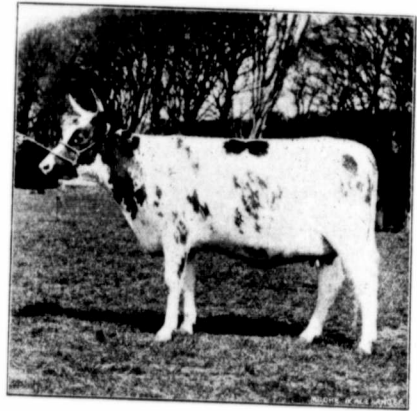
It is estimated that in Great Britain during 1872 the money loss amounted to at least \$65,000,000.

TUBERCULOSIS.—In my opinion this is the greatest scourge of the farm—sparing scarcely any species of our domestic animals, affecting more especially cattle, pigs and poultry—intercommunicable from animals to man and from man to animals. Insidious to a degree, incurable as a rule, invading our homes in the milk supplied for nourishment, the virulent bacilli working their deadly effects on our little ones, our invalid friends, or it may be our own bodies, well may we exclaim: "In the midst of life we are in death." No reliable statistics of the extent to which this fell destroyer exists in the herds of this country have been taken, no general testing of the cattle has been attempted, but of some 10,000 head tested the percentage is small compared with older countries and more populous centres, yet sufficiently large to render the responsibility of the Government onerous indeed. Fortunate it is that this disease while communicated from cattle to the human subject readily when the milk drawn from diseased udders is ingested without sterilization, it is not readily communicated in any other way to any except to those who are in constant attendance on cattle suffering from tuberculosis of the throat or lungs, who are thus exposed to inhalation infection.

Apart, however, altogether, from human infection, this disease is one which causes enormous losses in nearly every dairy country in the world or wherever cattle are housed, and fresh cattle frequently brought into the herd, as is the case in most dairy herds. To these bovine scourges must be added contagious diseases or other species of domestic animals.

GLANDERS IN HORSES, if left unchecked, would decimate our horses, and cause, as it does in the old countries of Europe, serious losses.

What does it avail if the breeder spends valuable time and money in improving his flocks and herds if he is not protected by wise preventative measures from such diseases as would frustrate and nullify all his efforts? What though professors of dairying teach and farmers adopt the most complete systems of butter and cheese production, if



Two-year-old Ayrshire heifer, imported by W. W. Ogilvie, Lachine Rapids, Que.

the milk supplying herds are suffered to sicken and die from preventable diseases?

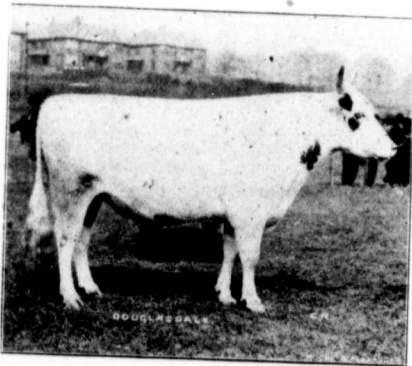
In connection with this subject we subjoin a brief outline of Professor McEachran's work in and for Canada collated from published biographical sketches and newspaper notices which have appeared from time to time.

PROFESSOR DUNCAN M'Eachran, CHIEF VETERINARY ADVISOR OF THE DOMINION GOVERNMENT.

Duncan McNab McEachran, F.R.C.V.S., V.S., Edinburgh; D.V.S., McGill; is the son of the late David McEachran, for many years a magistrate and senior baillie of the town of Campbelltown, Argyleshire (the family being one of the oldest in Kintyre). The subject of this sketch was born there November 27, 1841, educated in his native town and at Edinburgh, where he graduated as a veterinary surgeon in the Edinburgh Veterinary College. In the autumn of 1862 he removed to Canada, living for nearly three years at Woodstock, Ontario, where he practised his profession, delivering a course of lectures during the winter sessions in Toronto, where he aided in the establishment of the Ontario Veterinary College. Removing to Montreal in 1866, in connection with the medical faculty of McGill University, and the Board of Agriculture of the Province of Quebec, he founded the Montreal Veterinary College, which in 1889 became the Faculty of Comparative Medicine and Veterinary Science of McGill University, and he was appointed Dean of the Faculty and Professor of Veterinary Medicine and Surgery. He is also one of the original Fellows of the Royal College of Veterinary Surgeons, England, elected in 1875, being the only one in Canada upon whom the honor of Fellowship by election was conferred.

He was instrumental in establishing the cattle quarantine system of Canada, the first station being established under his direction at Point Levis, opposite Quebec, which quarantine system has extended its sphere of usefulness in the protection of the live stock industries from ocean to ocean, Professor McEachran being the Chief Inspector for the Dominion. This quarantine system has undoubtedly been the means of preventing the introduction of the contagious diseases of live stock which have been so detrimental to agricultural interests in other countries, the value of which service to the country would be difficult to estimate.

In 1879 he was appointed by the Canadian Government



Prize-winning Ayrshire bull, imported by W. W. Ogilvie, Lachine Rapids, Que.

HOG CHOLERA is a most virulently contagious and fatal disease. \$20,000,000 a year is estimated to be lost in the United States from its ravages.

SCAB IN SHEEP, where sanitary measures are not understood, causes immense losses from loss of wool, from death and expenses in dipping and caring for the diseased flocks.

acting on behalf of the Imperial Government, to make a report on the subject of contagious diseases, more especially pleuro pneumonia, said to exist in certain portions of the United States, and it was on Dr. McEachran's report that the scheduling of the American cattle in 1879 took place.

As Chief Inspector he took an active part in the discussion of the scheduling of Canada by the home government for the supposed existence of contagious pleuro-pneumonia in Canada, stoutly maintaining that no such disease existed. Subsequent events have proved conclusively that he was right in his contention.

He has also been largely instrumental in the development of cattle breeding and exportation of cattle from Canada. In 1881, in connection with Senator Cochrane, he established the first large cattle ranch at the foothills of the Rocky Mountains, of which he was General Manager for two years. In 1883, severing his connection with the Cochrane ranch, he established the Walrond cattle ranch in connection with the late Sir John Walrond, Bart., the board of directors being resident in England. Recently Dr. McEachran reorganized this company, and has associated with him as a board of directors some of Canada's leading business men, Sir William H. Walrond, Bart., M.P., London, being president, and Dr. McEachran, vice-president and managing director.

In 1886 he commenced horse-breeding, and gradually increased the herd till he had 250 selected mares, except a few which were imported from England and Scotland; all of them were selected by himself in the best horse-breeding districts of Ontario and Quebec, Canadian bred Clydes. The stallions were six in number, all high-class shire and Clydesdale of the purest breeding, all directly imported. Owing to the drop in values of horses a few years ago, horse-breeding was not profitable, and the Board of Directors, contrary to his advice, ordered them to be disposed of, a step universally regretted in Alberta, as it is generally admitted that such a valuable horse-breeding establishment may never be seen again there. Unfortunately too many of the mares were shipped east and exported. The Territories and Manitoba, however, have benefited greatly by the valuable brood mares thus obtained by their breeders.

He has filled responsible positions as judge of hackneys at the National Horse Show, New York, on several occasions, and was the sole judge of thoroughbred horses at the World's Columbian Exhibition in Chicago in 1893, in which positions his services were highly appreciated by the managements.

He has, from time to time, published valuable contributions to the magazines on subjects relating to his profession. He is the author of a handbook for the use of farmers on the diseases of horses, and other minor publications.

He has done much to enlighten the whole agricultural community of Canada by issuing from time to time bulletins on the causation, diagnosis and prevention of animal diseases. No man has done more to enlighten the public on the subject of tuberculosis, and largely to his persistence and active work in his capacity of chief Veterinary Advisor of the Minister of Agriculture is due the great progress that has been made in eradicating this scourge from our herds and arresting its extension.

In December, 1896, he accompanied the Minister of Agriculture to Washington, and assisted in the formation of the agreement by which the quarantines between the two countries were mutually abolished, resulting in the opening up of a very large market for Canadian store cattle and pedigreed stock.

In the winter of 1897-98 he visited, on behalf of the Canadian Government, France, Germany and Denmark for the purpose of familiarizing himself with the conditions of those countries in relation to the existence of contagious diseases in animals, and their method of dealing with them. A valuable report of his observations has recently been issued by the Dominion Government.

In August, 1899, he represented Canada at the Seventh International Veterinary Congress for the discussion of in-

ternational live stock trade, and the means necessary for the prevention of contagious diseases in animals, his report appearing in the annual report of the Minister of Agriculture. His sphere of usefulness is, therefore, not confined to any section of the Dominion, nor to the Dominion itself; his views and suggestions on all matters appertaining to veterinary science and live stock matters are appreciated throughout the world.

He married, in 1868, Esther, third daughter of the late Timothy Plaskett, Esq., of St. Croix, West Indies, by whom he has one daughter living. He is a member of St. James Club and the Forest and Stream Club, Montreal, and Rideau Club, Ottawa.

STRATHCONA'S HORSE.

It is well known that Dr. McEachran was requested by Lord Strathcona to assist him in getting up his force for South Africa, especially in selecting and purchasing the horses, which, like the men, were to be Western.

At the time the orders were given it looked as if the war would be over in a few months. Despatch was urged, and Dr. McEachran undertook, with the co-operation of the ranching companies, to whom he sent circular letters requesting them, under the exceptional circumstances, and in view of Lord Strathcona's patriotic liberality, to assist him in finding mounted infantry horses on the shortest notice; to have the 600 horses ready for embarkation in six weeks, the horses required being for mounted infantry. No better horses could be found than seasoned cow ponies, which are thoroughly trained saddle horses, accustomed to carry heavy weights, to rush up and down hills, to ford or swim rivers, shooting off their backs, to stand on the prairie when dismounted by simply throwing the reins on the ground, and to find their own food when turned loose on the prairie.

Such were the horses chosen for this force, and in the selections made none but matured horses were taken. A cow pony cannot be matured or seasoned to his work till he has been used three or more years; they are never used as cow ponies till they are over five, so that they were bought up to ten years.

They were remarkable for having good bone, good backs and quarters, and particularly good withers, active as cats, thoroughly bridle-wise, taught to stop suddenly at any pace, and turn on the hind legs as on a pivot.

Dr. McEachran commenced purchasing at Macleod on the 30th of January, and finished at Macleod on the 27th February, having bought 537 horses in 29 days altogether, out of which four Sundays must be deducted, making the available time for travelling, purchasing and paying for them 25 weekdays. The last train-load arrived at Ottawa on the 4th of March, every horse arriving in good condition, without a casualty worth mentioning, having been transported in midwinter 2,144 miles by railway. 64 transport horses were bought in Montreal in three days. The unfortunate losses at sea due to catarrhal fever contracted at Ottawa, where they were stabled in summer sheds at the exhibition grounds, together with the change of climate from the dry though cold air of Alberta to the cold, damp, snowy weather of spring at Ottawa, the cooping up and crowding together at sea, was most regrettable, as no more suitable horses could be sent to the Transvaal.

We extract the following from a letter written by one of the veterinary officers serving in South Africa, which proves this. He says: "Our march of 600 miles was made under the most unfavorable conditions for horses, and I think I am not enlarging on the truth when I say that no other class of horses in the world could have stood the misery and hardships which our North-West horses went through since they left Halifax. After 8,000 miles of sea voyage, without any exercise and very little feed, a week's rest at Cape Town on a hot sandbank, five days packed up in small, close cars, and then sent away on a 600-mile trip with poor feed and water and a heavy load, still we can muster a larger percentage of horses to day that are fit for duty than any other mounted corps which landed in South Africa this year. The North West horses are the best in the world."



Cheese at Dunedin Winter Show, New Zealand

New Zealand Competition in Dairy Produce

By J. A. Ruddick, Montreal, formerly Dairy Commissioner for New Zealand

Dairy farming is now recognized in New Zealand as one of the leading industries, and the mainstay of the small landholder. The value of dairy produce is third in the list of exports from the colony, being exceeded only by wool and frozen meat, but if the present comparative rate of increase continues for another year or two, the value of the butter and cheese will be second only to wool. The following table showing the exports for six years will give an idea of the volume of and the rate at which the output is increasing:

Year ending.	Butter.	Cheese.
	cwt.	cwt.
31st March, 1895	66,283	79,630
" 1896	69,965	71,474
" 1897	75,287	71,663
" 1898	106,840	78,705
" 1899	101,771	50,387
" 1900	159,806	97,746

It will be of interest to the Canadian cheese trade to find by comparing the figures for the years 1895 and 1900, that the increase for that period has not been very great. Indeed it is quite probable that the production of cheese nearly reached the maximum in 1899-1900. The unusual increase from 50,587 cwt. in 1899 to 97,746 cwt. in 1900, was owing to the factories having dual plants, all turning the milk into cheese instead of butter, to take advantage of the high prices being paid for the former article, and not the result of any great extension of the cheese-making industry.

Further more, whenever the relative price of butter happens to be much better than for cheese, at the time of the year when contracts are being made, the output of cheese for that season is liable to fall off very considerably, even as much as 50 to 75 per cent. below what it was in 1900.

It is necessary to explain here that the factories generally dispose of the bulk of their output before the season opens, usually during the month of September. They either sell outright or agree to consign to a certain firm, getting advances as shipments are made.

It is obvious that Canada need not fear the competition of New Zealand cheese as far as quantity is concerned, but in some other respects, I believe it may be felt to a limited extent, and there are some lessons to be drawn from a knowledge of cheesemaking in New Zealand, which are particularly applicable to the industry in Canada at the present time. In the first place I would point out that there is practically no difference in the quality of the cheese made there from the beginning of the season to the end. The midsummer cheese is quite as good as that made in the autumn, there being no classification such as we have, and when sales are made there is no reference to the month of manufacture.

This uniformity of quality as between the different months of seasons, and consequent absence of discrimination, is due to the climate, which is almost unique among cheesemaking countries, inasmuch as the temperature is always comparatively cool, and does not exhibit any great variation throughout the year. It follows then that the cheese are cured and transported in suitable temperature at all times, and this is the main reason for the uniformity. On the other hand, New Zealand cheese is not so well made as in Canada, nor are they as a rule so clean in flavor, and yet, notwithstanding these rather serious defects, they fetch almost as much money as ours do, because they lack the objectionable qualities which our hot weather causes.

These facts surely bear out the contention of those who advocate better control of temperature in the curing-rooms and during transportation. There is no doubt but July cheese might be almost, if not quite, as good as September if the conditions as regards temperature were equal.

What a great difference it would make to the industry if such a result could be brought about! There would be a great saving in shrinkage, and the improvement in quality would add to the value of all the cheese by raising the average of quality, to say nothing of the increased consumption which would be bound to follow.

With these natural advantages it may be wondered why New Zealand is not likely to become a very great cheese-producing country. The main reason is that the building and running of factories is expensive, and small factories cannot be successfully operated.

The tendency is, therefore, along the line of building up large central butter factories with contributory skimming stations. While this system does not offer the possibilities for making high grade butter which the single factory without skimming stations possesses, it is conceivable that, on the whole, better average results will be secured than if the butter is made in a large number of smaller factories. The volume of business done justifies expenditure for machinery

which a small factory cannot very well afford. For the same reason better men can be secured as managers, and the existence of these large institutions is a standing inducement to good men to remain in the business. Any country will succeed better in building up a reputation for making fine butter if the output is confined to large lines of uniform quality than if it is divided into more numerous smaller lines. As a matter of fact, the best New Zealand butter is made in these large factories.

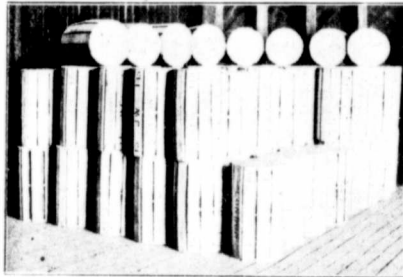
New Zealand butter and cheese are both put up in good packages. The cheese is packed two in a crate, which, if not as neat as our box, arrives on the market in better condition. They are fortunate in having a very suitable wood for butter boxes, and as it grows a good size, most of the boxes are made with the sides tops and bottoms in one piece. Only two styles of boxes are used, viz., the cube or Australian, and the oblong or New Zealand box. They are sim-

ilar colonies will have a very considerable advantage, and cheese-making in these colonies should receive an impetus which will be sufficient to ensure a supply for the market. The dairy industry is also likely to develop considerably in Tasmania in the near future, and this will be another source of home supply for the federated colonies.

There is a large area of land in New Zealand which may yet be utilized for dairy farming. A great deal of what now carries sheep will eventually be given over to the cow, if the profits from the two branches of farming continue in anything like their present relation.

It will surprise many Canadian farmers to know that much of the dairy land is valued at \$75 to \$100 an acre, and even higher, with no buildings except a small house.

Taking it all around, I do not think Canadian dairymen have very much to fear from the competition of New Zealand, if they use all the means at hand to keep up the standard of quality.



New Zealand Cheese Ready for Shipment

ply nailed together, and the covers are fastened in the same manner.

A heavy parchment paper is used for lining boxes, and it is put in double. Many Canadian butter-makers are too economical in this respect, and by attempting to save a little by using light paper are lowering the standard of their butter.

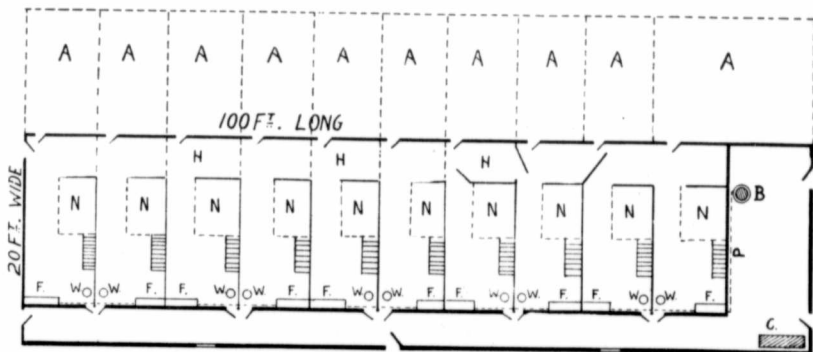
During a dry season in Australia quite a large quantity of the New Zealand butter and cheese goes to supply the shortage in that country, and a limited quantity is sent to the South Sea Islands and Cape Colony. The trade in Australia is principally with New South Wales, for as that is a free trade colony New Zealand comes in on even terms with Victoria and South Australia, and the New Zealand article, being the best quality, rather has the lead. When the federation scheme is complete, New South Wales will come under the customs tariff of the commonwealth, but as there will be free interstate trade, such as we have among the provinces of Canada, Victoria and the other

An Up-to-Date Piggery

The excellent demand in Great Britain for Canadian bacon has given a strong impetus to the breeding and feeding of swine in this country. With this has come the need of better equipment and better buildings in which to keep hogs. What was considered suitable or sufficient for the hog twenty years ago will not do to-day. As our farmers have learned more about the hog and his habits of life, it has gradually dawned upon them that he is not the dirty, filthy animal our fathers considered him to be. Pure air, cleanly surroundings and comfortable and convenient pens are necessary in order to make the greatest success out of the hog. Realizing this, many breeders and farmers have greatly improved their piggeries of late years, with splendid results in the way of better hogs and better prices for them.

Among the larger breeders who have lately built new piggeries is the firm of Brethour & Saunders, Burford, Ont. Their new piggery, which has just been completed, is up-to-date in every respect, and contains all the latest improvements in the way of sleeping pens, ventilation, yards and feeding arrangements. We give herewith a diagram of this piggery with an outside view, including the yards. These yards have all cement floors, and are each 12 feet long by 10 feet wide, the pigs having access to them through swinging doors. Each pen inside is supplied with a raised sleeping nest, which is 18 inches from the floor and 6 feet square, with a slanting runway. It will be observed that these nests are not high from the floor nor very large, being only large enough to hold the number of pigs in the pen when in a sleeping position. As they are not high to climb into or to descend from, the pigs use them more freely, and are not so liable to foul the nest.

Each pen is 9 ft. wide and 12 ft. long from the feeding



Plan of Up-to-Date Piggery

B—Barrel to hold supply of water. P—Dotted lines showing pipe to conduct water to drinking pans; this pipe runs close to the front partition and behind feed troughs. F—Iron feed trough. C—Tank for mixing feed. A—Outside yards. H—Hallway at back of pens for cleaning out pens. N—Nest for sleeping. W—Watering pan.

trough to the partition along the back hall. The doors upon the partition in the back hall are upon the corner of each pen answering the purpose of closing the pigs in the inner pen while the hallway is being cleaned, and also forming part of division when pen is in use. This hallway answers a double purpose. It is convenient to change pigs from one pen to another; but its principal use is for cleaning out the pens, allowing all the manure to be wheeled out in one pile and removed from the building. Upon each of the openings into the outer yards two doors are hung, one being hung in the centre, making a swinging door, the other one being more for winter use.



View of Piggery, Showing Outside Pens

The building is made entirely of wood, built upon a wall of cement about 18 inches high, to permit of ventilation underneath and is two stories high, the upper one being used for feed and bedding. Each pen is supplied with a water basin so that the pigs may have access to fresh water at any time they desire. These watering pens are made at Davenport, Iowa, and are very satisfactory. Each pen is self-regulating, allowing fresh water to flow in as it is used. The feeding troughs are of iron. One of the Ripley feed cookers is used for heating the pen in winter and also for warming the food during cold weather.

A Live Stock Revival

(Outline of Mr. Hodson's Maritime Trip)

It is always pleasing to speak and write of progress. Though past and present conditions may have been and may be unsatisfactory, yet if there is a prospect of better things we can always put our best foot forward and let our hopes glow and our enthusiasm kindle.

The Maritime Provinces of Canada have not in the past been especially noted for the numbers or excellence of their live stock. Perhaps Prince Edward Island should be a partial exception to this statement as some twenty-five years ago that province was quite famous for its horses and rapidly sold them off to outside buyers, and it has also led the other provinces in horned stock.

In Nova Scotia lumbering, mining and fishing have engaged the capital and attention of the people more largely than has agriculture, and in New Brunswick the large lumber interests and the fisheries on the North Shore have much detracted the money and industry of the old-time settlers.

During the last decade, however, there has been a change. Prof. Robertson's work for the encouragement of dairying and the supplementary efforts of the provincial governments have done much to show our people that there is a substantial income to be got from their farms by

marketing their produce through good dairy cows. Our people generally are beginning to feel the need of more and better live stock, and it is at a most opportune time that Mr. F. W. Hodson, the Dominion Live Stock Commissioner, has come to help us improve our live stock organization and put us in a way to help ourselves to the purchasing, rearing and selling of more profitable animals.

Ever since Mr. Hodson's appointment, the officers of the Maritime Stock Breeders' Association have been importuning the Minister of Agriculture for his assistance, and when he at length came early in July last he found that the Breeders' Association had laid out a tour for him and that the leading farmers and public men were anxious to meet him and ready to second his efforts.

New Brunswick was the first province visited, and six meetings were there addressed. The first one was held in the Board of Trade rooms, St. John, where, besides a gathering of business men and farmers, there were several members of the Provincial Government present, including the Provincial Commissioner of Agriculture, Hon. C. H. LaBillois. Mr. Hodson's address outlined the grand work which had been accomplished in Ontario by organized effort, and his suggestions for an extension of similar work to all parts of the Dominion received the hearty commendation of all present, and he was invited by Hon. Mr. LaBillois to come before the Provincial Governments so soon as he had completed his tour and had suggestions to propose. Mr. Hodson was accompanied on his tour by R. Robertson, superintendent of the Maritime Experimental Farm, and by the President and Secretary of the Maritime Stock Breeders' Association.

Carleton county was visited, and a meeting addressed at Jacksonville; thence to Fredericton, where a number of York county farms were visited and an informal gathering addressed. The river steamer for St. John was next taken, and a sail down through the rich alluvial lands of Sunbury and Queen's enjoyed. A number of leading farmers, by pre-arrangement, boarded the steamer and conversed with Mr. Hodson.

The next meeting was at Sussex, where a very representative gathering of dairy farmers was addressed, and some discussion ensued as to the raising of steers and heifers for the stocker trade.

Meetings were next held at Nappan, near Chatham, Northumberland county, and at Sackville, the great beef centre of the province. At both these meetings there was considerable discussion of ways and means for stock improvement, and the farmers of both these districts can be depended upon to take a lively interest in the work of live stock associations.

The work in Nova Scotia was next taken up, and the western counties first visited. The first meeting was held at Yarmouth, where a considerable number of business men and farmers convened, and the question of stock improvement and agricultural organization was warmly discussed. Then a meeting was addressed, in company with Hon. J. W. Longley, Attorney General of the province, at Middleton, Annapolis county. The next evening an address was given before the King's county Board of Trade at Kentville.

Kentville is in the heart of the fruit-growing interests, and though there are many farmers there who last year had incomes from their orchards exceeding \$4,000, yet they are taking an interest in stock, as they realize that to get the most from their farms the raw products must be manufactured through the cow or bullock. They know that to maintain their orchard areas large amounts of fertilizing material must be drawn from some source.

The party then went eastward, calling at Truro by the way. Here the thoroughbred herds at the Provincial Farm and those of C. A. Archibald were visited, and a consultation held among a number of the stockmen. Sydney, Cape Breton Island, was next visited, and Hon. George H. Murray, Premier of Nova Scotia, was among those who called on Mr. Hodson. On account of the limited time at his disposal, the Commissioner could not visit the best agricultural sections of this "mineral treasure-house."

In retracing their steps the party called at Antigonish, where there was an interested and enthusiastic meeting. Antigonish is in the centre of a district with great possibilities for the keeping of flocks and herds; and when once the people take hold of stock-husbandry we can expect to see this district noted for its dairy and beef herds.

New Glasgow and Pictou were next visited and then Prince Edward Island. The Island people gave Mr. Hodson a hearty welcome. Among the first to call upon him was Premier Farquharson. A meeting was held in the Provincial Building, where several members of the Provincial Government and prominent members of the Charlottetown Board of Trade attended. The members of the Government seemed much impressed with Mr. Hodson's mission and appointed a delegation to accompany him to the various parts of the province where meetings for him had been advertised.

The first meeting on the list was Kensington, the centre of a very fine section, and where one of the largest cheese factories in Canada is located. The cheese output for July past was between sixty and seventy 70-pound cheese daily, and the patrons received for their milk that month over \$8,000. Here were met Walter Simpson, president of the

ing this malady seem very obscure, and previous investigations, from some cause or another, have cleared nothing up. Mr. Hodson has promised, however, that a complete investigation will this time be made and a report submitted as early as possible. Should Mr. Hodson accomplish no other work than the mastery of this occult and very destructive disease he will have earned his salary for the next one hundred and fifty years.

We hope that although the Commissioner had to cut his visit short that he is at least partly satisfied with the results of his investigations among us. He found, to be sure, a good deal of indifference among people who might be expected to take an interest in the development of agriculture, but he also found many men ready and anxious to take hold of any plans that would make for progress. All things considered, his suggestion that the Ontario plan of live stock association and farmers' institute work should supplant existing organization was taken more kindly than might have been expected. Men, as a rule, do not like to be told that their plans and their past work are on wrong lines, but the reading men among us have had to admit for several years that the excellent system of Ontario was leading the world in agricultural education, and so we were



Handsome Four-in-Hand. Property of W. Harland Smith, Toronto. The first two horses are being exhibited by Mr. Smith at the Industrial Fair

Island Farmers' Association, and Dr. W. H. Pethick, Dominion Veterinarian.

In company with Messrs. Simpson and Pethick meetings were then attended at Alberton, in the west end of the Island, at New Glasgow, on the North Shore, and then with Premier Farquharson and Mr. F. L. Hazzard, at Vernon River and Montague Bridge. All these meetings were well attended and an intelligent interest taken.

Most of the leading farmers of P. E. Island were met on this tour and without exception they expressed themselves in favor of a better system of organization than at present existed and the members of the Island Government who expressed an opinion were not at all backward in saying that the Government could not afford to do otherwise than lend every possible assistance to a movement looking to the improvement of live stock and to better agricultural education.

From Prince Edward Island the Commissioner, accompanied by Dr. Pethick, went to Antigonish to make a short examination of some of the cattle suffering from what is known as the Pictou cattle disease. The causes surround-

prepared to accept suggestions of improvement in our own work.

Our Provincial Governments have, along their own lines, all been honestly trying to promote agriculture, and have very generally accepted suggestions which have come from farmers' organizations, but they have in one way done a good deal to retard improvement in live stock, viz., by the importation of large numbers of second and third rate pure-bred cattle, horses and sheep, and so preventing, more or less, the establishment of stock farms by private capital and the importation of stock by skilled breeders. We hope, however, this policy is a thing of the past, and that as a result of the many good plans which our Live Stock Commissioner has in store for the Maritime Provinces we will soon have enthusiastic breeders in every county in the three provinces, and a good market for all their animals and animal products. With better live stock and more of it, will come a better system of agriculture and more general progress and prosperity throughout the country.

H.

St. Johns, N. B.



Agriculture and Live Stock at the Pan-American Exposition

In the great educational systems of the world, great expositions have come to play a very important part, as they alone furnish the opportunity for comparison between the products of the mines, mills and farms. Much as has been gained by the holding of other international expositions, it seems but a fitting closing of a century so full of achievements that a Pan-American Exposition should be held to offer still another opportunity for the people of all the Americas to study the progress and improvement that has been made, particularly within the last few years, along all lines of human effort.

At the Exposition at Buffalo, perhaps no more interesting exhibit will be brought together than that of agriculture. A large building, covering about two acres, will be devoted exclusively to the products of the soil, and it is expected that these exhibits from the provinces of the Dominion, from every State, and the nations of South and Central America will be installed in this building, and they will be fully illustrative of the productivity of the soil and the capability with reference to producing certain agricultural crops. The classification of these exhibits in this building will be as follows:

1, Agricultural systems, management process; 2, agricultural statistics; 3, cereals; 4, fibres and root crops; 5, by-products used for food; 6, agricultural products not otherwise classified.

In the live stock division preparations are being made to receive in all classes, including cattle, horses, sheep, swine, poultry and pet stock, at least 15,000 animals. The exposition authorities have wisely set aside a large sum for cash prizes in all of the live stock classes, and the various breeders' associations have been very generous in offering special premiums, with a view to bringing out an excep-

tionally large exhibit of the animals in which they are interested.

As to the time of exhibits, it is expected that the cattle show will begin the latter part of August and continue for two weeks, to be followed by the exhibit of horses, sheep, swine and poultry in the order named. In all of the various classes it is the policy of the Exposition to recognize every distinctive breed that has anything of merit to commend itself to popular favor.

One feature of the live stock exhibit which will be particularly enjoyable to lovers of good horses, aside from the regular exhibit of all breeding classes, will be a select horse show put up on the same lines that has made the great Madison Square Horse Show so famous. The great stadium or arena, covering about ten acres, and which has a seating capacity of 25,000, and encloses a track or ring one quarter mile in circumference, will be a scene of beauty and radiance, for, as New York society regularly enthuses as the time approaches for the great Madison Square Garden Exhibit, so it is expected at the Pan-American Exposition that society people from all the large cities within a radius of 500 miles of Buffalo will vie with each other in making this display of American-bred horses one that has never been equalled on the American continent.

In the exhibits of dairy products the entries have been so numerous that the Exposition authorities have been compelled to erect a separate building for the accommodation of butter and cheese. This building, like all of the others, will be striking in its architectural beauty, and will be equipped with the most modern refrigerating machinery, so that at all times during the Exposition the character and texture of the dairy goods can be kept as perfect as possible.

A beautiful, illustrated catalogue, giving detailed information of the live stock, agricultural and dairy exhibits, has just been issued and can be had upon application to

FRANK A. CONVERSE, Superintendent,
735 Ellicott Square, Buffalo, N.Y.



Results Obtained in the Province of Ontario by Organized Effort.

By F. W. Hodson, Dominion Live Stock Commissioner.

THE LIVE STOCK ASSOCIATION BRANCH.

The growth of these Associations has been wonderful. Eight years ago the Dominion Live Stock Associations had a membership of fifteen, and annual receipts amounting to \$15. To-day the annual membership is about 2,000, and the annual receipts of the Cattle, Sheep and Swine Breeders' Associations amount to \$7,224.55. The membership includes most of the prominent breeders of pure-bred live stock in Ontario. The work undertaken and accomplished by these Associations has been of the greatest value to the farmers and breeders throughout the province.

Some years ago the secretary, in his annual address, said that it would prove a benefit to the live stock breeders of Ontario and the West, and also to the railroad companies, if all pure-bred animals were carried at half rates. All the breeders present agreed with the speaker, but said that such a Utopian condition of things would never be experienced during the lives of those present. Still he determined to do what he could toward this end, and little by little concessions were granted, until to-day all pure-bred animals registered in records recognized as reliable by the Department of Agriculture, are carried at half rates between all points west of Montreal. Car-load lots are also carried at the rate on settlers' effects between points in Ontario and points west of Fort William, thus effecting a very great saving to both buyers and sellers. It has also had the effect of distributing better animals throughout the country.

What has been the result of this? Since the cheap rates were inaugurated the demand for pure-bred males has increased rapidly, the eastern and western provinces vieing with each other in their demands on Ontario for such animals. The Associations have done a good work by stimulating this trade, and have greatly benefited the Ontario farmers by having their animals collected by the secretary or one of his staff in car-load lots, and distributing them along the line of the C. P. R. to the individual buyers. Where it formerly cost from \$30 to \$120 to send an animal west, the transportation now amounts to but from \$10 to \$18. Up to three years ago the inter-provincial trade in live stock amounted to practically nothing, when with the cheap rates and the careful supervision of the secretary it sprang up with a bound, and since then over \$500,000 worth of live stock has gone out from Ontario to the Northwest and British Columbia in the west, and Newfoundland, Quebec and the Maritime Provinces in the east. The in-

creased trade has also had the effect of stimulating the breeders to turn out better individuals, as a ready market is now assured for all first-class animals.

Besides securing cheap rates, the Associations have rendered valuable assistance in obtaining a reduction of the quarantine regulations between the United States and Canada. According to the statement of Mr. R. Ironsides, of the firm of Cordon & Ironsides, one of the cattle kings of America and the largest exporters, this has added \$10 per head to the value of the horned cattle now in the Dominion. Thousands of Ontario stockers are sent westward annually, and this trade is only in its infancy. It will prove one of the most important Ontario has ever had. Up to 1890

A PROVINCIAL FAT STOCK SHOW

was conducted by the Agriculture and Arts Association and such local societies as chose to contribute. In 1892 the Associations took a controlling interest in this important exhibition. The results have been most gratifying. In 1891, there were 91 entries in all classes; \$102 were received as entry fees, and \$86 as gate receipts. A total of \$188 was therefore received, and there was \$325 paid in premiums. Under the supervision of the Associations there has been a steady growth, until in 1898 there were over 800 entries and over \$1,100 gate and entry receipts. The amount paid in prizes was \$4,500. In 1899 there was over \$5,500 paid in prizes. In 1898-99 block tests and lectures by the judges in the rings were introduced, and have proven of great value. It is safe to say that this is now the most important winter show, from an educational standpoint, held in any part of the world. The dairy department is also most complete and valuable, in fact it is the most valuable and instructive show of dairy cattle held anywhere. In connection with the show poultry exhibits and experiments have been introduced, which are proving of great value to the country.

Another important feature introduced by the Associations is the annual election of prominent farmers to the Boards of the leading Fair Associations. Formerly these fairs were controlled chiefly by citizens of the cities in which they were held; now in all departments in which the farmers are interested the chief work in all the great Ontario shows is controlled by farmers.

One of the greatest benefits accruing from the work of the Live Stock Associations has been the more frequent mingling together of the live stock breeders and importers. By this means each member has learned more of the needs of the country and has obtained a better knowledge of methods practised by others. Ten years ago the importers of live stock were a

number of widely-scattered units possessing little public influence. To-day they are a united body wielding a greater and more beneficial influence on agriculture than any other organization in Ontario, and their future influence and power for public good is only limited by their exertions.

LISTS OF STOCK FOR SALE.

The lists of stock for sale by members of the Associations have been published monthly since 1897 in the *Agricultural Gazette*, free of expense to the members. These lists have been of great service in bringing to the notice of probable buyers where the stock which they require can be procured. The lists have been placed in the hands of stock breeders throughout Canada and also in the bordering States, and of each secretary of a Farmers' Institute and Fair Association. The advantage of having the list of stock they have for sale published in this way is impressed on the minds of all members. To all enquirers as to where certain stock can be procured, this list is mailed. A large number of applications is received each week.

In order to make the most out of these, buyers should know that there is such a list and where it can be procured. Therefore the Ontario Associations decided to advertise these lists in the most widely-circulated Canadian agricultural papers and in some of the leading papers in the United States. These advertisements state that a list of stock for sale by the members of Cattle, Sheep and Swine Breeders' Associations can be obtained on application to the Secretary, Mr. A. P. Westervelt, Toronto.

STOCK BOUGHT AND SOLD.

Lists of stock bought and sold are likewise published and sent out each week. This keeps the stock interests ever before the people, and arouses in the minds of many a desire to improve their stock, and the "List of Stock for Sale" tells them where they can obtain what they require.

ANIMALS TO EXCHANGE.

There are throughout Canada hundreds of good animals sacrificed each year because the persons who own them cannot use them longer as sires, on account of having animals got by them in their breeding herds. In many cases animals are for this reason disposed of before they have reached the most valuable age as stock getters. Scores of animals are sold to the butcher each year to the great loss of the country.

To, in a measure, overcome this difficulty an exchange column has been opened in *THE AGRICULTURAL GAZETTE* and members who have useful sires to exchange are allowed to advertise them immediately after the "List of Stock each month.

FARM HELP EXCHANGE.

During the past year a department, "Farm Help Exchange," has been added to THE GAZETTE. The Farm Help Exchange was started with the object of bringing together employers of farm and domestic labor and the employees. Any person wishing to obtain a position on a farm or dairy, or any person wishing to employ help for farm or dairy, forwards his or her name and full particulars to the Secretary of the Live Stock Associations. In case of persons wishing to employ help, the following is given:—particulars as to the kind of work to be done, probable length of engagement, wages, etc. In the case of persons wishing employment, the following is given:—experience and references, age, particular department of farm work in which a position is desired, wages expected and where last employed. These names, when received, together with particulars, are published free in the two following issues of THE AGRICULTURAL GAZETTE, and are afterwards kept on file. Upon a request being made, the particulars only are published, the names being kept on file. Every effort is made to give all possible assistance, to the end that suitable workers, male or female, may be obtained. Every unemployed person wishing to engage in farm or dairy work is invited to take advantage of this opportunity.

The large number of applications received each week shows without comment the amount of interest taken and how much this venture is appreciated by the farmers throughout Ontario. Since this work was first taken up in August of last year, the number of persons who have taken advantage of the opportunity afforded has been far beyond what was expected. Situations have been found for those wanting work on a farm, and a great many breeders have been supplied with stockmen. Numerous letters have been received from breeders and others commending the work of the Associations in this direction.

The publication once each month of the list of stock for sale, farm help exchange and stock bought and sold costs the Associations fifty cents per member annually.

ANNUAL AUCTION SALES.

The Live Stock Associations in Ontario are now seriously considering the advisability of establishing annual auction sales of breeding stock. The question has been thoroughly discussed. Many prominent breeders and farmers are very favorable to the venture.

THE FARMER'S INSTITUTE BRANCH IN ONTARIO.

Under the present administration a system of Institutes was founded, and during recent years they have made wonderful growth.

In 1891, the Professors of the Ontario Agricultural College employed their winter vacation in January in visiting certain farming centres and delivering addresses on subjects helpful to the farmers. They did splendid pioneer work, but their time was so limited that only a small part of the province could be visited. During that year seventy-five meetings were held and about 2,500 farmers added their names to the roll of membership. From this nucleus the present system of Farmers' Institutes was built up. The second step was to add a practical Ontario farmer to each delegation, and to hold a two days' session. In a short time the demand for speakers from all parts of the province was greater than the supply. The correspondence increased, and the work grew to such proportions that it became necessary to appoint a Superintendent of Farmers' Institutes.

By-laws and rules of order to govern meetings were published, and the whole department organized for systematic work. This work has grown from year to year, until in the year ending June 30th, 1900, we find a paid-up membership of 16,808. During that year also 677 meetings were held at which 3,133 addresses were delivered before audiences comprising 114,402 persons. The best home talent is employed, and, in addition, prominent speakers are engaged from the United States and elsewhere.

What medical associations are to the practising physician and conventions are to the school teacher, so the Institutes are to the farmer. They bring right to his door the men who have been the most successful in the several branches of agricultural science, and enable the farmer to reap the benefits of the years of experience of these men without having to go through these experiences himself. Every district from Essex to Glengarry has organized meetings, and is training men to speak intelligently of their work to others.

Annual excursions have been conducted to the Agricultural College at Guelph, and during the month of June last nearly 35,000 persons availed themselves of the opportunity afforded by the Institutes and visited the institution. It is partly owing to this, no doubt, that the college has become so popular with the farming classes, and that this fall forty more students have made applications for rooms than can be accommodated in the college dormitories.

Thus from year to year the work of organization becomes more and more complete, the demand for good practical speakers more and more urgent, and the whole field broadens until its limits and the good results that will follow depend only on the amount of time and energy that shall be devoted to the work by the farmers themselves.

THE DAIRY ASSOCIATIONS.

In 1891 the travelling dairy was

sent out by the Minister of Agriculture of Ontario to give the farmer the latest information on butter-making, so as to improve the quality of the butter made in the home dairy, as distinguished from the factory made article. The work continued from 1891 to 1895, and meetings were held throughout the length and breadth of the province. To this end also, a special pamphlet, entitled "Dairying for Profit," was distributed among farmers and farmers' wives to the extent of 20,000 copies.

The organization of the Dairy Department at Guelph was followed by the opening of the Guelph Dairy School in 1893, and the institution of a short course for cheese and butter-makers, to meet the demand that had arisen for this class of instruction. In 1895 the Guelph School was supplemented by the Eastern Dairy School at Kingston, and a little later by the Western Dairy School at Strathroy.

The Kingston School has now been in operation for six winters and the Strathroy School for three, and during this time 700 cheese and butter makers have attended these two schools. Judging from the standpoint of attendance alone, the result of the work has been successful in a degree beyond the hopes of its promoters. The Kingston school being the centre of a very important dairying section, has naturally had the larger share of students. At that school nearly 10,000 pounds of milk is received daily and manufactured into butter and cheese, the work being done by students.

The object of the schools is to educate cheese and butter makers, giving them a better knowledge of the underlying principles of their work and enabling them to rise above rule of thumb methods. The results are far-reaching, and mean more uniformity and greater excellence in the dairy product of the country, thus adding to the country's wealth.

To enable the Dairy Associations of the province to send out instructors and inspectors in dairying, the Minister recommended an increase in the grant that they received from the Government, from \$5,500 in 1892 to \$7,500 in 1893. In 1900 this sum was again increased; it is now \$10,000. These inspectors keep a careful oversight of cheese and butter factories, seeing that proper and cleanly methods of manufacture are pursued, and giving instructions to the makers when necessary. Many of the makers in the cheese and butter factories of Ontario have received their training in the Government Schools.

These efforts must have contributed, to no small extent, to the steady development of the cheese and butter industries.

The following figures indicate what that development has been during the past few years:—

The product of the cheese factories

of Ontario in 1891 was eighty-two million pounds; in 1895 it was over one hundred and five million pounds; in 1897 over one hundred and thirty-seven million pounds; and in 1898 it was 128,116,000 pounds.

The number of creameries in Ontario in 1893 was 74. In 1895 it was 135, and in 1897 it was 214; while in 1898 it was 282, with a product of 9,008,992 pounds.

In other words the benefits which have resulted may be summarized as follows:—

1st. The exports of Ontario cheese and butter have been increasing of late, year by year.

2nd. Canadian cheese, of which Ontario sends the largest portion, has taken such a pre-eminent position in the cheese market of Great Britain that larger and larger quantities of United States cheese are being exported to England by way of Montreal.

3rd. In the Montreal markets Ontario cheese, as reported in THE GAZETTE, is always a little ahead of other cheese per pound.

4th. Ontario cheese is quite uniform in quality and brings a better export price than United States cheese.

5th. There is a larger quantity of good dairy butter available now in the markets than ever before.

FRUIT-GROWING INDUSTRY.

The important industry of fruit-growing has received much attention. Taking a lesson from the success of the travelling dairies, the Minister, in 1895, sent out travelling spraying delegations to demonstrate the proper methods of spraying fruit trees and the benefits that would result in the way of an increased yield. This work is still being continued, demonstrations taking place in about thirty orchards each season, situated in different parts of the province.

These experiments have proved that in some instances sprayed trees and bushes gave as high as from 75 to 90 per cent. of clean, marketable, first-class fruit; whereas unsprayed trees in the same orchard gave only from 15 to 25 per cent. of the same quality.

Four years ago the Minister adopted a plan to further assist the fruit growers. Fruit-growing depends very largely upon climate, and the varieties suited to different sections are widely different. Consequently it is very important to test the suitability of the various plants to the different sections. Arrangements were made for the carrying on of experimental work at twelve different parts of the province. In other words, twelve of the best fruit farms in Ontario were turned into fruit experimental stations. As the farms were already equipped and in operation, the expense of carrying out the work is comparatively light. The report of the stations is published annually by the Department. The advantage to the farmer is obvious. Anyone wishing to plant new varieties of fruit

trees may obtain from the nearest experimental station information as to the most successful ones for the section in which he lives, thus saving time and money by avoiding the planting of varieties that might be unsuitable and would not thrive.

The farmers of Ontario have been greatly interested and benefited by the work accomplished by the Minister and the various co-operative Associations. The steady and marked annual growth of membership of each of the Associations proves this, also the increased demand for the annual reports of each co-operative Association.

The number of each issued in 1890 was:

Agricultural College.....	4,000
Dairy Associations.....	2,500
Fruit Growers' Association.....	4,000
Entomological Association.....	4,000
Poultry Association.....	1,800
Live Stock Associations.....	1,000
Bureau of Industries.....	5,000
Total.....	22,300

In 1896 the list was as follows:

Agricultural College.....	25,000
Dairy Associations.....	20,000
Fruit Growers' Association.....	6,000
Fruit Experiment Stations' report.....	6,000
Report on spraying.....	9,000
Entomological Association.....	6,000
Poultry Association.....	3,000
Live Stock Association.....	21,000
Farmers' Institute report.....	30,000
Bureau of Industries.....	7,000
Total.....	133,000

The above does not include the bulletin issued by the Department. The number of copies of these issued has increased to a similar extent, aggregating 310,000 copies in 1898. Of this number 112,000 were crop bulletins and 198,000 on special subjects.

UNION AMONG ONTARIO BREEDERS— THE REASON WHY SO MUCH GOOD WORK HAS BEEN DONE.

For many years there has existed in the Province of Ontario a Horse Breeders' Association, a Cattle Breeders' Association, a Sheep Breeders' Association, a Swine Breeders' Association, two Poultry Associations and two Dairy Associations. These are all provincial in their scope, and are recognized by the Ontario Government by an annual grant to assist the work undertaken by each of these Associations; each year's grant depending on the previous year's work and the current year's membership. In fact the Department of Agriculture performs the work in each of these departments through the Association which represents the interest. Thus the Minister of Agriculture for Ontario has grouped around him as assistants and advisers irrespective of politics, the most prominent men interested in each of the respective branches of agriculture. These men are elected by the members of the Associations each year as directors to their re-

spective Associations, and they, with the secretary-treasurer, who is by virtue of his office the managing director, control the affairs of the Association. Each Association has a Constitution and by-laws which have been approved of by the Minister. Each Association also comes under the provisions of the Ontario Agriculture and Arts Act. The secretary, unlike the officers and directors, is not elected annually by the members, but at the first meeting of the officers and directors after the formation of an Association a secretary is chosen from among themselves or elsewhere, who continues in office during the pleasure of the board, i. e., he may remain for years or he may be dismissed at any time. By virtue of his office the secretary is managing director and a member of every important committee appointed, acting under the control and with the approval of the executive. Although the secretary is elected by the directors, it is understood that he shall be acceptable to the Minister, and shall in fact represent the Minister of Agriculture on the Board, yet no regard is paid to his politics; he must be entirely independent. At first each Association had a separate secretary-treasurer, and there was no union between the various live stock associations, but later the policy has been to elect one man as the secretary-treasurer for several associations, each paying a portion of his salary. At present Mr. A. P. Westervelt is secretary of the Ontario Cattle Breeders' Association, Sheep Breeders' Association, Swine Breeders' Association, Ontario Poultry Breeders' Association, the Ontario Poultry Show and the Provincial Winter Fair, and accountant for the Farmer's Institute System. The value of the plan is that while the expense to any one Association, or to the whole, or to the Government is not increased, one man is paid a suitable salary to give his whole time to the work of developing the live stock interests of Ontario. He is provided with a free office in the Parliament buildings, Toronto, and is in close touch with the Minister and with the stock owners of all shades of politics. By this arrangement the farmers influence to a great extent the Department of Agriculture, and the Minister is thus able to consult with farmers and live stock men as would otherwise be impossible. It has made possible agricultural administration for the farmers and by the farmers to a greater extent than exists in any other country that I know of, and at a very small expense to the people. That the plan has worked well for the people is proved by the growth of each Association. People do not join an Association and pay an annual fee, if it does not pay them to do so. Nor will a government increase the grants from year to year, if it is not highly pleased with the work done by the Association.

Though Ontario Live Stock Associations have done a good work.

ONTARIO HAS MADE MISTAKES.

A system of County or rather Electoral District and Township Agricultural Associations was organized under the Agricultural and Arts Act. The Electoral District Associations did not in all cases follow the electoral district lines, but practically they covered much the same territory. Each of these Association's bounds included from three to six townships, and the residents of each of these townships were and are at liberty to organize a township agricultural association; and villages, towns and cities included in any of these district bounds are allowed to organize horticultural associations.

A grant to each district association of \$420 is made annually, but this amount may be subdivided among the township associations in each district. A township association may receive as high as \$140 of this amount. In case there are four or more township associations in any district, and each receives an equal amount, little will be left of this grant for developing the county or district association. Therefore, though a large sum is annually given the district associations, it is so much subdivided that little good is accomplished in many cases. In fact, so many small township and village shows exist that it is now impossible to hold a successful show in some of the large cities, such as Guelph.

The object of these township and electoral district shows, as outlined in the Agricultural and Arts Act, is various, but all the clauses but the one allowing an annual exhibition seem to be lost sight of, with the result that a network of small shows covers the entire county. 'Tis true the Act allows the county and township associations to amalgamate, but this is seldom done, or long continued, because of petty, personal, or sectional jealousies. The condition as it now exists in Ontario was established long ago, and although the Act has been amended from time to time, it is antiquated. An entire re-organization is needed. When there were no railways and few thoroughly good roads, the present Act and system were desirable, perhaps the most desirable that could have been devised, especially as the Agricultural and Arts Association then existed. The county and township associations were then controlled and guided by the council of that body, the permanent secretary of which was the superintendent of the Ontario Fair System, but when the Agricultural and Arts Council was by Act of Parliament disbanded, the entire Act should have been thoroughly revised. Since then the county and township associations have been without a head or central guiding power, and have drifted in as many different courses as there are associations. 'Tis true they have reported to the Ontario Agricultural Department annually, but the work of that department is so

varied that only a very superficial supervision can be given these associations. What could be done under existing conditions has been done, and well done.

There are many good exhibitions in the country, but none that can not be greatly improved from an educational point of view. The agricultural fair system of Ontario and the Agricultural and Arts Act was at one time very useful, but all thinking men believe that it has outlived its usefulness. At present there are upwards of \$76,500 annually granted by the Ontario Government to the county, district and township shows. Add to this at least as much more in time and money given by members and officers, and we have the enormous sum of \$140,000 annually spent on these fairs in Ontario. By a thorough re-organization the Government could save at least \$20,000 annually and very much better work could be done than is now possible.

In each electoral district now covered by the district and township shows, there is a Farmers' Institute now organized, each of which annually receives a grant of \$50, part of which comes from the county. Additional Legislative grants to the Institute System bring the total annual grants to Farmers' Institutes to about \$11,000, making a total annual expenditure for fairs and Farmers' Institutes by the Legislature and the people of over \$150,000.

By uniting the Institute and Fair Systems under one management and under one board of directors in each district, by allowing each district to hold or not to hold a show, as the case requires, but allowing each to hold meetings annually, as already arranged for Farmers' Institutes, a great deal of money could be saved annually.

It would cost no more to administer the combined Fair and Institute System than it now costs to administer the Institute System. The same official, viz., the Superintendent of Farmers' Institutes, could do both, without causing him much additional work. For should a county or township in a county hold one or more shows annually, the shows would simply count as extra meetings and be reported as such to the superintendent on forms supplied for the purpose. Some Institutes are already doing this.

Doubtless the number of fairs now existing should be reduced; some claim that shows should not be held nearer to one another than from 30 to 50 miles. This is a question to be considered and decided by the people or their representatives. By uniting the Institute System and the Fair System, not only much money and effort would be saved, but the best men in each county and township could be elected as directors to the joint associations. Where desirable, fall shows could be arranged in groups as Institute meetings are now arranged. To

these, when requested by the directors, the Department of Agriculture could send expert judges for each class of stock, etc., as is now done in the case of speakers to Institute meetings, many of whom are engaged for from two to three months each year.

No Institute is compelled to hold its meetings at the time set by the superintendent, nor is any Institute compelled to accept the speakers chosen by the superintendent; this is left entirely to the Institutes. Each Institute is at liberty to ask for speakers and an allotment of dates, when sending in their annual report to the superintendent. When they do so, speakers are sent free of charge to the regular Institute meetings, just as judges could be sent to the shows. By this plan better judges could be obtained; men who not only could judge well, but who could address the spectators and tell them why they placed the awards as they did. Thus more uniformity would be established in judging, and therefore in the type of each breed judged. Many educational features could from year to year be added that would be of great value to the country. Without additional expense prizes could be awarded in each township and county for the best managed farm, flocks, herds, studs, etc. This would all come within the scope of the township and district associations. By such a plan a great deal of valuable information could be obtained yearly and published by the superintendent.

By the plan outlined Ontario's agricultural system would be completed and made by far the best on the continent, and a saving could be effected of at least \$20,000 per year.

A plan which should be introduced in Ontario and for which the province is ripe, is the British method of local associations, such as our township societies, hiring for the season or buying thoroughly good sires for the use of their members. This plan has proved of great value in Scotland, and will do so here. The use of better sires can thus be obtained by the general farmers in a district than by any other method.

The plan also proves of great value to the country, because the best animals are bought for use by the local associations; while under present conditions the best sires are annually sold out of the country, the general farmers using inferior underbred or grade sires. This is going to tell seriously on the stock of the country. To meet foreign competition successfully Canada must produce the best of everything. Five-sixths of all the produce of our fields is fed to live stock. How important is it that the stock shall be of good quality. Many of the schemes which have proved successful in Ontario could with profit be modified to meet local conditions and introduced into other provinces. That which has proved objectionable in Ontario should be shunned elsewhere.

The Agricultural Gazette

The Official Bulletin of the Dominion Cattle, Sheep, and Swine Breeders' Associations, and of the Farmers' Institute System of the Province of Ontario.

THE DOMINION CATTLE, SHEEP, AND SWINE BREEDERS' ASSOCIATIONS.

Annual Membership Fees:—Cattle Breeders' \$1; Sheep Breeders' \$1; Swine Breeders' \$2

BENEFITS OF MEMBERSHIP.

Each member receives a free copy of each publication issued by the Association to which he belongs, during the year in which he is a member. In the case of the Swine Breeders' Association this includes a copy of the Swine Record.

A member of the Swine Breeders' Association is allowed to register pigs at 50c. per head; non-members are charged \$1.00 per head.

A member of the Sheep Breeders' Association is allowed to register sheep at 50c. per head, while non-members are charged \$1.00.

The name and address of each member, and the stock he has for sale, are published once a month. Over 10,000 copies of this directory are mailed monthly. Copies are sent to each Agricultural College and each Experiment Station in Canada and the United States, also to prominent breeders and probable buyers resident in Canada, the United States and elsewhere.

A member of an Association will only be allowed to advertise stock corresponding to the Association to which he belongs; that is, to advertise cattle he must be a member of the Dominion Cattle Breeders' Association, to advertise sheep he must be a member of the Dominion Sheep Breeders' Association, and to advertise swine he must be a member of the Dominion Swine Breeders' Association.

The list of cattle, sheep, and swine for sale will be published in the third issue of each month. Members having stock for sale, in order that they may be included in the Gazette, are required to notify the undersigned by letter on or before the 9th of each month, of the number, breed, age, and sex of the animals. Should a member fail to do this his name will not appear in that issue. The date will be published in the most condensed form.

A. P. WESTERVELT, Secretary,
Parliament Buildings, Toronto, Ont.

List of Stock for Sale.

DOMINION CATTLE BREEDERS' ASSOCIATION.

Ayrshires.

- Ballantyne, W. W., Stratford—6 bulls, 1 to 10 months.
Hume, A., Menie—Bull calves; heifer calves.
McCallum, T. D., Danville, Que.—Young bulls.
Vuill, J. & Sons, Carleton Place—Bull, 2 years; 3 yearling bulls; 10 bull calves under 10 months; females, all ages.

Shorthorns.

- Baker, J., Bennington—3 yearling heifers; bull calf; 5 heifer calves.
Baker, J., Simcoe—Yearling bull; bull calf.
Baker, T., Solina—6 head, males and females.
Barrett & Sons, Thos., Ridgetown—2 bulls, 9 months and 2 years.
Bateman Bros., Christina—Bull; 3 bull calves.
Batty, R., Meaford—2 bulls, 7 and 12 months; 2 heifers, 4 months; 2 heifers, 2 years.
Battye, E., Gore Bay—5 yearling heifers; 6 bull and heifer calves; 13 cows, 2 to 7 years; bull, 2 years.

- Bell, G., Brampton—2 bulls, 7 and 8 months; 15 head.
Birdsall, F. & Son, Birdsall—Stock, both sexes.

- Bonnycastle, F. & Son, Campbellford—11 bull calves; 25 cows, heifers and heifer calves.

- Brash, W., Ashburn—3 bulls, 6 to 8 months; heifer, 7½ months; 2 heifers, 18 months.

- Brien, E., Ridgetown—Bull, 2 years; 8 bulls, 6 to 12 months; 25 cows and heifers.

- Bright, I., Myrtle—11 bulls, under 2 years; bull calves; 20 heifers, under 3 years; heifer calves.

- Campbell, Mac., Northwood—Cows and heifers.

- Chapman, J. G. & Son, St. Thomas—Aged bull; aged cow; 2 bull calves, 9 and 10 months.

- Cook, F., Dunnville—Bull, 2 years; 3 bull calves, 4 to 6 months; 2 yearling heifers.

- Cooper, J. V., Picton—6 bulls, 7 months to 2 years.

- Corley, R., Belgrave—4 bulls, 7 to 12 months; 2 bulls, 2 years; 15 cows and heifers, various ages.

- Conway, J., Alliston—2 bulls, 7 and 12 months; 2 yearling heifers; 4 young cows.

- Davis, J. F., Tempo—3 bulls, 8 to 17 months; cows and heifers.

- Dawson, A., Cannington—3 young bulls.

- Douglas, J., Caledonia—11 bulls 3 to 24 months; young cows and heifers.

- Dredge, W., Nassagaweya—3 bulls.

- Dymont, S., Barrie—7 bull calves.

- Fallows, H. S., Evelyn—Bull, 4 years; 5 heifer calves, 5 to 8 months.

- Flett, W. D., Hamilton—6 Canadian bred bulls; 3 imported bulls; 8 yearling heifers; 5 heifers, 2 years; 15 imported cows and heifers.

- Gardhouse, J. M., Highfield—6 bulls, 8 to 10 months.

- Garnham, E. A., Straffordville—Bull, 23 months; 5 bulls, 4 months.

- Gibson, J. T., Denfield—6 bulls, 8 to 16 months.

- Gibson, R. Delaware—2 yearling heifers.

- Good, Thos., Richmond—Cow; 2 heifer calves.

- Graham, H. C., Ailsa Craig—3 bulls, 11, 15 and 16 months.

- Hanley, J. C., Read—3 bull calves; cows and heifers.

- Hawshaw, W. S. & Son, Glanworth—Bull calf; heifers.

- Hind, H. E., Hagersville—4 bulls, 6 to 9 months.

- Hoskin, J., Sr., Bowmanville—4 heifers; 2 heifer calves; yearling bull.

- Jeffs, E. & Son, Bond Head—Aged bull; 8 bull calves; young cows and heifers; 4 heifer calves.

- Johnston, A., Greenwood—9 imp. bulls, various ages; 10 bulls and bull calves; 33 imported cows and heifers; 45 Canadian bred cows and heifers.

- Kately, J. J., Dunkerron—6 bulls, 7 to 8 months; heifers, 7 months to 2 years.

- Martindale, F., York—8 bulls, 4 to 16 months; stock bull, 4 years; females, all ages.

- Miller, R. Stouffville—Imported bull, 1 year; 2 Canadian bred bulls, 1 year; 12 females, different ages.

- Moor, A. Greenwood—5 bulls, 6 to 18 months; 5 heifers, 2 years; young cows.

- McEwing, J., Drayton—4 bull calves; bull, 15 months; cows and heifers.

- McPherson, J. Dundalk—3 bull calves, 4, 7 and 9 months.

- McRae, J., Teeswater—8 head; heifer, 2 years; heifer, 1 year.

- Rankin, S., Fairview—Bull, 12 months; 2 heifers, 2 years; 4 heifers, 1 year; 5 calves, 6 to 10 months.

- Rennelson, R., Galt—Bull, 2 years; cow, 6 years.

- Risely, E. E., Bridgeburg—2 bulls, 12 and 15 months; cows and heifers.

- Robertson, J., Wyoming—3 bull calves, 6 to 11 months.

- Rutherford, W. & Son, South Monaghan—2 bulls, 1 and 3 years; 2 bull calves, 5 months; 4 heifers.

- Scott, F. W., Highgate—3 cows; heifer calf; 4 bulls, 6 to 15 months.

- Scott, T., Sutton West—11 cows; 4 heifer calves; 4 bulls, 8 to 11 months.

- Sibbald, F. C., Sutton West—25 cows; 3 heifers; 15 calves.

- Smith, A. W., Maple Lodge—10 young bulls; 10 heifers.

- Smith, J., Inglis Falls—5 bulls, 5 to 13 months; cows and heifers.

- Spears, T. J., Williamsford—Bull, 2 years; bull calves.

- Stalker, J., Acton—2 heifers, 9 and 14 months.

- Swain, W. R., Valentia—2 bull calves, 5 and 9 months.

- Taylor, G., Inglis Falls—2 yearling heifers.

- Thomson, W. B., Fergus—4 cows, 2 to 8 years.

- Turner, D. S., Whitevale—4 bulls, 4 to 15 months; heifers.

- Weir, J. H., Crumlin—2 heifers, 2 years and 6 months; heifer, 1 year; heifer, 5 months; 3 heifer calves, 5 months; bull, 6 months.

- Widdifield, J. W., Uxbridge—3 bulls, 5, 9 and 21 months.

Jerseys.

- Birdsall, F. & Son, Birdsall—Bull calf, 6 weeks; bull and heifer calves.

- Dymont, S., Barrie—5 cows; 5 heifers, various ages.

Polled Angus.

- Bowman, J., Guelph—Yearling bull; bull calf; females.

Holsteins.

- Foxton, R., New Dublin—Bull calf, 2 months.

- Smith, S. E., Dundas—Bull, 6 months; 2 heifers, 6 to 10 months; 2 heifers, 2 years.

Galloways.

- McCrae, D., Guelph—12 young bulls; calves and yearlings; 40 cows and heifers.

Herefords.

- Boyd, M., Bobcaygeon—6 heifers, 1 year.

DOMINION SHEEP BREEDERS' ASSOCIATION.

Shropshires.

- Baker, T., Solina—30 rams and ewes.

- Campbell, J., Woodville—10 imported rams; 20 Canadian-bred rams; 20 imported yearling ewes; 30 Canadian-bred ewes.

- Gibson, R., Delaware—30 shearing rams; 15 ewes, various ages; 60 ram and ewe lambs.

- McCallum, T. D., Danville, Que.—Ram lambs.

- Miller, R., Stouffville—30 rams, 1 year; 30 ram lambs; 5 imported yearling ewes; 5 imported ewe lambs; 10 imported rams, 1 year; 20 Canadian-bred ewes, 1 year.

- Switzer, N., Streetsville—Ram, 2 shears; shearing ram; 6 ram lambs.

- Wen, C., Uxbridge—Shearing rams; ram and ewe lambs; aged ewes.

- Vuill, J. & Sons, Carleton Place—12 ram lambs; ewes and ewe lambs.

Leicesters.

Armstrong, G. B., Teeswater—7 shearing rams; ram lambs.
 Campbell, Mac., Northwood—Rams; ram lambs; ewes, various ages.
 Currelly, T. & Son, Fullarton—10 shearing rams; 4 aged rams.
 Douglas, J., Caledonia—4 shearing rams; 13 shearing ewes; ram and ewe lambs.
 Dunnet Bros., Clanbrassi—Ram, 2 shears; 16 ram lambs; ewe lambs; shearing ewes; aged ewes.
 Gardhouse, J. M., Highfield—10 rams, 1 and 2 shears; ram and ewe lambs.
 Johnson, J. W., Underwood—Aged ram; shearing ram; ram lambs; aged ewes; shearing ewes; ewe lambs.
 Smith, A. W., Maple Lodge—100 ram and ewe lambs; 25 one and two shear rams; 25 ewes, over 1 year.

Cotswolds.

Bonnycastle, F. & Son, Campbellford—20 ram lambs; 30 ewe; and ewe lambs.
 Jeffs, E. & Son, Bond Head—Aged ram; 4 ram lambs, aged ewes; shearing ewes; ewe lambs.
 McCrae, D., Guelph—38 shearing rams; 20 lambs; 20 shearing ewes.
 Rawlings, J., Ravenswood—75 ram lambs; 40 ewes, 1 to 3 years; ewe lambs.

Dorsets.

Bowman, J., Guelph—Shearing rams; ram lambs.
 Hunter, J., Wyoming—Rams and ewes, all ages.

Southdowns.

Jeffs, E. & Son, Bond Head—2 aged rams; 2 shearing rams; 10 ram lambs; aged ewes; shearing ewe; ewe lambs.
 McEwen R., Byron—Aged and shearing ewes; ram and ewe lambs.
 Rawlings, J. Ravenswood—75 ram lambs; 40 ewes, 1 to 3 years; ewe lambs.

Oxfords.

Arkell, H., Arkell—60 yearling rams; 50 ram lambs; yearling ewes and ewe lambs.
 Arkell, H., Teeswater—Yearling rams; ram and ewe lambs.
 Cooper, J. V., Picton—25 rams, 6 months to 2 years.
 McFarlane, J., Dutton—Ram, 2 years; yearling ram; ram lambs; ewes, all ages.

Lincolns.

Gibson, J. T., Denfield—Ram lambs; a few ewes.
 Rawlings, J. Ravenswood—8 shearing rams.

DOMINION SWINE BREEDERS ASSOCIATION.

Berkshires.

Bonnycastle, F. & Son, Campbellford—30 head, 4 weeks to 6 months.
 Boyd, A., Kars—Young stock, both sexes.
 Crowell, W. N., Napinka, Man.—20 pigs, 3 to 6 months, both sexes; stock boar.
 Dymont, S., Barrie—Stock both sexes, under 6 months.
 Elder, J., Virden, Man.—8 boars and 14 sows, 2 to 4 months.
 Gibson, D. J., Bowmanville—9 sows, 2 months.
 Harris, G. N., Lynden—1 sow; 3 sows, 8 months; 3 sows, 4 months; 14 pigs, 2 months.
 Jeffs, E. & Son, Bond Head—Aged boar; 3 boars, 4, 6 and 11 months; 2 sows, 4 months; pigs, 7 weeks.
 Johnson, J. W., Underwood—Sows, 1 year; 2 sows, 3 months; 3 boars, 3 months.
 Lowe, F. H. H., Ninette, Man.—Boars.
 McCrae, D., Guelph—Yearling boar.
 McKenzie, R., High Bluff, Man.—Stock, all ages, both sexes.
 Russell, J. A., Precious Corners—12 boars and sows, 4 months; 2 boars and 2 sows 5 months; sow, 18 months; boar, 12 months.
 Seiffert, J. H., North Bruce—10 pigs, 4

weeks; 2 boars, 4 months; 2 boars, 7 months.

Vance, R., Ida—Aged boar; boar, 1 year; boar, 8 months; young pigs, both sexes.
 Yuill, J. & Sons, Carleton Place—Boar, 10 months; 12 sows, 5 months.

Tamworths.

Boyd, A., Kars—2 boars and 5 sows, 6 months; young stock, both sexes.
 Bondow, A. W., Walsingham Centre—30 head, both sexes, all ages.
 Fulton, John, jr., Brownsville—Aged sow; yearling boar; 4 boars; 6 young sows; young pigs.
 Gibson, D. J., Bowmanville—6 sows, 3 months; 7 boars, 3 months.
 Hawkshaw, W. S. & Son, Glanworth—6 boars and 5 sows, 4 months; 2 stock boars, 2 years; sow, 8 months.
 Johnson, J. W., Underwood—Aged boar.
 Smith, H. D., Compton, Que.—Boar and 2 sows, 5 months; 2 boars and 3 sows, 5 weeks.

Yorkshires.

Baker, T., Solina—30 head.
 Bowman, W. R., Mount Forest—Sows; spring pigs; suckers.
 Copland, S. R., Harriston—Boar, 1 year; 4 sows.
 Davis, J. F., Tempo—Sows, 4 months.
 Fraser, I. O., Fellows—3 sows, 5 months; pigs.
 Gibson, R., Delaware—6 boars.
 Howe, W., North Bruce—3 boars, 1 year; 20 boars and sows, 3 to 4 months; young stock.
 Hume, Alex. & Co., Menie—Boar, 2 years; yearling boar; 20 pigs, both sexes, 3 to 5 months.
 Johnson, J. W., Underwood—6 boars, 4 months to 1½ years; 2 aged sows; 5 sows, 4 and 10 months; young boars and sows.
 Keough, J. E., Kockwood—Boar, 8 months; boar and 2 sows, 6 months.
 McCallum, T. D., Danville, Que.—Stock, all ages.
 Maylony, F. A., Chapeau, Que.—Boar, 3 years; boar, 14 months; 2 sows, 2 months; 30 boars and sows, 2 weeks.
 Rogers, L., Weston—30 head, both sexes, 6 weeks to 2 years.
 Rusnel, F., Cedarville—15 boars, 5 to 6 months.
 Russell, J. A., Precious Corners—20 boars and sows, 3 months; 6 boars and 8 sows, 5 months; sow, 18 months.
 Brethour & Saunders, Burford—40 sows and boars, 2 to 3 months; 50 sows and boars, 4 to 8 months; 8 sows.

Duroc Jerseys.

Fraser, I. O. & Son, Fellows—5 boars, 5 months to 3 years; 5 sows, 5 months to 2 years.

Chester Whites.

Birdsall, F. & Son, Birdsall—Stock, both sexes, all ages.

W. Territories sufficient Yorkshires, Berkshires and Tamworths were bought to fill three cars, the majority being sows. The Canadian Pacific Railway transported the cars free of expense.

At the seven stations at which the sales were made animals of both sexes were offered. A fair upset price was set on each animal, just enough to cover the cost of purchase and other incidental expenses. These prices were obtained in every instance, and, in several cases, the bidding was lively enough to net considerably more than the reserve price. It is significant of the keenness of the breeders and farmers of Alberta to take advantage of this opportunity of improving their swine that it was the best specimens that drew the keenest bidding and realized the highest prices. A few sold at prices ranging from \$20 to \$27.50. Enough was realized to pay all expenses of the shipment.

The Department of Agriculture for the Territories is to be congratulated on the success of this, its first venture for the improvement of stock by purchasing and placing within the reach of breeders animals of a type suitable for the improvement of their native stock. Not satisfied with merely bringing in boars, which would have rendered the process of improvement slower and more tedious, it has made possible a much speedier advance by furnishing, in addition, a large number of excellent females. It now remains for the farmers of Alberta to utilize this stock to the best advantage by judicious breeding.

A National Live Stock Association That Is Accomplishing Good.

The National Live Stock Association of the United States of America was organized three years ago to meet a long-felt want, its purpose being to guard and protect live stock interests all over the country, to be the forum of the stockman, where, through his local association, he could express the needs of his particular locality and secure the aid of his fellow stockmen in securing laws to aid him or preventing the passage of laws that might harm him and them.

The growth of this association has been rapid and it now numbers among its members nearly one hundred local associations, representing an investment of \$500,000,000. During the past year the association has secured valuable concessions from the various railroads in the matter of freight rates, has brought sufficient influence on the Bureau of Animal Industry to cause it to investigate disease and inspection; and has been instrumental in benefiting the live stock interests in other ways. At the present time it is watching legislation on several subjects in which stockmen are vitally interested.

Sales of Swine in the North-West Territories.

We have been furnished by the Department of Agriculture of the North-West Territories with a statement of the prices realized for the swine which were purchased in Ontario a short time ago and shipped to certain stations along the Calgary and Edmonton line of railway, there to be disposed of by public auction, the object being to supply breeders in Alberta, at as cheap a cost as possible, with swine of a high standard of excellence for the improvement of the common stock of that part of the Dominion. At the request of the Department of Agriculture of the N.

The success attending this association shows that if stockmen unite in one strong association and put their heads together they can direct legislation into channels which will benefit their industry. If they remain indifferent or simply protest as individuals they run the risk of seeing laws enacted that may be disastrous to their business. Organization and united action on the part of an association are generally successful in carrying out carefully-laid plans, especially when every section of the country is represented. No section should be unrepresented, because a law that may benefit one section may be objectionable to another. Hence it is necessary to carefully think out and determine on action which will be most beneficial to the country at large.

The next meeting of this association takes place at Salt Lake City, Utah, on January 22, 1901.

FARM HELP EXCHANGE.

The Farm Help Exchange has been started with the object of bringing together employers of farm and domestic labor and the employees. Any person wishing to obtain a position on a farm or dairy, or any person wishing to employ help for farm or dairy, is requested to forward his or her name and full particulars to A. P. Westervelt, Secretary, Live Stock Associations. In the case of persons wishing to employ help, the following should be given: particulars as to the kind of work to be done, probable length of engagement, wages, etc. In the case of persons wishing employment, the following should be given: experience and references, age, particular department of farm work in which a position is desired, wages expected, and where last employed.

These names when received together with particulars will be published FREE in the two following issues of the "Agricultural Gazette" and will afterwards be kept on file. Upon a request being received the particulars only will be published, the names being kept on file.

Every effort will be made to give all possible assistance, to the end that suitable workers, male or female, may be obtained. Every unemployed person wishing to engage in farm or dairy work is invited to take advantage of this opportunity.

Help Wanted.

Man wanted for all kinds of farm work on a dairy farm. Engagement for a year, if suitable. No. 581. a

Immediate and permanent employment to good capable man on a farm. Address S. M. Billings, Leskard, Ont.

Good man and wife, with no family, wanted at once to manage a farm near Toronto. Wages \$200 a year, free house, garden, pasture and accommodation for a cow. No. 573. b

Single man wanted after September 15th. Address Box 40 Bond Head, Ont.

Married man and also general servant required on a farm near Milverton. No. 574. b

Capable man wanted to take care of milch cows, whose wife as well as himself is a good milker, and will care for milk, look after cans, etc. No. 575. b

Permanent position to good married man. Wages \$225 a year, with free house, wood and garden. Wages increased after first year if man proves satisfactory. No. 576. b

Man and wife wanted on farm in

British Columbia, wife to help in house at general housework. Wages for man \$300 a year and for wife \$150. References required. No. 577. b

Unmarried man required on a farm near Toronto. Wages \$170 to \$180 per year. No. 578. b

Would engage a young man by the year, if steady and able to milk. Wages \$12 a month and board. Farm is near Peterborough. No. 579. b

Domestic Help Wanted.

Housekeeper wanted on a farm in the States. Permanent position. Wages, \$12 a month. Or would hire man and wife, man to do general farm work and wife to do housework for family of six. Good wages. References required. No. 582. a

Wanted on farm in Peel county, housekeeper or general servant. Good place for smart, capable girl or woman. Permanent position to such a one. Wages \$8 a month. No. 580. b

Situations Wanted.

Man aged 44 wants a situation on a sheep ranch in the West. Good references. No. 441. a

Young man, aged 22, wants a place on a farm. Good hand with a team and can look after all kinds of stock. Is not afraid of work and does not chew, drink or smoke. No. 439. b

Total abstainer wants place as farm and stock manager. Has been on a farm all his life, age 59 and single. Wages according to amount of responsibility. Best of references. No. 440. b

N.B.—Where no name is mentioned in the advertisement, apply to A. P. Westervelt, Parliament Buildings, Toronto, giving number of advertisement.

Farmers' Institutes.

Under this head the Superintendent of Farmers' Institutes will each week publish matter relating to Institute work. This will include instruction to Secretaries and other officers, general information about Institutes and Institute work, suggestions to delegates, etc. He will also from time to time review some of the published results of experiments conducted at the various Agricultural Colleges and Experiment Stations of Canada and the United States. In this way he hopes to give Institute members some valuable agricultural information which they might not otherwise receive, on account of not having access to the original publications. If any member at any time desires further information along any of the lines discussed, by applying to us he will be put in direct communication with the Institution that has carried on the work.

G. C. CREELMAN,
Superintendent Farmers' Institutes.

Plank Frame Barns.

By G. C. Creelman, Superintendent of Farmers' Institutes.

To the Canadian farmer following a mixed system of stock-raising and grain-growing a barn is a first necessity and must continue to be a part of his equipment so long as he follows the present methods of storing grains and fodder crops. Fifty years hence

people may find that it will pay better to thresh the grain in the field and bale the hay and straw so as to save valuable space, but, at present, existing conditions must be considered and calculations made for the storing of a considerable amount of bulky material during a portion of the year.

The conventional plans on which the majority of barns have been constructed have undergone but little change during the past fifty years. The necessities of particular cases called for slight deviation in form or for different sizes, but usually a marked uniformity prevails. An oblong shape with from four to six bents and a liberal allowance of timbers for the inside framework has been characteristic of most barns built in Ontario. Timber being until recent years plentiful neither the size nor number of the sills, plates, beams, girths and braces were considered as affecting the cost very materially; hence the result was in most cases a structure which was substantial rather than economical. When, however, the timber instead of being taken from the woods at slight expense has to be purchased at high



Frame Work of Plank Frame Barn

prices, the problem of cost has suggested to inventive minds a new idea and there is now being built in some localities a style of frame for barns which presents considerable modification on the old. One of these is known as the "plank frame," so called because it dispenses entirely with heavy timbers and substitutes therefor two-inch planks of widths varying from six to twelve inches for the support of the siding and roof.

TWO ADVANTAGES.

Of the many distinct advantages claimed for this style of frame there are two features that will appeal strongly to the farmer who is about to build—the reduction of cost and the avoidance of timbers which would come in the way of handling grain or hay with horse forks or slings. A description of one of these frames will serve to show how these objects are accomplished. |

HOW TO BUILD.

A barn of the average size, say, 60 x 44 feet and 44 feet high, would meet the needs of most farms, and may or

may not have a basement beneath, which, however, does not affect the general design. Three courses of 2x8 planks are used across the bottom. The posts consist of two planks 2 x 8 and 20 feet in length, while the girths or braces are also planks about 6 inches wide and 22 feet long. They may extend in about 12 feet to ensure good bracing, though less would do, and reach within about a foot of the top of the post. The first or lower part of the rafter is 20 feet, the second part 16 feet, and the girth across and connecting the middle of each, will be 16 feet. These rafters and girth are double and spaced 2 inches apart, and 2 x 8 stuff, the same as the posts. The rafters butt together, and are fastened by spiking or bolting together, with clips over the joints. On the bent, the space between truss and hip is 8 inches. The intermediate rafters are made of 2 x 6 material, trussed by a single piece 1 x 6 and 16 feet long, which will make the open space between truss and hip of 10 inches. Pieces of 2 x 10 stuff of the same length as the distance between the bents are used for purline plates. At the ends they are cut down two inches on the top side, and far enough back to allow them to enter the 8-inch space. They will then be flush with the bottom sides of the intermediate rafters. There is no particular necessity for having this purline plate continuous, as the sheeting will hold the rafters in place. These purline pieces may be inserted when that point is reached in the work of sheeting. The pitch on the lower part of the roof is 18 inches rise to the foot. On the inside and outside of the posts 2 x 8 pieces are bolted on to serve as plates and hold the bents together. Enough of the length of the posts should be left above to catch the lower part of the rafters that are firmly bolted between. They should also be kept level, so that a 2 x 12 cap may be firmly spiked on top between the bents, and any style or weight of timber may be adjusted in place below for studding. In erecting this building the posts, tie beams and girths may be fastened together and then raised without difficulty. After all the bents are up and in line, the girths are bolted in place and the short braces put in; then bolt and spike on the plate.

Objections might be made to this plan on the score that too much material is required and that the bottom girths extend so far out on the floor as to prove inconvenient. Their length could be reduced several feet, thus bringing them in closer to the wall but a projection of even six or seven feet is undesirable.

Another type of plank frame simplifies the construction somewhat and avoids this difficulty of obstructing the floor by setting purline posts on the floor inside the main posts and running them to the purline plates. This leaves the floor space clear and though the posts with the necessary braces

extend out over the mows, yet in practical use these will be found to give no trouble at harvest or threshing time. With purline posts so placed the roof will of course be straight. A support should, however, extend from the main plate horizontally to the purline post and another from this point to a short collar beam under the ridge. This should make the roof sufficiently rigid to bear the strain of operating a hay fork under it.

NOW IN USE IN MANITOBA.

In the *Nor.-West Farmer* there was published some months ago a description of a barn erected by Messrs. F. B. Millar & Son, at Solsgirth, Manitoba. In it the walls are 8 feet high, 2 x 6 frame, one ply of siding braced to the floor joists by sixteen 2 x 6 planks making a solid wall. The principle of constructing a hip roof is that of the semi-circle, the wall plate, the peak of the roof and hip roof joint all falling on the semi-circle line. For a barn 32 feet wide the longer rafter would be 14 feet, the short one 10 feet in length. There are no supports inside. The owner states that there is no reason why such a barn should not stand the force of storms as well as any other. A similar roof in his neighborhood has stood for many years the trying ordeal of Manitoba winds. This reduces the frame to the extreme limit of simplicity consistent with maintenance of position.

IT IS CHEAP.

The saving in cost will always be the main argument in favor of the plank frame. Those who have built them claim that only about one-half as much material is required in the framework; that it takes only about one-sixth as long to frame or get ready to raise, thus saving wages and board. Sufficient strength is obtained because almost all the timbers are made to answer both as supports and as braces. The weight or strain is supported by the timbers endwise rather than crosswise. The braces are usually much longer than in the common frames, hence much more serviceable. Another feature, which may be overlooked at first consideration, is that the timber will be more durable on account of there being no mortise in which moisture can accumulate to set up decay of the ends, and no tenons to rot off. There is also economy in the use of material, since stuff that could not be used in building a large frame barn can be utilized to advantage in the plank frame. In localities where all the large timber has been used or sold off the farm this is an important consideration. A moderate estimate of the cost as compared with the old style frame would put it at from two-thirds to three-fourths, with results quite as satisfactory.

Ontario Agricultural College.

Experimental Work in all Departments
most Satisfactory—Prospects for
a Large Class in 1900-1901.

The present season has been most admirably suited for experimental work in the departments where favorable weather for growth was a factor—the Experimental, Horticultural, and Farm Departments; and the results which will be given in the annual report of the college and in the bulletins to be published from time to time will be most valuable. All varieties of grain, roots, vegetables, and small fruits which are at all suited to the climate of Ontario will certainly show to their best advantage this year; and as there were no heavy rainfalls, severe frosts, or prolonged droughts, the opportunities afforded for comparing varieties has not been equalled for some years.

The work done in the Poultry, Dairy, Physical, Chemical, Bacteriological, and Biological Departments has been of a practical nature, and there is promise of results which will be of incalculable value to the farmers, poultrymen, dairymen, and fruitgrowers of the province.

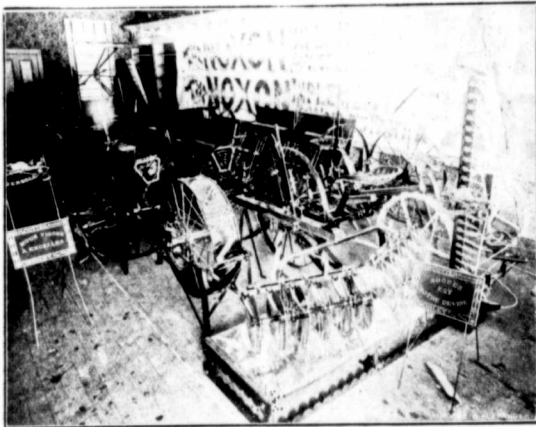
THE COLLEGE COURSE.

It will be remembered that the residence accommodation at the college was very much overtaxed last year, and the prospects are that there will be more applicants for admission this fall than can be accommodated in the college dormitories. It should be borne in mind by those who intend to enter the college at the beginning of the coming session that the course will begin on the 14th of Sept., some two weeks earlier than formerly. There are a few vacancies left in the college dormitories, which are reserved for Ontario students, while applicants from places outside of the province, of which some 25 have already applied, will be furnished with rooms in the near vicinity of the college and allowed to board in the college dining hall.

The equipment for work in the different departments is being added to and improved from time to time and the institution was never before in as good a position to impart valuable information as at the present time. The professors and assistants in the several divisions have been busy during the summer with experimental work and in collecting material for instruction purposes during the session.

With the extension of the time required to take the full course for the degree, from three to four years, the work of the first and second years is devoted more to practical instruction and work specially adapted to the needs of the farmer, while the third and fourth years embrace more of the scientific.

Farm Implement Department



A View of the Noxon Company's Exhibit at Paris

The Noxon Company, Limited, at the Paris Exposition.

No department of the Canadian exhibit at the Paris Exposition has attracted greater attention from visitors than that of agricultural implements. Our manufacturers have in this respect come forward nobly and are deserving of the gratitude of every Canadian citizen. They have been sparing of neither time nor money in the preparation of their exhibits and their efforts along this line have served to present Canada to the people of Europe in a new and most favorable light. Not only have visitors at Paris learned that Canada is a country possessing agricultural resources second to none, but have been made aware of the fact that in this goodly land the finest and most improved agricultural implements can be produced.

A firm that has contributed very largely to the bringing about of this most satisfactory condition of affairs is the Noxon Company, Limited, of Ingersoll, Ont. Their exhibit, as the accompanying illustrations show, is a large and most creditable one, comprising as it does a full line of harvesting and seeding machinery, for which they have been awarded the grand prize (highest award attainable) and gold medal. To have gained such marked distinction in competing with the world's greatest manufacturers of agricultural implements is no small honor. We understand at this Exposition that the Noxon Company were the only Canadian firm exhibiting to which this prize was given for the first time.

Their exhibit comprises among others the "Noxon" binder, a machine of its class, well-known alike for its lightness, durability and cutting power

and it is certainly likely to prove an economical one to the buyer.

The Noxon Company also exhibit a reaper and mower with a cutter bar lifting spring and the firm make a special point of their perfectly horizontal driving or crank shaft which they claim transmits the power with much more efficiency than when the shaft is inclined out of the horizontal. Their other exhibits comprise a half-dozen

cultivators of different types, a couple of seed drills and several harrows including the disc and spring tooth makes.

The Noxon Co. is making a strong bid for European trade. Their motto "We aim at excellence" is conspicuously brought to the notice of visitors who after an examination of their machines cannot but come to the conclusion that this firm in all their machines and appliances determine to arrive at perfection.

In following out the idea of working up a European trade, in addition to their grand exhibit at Paris, the Noxon Co. also made extensive displays at leading English shows, including the Royal at York, besides exhibiting at Rochdale, Stirling and Doncaster. The exhibit at each of these places included some 12 machines.

We are pleased to learn that through the instrumentality of these four exhibits and the efforts of their representatives, handsome orders for machines for next season's delivery have been secured at each of these places. The prospect for trade in that territory is therefore very encouraging.

In catering to the European trade it is the firm's policy to give the people exactly what they want and to prepare the machinery specially for that country. A large amount of money has been expended in ascertaining the



Noxon Company's Exhibit of Seed Drills, etc., at Paris

actual requirements of the trade and the firm is fast getting their line of implements in shape for a big foreign trade.

While making a special effort in this new field, this enterprising firm in no wise intend to neglect their large home trade. This is their first love and every effort will be made as heretofore to supply the Canadian farmer with a full line of up-to-date and serviceable farm implements. Their home trade this season has been a very successful one and we understand sales have been in excess of any former year, all of which speaks volumes for this energetic, pushing, and go-ahead Canadian firm of agricultural implement manufacturers.

A Creditable Exhibit.

Among the Canadian Farm Implement exhibitors at Paris, the firm of David Maxwell & Sons deserve special

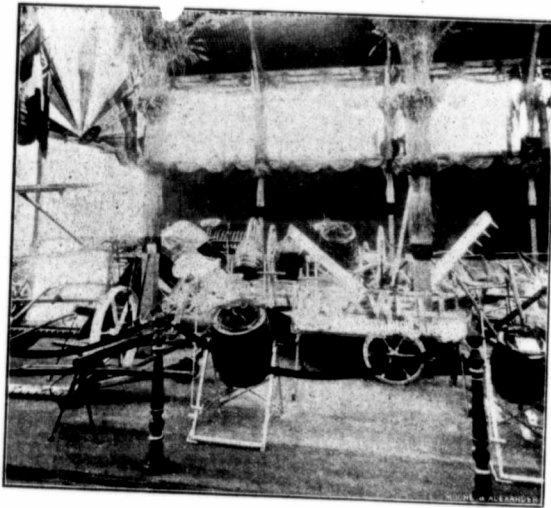


Exhibit of David Maxwell & Sons at the Paris Exposition

mention. They have made a most creditable display, which has attracted the attention of a large number of visitors at the great fair. The *Machinery Review*, of London, England, has the following appreciatory notice of this firm's exhibit:—

"A firm who are showing for the first time, and are preparing to do a large trade in agricultural requisites on this side, are David Maxwell & Sons, St. Marys, Ont. An inspection of their machines reveals many interesting things which will appeal to the practical farmer, and they show that the makers have built their mowing and reaping mechanism less on purely theoretical lines than upon the experience obtained from a close study of the behavior of such machines in the field. It will be noticed that in the No. 3 mower they exhibit there is a long axle

which gives the necessary length to the pitman to secure a perfectly even motion to the cutter-bar, and the wheels are of larger diameter to permit of the machine getting out of holes or ruts without an unnecessary expenditure of power. The gearing, which is enclosed, consists merely of two bevel and two spur wheels, and the power is communicated through four driving pawls on the main wheel, so as to avoid any loss of motion; and the machine will stop and start in the heaviest grass without backing. It will be noticed, too, that there are no shoe wheels, as these are replaced by a spring which counterbalances the cutter-bar and allows it to float, as it were, over the ground. In this way there is an economy of power for draught, and the lowest possible cut is secured. The cutter-bar and the axle are made of cold rolled steel, and it is claimed that the machine is practically indestructible. The mower exhibited is con-

appliance exhibited by this firm are a couple of root cutters, churns in seven sizes, which are fitted with roller bearings, and are operated with remarkable ease by means of hand and foot levers, and four lawn mowers, in which an arrangement is provided for easily removing the knives for sharpening.

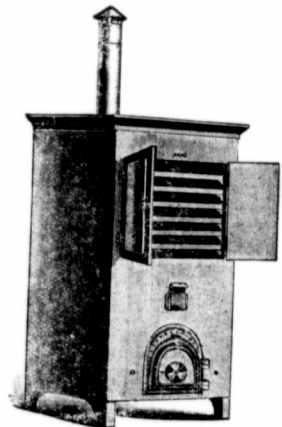
Fruit Evaporation.

Evaporation is one of the most natural and economical methods of saving perishable fruits and vegetables. This process must not be confounded



No. 0.—Cooking-Stove size Capacity, 2 pecks of apples in 12 hours

with ordinary drying, as there is a distinct difference. Common dried fruit is that which has lost a large portion of its water by natural evaporation, with very little, if any, chemical change in its constituent parts. Evaporated fruit is that which has been subjected to rapidly-moving currents of hot air, which carry away the moisture of the fruit. This air must be heated to about 200 to 226 degrees Fahr. The fact that the sliced fruit does not burn or become cooked in this high temperature is explained by the fact that the

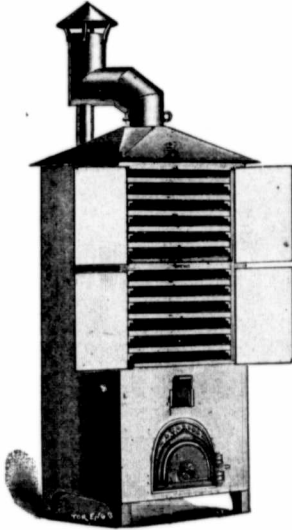


No. 1 Capacity, 2 to 7 bushels apples per day

evaporation of water is a cooling process, the vapour carrying with it a large amount of heat in latent form. This keeps the temperature of the fruit far

constructed for Canadian users, with straight knife fingers, but a special model is being built this year for the European market, in which the finger points will curve upwards to allow of a closer cut. A remarkably simple and strong machine is the Maxwell open-end right hand binder, in which the frame is made of angle and channel steel; the table bottom is made of steel plates riveted to the bar, and the main sills are of tubular steel. The makers claim that the knoter is simpler than any other on the market, and so far as we could judge from the tests to which we subjected the device there can be no doubt as to its certainty of action. In the steel "Tiger" sulky rake the spokes are put in separately and bolted to the rim, and the Maxwell hay tedder has a long axle, and is driven centrally by a chain. Other

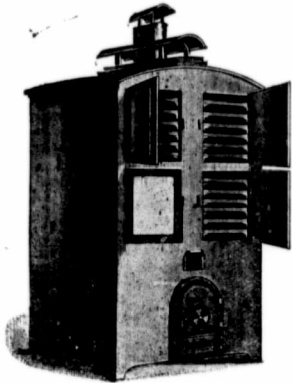
below that of the surrounding air. It is said that the albumen is coagulated instead of being dried, and chemical changes take place in the pectins which are converted into forms of



No. 2
Capacity, 3 to 5 bushels apples per day

sugar not easily decomposed. Thus the fruit is sterilized at the same time that the moisture is extracted. This process, of course, requires specially constructed apparatus.

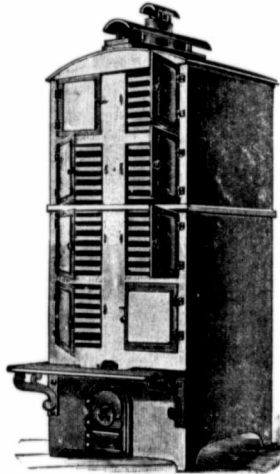
In some places factories have been established for this purpose, but as these require considerable outlay of capital for plant, machinery and labor, the returns to the fruit grower for his apples, etc., must necessarily be small. It is more profitable for the fruit-grower to do the work of evaporation himself, and sell the fruit in the evap-



No. 3
Capacity, 10 to 15 bushels apples per day

orated state instead of green. The labor can usually be supplied by members of the family or help usually

employed about the farm. Portable evaporators, such as are shown in the accompanying illustrations, which are loaned by The G. R. Grimm Manufacturing Co., Montreal, manufacturers of all kinds of evaporators, are built especially for the use of farmers and fruit-growers. They will produce the best quality of evaporated fruit, and the several sizes are such that almost any capacity needed can be selected, from the cooking stove size, intended for drying a supply of fruit and vegetables for home use, to the No. 4, having a capacity of 25 bushels of apples per day of twenty-four hours. It is claimed by the manufacturers of these evaporators that they are absolutely fire-proof, and



No. 4
Capacity, 18 to 25 bushels apples per day

their claim seems to be well founded, as the evaporators are constructed almost entirely of metal, galvanized iron being the principal material used.

W. H. BARBER, Montreal.

Canada Central Fair.

One of the finest spectacles ever placed before the public will be put on at the Central Canada Exhibition. This will be a representation of the battle of Paardeberg and the surrender of General Cronje. The spectacular is the production of Messrs. Hand and Teale, of Hamilton, and has been secured at enormous expense. No pains have been spared in getting the scenery and detail as nearly like the original as possible, and in order to make it the more realistic the management intend that, in case the first Canadian contingent returns from the front in time, they will be secured as the actors in this stirring scene, and the public will thus be given a chance to see exactly "how it was done" by the actual participants in this famous battle. Some of the volunteers have

already returned and these have been secured, and if nothing unforeseen occurs the others will be here. The idea was a splendid one and has been excellently carried out, and visitors to the fair will be given an opportunity of witnessing an exact representation of the bloody battle which made Canadian soldiers famous, with none of its attendant horrors. No one should miss seeing this feature of the fair, which will be presented every evening as it stands, unequalled both for amusement and instruction. The young folks in particular should be given an opportunity of learning exactly how our brave Canadian volunteers comported themselves as Soldiers of the Queen.

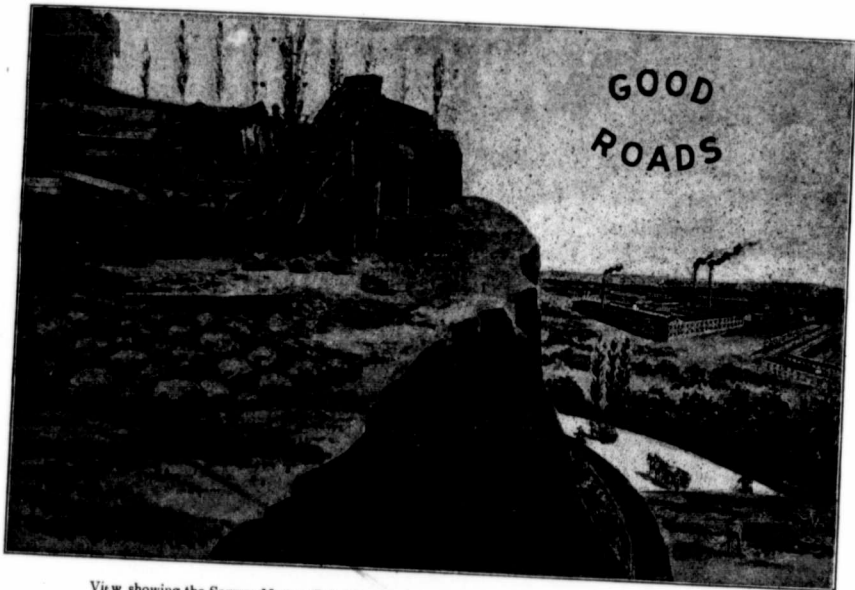
New Phosphates Company.

Notice of the due incorporation of the Consolidated Phosphates, Limited, under Provincial charter, has been given officially, and the association has already vigorously commenced business. The stock has not been fully subscribed yet, but it has been taken up quite readily. Many farmers have already applied for stock, about \$30,000 of which is held specially to meet their subscriptions. While this company undertakes the supplying of all kinds of chemicals needed on the farm, including nitrates, potashes, lime, phosphates, salt, gypsum, etc., a specialty is made of phosphate, on the principle, that as a rule in broad farming it is the only ingredient needed to be purchased to balance the plant-food in the land supplied by stock manure and straw and clover. Phosphated clover is emphasized by the trade mark of the company, the four-leaved clover in blossom.

Prolonging Life by Machinery.

Most farming tools are used during only a fraction of the year. Diversified farming requires a great variety of tools and agricultural implements. The average farmer lays these aside in a hurry, and generally neglects to oil the polished parts of plows, spades, sickles, etc., and when he again wants to use them he finds to his annoyance and cost that they do not work well, are sometimes out of order, and perhaps need slight repairs. Valuable time must then be spent to put the machinery in proper working condition. A few hours spent on rainy fall or spring days, or in the winter, when outside work cannot be carried on, might have saved him time which in the busy season means many dollars. A great percentage of agricultural implements rot or rust out instead of wearing out. Money used in building sheds under which wagons, mowers, binders, seeders and the like may be sheltered is well spent, and soon proves to be a paying investment.

But little skill is required to keep ordinary farming machinery in excel-



View showing the Sawyer-Massey Co's Plant and Stone Crusher at work on the Hamilton mountain.

lent condition. Few farmers are so fortunate as to be blessed with a mechanical turn of mind, but everyone can, by the expenditure of a small amount of time and a little care, prolong the life of machinery for many years. The manufacturers of agricultural implements sometimes use a poor quality of paint on the articles they turn out, and the wooden parts are soon exposed. Farmers should paint their tools and machinery with paint of their own mixing, using linseed oil and white lead instead of purchasing the ready-mixed paints which often have benzine or turpentine in them. Paint, to stand the weather, should be put on when the temperature is not too high, for when the weather is hot and dry the oil quickly soaks into the wood, leaving the pigment on the outside to crack and scale off. The first coat must be thin and well worked in with the brush. A sufficient length of time must elapse before the second coat is applied, for if the first coat is

not thoroughly dried, the paint will be of little avail.

Grading a Road.

The people of Canada are realizing more and more the need—nay, the absolute necessity—of "Good Roads," for "Good Roads" and "Big Loads" are synonymous. The age of corduroy, "blazed" and winter roads has passed away. Life is too short to be satisfied with small loads at the expense of a great deal of power and wear and tear of horses and wagons over the apologies for roads which are in use in so many of our townships.

Before starting to grade a piece of road it is best to define the limits of the roadbed by having stakes set up and marking the ditches with a light plow furrow. As the road made by a grader is road from ditch to ditch, it is not necessary to have it as wide as under the old plan. Twenty-four feet

for side lines and thirty for main roads should be ample.

The grade or pitch required depends largely upon the kind of soil. Roads must be crowned sufficiently to shed the water readily from the centre to the side ditches, otherwise water will stand in the roadway, soak into and soften it—but avoid the other extreme. A road should be smooth and hard in order to insure easy hauling and prevent the wheels cutting into the roadbed and forming ruts in which the water will lie instead of running off quickly into the ditches.

The side ditches should have a gradually falling and even grade at the bottom and broad flaring sides.

Except in the ditches a plow should not be used on the road as it is apt to cut in too deeply, leaving the roadbed soft. The best results both in ditching and grading are obtained by the intelligent use of a grading machine; the work will be better and cheaper than can be done in any other way.



The Good Roads Machinery Co's exhibit at Industrial Fair, 1899.

The Farm Home

A Word Picture.

When Earth's last picture is painted, and the tubes are twisted and dried,
When the oldest colors have faded, and the youngest critic has died,
We shall rest, and, faith, we shall need it—lie down for an aeon or two,
'Till the Master of All Good Workmen shall set us to work anew.

And those that were good shall be happy ;
they shall sit in a golden chair ;
They shall splash at a ten-league canvas with brushes of comet's hair ;
They shall find real saints to draw from—
Magdalene, Peter and Paul ;
They shall work for an age at a sitting, and never be tired at all !

And only the Master shall praise us, and only the Master shall blame ;
And no one shall work for money, and no one shall work for fame ;
But each for the joy of the working, and each in his separate star,
Shall draw the Thing as he sees It for the God of the Things as They Are !
—Kipling.

Agents and Peddlers.

"All's for the best—if a man would but know it,
Providence wishes us all to be blest ;
This is no dream of the pundit or poet,
Heaven is gracious, and All's for the best !"

Are the words of the poet true? Are all existing conditions the best for us? It would save considerable worry if we could be quite sure. What possible blessing can providence have for us in the visits of agents and peddlers? Long years ago, perhaps, their visits may have been a benefit when stores were miles and miles from the housekeeper, and she was dependent on the pack for her own finery. Finery which cost many times its real value and which, perhaps, she would have been happier without. The only new pictures and books that came to the backwoods home were brought by these visitors. But in permitting this relic of other days, the itinerant merchant, we do not show a very high state of civilization. In other days the housekeeper could not get to the stores. Now every country village has stores stocked with nearly every description of useful and ornamental articles, with prices as low, and sometimes lower, than the city stores. In addition we can select our extras from the departmental store catalogues and have them sent by mail or express. Is it necessary then to pay high prices to agents and peddlers? We often buy from them from a feeling of charity, but there is much sense in the proverbs: "A penny saved is a penny gained," and "Charity begins at home." The first home visitor on the list is the plain tramp who wants only food, and we give it to him for we do not like to see a fellow-creature hungry. Perhaps his visits are for "the best," as our poet tells us. But it might be best if we made him spend

half-an-hour at the woodpile before each meal. Next to him comes the pack peddler. He is trying to make a living, and we think it must be very hard labor. He always pays for his meals from his stores. One gave me three-quarters of a yard of elastic and another four white bone shirt studs in payment for dinner and charged double store prices for his goods.

The book agent considers himself of a higher caste than the others. He is usually better dressed, and takes to selling in order to help earn extras, but are his visits best for us? Publishing houses send out books intended to be sold in this way. They are show books. One never sees them catalogued or reviewed, and they are intended only as money-makers for the publishers, while the agents are caught by the high commission offered. We could get twenty times as much reading for the same money by taking

stores, and catalogued at sometimes less than half the price demanded by the extortionists. Of course, we are made to believe that nothing less than perfection is offered to us, but we notice they are very chary of allowing us to try their wares for a week or two unless they make sure of part payment. But, right here, I notice where the washing-machine agent has benefited the surrounding district. Though his particular style may not suit all who purchased, yet a hardware merchant informed me that he has sold many more washing-machines than before the agent began his career. The housekeeper becomes alive to the fact that such things are beneficial, and when she sees them with her merchant at half the agent's price she concludes she is getting a bargain, and what housekeeper can let a chance like that go by. I never buy through an agent or peddler without feeling



A Cooking Class Receiving a Lesson.

magazines and papers. Other firms send out their newest inventions only by agents travelling from house to house. These are sometimes small articles that "take the eye," and, under the clever voice of the seller, appear to be the greatest blessing of the age to suffering womankind—articles which we purchase and faithfully use for a week, when we find them no better than the old reliables. We have been overrun with the lightning-rod agent, who may have been a blessing as he opened our eyes to the possibility of conducting electricity by wires from our buildings to the ground, but now farmers make a more effective conductor and a cheaper, by using fence wire. The hayfork man, who has introduced a means of lightening the heaviest farm labor, and the washing-machine agent, who sells a great helper to lighten house labor, providing the housewife uses it in the best manner. But all these things, perhaps not the exact kind offered by the agent, but other kinds equally as good, are to be found in hardware

that I have paid half the money just for the pleasure of wasting valuable time listening to a lot of uninteresting talk and it is a rare treat to find one who lets his goods do the talking. They talk a stream of purest chatter which like the brook goes on forever. It would be hard to count the value of the time wasted in a year with agents, but if we value our own time at the same rate we pay our hired help, even if we do not buy, we will find ourselves many dollars out, and if we give an order that we may get rid of the talking machine of course we are still further out in cash and have the discomfort of afterwards discovering that we did not get the best of its kind.

I have referred only to the smaller articles usually sold through agents, articles which he takes with him on the road, but I believe even the agricultural implement agents are not a necessity, and are great time wasters also. They must have their pay and in comes out of the machinery we buy through them. The annual exhibitions with their good displays of all kinds

of machinery are really the best of all agents for all classes, except of course, those I have before berated. The Canadian manufacturer does not agree with me. But in nine cases out of ten the wide-awake farmer goes to the show to see what is newest and best in the lines he intends buying, and when the time comes to purchase he will get those kinds which have seemed to him to be best suited to his purposes in spite of the glib tongue of rival agents, and if he be wise he will buy nothing without the understanding that it is guaranteed to give satisfaction not to the agent, not to some other farmer, not to the manufacturing firm, but to the individual purchaser. There is no machine made that will suit every one. It may suit nine, but that is no reason why the tenth should find it satisfactory, and when it does not prove satisfactory after one, two or three weeks, or perhaps in some cases longer trial, the manufacturer should cheerfully refund the purchase price. We give those guarantees why should not others.

M. E. GRAHAM.

Exhibitions Not Agricultural.

Laura Rose, O.A.C., Guelph, Ont.

This is a day of exhibitions—exhibitions of strength, of speed, of artistic and mechanical skill, of mammoth vegetable growth, and of astonishing records in the ring and stable, but the exhibitions I have been thinking about do not come under any in the above mentioned list, still they are to be seen every day if we only have our eyes and ears open, but I fear very often we ourselves furnish the show.

Haven't you heard the expression—Mrs. M. made the greatest show of herself I ever saw, and how did she do it? It may have been in the style of her dress, or in the loudness of her talk and laugh, or the losing control of her hot temper, or displaying her ignorance or knowledge of a subject on which she should have been silent, or perhaps she was indiscreet enough to reveal to the gossiping world private domestic troubles or interests which should have been kept close within the walls of the sanctum of home.

With regard to dress, Shakespeare over three hundred years ago struck the key-note which to-day remains as sound and clear and as applicable to our age as when the poet himself walked the streets of Stratford-on-Avon and noted the costumes of the passers by. If we would follow his suggestions in "Costly thy habit as thy purse can buy, but not expressed in fashion, rich not gaudy, for the apparel oft proclaims the man"—there would be little danger of us making an exhibition of ourselves in the line of dress. To be well-dressed, or as well dressed as our circumstances will permit, is a duty we owe ourselves and society, but let our aim be toward ele-

gance and neatness, rather than a brilliant display of startling combinations.

For street wear it is especially desirable to have nothing that will attract undue attention, nor is it wise to follow the very latest and most pronounced fashions. On the other hand there is no reason why a lady should totally ignore the prevailing styles and make a "show" of herself by appearing in a garb which one might suppose had survived the flood.

In the house there is more liberty allowed and bright, pretty gowns for afternoon or evening wear lend a charm and attractiveness to even a plain woman.

Not many men and fewer women admire the loud woman—the one who is heard before she is seen. If the old Spanish proverb "a gentleman makes no noise and a lady is always serene," be true, then I fear we have not many ladies and gentlemen. But do we not sincerely admire the man who always does the proper thing at the proper time and in such a proper way as to denote he was to the manner born. What an influence a sweet-voiced, gentle woman exerts. We rub against her in the shop, on the street and in the car and we feel the better for having come in contact with her, but the woman with the harsh voice and coarse laugh how she jars our nerves. We can do much towards subduing our manner and voice, but it is when we are crossed or angered that we have to be especially on our guard. Then are we likely to make an exhibition of ourselves and show to the world a disposition hitherto hid. It is a strong man or woman who can bridle the tongue, but what a power it gives over the contending party—it takes two to make a quarrel and nothing so soon quells a storm of words as a calm, patient hearing of the volley.

But of all the exhibitions which should be the most condemned it is those which reveal the family jars. Occasionally in the most loving households little annoyances and disagreements will arise, but all should strive

to keep the knowledge of such from the outside world and even from their friends. These little differences soon blow over and all is serene and happy, but outsiders do not so soon forget the sights and sounds of a discordant family, and much talk and comment often result from the curtain being lifted on a scene not intended for the public gaze. Let us hide within our hearts our business troubles, our aches and pains and household worries and give to the world a cheerful greeting and friendly smile. Then shall our coming among our fellow men be as welcome as the flowers in May.

Beware of the Too Liberal Use of Salt.

Salt draws the juices from beef in coming, toughens the fibre, makes it very indigestible and less nutritious. On cucumbers it draws out the water, toughens the fibre and renders them very indigestible. Salt acts in exactly the same way on fish as on meat. There are two ways of considering these changes. I would hardly say that salt destroys the food value, although it robs the flesh of part of its food value by making it less digestible. —Mrs. S. T. Korner, in the August Ladies' Home Journal.

Women Wage-Earners.

In Texas a woman has the contract for carrying the mail from Kiffe to Seinal Hall.

Georgia has a woman mail carrier; she travels a 40-mile route tri-weekly. This young woman also manages a farm.

The Chamber of Commerce, Cincinnati, has a restaurant run by three Scotswomen, and they clear about \$15,000 yearly, although their annual rental is \$5,000.

In New Orleans one of the finest orchestras is composed entirely of women.

The Business End

Of Farming in these days requires close attention

THE

Central Business College

TORONTO

Provides a special course of training for Farmers' Sons which qualifies them to become more successful as farmers. Every young man and woman should have a practical business training.

With Ten Regular Teachers, First-class Equipment, and Splendid courses of Instruction, this School produces the best results.

ENTER ANY TIME

Circular Free

W. H. SHAW, Principal

The Growers Should Export Apples.

For the past few seasons, at least since 1896, apples in Ontario have been handled principally through exporters and speculators and inducements for the farmers to export their own have been very meagre as generally the full value has been paid at home. This year, however, shows a change in the situation, buyers have in many cases been seriously weakened through losses of last year, and also the prospects are that British receivers will not make the liberal advances that have hitherto been given. Hence the only profitable outlook for the grower appears to be in direct exportation to foreign markets which has been the principal method for some years past for the disposal of the crop in Nova Scotia and the New England and New York States, and if Ontario growers will only educate themselves to the proper packing and exporting of their fruit there is no reason why their apples will not bring as much as those packed by exporters. The great essentials are honest packing, quick dispatch, sending as few varieties as possible in a shipment, and shipping only No. 1 fruit, and of course seeing that it is consigned to a reliable firm in the Old Country.

In this connection we have no hesitation in recommending Messrs. Woodall & Co., of Liverpool, who are the pioneer receivers in England, and since they have been directly represented in Canada have received a very liberal share of the Canadian business. Their standing is beyond question and shippers are sure of getting all their goods sell for, less the expenses. They are represented here by Mr. Eben James, Board of Trade Building, Toronto, who also represents receivers at other ports, and will give fullest information on enquiry, and see that shipments get best possible dispatch.

Reliable parties shipping to his firms will find it unnecessary to prepay freight.

"Milk Substitutes."

The enormous development of the butter and cheese industries in Canada, with the prospect of still further development, has considerably enhanced the value of new milk in the eyes of the farmer. A new market has been opened for his dairy products, and yet whilst this new field has added materially to the prosperity of the farmer, it has brought him face to face with a new difficulty.

How is he to rear his calves and take advantage of the opening which presents itself? One will readily see that only two courses are open to him; either he can feed his calves on separated milk alone, or a milk substitute can be used which will take the place of the cream.

In the case of those who send their milk to the cheese factories the need

\$100.00

PRIZE IN GOLD FOR A NAME

The Oxford Mfg. Co. will give prize of one hundred dollars for a name for a high class Laundry Soap they are about to place on the market. The conditions for competing for the prize are as follows:

Each competitor must enclose ten cents, together with the name they select, and mail them to the Oxford Mfg. Co., Toronto. By return mail they will receive a box of delicately perfumed, pure brand toilet soap for the complexion, or to those who prefer it we will forward a box of the best shaving soap in the world, "The Barber's Favorite."

The prize-name competition will close Oct. 20th. Address,

DEPT. "F"

OXFORD MFG. CO.
TORONTO.

APPLES FOR EXPORT

All desirous of exporting apples to the British markets will be furnished with reliable information by writing

EBEN JAMES

Board of Trade Building, Toronto, Canadian Agent for

Woodall & Co., Liverpool
Boyd, Barrow & Co., Glasgow
W. Isaacs & Sons, London

Proceeds advised by cable; day of sale remitted same night from Toronto.

ROCK SALT



For Cattle and Horses.

TORONTO SALT WORKS

ADELAIDE ST. EAST, TORONTO



LIVE STOCK MEN

Call and see us when in the city during the Industrial Fair in regard to your

ENGRAVINGS

We will be pleased to show samples and quote prices.

MOORE & ALEXANDER

16 Adelaide Street W., Toronto

LAND FOR EVERYBODY

Free Grants of Government Lands

Cheap Railway Lands for Sale on Easy Terms
GOOD SOIL - PURE WATER - AMPLE FUEL

Take your choice in

ALBERTA, ASSINIBOIA, SASKATCHEWAN OR MANITOBA

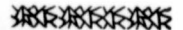
Most desirable land can be obtained in the BEAVER HILL District and along the line of the Manitoba and North-Western Railway. In the PRINCE ALBERT, DUCK LAKE and SOUTHERN Districts, on the line of the Qu'Appelle, Long Lake and Saskatchewan Railway. In the GOLD District, along the line of the Calgary and Edmonton Railway, about fifty miles north of Calgary. In SOUTHERN ALBERTA, in close proximity to the Calgary and Edmonton Railway and the Crows Nest Pass Railway, suitable for Mixed Farming and Ranching on both a large and small scale.

For full information concerning these Districts, Maps, Pamphlets, etc., FREE, apply to

OSLER, HAMMOND & NANTON,

Land Office, 381 Main St., Winnipeg, Man.

"MODEL" SLEEVE BOARD

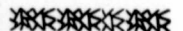


U. S.

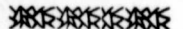
SPECIALTY CO.

Toronto, - Ontario

CANADA



Sample by Express poc.



Agents wanted

JUST WHAT SHE HAS WANTED FOR A LONGTIME

for a milk substitute is probably greater than where it is delivered to the creameries. Whey only is available for the rearing of the young stock. Care should be taken that the whey is as sweet as possible, and the vessels in which it is fed should be scalded daily so as to be free from any taint.

It is well known that the cream of the milk contains a large proportion of the most valuable, and also of the most nourishing material so essential to the well-being of young calves; if this be taken away and no adequate substitute supplied, the calf will suffer for want of proper nourishment.

Rome was not built in a day, and to produce a reliable and satisfactory milk substitute requires a large amount of experimental observation, involving much time and expense. Messrs. J. Bibby & Sons, of Liverpool, are introducing into Canada their Cream Equivalent, which is the result of many years of careful experimenting on their own experimental farm, and we would advise farmers to give it a fair trial. It is used in England very extensively, and has met with universal approbation.

A little information on the proper use of milk substitutes may help to

A NEW IDEA.—How to obtain a beautiful Silver Set, Parlor Clock, Silk Umbrella, Fancy Rocker, or Kodak Free. Goods guaranteed to be worth \$5 to \$6 each. Send 2c. stamp for particulars. **The Great Idea Co., Clearfield, Pa.**



HORSE MARKET

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We want a capable man with a knowledge of Soil, Physics, and Agricultural Chemistry, to travel. Must have practical knowledge of farming, or ex-student of Guelph College.

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The Display of Goods Outside Our Factory

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Though not able to exhibit on the Grounds this year, owing to the stress of business, we are represented there by 55 of the principal buildings which are covered with our Steel Shingles. They were chosen because of their unquestioned superiority.

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For further particulars apply to the nearest Canadian Pacific Agent, or to
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Patent Foot and Lever Drive.	No.	HOLDS	CHURNS
Patented Steel Roller	0	6 gal.	1 to 2 gal.
Bearings.	1	10 "	1 to 5 "
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	3	30 "	3 to 9 "
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Improved Steel Frame	5	30 "	6 to 14 "
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Makers of these articles, in many instances, do not pay the necessary attention to the quality of the salt they use. Some people think that "salt is salt," and it does not matter where it comes from or who makes it. This is a great mistake, for it is essential that to produce the best Butter or Cheese nothing but the purest salt should be used.

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Interchangeable parts, detachable brass ball valves, strainer, compensating plunger, mechanical dash agitator adjustable to any size of barrel, fitted with the best accessories, drip guard, brass lined bamboo extension. Absolutely guaranteed to apply oil and water paints, crude oil and kerosene emulsion with water (thereby doing away with the old style oil emulsion). Formula supplied with each machine.

Don't confound the SPRAMOTOR with a common Spray Pump. It is essentially different.

The Spramotor was awarded First Place at the Government Spraying Contest, held at Grimsby, by the Department of Agriculture of Ontario.

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save some from making expensive mistakes in feeding them.

A calf should always be fed for the first week on the mother's milk, as the first milk of the cow is necessary for clearing the bowels and starting the digestive functions. After this time the supply of whole milk may be gradually diminished, and skim or separator milk with a small quantity of the milk substitute added. Increase the quantity of the mixture of separated milk and milk substitute gradually at each feed, so that when the calf is a fortnight old the new milk has been altogether eliminated.

If a first-class substitute is used and skim-milk is scarce, the latter may be entirely neglected after the first month, the quantity of substitute being increased to compensate for it.

Where skim-milk is plentiful, however, it should be used, as better results can be obtained with than without it.

By this method calves can be reared just as effectively (and much more economically) as on new milk.

Canada and Dakota Cattle Co.

The International Cattle Company, whose prospectus appears elsewhere in this issue, seems to afford an opportunity for safe and profitable investment that rarely presents itself. The names of the Hon. John Dryden and Thomas Crawford, M.P.P., connected with any cattle organization are sufficient to give it a place and standing among the breeders of this country. The fact that they are so prominently identified with this new concern is a guarantee of its stability and genuineness. The other Canadians on the provisional board of directors are also men of repute in their respective spheres.

As the prospectus outlines, the company will conduct a ranching business in South Dakota. The tract of land secured is that of an old Indian reservation. There will be ample pasture for stock all the year round, and as the location is on the banks of a river there will be abundance of water. With these two requisites for profitable ranching, with a board of directors comprising several practical cattlemen and breeders, and with three leading American cattle markets only a few hours distant, the outlook for this new Canadian-American (Anglo-Saxon it might be called) company is very bright indeed. The company has already pur-

chased 2,000 yearlings, and will buy a number more later on. It is the intention to purchase a large number of Canadian bulls next spring for use on the ranch. We wish it every success.

Guelph Dairy School.

This well-known institution for the propagation of up-to-date dairy knowledge will open on Dec. 3 for winter dairy students. On January 2 the regular courses begin and will continue till March 22. Makers should write Prof. H. H. Dean, Ontario Agricultural College, Guelph, for the annual announcement giving full particulars.

A Deputation from the Shorthorn Breeders' Association will Visit the Maritime Provinces.

We were to-day informed that Mr. Henry Wade, secretary of the Dominion Shorthorn Breeders' Association and registrar of live stock, with Mr. John I. Hobson, president of the Dominion Shorthorn Breeders' Association, will visit the Provincial Fair of Prince Edward Island, which will be held at Charlottetown, opening on the 24th of September. These gentlemen should certainly visit the Halifax and St. John Exhibitions and arrange their trip accordingly.

Schools.

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Wishing to dispose of their property, will be furnished with terms and blank forms for description upon application by mail or in person. We make absolutely no charge for commission unless we effect a sale.

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A MAGNIFICENT DAIRY FARM AT a price that will astonish anyone; ½ mile to the station, churches and school; ½ mile to high school; milk is called for every morning and goes to a city of 300,000; cuts 60 tons hay; soil very rich; yield wonderful crops of grain and vegetables; very finest fruit that grows; a beautiful young orchard bears abundantly; pasture is the finest and ample for 50 head of cattle and 500 sheep; never-failing spring water; summer boarders gain in strength most wonderfully; many places of interest among the crystal lakes, which are near; only 3 miles to a famous summer resort; the buildings are in A1 condition; large barn, stone under all; comfortable house, 12 rooms and blinded; this is a farm to enquire about. Drop a post card to S. Grant, Confederation Life Building, and you will receive full particulars.

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only 3 miles from thriving village, 8 a-tion, 3 churches, and near many summer boarding houses; soil dark loam, quite level, free from stone, productive and in good state of cultivation; 35 acres of mowing and tillage, cuts 35 tons of hay; farm all fenced, mostly with wire; about 30 acres wood and timber, sugar orchard of 300 trees, sugar house and implements; buildings are in first-class condition, 1½-story house and L. painted and blinded; 4-light windows, nice cement cellar; barn 40x60, with basement, connected to L., clapboarded and shingled, has 14 tieups and 2 box stalls; \$1,000 has been expended upon buildings; place is on a fine road, can drive to village in 20 to 25 minutes; has lot young apple trees and fine for milk farm; car runs every morning and takes the milk from station; price only \$1,600, half cash. Truell's Real Estate Agency, Canaan, N.H., the only agency in N.H. where customers have no expenses from the time they leave the train until they go home; meet all noon trains, others by appointment.

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A Quebec Dairy Farm.

Rapids Farm, Lachine Rapids, Quebec, owned by Mr. W. W. Ogilvie, comprises 240 acres; 175 acres are under cultivation, laid out in fields of twelve acres to fifteen acres each, fenced with wire netting and surrounded with maple trees planted about thirty feet apart. As it was very much run down when Mr. Ogilvie took possession seven years ago, it was necessary to cultivate systematically with rotation of crops as follows: First year in grain, second year in roots, third year another crop of grain, seeded down, fourth and fifth years hay, and finally, one or two years in pasture, then repeat over again in same manner. It is manured with twenty-five to thirty tons per acre, well rotted, it is dumped in a large heap in the field, and during winter turned over. This serves the double purpose of killing all weeds and also enriches the manure.

The following are the quantities mixed to raise green feed: Two bushels oats, one-half bushel tares, one peck beans. This yields four tons per acre of splendid green feed, and harvested early this gives an opportunity to cultivate and clean the land of weeds. Being tile drained, the crops are put in from two weeks to three weeks earlier than those that have not their land underdrained.

As it is a dairy farm, a large herd of cows are kept, of which twenty-five head were imported in 1893, and another importation this summer of twenty cows, besides calves and two bulls, all pure-bred Ayrshires, direct from Scotland, the herd now forming in all sixty head. The public will have an opportunity of seeing some of them at the fairs in Toronto, London and Ottawa.

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Have you digging to do?

Take me home and see how I can help you

The best testimonial a man can have is to see the work done with his own eyes. This is your privilege during the Fair. What another man can do, you can do.

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has proved the most valuable and productive variety of winter wheat ever introduced in this State. It has long, well-filled heads and is an immense yielder. A 10-acre field this season averaged 40 bushels per acre. It has a bright stiff straw that stands up against storms like a reed, thus it never lodges. It has never been affected with rust and very little with the fly. It is an excellent milling wheat and gives general satisfaction. My seed is absolutely pure and clean. Price, \$1.25 per bushel; in lots of 10 and 20 bushels, \$1.10. Bags 15 cents extra. Remit by bank draft or express money order. Send 5 cents in silver for sample package. HERBERT F. CHILDS, Niagara Falls, N.Y.



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Sold under a positive guarantee to do all claimed for it or money refunded. We guarantee it to cook more feed and heat more water in less time, with less fuel and attention than any other cooker on the market. Made of galvanized boiler steel, thoroughly riveted. Uses any kind of fuel. You cannot blow it up. Used and endorsed by Ontario's Agricultural College, J. E. Brethour, D. C. Flatt, H. J. Davis, J. A. McDonald, Geo. B. Hood, and hundreds of the leading Canadian breeders.

Be sure and see the RIPPLEY in operation at the Toronto, Ottawa, and London Fairs. For circulars address

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GASOLINE ENGINES
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POINTS OF MERIT:

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FITTED WITH ROLLER BEARINGS, STEEL SHAFTING, and all that is latest and best in principle, material and construction.

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The materials used are the best.
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In buying a BELL you make no mistake; there are none better.
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The BELL ORGAN AND PIANO Co., Limited, Guelph, Ontario.

Catalogue No. 41 Free

The Champion



GRAIN GRINDER

Will be exhibited at all the principle fairs this fall. Our numerous friends and all those who have grain to grind are invited to call on us at the fairs.

S. VESSOT & CO.,

Sole manufacturers of the
Champion Grain Grinder Joliette, Que.

BRANTFORD STEEL WIND MILLS
19th CENTURY
GALVANIZED ROLLER BEARINGS
20th CENTURY
MY! WHAT A COMFORT THAT BRANTFORD MILL IS
POWER AND PUMPING MILLS, STEEL TOWERS AND FLAG STAFFS, IRON AND WOOD PUMPS, MAPLE LEAF GRAIN GRINDERS, BEE SUPPLIES


A Prince Edward Island Short-horn Herd.

Georgetown is known to commercial men as the winter port of the Island province, and sailors recognize its harbor as the best and easiest entered in the Gulf of St. Lawrence.

But to maritime cattle breeders it is chiefly known as having in its vicinity the old and good herd of Shorthorn cattle owned by Mr. Fred. G. Boyver. It is now over twenty years since this herd first made its victorious appearance at the Island Provincial shows, since which time it has steadily increased its character as a high-class herd, not only in the individual character of its members but also in their pedigrees, through repeated additions of animals of the most renowned tribes from such well-known breeders as Jas. I. Davidson, Balsam, Ont.; Arthur Johnston, Greenwood, Ont., and George Sheppard, Stetten, Scotland.

The oldest tribe on the farm is represented by Mollie, a massive, red, nine-year-old cow, a descendant of imported Easterville—155—. Rosedale—31442—a roan, is of the same tribe, sired by the "famous old Champion" of Ontario show rings, Challenge—2933. It is no surprise to find her a show cow, and the dam of prize winning stock. One of her sons is now at the head of the well-known Shorthorn herd of Senator Josiah Wood, Sackville, New Brunswick. Two red

cows of grand character and quality combined with great scale are Canadian Duchess of Gloster 23rd—24850—g. g. dam imp. Duchess g. 12th. Sire Duke of Lavender, imp.—1243—and Mina Mowbray—27042—, sire Indian Chief (imp.)—11108—. Grand dam imported Minerva—2205—of the favorite Mina tribe. These two cows were bred by and purchased from Arthur Johnston. Perhaps the plum among the females of the herd is imported Rosemary 125th, bred by George Shepherd, Shelten, Tarves, Scotland. She is a marvel of thickness round, smooth, short legged. She belongs to a grand old tribe, "famous for their great fleshing qualities as well as their dairy propensities." They have produced many show animals in England and Scotland. This fine young cow was the first of the tribe to cross the Atlantic, but of late they are favorites on this side of the pond. Rosemary 201st, a near relative of this one, selling for \$825 at Henry, Il-



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possess accuracy and endurance under all conditions and in all degrees of temperature.
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OXOL

**Fluid
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CONCENTRATED FOOD PREPARATIONS

Have superseded all similar preparations on account of their superior nourishing properties and excellent flavor. By the use of OXOL the invalid rapidly gains health and strength; the strong gain increased vitality and power of endurance.

It is so delicate in flavor that it can be relished and retained by the weakest invalid, and infants thrive and grow strong and healthy by its constant use.

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Oxol Fluid Beef Co.

Montreal, Que.

Illinois, U.S., last October. Space forbids reference to the interesting collection of young things produced by these and other undescribed tribes, and sired by that prince among Shorthorn sires, the white Silver Chief—20500—bred by Arthur Johnston, sire Indian Chief (imp.), dam imported Mimoya, of the noted Mayflower tribe. It is hard to find a bull with more Cruickshank blood in his pedigree than this white bull, and when looking at him and examining his sons and daughters the well-informed visitor is tempted to exclaim, "What fools those Shorthorn breeders are to be led by ignorant prejudice, and forget the claims of the white Shorthorn as the founder of the breed!" of which undoubtedly White Favorite (252) was. Be that as it may, Silver Chief, now six years old, has been in the show ring since as a calf he was first at Montreal and Sherbrooke, Que., first as a yearling, two and three year at "Provincial," P.E. Island, and headed the first prize herd each year. As a four and five year old he was awarded first prize at provincial shows at Halifax, N.S., and St. John, N.B., and also each year at both shows the "Dominion Shorthorn Breeders' Sweepstakes" for best bull, any age. As his sons and daughters at all these shows for the last four years have been awarded many firsts, it is easy to see that he is a success in the stud as well as in the ring.

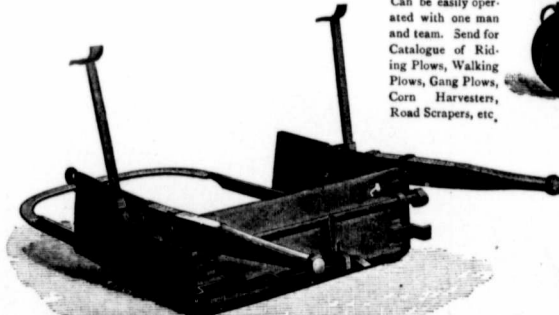
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THE ONTARIO AGRICULTURAL COLLEGE will re-open September 14th. Full courses of lectures with practical instruction suited to young men who intend to be farmers. Send for circular giving information as to course of study, terms of admission, cost, etc.

JAMES MILLS, M.A., President.
Guelph, July, 1900.

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For Maple Syrup and Sugar

Has a corrugated pan over firebox, doubling boiling capacity and saving fuel; small interchangeable syrup pans (connected by siphons), easily handled for cleansing and storing, and a perfect automatic regulator, which secures rapid and shallow evaporation, and produces the best quality of syrup. The Champion is a perfect evaporator for Sorghum, Cider and Fruit Jellies.

CHAMPION Fruit Evaporator

Cut shows size for Cooking Stove

Dries all kinds of Fruits and Vegetables. Produces a superior quality of clean, white fruit. It is made of galvanized iron, is fireproof and portable.

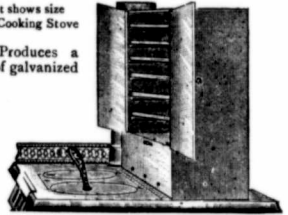
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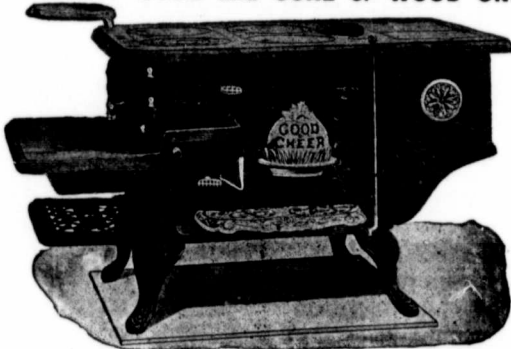
The G. H. GRIMM M'FG CO.,

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STEEL PLATE OVEN COOK

::: For WOOD and COAL or WOOD ONLY :::



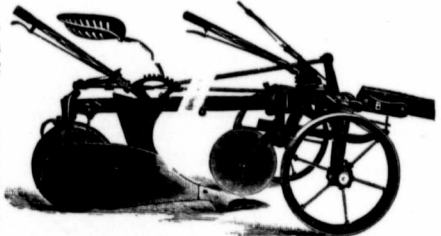
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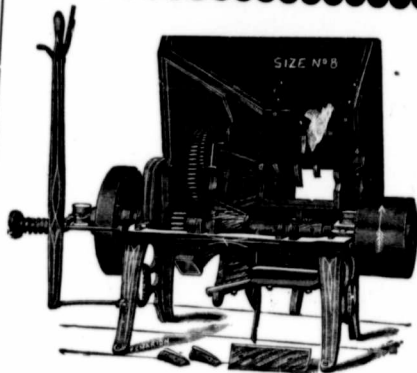
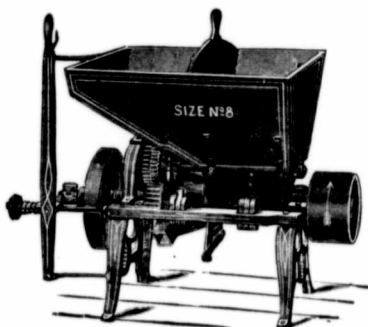
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Ontario Riding Plows

This Plow has a lighter draft than any plow doing the same work. Will do all the work that can be done by any other riding or walking plow and can be run by any boy who can drive a team.

The Perrin Plow Co. of Smith's Falls, Limited



Combined Grain and Corn Cob Grinder. Top of hopper is 3 ft. from the floor, can supply elevator.

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Terrebonne, Quebec

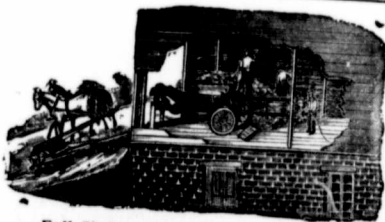
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Our Machines are known in every Province of Canada and under a severe test have given the best of satisfaction. We would call special attention to our TREAD POWERS, which are made to last and to develop the greatest possible amount of power.

We guarantee all the statements in our Catalogue which will be mailed on receipt of your name. It will pay you to correspond.



3-Horse Tread Power.



Full Circle Steel Hay Press at work.

Matthew Moodie & Sons,
TERREBONNE, QUEBEC.

PURE-BRED STOCK

NOTES AND NEWS FROM THE BREEDERS

These columns are set apart exclusively for the use of breeders of pure-bred stock and poultry. Any information as to importations made, the sale and purchase of stock and the condition of herds and flocks that is not in the nature of an advertisement, will be welcomed. Our desire is to make this the medium for conveying information as to the transfer of pure-bred animals and the condition of live stock throughout the country. The co-operation of all breeders is earnestly solicited in making this department as useful and as interesting as possible. The editor reserves the right to eliminate any matter that he may consider better suited to our advertising columns.

Horses.

Mr. Ness is getting seven imported Clydesdales into condition for the Exhibitions. They will be very hard to beat.

Cattle.

Mr. Arthur Johnston, of Greenwood, Ont., has recently returned from Scotland, where he purchased 29 head of very superior short-horn cattle, of the most desirable strains of breeding, including Cruickshank, Brawith Buds, Secrets and Orange Blossoms, Mar Goldies, Kilblean Beauties, Kinella Nonpareils, Fair Queens and Jessamines, Sheehin Rosemaries, Inverquahemy Rosewoods, Dalkeith Cherries and Inglewood Madalines; as well as representatives of other equally famous tribes. Through all these well-known standard families, Cruickshank blood greatly preeminent, with a very liberal admixture of Dutchie and Marr blood.

These cattle have been selected with great care by Mr. Johnston himself as much for their individual merit, as for their excellent breeding, and will be found equal, in every respect, to the very best cattle ever imported by him, and as many may not be aware, it may be stated that Mr. Johnston made his first importation of Shorthorn cattle in 1874, and he has been the steadiest importer of shorthorns in America since that date.

In the lot are 8 young cows suckling calves, 4 two-year-old heifers, 4 yearling heifers, 6 heifer calves, 1 three-year-old bull, 3 yearling bulls and three bull calves. As is usual with Mr. Johnston, he is prepared to sell the lot or any portion of them.

Our advertising representative was very kindly entertained while on a visit to the farm home of Wm. Wylie, Howick, Que.

Mr. Wylie's herd of thoroughbred Ayrshire stock deserves the highest praise. The noted cow, Nellie Osborne, second winner of sweepstakes at Ottawa last year, is still in this herd. Her calves will certainly be hard to beat at the coming shows.

Mr. A. C. Hallman, New Dundee, Ont., writes:—"My herd of Holstein-Friesians were never in better shape, and show what careful breeding and mating does. They are a smooth lot, full of quality and are doing nobly at the pail. This is no more than should be expected where nothing but the fittest survivors, and the best-bred bulls of exceptional quality have been used since the foundation of the Spring Brook herd was laid. My last herd bull, Judge Akkrum De Kol 3rd is an animal of rare quality, combining all the most noted families in one animal, and for individual excellence his equal never stood at Spring Brook. His stock is just like him, and I am free to say I never had any better calves than this year. If he would be exhibited this year he would make it pretty interesting for the best of them."

Mr. Wm. Willis, Pine Ridge Farm, Newmarket, Ont., writes: "My stock are doing very well, and my heifers are doing grandly. I think I could show some. Mr. Rolph was at my place last week, and he told me to go to the fair at Toronto. I was thinking some about going, but gave it up, and now I suppose it is too late. Brownie of Pine Ridge, is a very fine heifer is 3 years old, and has a splendid udder, and is giving forty pounds of milk per day. Brittle of Pine Ridge, by 200 per cent., is another fine large 3-year-old, with a very fine show udder. Mima of Pine Ridge, 3 years old last April, came in in April, and gave when she got on grass 45 lbs. per day. She is a daughter of St. Lambert's Florence, which gave 10,000 lbs. of milk in the milking season of 10½ months last year. I have another one-year-old from Florence which promises to be as good as Mima. I have some nice yearling heifers, with the right kind of

breeding for butter cows. Our cows are doing well this summer only the flies are so bad, the horn fly never worse. The young bull, Count of Pine Ridge, I bought of Wm. Rolph for a stock bull is developing into a very fine specimen of a St. Lambert. He is a grandson of the great Adelaide of St. Lambert, who gave 82 lbs. of milk per day, and the young calves coming now from him are a very even lot showing lots of quality. I have to dispose of two very fine young bulls, 10 months and a year old from St. Lambert cows, whose sire was 100 per cent., and should be very serviceable to anyone wanting such stock. My sales have been fairly good considering the boom there has been in shorthorn cattle lately."

The bulls offered by H. C. Graham in this issue are in colors red and red with a little white and range in age from 11 to 16 months. They are descended from prize winners and good milking stock. Any one wanting good bulls in working condition should see these.

Sheep.

The success of the Belvoir flock, the property of Rich. Gibson, Delaware, Ont., at the fat stock shows has been phenomenal, and this is a true test of the real worth of a flock, for after all, the ultimate results are the flock report; whether for good or bad.

In 1885 were shown at the National Live Stock Show of America, at Madison Square Gardens, four sheep. They won 1st for ram lambs, 1st and 2nd for wether lambs, and sweepstakes for best wether lambs in show, any breed or grade.

In 1895, at Guelph 1st for wether, 1st and 4th for wether lambs, 1st for pen and three lambs.

In 1896, at Madison Square Gardens, five sheep were shown, and won 1st for shearing wether, 1st and 2nd for wether lambs, 1st for pen of three lambs.

At Guelph, 2nd for shearing wether, 1st, 3rd and 4th for wether lambs, 1st for pen and three lambs.

Messrs. Alfred Mansel & Co., of Shrewsbury, shipped per the Elder, Dempster Line from Avonmouth on the 3rd inst., 3 beautiful Dorset ewes selected from the flock of Mr. L. C. Attrill, of the Isle of Wight, two of which were Reserve No. (or 3rd place) at the Royal Show, and another somewhat smaller ewe which Mr. Attrill considered one of his best, but which had not been previously shown. These were shipped to the order of Mr. R. H. Harding, of Ontario.

Swine.

Mr. A. C. Hallman, New Dundee, Ont., writes:

Owing to a trip to the West, to Winnipeg Exhibition to judge dairy cattle, so much of my valuable time was required at a busy season and at a time when show stock needs such close attention, that I have decided not to exhibit my Tamworth this fall and rest on laurels won other years. I regret not being able to meet in competition and to receive a call from my numerous friends at exhibition time. My herd of Tamworth are in grand form, with many animals of special merit just in breeding condition, which is all the better for the coming litters. I have a fine lot of sows bred to my imported boar British King, which was an easy First at Toronto last fall, and which has proved himself a remarkably fine getter of the proper type of bacon hogs. It will be well for intending purchasers to remember that many of the best animals are never brought into a show ring, and can be secured for less money direct from the farm. I have a full line of stock of all ages and can supply the most particular. My herd is full of previous winners, and if brought out this year would have been crowned with many honors.

Don't Guess At Results.



This man knows what he did and how he did it. Such endorsements as the following are a sufficient proof of its merits.

Oshawa, Minn., Feb. 22, 1898.
Dear Sirs:—Please send me one of your Treatise on the Horse, your new book as advertised on your bottles, English print. I have cured two Spavins and one Curb with two bottles of your Kendall's Spavin Cure in four weeks.

FRANK JURERIEEN.

Price, \$1; six for \$5. As a liniment for family use it has no equal. Ask your druggist for KENDALL'S SPAVIN CURE, also "A Treatise on the Horse," book free, or address
DR. J. B. KENDALL CO., ENOSBURG FALLS, VT.

Quick Cure For Lump Jaw

Not one case in a hundred that cannot be cured by one to three applications of



Fleming's LUMP JAW CURE

Trade Mark Reg'd.

Lump Jaw has heretofore baffled treatment. It has infected herds and pastures, and caused loss of hundreds of thousands of dollars. This new remedy cures quickly, thoroughly, and permanently. Leaves jaw smooth and sound. Easy to apply; costs but a trifle compared with results.

GUARANTEE—Every package sold under positive guarantee; money back if it should ever fail to cure.

Sent everywhere by mail, Price, \$2.00.

FREE A valuable illustrated treatise on cure of Lump Jaw sent free to readers of this paper.

Address: **FLEMING BROS.**

Chemists, ST. GEORGE, ONTARIO



Canada and Dakota Cattle Co.

LIMITED

To be incorporated under the Ontario Companies' Act, with

SHARE CAPITAL - - - \$400,000

DIVIDED INTO 4000 SHARES OF \$100 EACH, AS FOLLOWS :

8 Per cent. Preference Stock, \$150,000

Ordinary Stock, \$250,000

—BOARD OF DIRECTORS—

President—HON. JOHN DRYDEN, Minister of Agriculture for Ontario, Toronto.
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Secretary-Treasurer—J. A. RITCHIE, Toronto.

Bankers—Union Bank of Canada, Toronto.

Counsel—MESSRS. MILLAR, FERGUSON & HUGHES, Toronto.

The Canada and Dakota Cattle Company has been organized for the purpose of buying and raising cattle on the free grazing lands on the White River in South Dakota. This grazing land is amongst the most desirable on the continent. The supply of grass is practically unlimited, and its quality is said to be superior to that of any other section, being part of the great Buffalo Range of years ago. The White River furnishes abundant water, and the natural formation of the country and splendid timber in the valley provide ample shelter. The winter frosts are occasionally somewhat severe, but the air is dry, and the cattle continue to graze upon the old grass throughout the winter. It is only at rare intervals that any depth of snow is seen. Old settlers declare that in only one year out of twenty-five or thirty have they seen continuous snowstorms which would be likely to interfere with grazing. Hay is very plentiful and costs about \$1 per ton, and it is thought advisable to secure a large quantity this season, the crop being one of the finest ever grown in that section. With plenty of hay on hand the cattle could be fed and sheltered readily throughout any storm that might come during the winter.

The company has bought the Grace Howard Ranch, which is considered one of the best water fronts and ranching premises on the White River. In addition to this, options have been taken on other water fronts.

This territory was, until a few years ago, an Indian reserve, and since it has been opened for free grazing it has been occupied only by small ranches. No other large ranching company has been organized to graze on these lands, and on this account this company will practically control all the grass in that territory.

The ranch, which is distant only 48 hours' travel from Toronto, is situated about thirty-five miles south-west from Chamberlain, the terminus of the Chicago, Milwaukee and St. Paul Railway. From Chamberlain to Chicago stock is conveyed in about 26 hours, and to Omaha in about half that time. In addition to these, two of the greatest cattle markets in the world, there is also Sioux City, 200 miles distant, which is rapidly coming to the front as a cattle market, two of the largest packing plants on the continent having already established branches there. The advantage of reaching so near these great cattle markets must be apparent to all.

A very careful investigation of all the conditions surrounding the enterprise has been made by Messrs. Dryden and McLaughlin, who spent some time on the ranch and in the adjoining country. A careful and conservative estimate of the profits for the first ten years, prepared by these gentlemen, is as follows :

EXPENDITURE.		RECEIPTS.	
46,000 Steers, purchased at \$20 each.....	\$920,000	27,714 Four-year old steers, sold at \$50 each	\$1,385,700
1,000 tons of hay, yearly, at \$1.50 per ton.....	15,000	On hand at end of 10 years	
Expenses of Management, \$5,000 per year.....	50,000	5,000 Yearlings at \$20 each.....	100,000
		4,750 Two-year-olds at \$30 each.....	142,500
		4,607 Three-year-olds at \$40 each.....	184,280
	\$985,000		
		BALANCE	\$827,480.00
			\$1,812,480

A sum which, after returning the original capital to share-holders, is sufficient to pay the fixed interest on the preferred stock and about 22 per cent. annually on the common stock.

In making this estimate 5 per cent. annually is allowed for the loss of cattle, a rate almost double the average loss in South Dakota for the past ten years, and the weights of the finished cattle and the price estimated are about 25 per cent. under the average weight of such cattle and the price prevailing at present.

With the exception of the necessary expenses in obtaining the charter, the money realized from the subscriptions will be invested judiciously in young cattle and hay and in the acquirement of additional river front.

Ranching has been very profitable for many years, and the conditions under which this company has been organized are such as to fully warrant the belief that it will meet with great success financially. The actual management of the ranch will be in charge of Mr. Frank Forde, of South Dakota, who has had a long and very successful experience in the cattle business. Mr. Forde has invested \$5000 in the stock of this company. It would be hard to find a more secure or profitable investment for capital than the purchase of young cattle for the purpose of free grazing. With small expense they rapidly grow into great value, and bankers and others look on the security of good cattle as of a very satisfactory nature. Then, there is also the question of breeding cattle, which is specially understood by Mr. Dryden, from a long experience.

While this plan of ranching is attended with more risk than the buying of yearlings each year, it is a very profitable plan, and under proper management has some advantage over the other. It is the intention of the company to consider the question of breeding later on.

In addition to the profit on the cattle, a large profit is expected from the increase in the value of land acquired by the company ; in fact, the land profits will be a very considerable factor in the general results of the business, but in the estimate no profit on land has been taken account of.

Subscription Books are now open at the office of the undersigned

For 500 Shares of \$100.00 Each at Par, \$50,000.

Eight per cent. preference stock carrying cumulative dividends, preferential as to dividends and assets, with one share of common stock as bonus with each preferred share, payable 20 per cent. on allotment, 10 per cent. on the first day of each of October, November, December, 1900, and 50 per cent. on July 1, 1901, with the privilege of making prepayment of any or all instalments at any time.

Subscription forms may be had on application.

J. F. McLAUGHLIN, Board of Trade Building, Toronto.

Subscriptions will be received for one share and upwards

Market Review and Forecast

Office of THE FARMING WORLD,
Confederation Life Building,
Toronto, Sept. 1, 1900.

The prospects for fall trade are generally bright, though there is a little too much speculation in some circles, which bodes no good. Money is quiet but steady at 5 per cent. on call and discounts at 6 to 7 per cent.

Wheat.

The situation, generally speaking, shows little change. The exaggerated reports regarding the destruction of the spring wheat crop in the Northwestern States turn out to be false. A very good crop is being harvested. Bad harvesting weather is injuring the crop in some European countries, particularly in France, where heavy rains have prevailed for some time.

As regards the last statistical returns, the visible supply of wheat in the United States and Canada increased 205,000 bushels to 49,966,000 bushels, as compared with 34,696,000 bushels a year ago, showing an increase of 15,270,000 bushels. The world's total amount of wheat in sight shows a decrease of 355,000 bushels on the week, and an increase of 14,230,000 bushels as compared with that of a year ago.

The market shows little change. No. 1 Manitoba hard is quoted at Fort William at 79 to 80c. alfalfa. New red winter wheat is reported selling west of Toronto at 65 to 66c. to millers. The demand here is better at 65½ to 66c. for new and 67½ to 67c. for old west. On Toronto farmers' market red and white bring 70 to 71½c., spring fife 71c. and goose 67 to 69c. per bushel.

Oats and Barley.

Oats are quiet. The new Ontario crop is said to be very good, new being nominally quoted at Montreal 28 to 29c. alfalfa. The market here is steady at 27c. for old west and 24c. for new and 25c. for new east. On farmers' market oats bring 31½ to 32c. per bushel.

Barley is slow and there is likely not to be much of first quality to sell. Quotations here are 35c. for feed, 37c. for No. 3 and 39c. for No. 2 west. On Toronto farmers' market barley brings 43½c. per bushel.

Peas and Corn.

Peas are quiet. The market here is easier at 57½c. west. On farmers' market they bring 59½c. per bushel.

Corn dropped a cent at Chicago yesterday. Canadian yellow is quoted here at 41c. west and No. 3 American at 48½c. Toronto.

Bran and Shorts.

Ontario bran is 50c. higher at Montreal where quotations are \$14 to \$14.50 for bran and \$16 to \$18 for shorts. City mills here sell bran at \$13.50 and shorts at \$16 in car lots f.o.b. Toronto.

Eggs and Poultry.

The present prices for eggs are not considered very profitable for receivers and there is a tendency to hoist prices too high in the country. P. E. Island eggs sell in Montreal at 12½ to 13c. The general price for candled stock there is 13 to 14c., while small lots sell to the local trade at 16 to 17c. for choice quality. Our exports of eggs this season to date show an increase of 87 per cent. as compared with the same period last year. New-laid eggs are scarce here and bring 13½ to 14c. in large lots. Other quality brings 12½ to 13c. On Toronto farmers' market new laid bring 13 to 16c. per dozen.

On the farmers' market here chickens bring 50c. to \$1 per pair, ducks 65c. to \$1 per pair, and turkeys 10 to 12c. per lb.

Fruit.

The fruit market generally is quiet. Apples are coming in more plentifully at Montreal, but the demand has been slow. Early varieties sell in a jobbing way at \$1 to \$1.40 per barrel. Canadian peaches sell for 60 to 70c. per basket for Crawford's. The Toronto market has a better tone and receipts have been only moderate. Apples bring \$1 to \$1.50

per barrel. Crawford peaches 60 to 75c., yellow quality 40 to 60c. per basket. Pears bring 20 to 40c. per basket.

Hay and Straw.

The hay market keeps steady. Prices at Montreal are \$8 to \$8.50 for No. 2 quality.

Supplies are reported in Britain to be scanty and this coupled with the smallness of the new crop in Canada may bring high values later on. Baled hay is steady here at \$9 to \$9.50 for cars on track. On Toronto farmers' market hay brings \$11 to \$12.50, sheaf straw \$10.50 to \$11 and loose straw, \$4 to \$5 per ton.

Cheese.

There has not been any radical change in the cheese situation since our last issue, when we reported a decline in prices of ¼ to ¾c. per lb. At the lower range of prices, however, a fair business has been done, sales on Montreal market having transpired to the extent of about 15,000 boxes at 10¼ to 10½c. for finest western, and 10½ to 10¾c. for finest eastern, and at 10 to 10¼c. for undergrades. Holders, however, are asking a fraction over the above figures. The fall make now in progress in this province as well as in Quebec is not believed to be as large as some have endeavored to make out.

At the local markets a little better tone was noticed towards the end of the week. At Brockville on Thursday there was an advance of ¼ to 10½c. for white and colored. Quotations at most markets range from 10½ to 10¾c.

Butter.

The Trade Bulletin's summary of the butter trade of the week is as follows:

"The market is weak and fully ¼c. lower than on Thursday last, when choicest creamery sold at 22c. for several large lines. A lot of choice creamery sold at 21½c. yesterday, and a still fancier lot was offered on the market this morning, and all it would realize was 21c., while another fancy lot sold at 21¼c., and we quote 21c. to 21¼c. as top figures, although it is doubtful if a large line would bring the outside figure this afternoon. Exporters have been advised to stop buying, and one shipper has been instructed to sell on this market by his English house. Local account 21c. to 21¼c."

Creamery is steady here at 23c. to 24c. for prints and 22c. to 22½c. for tubs. Choice butter is in light supply, choice dairy rolls being quoted at 19c. to 21c., pails at 18c. to 20c. and tubs at 17c. to 19c. per lb. On Toronto farmers' market butter brings 20c. to 25c. per lb. in lb. rolls.

Cattle.

The cattle market is, generally speaking, a little quiet, though prime exporters and butchers' are in good demand. Cables have been steady. At Chicago on Thursday good prime steers sold at \$5.65 to \$6.20 per cwt. The run of live stock at Toronto market has not been large, and the quality offering is not of the best. Few good exporters are coming forward and seemingly few are wanted, but good prime butchers' cattle are scarce and wanted.

Export Cattle.—Choice lots of these bring \$4.85 to \$5.10, and light ones \$4.25 to \$4.50 per cwt. Heavy bulls are worth \$4.12½ to \$4.25, and light ones \$3.12½ to \$3.35 per cwt. The bulk of exporters sell for \$4.65 to \$5 per cwt.

Butchers' Cattle.—Choice picked lot of these weighing 1,000 to 1,100 lbs. each bring \$4.55 to \$4.70. Good cattle \$4.20 to \$4.60. Medium \$3.95 to \$4.10, and inferior to common at \$2.75 to \$3.40 per cwt.

Feders.—Few of this class are coming forward, and well-bred steers, 1,000 to 1,150 in weight, are worth \$3.40 to \$4.25 per cwt. Light steers, 700 to 900 lbs. in weight, bring \$3.25 to \$3.35 per cwt.

Stockers.—Yearling steers, 500 to 600 in weight, suitable for the Buffalo trade, sell at \$2.25 to \$3 per cwt., and other qualities of the same weight at \$2 to \$2.25 per cwt.

Milk Cows.—These bring from \$30 to \$45 each as to quality.

Calves.—There continues a fair demand at Buffalo for good veal calves. At Toronto they bring from \$3 to \$10 each.

Sheep and Lambs.

The Buffalo market has ruled higher all week for good lambs and dull and lower for culls and common lots. Sheep have also ruled dull there. At Toronto market prices remain steady at \$3.75 to \$3.90 for ewes and \$2.75 to \$3 per cwt. for bucks. Spring lambs sell for \$2.75 to \$3.75 each.

Hogs.

The bacon hog market is 25c. lower, select bacon hogs selling for \$6 per cwt. and thick and light fats for \$5.25 per cwt. Unculled car loads sell for \$5.85 per cwt. The packers are complaining of too many unfinished hogs of soft quality being marketed and warn drovers against shipping such.

At Montreal the market is quiet at \$6 for bacon hogs and \$5.75 for heavier averages.

Improved U.S. Triple Current Cream Separators

Man. by VERMONT FARM MACHINE CO., Bellows Falls, Vt.

Exhibit near Main Entrance, Toronto Industrial Exhibition.
Don't fail to examine these machines.

THE EUROPEAN EXPORTERS' ASSOCIATION

OF TORONTO, Limited.

An Organization Formed for the Protection of Canadian Shippers.

Head Offices: McKinnon Building, Toronto.

EDWARD STILL,
Manager in England

HON. G. W. ROSS, LL.D., M.P.P.,
President

ERNEST HEATON,
Manager in Canada

The Association is prepared to undertake the following services on behalf of consignors of apples, eggs, poultry and all kinds of fruit and produce—

1. To recommend a reliable Consignee at each port.
2. To arrange freight contracts and effect insurances upon shipments.
3. To give attention, through its agents at ports of shipment, to the proper storage and prompt transportation of such consignments.
4. To have goods inspected when claims are made by consignees, either for damage in transit, or for alleged non-compliance with contract, and to report thereon.
5. To investigate any complaints and report.

Consignors making small shipments under the auspices of the Association can, by co-operation through the Association, receive all the advantages which can usually be commanded by large shippers only.

Those who desire the protection of the Association are requested to write at once to the Head Office of the Association, at Toronto, for list of apple receivers, list of sailing dates and instructions for grading and packing of fruit for export.

APPLE SHIPPERS

The *Trade Bulletin's* London Cable of Aug. 30th *re* Canadian bacon reads thus: The market is weak and 2s lower under larger offerings of the home product. No. 1 Canadian is quoted at 54s and 55s.

A Commendable Enterprise.

Special attention is directed to the announcement of the European Exporters' Association on the market page of this issue. They are undertaking a new line of work that cannot but be of very great value to the producers of fruit and produce. Their special mission is the protection of the consignor and finding him a reliable commissioner in each of the leading cities of Britain, who will handle his product. To secure this advantage shipments should be made under the auspices of the association. We will have more to say as to this enterprise in a later issue.

Do Not Miss It.

The Wilkinson Plough Co., Limited, Toronto Junction, whose announcement adorns the outside front cover of this issue is one of Canada's most reliable agricultural implement manufacturers. Their goods are known from one end of the Dominion to the other. Visitors at the Fair who have a couple of hours to spare cannot do better than accept their kind invitation and pay their large establishment at the Junction a visit.

Ravages of Consumption

White Plague on the Increase.

A Cure Now Within the Reach of Every Sufferer.

DR. SLOCUM the famous scientist, whose lectures and demonstrations in New York and London this season have astounded medical circles, has at last perfected his new system of treatment for the absolute cure of tuberculosis and all pulmonary diseases. This triumphant victory over the deadly bacilli is far reaching in its effects, for there is no longer room for doubt that the gifted specialist has given to the world a boon that will save millions of precious lives. Dr. Slocum's system of treatment is both scientific and progressive, going as it does to the very source of the disease and performing the cure step by step.

First Step.—Killing the life destroying germs which invest the body.

Second Step.—Toning the entire system and strengthening the nerves—filling the veins with tingling new life.

Third Step.—Building healthy flesh and fortifying against future attacks.

The Slocum system cures grip and its painful after effects, dangerous coughs, bronchitis and every known form of pulmonary disease.

It makes weak lungs sound, strengthens them against any ordeal, and gives endurance to those who have inherited hollow chests, with their long train of attending dangers. To enable despairing sufferers everywhere to obtain speedy help before too late, Dr. Slocum offers

FULL FREE TREATMENT

To every reader of this paper.

Simply write to **THE T. A. SLOCUM CHEMICAL CO., 179 King St. West, Toronto, Ont.**, giving post office and express office addresses and the free medicine (The Slocum Cure) will be promptly sent. Sufferers should take instant advantage of this generous proposition, and when writing for them always mention this paper. Persons in Canada seeing Slocum's Cure offer in American papers will please send for samples to the Toronto laboratories. Let no previous discouragements prevent your taking advantage of this splendid free offer before it is too late.

The RANKIN FENCE

Is a Coiled Spring Wire Fence containing all the latest improvements. Is easily and rapidly erected without any expensive tools or previous experience.

All particulars in our catalogue, write for it.

AGENTS WANTED

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275 St. Martin St., Montreal.

Progressive people Use It

Cheese and Butter makers who want the last cent out of their product use

Windsor Salt

Produces better article; brings higher price. Pure, economical to use.

THE WINDSOR SALT CO., LIMITED
WINDSOR, ONT.

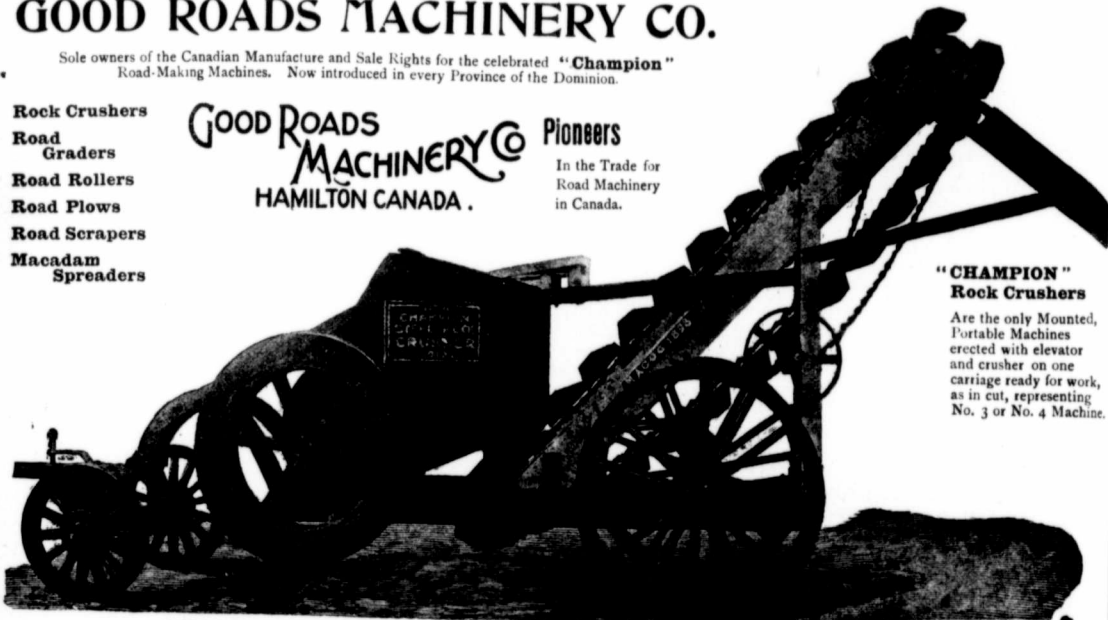
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Sole owners of the Canadian Manufacture and Sale Rights for the celebrated "Champion" Road-Making Machines. Now introduced in every Province of the Dominion.

Rock Crushers
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GOOD ROADS MACHINERY CO. Pioneers
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"CHAMPION" Rock Crushers

Are the only Mounted, Portable Machines erected with elevator and crusher on one carriage ready for work, as in cut, representing No. 3 or No. 4 Machine.

THE BEST MOUNTED PORTABLE ROCK-CRUSHING OUTFIT MANUFACTURED

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Good Roads Machinery Co. (Registered) - John Challen, Manager. - **Hamilton, Ont.**

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THIS CUT SHOWS ONE OF OUR

Canadian Steel Airmotors

ON AN UP-TO-DATE BARN.

Do you notice how neat the appearance is and how graceful it is?

It is full of business.

Let the lever go and the Barn Machinery will hum.

It is the CHEAPEST POWER



Our Windmills are

Built to } The Weather
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INVESTIGATE before you buy, and do not swallow the misrepresentations of opposition agents who are unscrupulous in their statements.

Our goods are well known from the Atlantic to the Pacific.

PUMPS, TANKS,
GRINDERS,
WATER BASINS,
ETC., ETC.

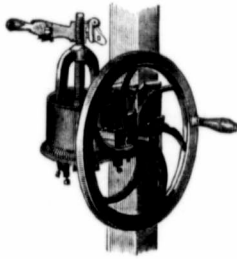
ONTARIO WIND ENGINE & PUMP COMPANY, Limited

Call and see us during Exhibition time.
Factory along side the grounds.

TORONTO

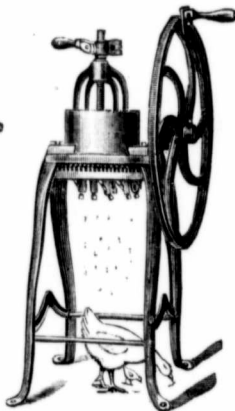
Write us direct for Catalogue.

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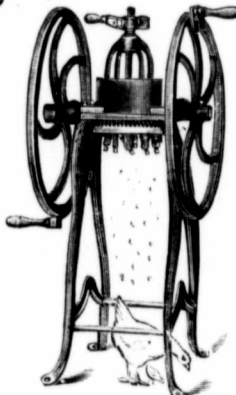


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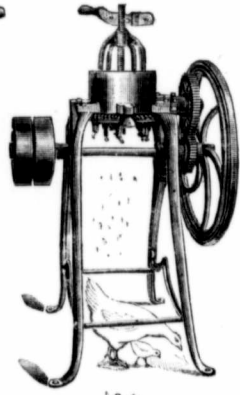
Send for Prices, which are within the reach of all who keep fowl.



No. 2.



No. 3.



No. 4.



No. 5.

By Feeding Green Cut Bones....

You will increase the number of eggs and keep your flock in better condition; it is also

Cheaper than any other known food

— FOR SALE BY —

THE MALLEABLE IRON CO'Y.

19 to 29 Mill Street, Montreal, Que.

Perforated Mortar

for breaking oyster shells, crockery or other materials to be used as grit for poultry use.



Handy Wagon

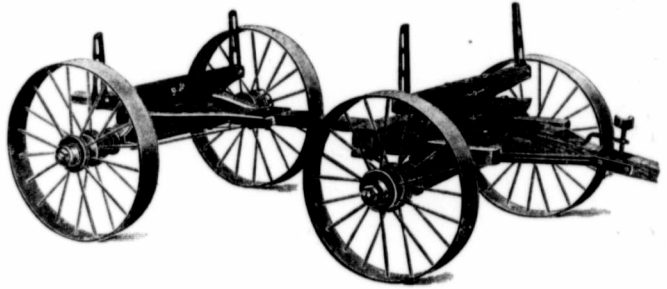
WITH LOW WIDE TIRE
WROUGHT IRON WHEELS

WHEELS made to fit any axle.

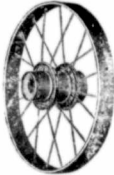
TIRES any width.

LOW WHEELS can be loaded with half the labor and draw a heavier load.

A Good Wheel Makes a Good Wagon



EVERY FARMER SHOULD OWN A SET OF WROUGHT IRON WHEELS



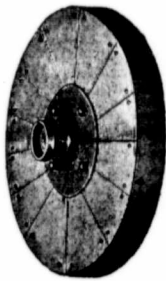
They are Lighter, Stronger, and Cheaper than wooden wheels.

No tires to set or wooden hubs to crack.

Full particulars will be gladly mailed on application.

Dominion Wrought Iron Wheel Co.

954 QUEEN ST. WEST, TORONTO



Low Wagon Wheels

MADE TO FIT ANY SIZE SKEIN
THEY CANNOT BE OVERLOADED

No spokes to gather mud or get loose Strong, durable and easy running.

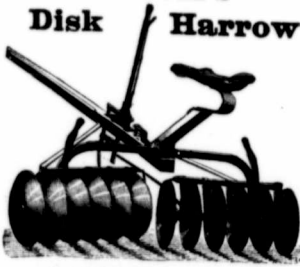
We will have the Low Wagon Wheel in our display at the Toronto Exhibition, and invite the trade to call and investigate the merits of this new feature of the wagon business.

THE ADVANTAGES

Of a Low Wagon on a farm and elsewhere cannot be overestimated. We make a specialty of the manufacture of Low Wheels for the ordinary wagon, making it possible for the farmer and teamster to possess a low wagon by simply removing their high wheels and placing these upon their wagons. This enables them to lower their beds to any height from the ground they may desire. The great advantage thus derived in loading logs, wood, grain, stone, fodder, hay, manure, hogs, and various other things, is very evident. By lowering the wagon bed you lessen the labor of loading anything on the ground. This saving of labor is very material, for the foot saved is the foot at the top, and it counts as much as the first three or four feet. It is much easier to lift a load when it is on a level with the knee than when it is on a level with the shoulders.

The Speight Wagon Company
MARKHAM, ONT.

**Bissell's
Disk Harrow**



Ask the agent with whom
you deal to get the

Bissell Machines

for you. Our 1901 illustrated
catalogue will tell you why
they are preferred.

Send your address and have one mailed.

A few more reliable active
agents wanted.

**Bissell's
Steel Roller**



ADDRESS

T. E. BISSELL, FERGUS, ONT.



**PATERSON'S
PATENT WIRE EDGED
2 AND 3 PLY READY ROOFING**

FIRE-PROOF, CHEAPER AND MORE DURABLE THAN SHINGLES

Introduced in Canada in 1876

For sale by the principal
Hardware Merchants, or direct from

Actual sales in 1899, over 75,000 Rolls

THE PATERSON MF'G CO., LIMITED

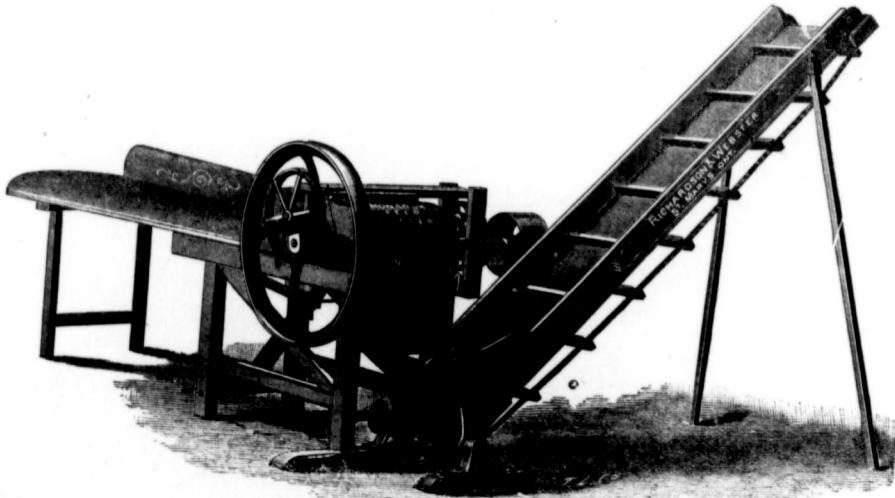
TORONTO

MONTREAL

ST. JOHN

HALIFAX

The Monarch Ensilage Cutter



CAPACITY 6 to 8 TONS PER HOUR

Has 15-inch throat, 4 knives, rocking feed rollers, safety fly wheel, latest American design. Price \$40. Carriers extra.
This machine is thoroughly up-to-date, and for price, capacity and workmanship cannot be excelled.

Write for Catalogue and full information to

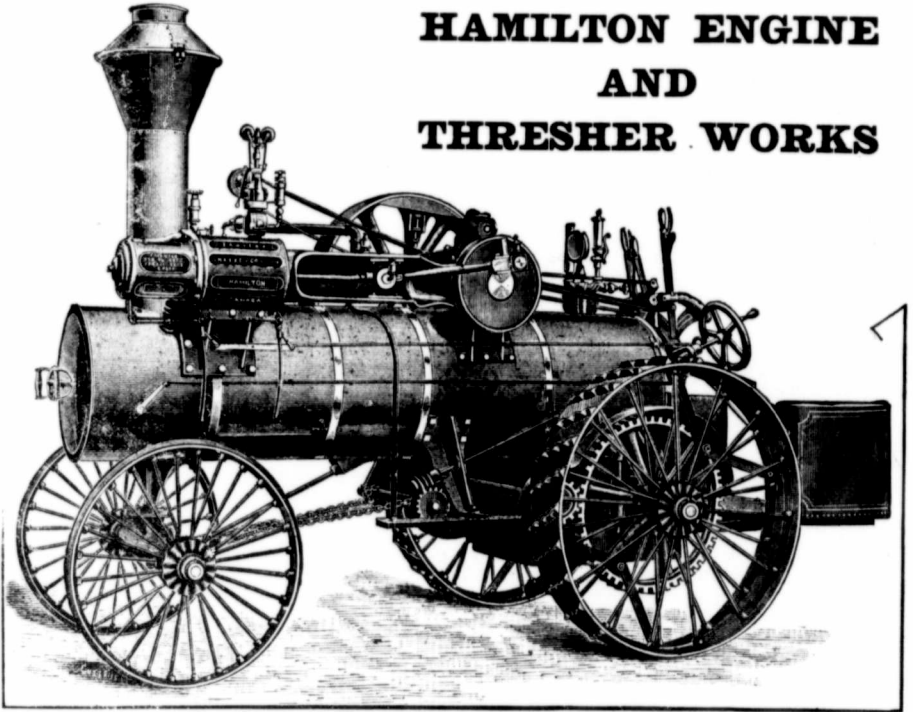
C. Richardson & Co.

CREAM SEPARATORS

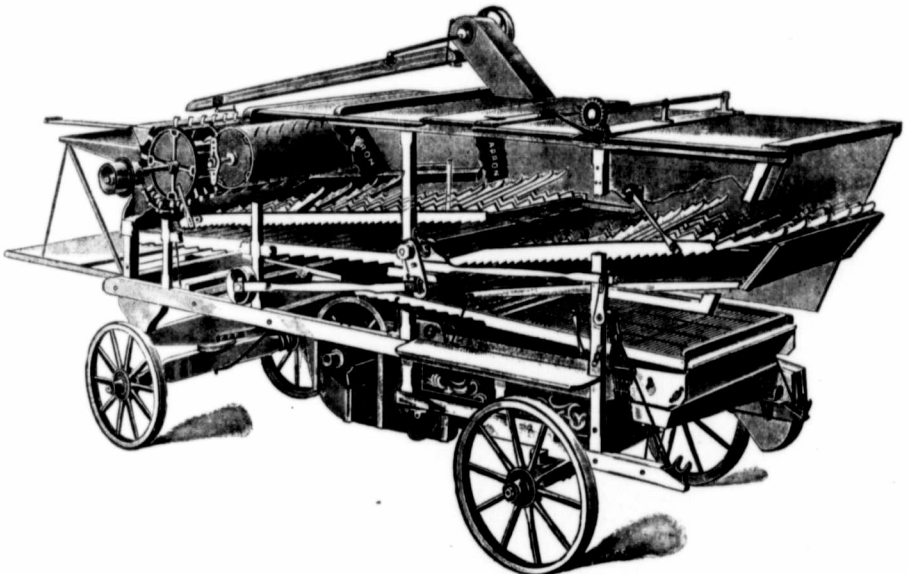
AND DAIRY MACHINERY

St. Marv's, Ont.

HAMILTON ENGINE AND THRESHER WORKS



New Sawyer & Massey Compound Traction Engine.



New Peerless Separator with Elevated Chaffer

The above Engine and Separator make a most complete and perfect threshing outfit, unequalled for fast and clean threshing.

CATALOGUE AND FULL PARTICULARS SENT ON APPLICATION.

SAWYER & MASSEY CO., Limited
HAMILTON, CANADA

Sawyer & Massey Co., Limited



Reversible Road Roller, with Powerful Brake. Three rolls with sixty inches rolling surface.

Road Making Machinery



HAMILTON,
CANADA

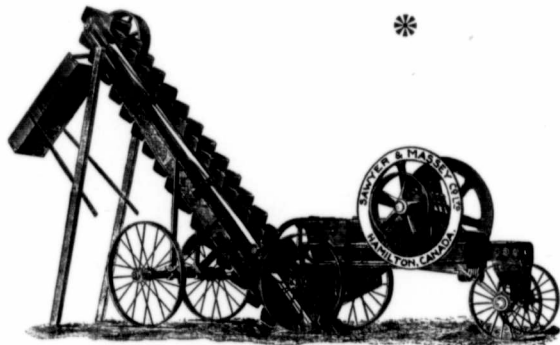


Rock Crushers

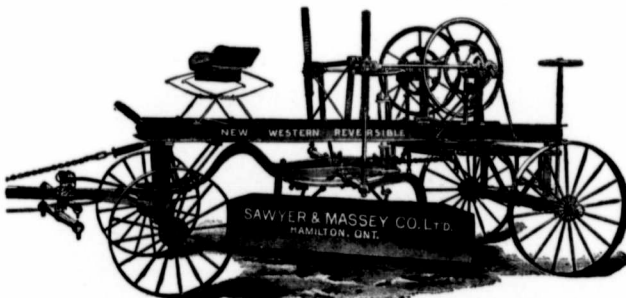
FOR TOWNSHIPS

Rock Crushers

FOR CITIES



Portable Crushing Plant ready for work. Can be furnished with revolving screen to separate broken stone into three different sizes.



Horse Rollers
Steam Rollers
Road Graders

*Strong, Durable,
Simple, Easy of
Adaptation to all
kinds of road work*

Sawyer & Massey Co.

LIMITED

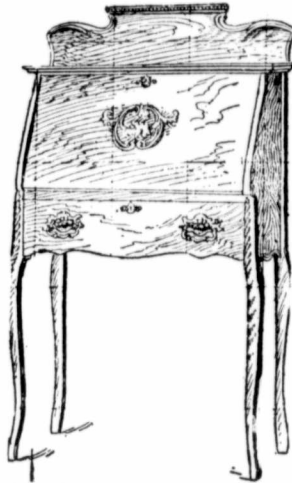
Hamilton, Canada

FREE!! FREE!!

NO GOODS SOLD



Quartered golden oak and mahogany finished. Every table hand polished. Very strong. For one book.



Ladies' Desks—Finished in oak and mahogany, handsomely carved full-size large drawer, French legs, rubbed finish. Very ornamental and so convenient. Only one book.



Gold-Plated Watches—Ladies' or Gentlemen's Open Face or Hunting Case, assorted styles; greatest value ever offered; excellent time-keepers. Good enough for anyone. Only one book.



Beautifully quartered golden oak and mahogany finish, oak tan leather seat. For one book full of stamps.



This clock is heavily enameled, finished with gilt ornaments, very heavy and handsome, assorted colors; runs eight days; strikes the half-hour; is 10 inches high and 9 inches broad. We bought a very large number of these for spot cash to enable us to offer them to our collector: in exchange for one book.



Silver Water Pitcher.—Very handsomely engraved. No home complete without one. Looks nice anywhere. Extra large, quadruple plate, on pure hard white metal. We guarantee it to last a lifetime. One book.



Soup Tureen, quadruple plate on pure hard white metal, 9 1/2 inches high, 8 1/2 inches in diameter, hand burnished. For one book.



Brass Banquet Lamp (gold finish)—This is one of the most popular lamps we ever handled; 32 inches high; 1 1/2 inch hand-decorated globe; lift-out fount; central draft burner. Can be lighted without removing globe or chimney; simplest wick raiser. Only one book.

The above illustrates a few of the thousand of articles daily given away in exchange for Trading Stamps which cost you nothing but the trouble of asking for them.

Enterprising merchants in every city give Trading Stamps to Cash Customers. Visit our showrooms.

Dominion Trading

Head Office, 235 Yonge St., Toronto

FREE!! FREE!!

YOUR MONEY REFUSED

Guitars (standard size)
—Mahogany finish, plain edge, highly polished, a clear, deep, strong tone, no woody sound, a very fine instrument. For one book.



This Violin, an excellent instrument, having strong, full tone, and of exceptional value. Being large importers of this instrument, we are enabled to offer it for only one book.



Eight-day clock, brass mounted, gold finished, artistic dial, is solid, heavily enameled, colors assorted; no handsomer clock made; excellent time-keeper. Only one book.



Mandolin—Highly polished, a very popular instrument. By special arrangement for one book.



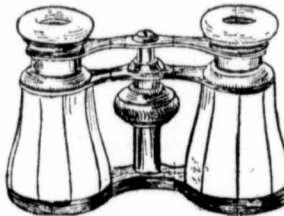
Very highly polished, seat revolves, strong screw. For one book full of stamps.



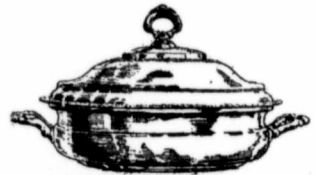
Fern Dish, consists of three pieces. The finest decorative piece ever placed on a table. Quadruple plate on pure hard white metal. For one book.



Sunart, Jr., Camera (with plate holder for two plates)—Takes pictures $3\frac{1}{2} \times 3\frac{1}{8}$ inches. Gives perfect satisfaction and only one book.



Opera Glasses—Our glasses are imported; not made to show, but to see through. We are offering them for a single book.



Silver Bake Dishes—With porcelain pan; quadruple plate on pure hard white metal; handsomely finished. Only one book.

SHOW ROOMS:

TORONTO—235 Yonge street.
LONDON—206 Dundas street.
BRANTFORD—83 Colborne street.
OTTAWA—Sun Life Building.
KINGS TON—173 Wellington street.
BROCKVILLE—King street.
ST. CATHARINES—72 St. Paul street.
WOODSTOCK—Opera House Block.
HAMILTON—113 King street east.
PETERBORO—134 George street.
BELLEVILLE—311 Front street.
STRA FORD—Windsor Block.
BERLIN—79 King street west.
GALT—Imperial Block.
GUELPH—St. George's Square.
ST. THOMAS—314 Talbot street.
WINDSOR—65 Sandwich street.
WINNIPEG—282 Main street.
VANCOUVER, B.C.—Cor. Cordova and Richard sts.
VICTORIA, B.C.—Cor. Fort and Broad sts.
NEW WESTMINSTER, B.C.
BRAMPTON, SARNIA, PETROLEA.

A Few Reasons Why People Collect Trading Stamps

1. They are tired of paying the other fellows' bills.
2. They are entitled to their discounts for the same reasons that merchants get their discounts.
3. They know that an honest merchant can better afford to give discounts for cash than to sell on credit.
4. They know that under ordinary systems the cash customers pay all the losses, errors and expenses caused by credit.
5. They know that the merchants who give trading stamps do not require to borrow money from the banks and pay 7 per cent., but, by selling at "small

profits with quick returns," can get all the money they require from their customers, and can give their customers, and not the banks, the full benefit of the discounts they receive themselves.

6. They know that by collecting Dominion Trading Stamps their families are no longer worried with overhanging debts, they have money ahead in place of debts behind; that they are more careful in their purchases when paying cash, and that the discounts they save amount to more than double the interest banks pay.

Stamp Co., Limited

Showrooms in 23 Cities

CUT THIS OUT

And present it at or mail it to any show-room of the Dominion Trading Stamp Co., and you will receive a book with 30 stamps free.

FARMING GUPON

ELASTIC CARBON PAINT

A Big Thing!

Look Into It!

Read for yourself the letters below which are genuine.



Over
1,000
barrels
sold
in
Canada
this
year
1900.

THE ATLANTIC REFINING CO.,
Toronto, Ont.

Gravenhurst, June 14, 1900.

Gentlemen,—Your enquiry with regard to Elastic Carbon Paint received. In reply would say, last fall I painted the walls of my carriage factory, also the roof of my residence with Elastic Carbon Paint, both buildings being covered with metal, and I must say that as far as I can see at present I am pleased with the paint. It covers well, flows nicely, has a nice gloss, and fills up any defects in the metal; it has stood the winter well, and I can highly recommend it, especially for metal roofs or walls.

Yours truly, J. C. CLIPSHAM.

THE ATLANTIC REFINING CO.,
Toronto, Ont.

Marmora, June 19, 1900.

Dear Sirs,—I some time ago purchased from you a quantity of your Elastic Carbon Paint, and am pleased to say that its use has been quite satisfactory and proved to be all that you claim for it. I used it on a galvanized iron roof that had been leaking for years, and our tinsmith could not find the leaks. I then painted it with oxide of iron which proved but of little use; I then used coal tar with no better results; and last fall I put on two coats of your Elastic Carbon Paint according to directions, and it has been perfectly tight ever since.

Yours truly, J. W. PEARCE.

THE ATLANTIC REFINING CO.,
Toronto, Ont.

Simcoe, May 26, 1900.

Dear Sirs,—In reply to your enquiry as to how we like the Carbon Paint we purchased from you last season, would say that it was late in the season before we used it. It proved, however, away beyond our expectations. The first roof we put it on was one of the first metallic roofings made, and always leaked whenever a storm came. This, however, stopped it entirely, without leaking another drop during the winter. We used it also on an old galvanized iron roof that leaked continuously. The first coat put on the joints stopped it entirely, and it did not leak during the winter. We have put it on a number of roofs and are well pleased with it, and expect to use a lot of it during this season.

Yours truly, PALMERSTON & MADDEN.

THE ATLANTIC REFINING CO.,
Toronto, Ont.

L'Epiphanic, Que., June 22, 1900.

Gentlemen,—I have used your Atlantic Carbon Paint on rough agricultural implements and on metal and shingle roofs with the greatest satisfaction. I will recommend this paint to all who want a first-class article, and will use it in my business.

Yours truly, SEVERE CHAUSE.



NEW BUILDING

OF THE

ATLANTIC REFINING COMPANY

Corner Esplanade and Jarvis Sts.

Toronto, - Canada

\$500 REWARD

to any person that will prove that the testimonials above are not printed just as we received them. We have many more equally as strong, but cannot print them for want of space.

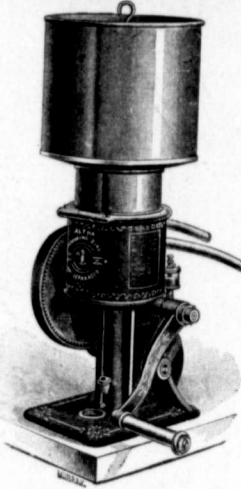
THE BABY PAYS FOR ITSELF.

CLAIM

To every user of a Hand Cream Separator we guarantee:

1. That each and every milch cow will bring from \$5.00 to \$10.00 more than could be realized with her milk, if ordinary pans or creamers were used.
2. That a separator of suitable capacity, as per our list, will pay for itself inside of from six months to two years, according to size, from actual increase in money returns of milk alone, not counting other advantages.
3. That by the use of our separator you will get, AT LEAST, the following increase of butter every year: SEE OTHER SIDE.

"HUMMING BIRD"



Actual Capacity, 225 Lbs. Per Hour
(Equal to 300 lbs. "claimed" capacity in any other make of separator, regardless of other differences.)

PRICE, \$65.00

Recommended for up to 5 cows.

Guaranteed Minimum Net Increase in Pounds of Butter.

WITH COWS GIVING	1		10		20		30		40		50	
	Cow.	Cows.	Cows.	Cows.	Cows.	Cows.	Cows.	Cows.	Cows.	Cows.	Cows.	
2000 lbs. of milk per year	15	150	300	450	600	750	900	1050	1200	1350	1500	
3000 " " "	22	225	450	675	900	1125	1350	1575	1800	2025	2250	
4000 " " "	30	300	600	900	1200	1500	1800	2100	2400	2700	3000	
5000 " " "	37	375	750	1125	1500	1875	2250	2625	3000	3375	3750	
6000 " " "	45	450	900	1350	1800	2250	2700	3150	3600	4050	4500	
7000 " " "	52	525	1050	1575	2100	2625	3150	3675	4200	4725	5250	

IRON STOOL "BABY"

Nos. 1 and 2.



NO. 1.

Actual Capacity, 325 Lbs. Per Hour.

NO. 2.

Actual Capacity, 450 Lbs. Per Hour.
(Equal to 450 and 550 lbs. "claimed" capacity in any other make of separator, regardless of other differences.)

PRICE No. 1, \$100.00

" No. 2, \$125.00

Recommended for up to 15 and 25 cows respectively.

No. 2 is also made in the "High Frame Style," same as No. 3.

How to get a "BABY" Separator when Money is Scarce.

From every ten cows, sell the three poorest milk. The price will pay one-half to two-thirds of the separator, and our agents will grant suitable terms for the balance.

The cream extracted with the separator, from the milk of the seven remaining cows, will yield more butter than you were getting from the whole ten with creamers or pans.

That increase, with the feed saved on the discarded cows, will bring enough money to meet payments accepted by our agents, in a few weeks.

HIGH-FRAME "BABY" No. 3



Actual Capacity, 850 Lbs. Per Hour
(Equal to 1,000 lbs. "claimed" capacity in any other make of separator, regardless of other differences.)

PRICE, \$200.00

Recommended for 25 cows and over.

OUR

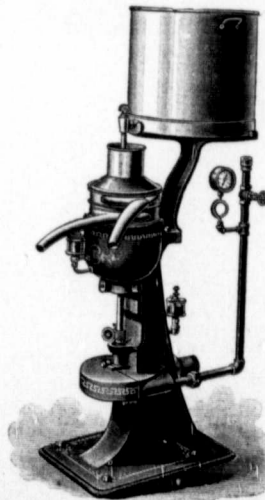
BABIES

ALL ALPHA DE LAVAL DISC BOWL TYPE

HAVE NEVER BEEN BEATEN

CANADIAN DAIRY SUPPLY CO.
327 Commissioners St., Montreal.
Western Branch, 236 King St., Winnipeg.

"DAIRY" STEAM TURBINE



Actual Capacity, 850 Lbs. Per Hour.
(Equal to 1,000 lbs. "claimed" capacity in any other make of separator, regardless of other differences.)

PRICE, \$225.00

Recommended for 50 cows and over.

A TRIAL.....

If Reasoning, The Experience of Others, Claims and Guarantee, Cannot Convince You

TRY A BABYSEPARATOR YOURSELF

Our agents will accept your order with full guarantee as above.

The object lesson will make you a Baby Separator user for ever and aye.

Have Your Choice From The List

Bunches on Horses

Are Unsightly--You can remove them with

Supersedes all
Cautery or
Firing and
CURES

**FOUNDER
WIND PUFFS
THRUSH
DIPHTHERIA
SKIN DISEASES
REMOVES BUNCHES
OR
BLEMISHES
SPLINTS
CAPPED HOCK
STRAINED TENDONS
RING BONE
PINK EYE
SWEENEY
BONEY TUMORS
ALL LAMENESS
FROM SPAVIN
QUARTER CRACKS
SCRATCHES
POLL EVIL
SPAVIN
PARASITES**

Gombault's Caustic Balsam

THE MOST POPULAR
VETERINARY
REMEDY

A SAFE, SPEEDY AND POSITIVE CURE

**ALWAYS RELIABLE SURE IN RESULTS
SAFE FOR ANY ONE TO USE**

Impossible to produce any scar or blemish. It will absolutely remove bunches, which will increase value of horse many times its cost.

PRICE \$1.50 PER BOTTLE.

For sale by Druggists, or sent by Express—charges prepaid by us—on receipt of price.

THE LAWRENCE-WILLIAMS CO., TORONTO, ONT.
CLEVELAND, O.

SOLE AGENTS FOR THE UNITED STATES AND CANADA.

... See What Others Say of Us ...

The Best and Cheapest Blister.

West Springfield, Mass., July 26, 1898.
In regard to GOMBAULT'S CAUSTIC BALSAM I will say it is the best and cheapest blister I ever used. Have used it for strained tendons with perfect results, and for neuralgia of the chest I find it the only thing that will give relief.

C. E. SHERMAN.

Caustic Balsam Best Remedy Known

Savannah, Ga., May 22, 1899.
We use GOMBAULT'S BALSAM and consider it the best medicine of its kind known to us

T. J. DAVIS.

Everybody Advised to Use Caustic Balsam.

Laverge, Tenn., June 30, 1899.
I wrote you on March 21 in regard to my mule's shoulder. I have used about one-fifth of a bottle of GOMBAULT'S CAUSTIC BALSAM and have cured the shoulder which I thought ruined. It cured it with four applications. I would not take \$3.00 for the rest of the bottle of Balsam. I advise anybody to use Balsam in a case of this kind instead of losing the horse

B. C. WILLIAMS.

"The Best Spavin Remedy They Ever Used."

Galveston, Tex., Dec. 3rd, 1898.
Enclosed find cheque for \$1.50, in payment for one bottle GOMBAULT'S CAUSTIC BALSAM. The bottle ordered before has already been used, and I with very good success indeed. Our teamster, who has had long experience with horses in Kentucky and New York, claims that it is the best spavin remedy he has ever used, and the results were astonishing.

J. RAYMENSCHIFFER, Jr., Secy.

Cured Poll Evil and Fistula.

Ringgold, Md., Dec. 30, 1899.
I have been using GOMBAULT'S CAUSTIC BALSAM for five years, and can recommend it because of the good results I have had with it in curing poll evil and fistula on horses, etc.

A. W. BRECHTEL.

Exactly as Represented.

Barnesville, Va., July 27, 1899.
We have used GOMBAULT'S CAUSTIC BALSAM for bone spavin and sweency with satisfactory results. Also find it a splendid medicine for sprains, sore throat and bruises. Have never seen its equal as a blister. Gladly testify that it is exactly as represented, so far as our experience goes. We keep a supply on hand at all times now.

S. H. DE WEESE & SON.

Perfect Cure for Sprains.

Harvey, N. D., Sept. 21, 1899.
I have used your CAUSTIC BALSAM with great results. I had a horse whose foot was nearly ruined and cured it, and for all sprains it is a perfect cure.

ED. COOPER.

Cured Thoroughpin.

Detroit, Mich., April 11, 1899.
I have used your CAUSTIC BALSAM for this thoroughpin and find it the best remedy. A doctor told me that it could not be cured, but I have given five applications, and I find that it has entirely disappeared, and the lameness is all gone.

GEO. W. PASSEY.

Best of Satisfaction.

Kaysor, W. Va., Oct. 10, 1899.
Please send some advertising matter for your CAUSTIC BALSAM. I have sold several bottles and it has given the best of satisfaction. I was the first one around here to carry it in stock. Please send some cards, banners, etc.

L. L. KIMES.

La Fayette, Ind., Aug. 11, 1899.

I have been successfully using your CAUSTIC BALSAM for several years.

A. B. BRADEN.

Used With Success.

Chadbourn, N. C., Nov. 15, 1899.
Please send me a bottle of GOMBAULT'S CAUSTIC BALSAM. Enclosed is \$1.50. I used one bottle of it when I lived in Wayne Co., Ohio, and saved a valuable horse that had got a strained, causing the sheath to swell up as large as a quart measure. I happened to see the account of a similar case in *The Ohio Farmer*, in which they used your remedy with success, so I got a bottle and made one application according to directions, and as soon as it broke and ran I used it to cleanse the sore by mixing it with oil, making it 2:1, and used a feather to put it in the sore, and it cured the horse so that no one could tell that anything was ever wrong with him. I have used it for other sores and wounds with like success.

J. S. SHAYER.

Because it Does the Work.

Douning, Wis., Oct. 12, 1899.
I sell your CAUSTIC BALSAM, and find it a good seller because it does the work. Would like some advertising matter, let a thing be ever so good, if you don't keep it before the people, sales will fall off. I will do the rest.

E. F. STODDARD.

Gombault's The Only GENUINE as well as safe and absolutely reliable **Gaustic Balsam**