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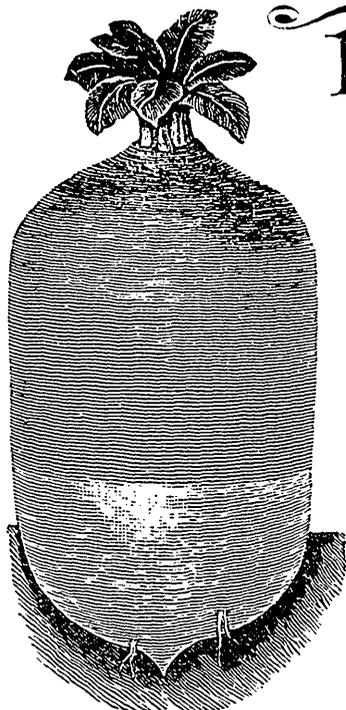
FARMING

MAR.
1897



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Golden Tankard Mangel. 5 lbs. 75c.
The favorite among dairymen.

The Rush is now on. The demand never was greater.
Every Order filled, by experienced hands.
Prices cut in all departments.

— HERE ARE A FEW PRICES —

CLOVER SEED—	Per Lush.		Per ton.
Red ...	\$4 80	COTTON SEED MEAL....	\$21 00
Alsiko	4 80	OIL CAKE—	
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TIMOTHY	1 70	CARROT—	
Prices of Choice and Best Qualities upon application.		White Belgian	lb. 35c.
			
For \$1.00. No. 4 Farmer's Collection			
— A BIG ASSORTMENT OF THE — Best and most suitable Vegetables for the Farm Garden. Send for Circular.			
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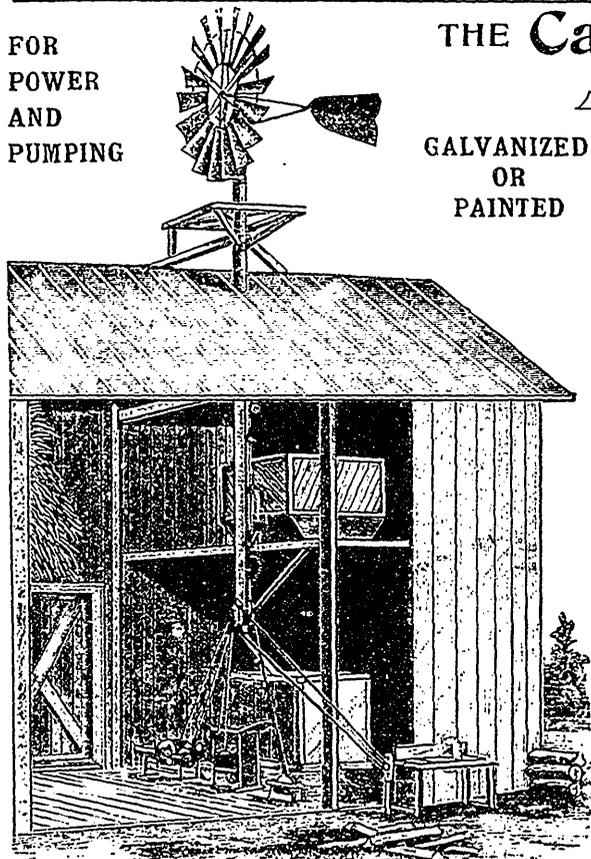
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GALVANIZED
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SURPASSES ...

all COMPETITORS
in QUALITY
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You should not fail to write and get particulars of improvements on our Mills for 1897 before purchasing.

The great increase in our trade during 1896, when other manufacturers were crying "dull times," is the best proof that we know and have that which meets the need and gives satisfaction to our customers.

Our long experience has enabled us to put the Canadian Airmotor at the

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Send for descriptive Catalogue of Windmills, Pumps, Haying Tools, etc.

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367 Spadina Ave., Toronto.

THE BIG TWO OATS

Pearce's

Black Beauty

This oat is ten days earlier than Black Tartarian. Better for heavy land. Has a wonderfully broad leaf and strong stem

Very heavy yielder and thin hull.

Beautiful sample. Very black.

Price per lb., by mail, 14c.; per bushel, \$1; five bushels for \$4. Bags free.

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BEST NEW WHITE OAT GROWN.

Very productive. Strong stiff stem. Four to five feet high. Very plump, thin hulled grain. As many as forty stalks from a single grain.

Price per lb., by mail, 25c.; per bushel, \$2; two bushels, \$3.50. Bags free.

Altogether the best 2 oats in cultivation

HILL FODDER AND ENSILAGE CORN

Choice varieties of OATS, BARLEY, PEAS, CLOVER, TIMOTHY, and GRASSES, etc.

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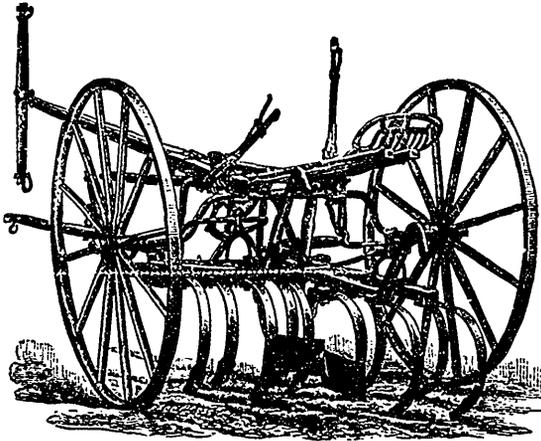


PAGE FENCE. BY THE SCORE OF MILES.

This is a view on the Scotten Farm, near Windsor, Ont. There is about 40 miles of Page Fence on that tract. The Page Fence Co., Walkerville, Ont., has some advertising matter, containing many fine pictures, which they will gladly send you on receipt of your address.

Will 1897 be a Good Season ?

That depends a great deal upon what the dealers and farmers make it, and in YOUR case upon whether you have good machines or not. If you want the BEST WE have them.



Our
NEW
AMERICAN

Double or Single Lock Levers

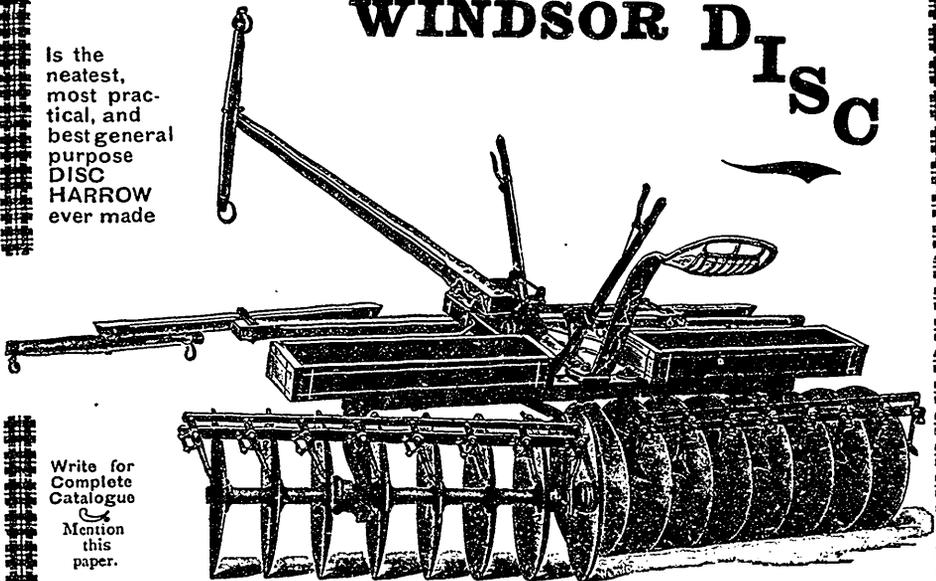
Is unequalled by any other machine in the market as a

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Is the neatest, most practical, and best general purpose DISC HARROW ever made



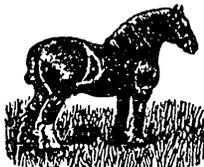
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American Harrow Co.,
WINDSOR, - ONT.

HORSES AND SHORTHORNS.

THORNCLIFFE STOCK FARM.

I have on hand the best young **Clydesdale Horses and Mares** on this continent. Bred from the well-known sires, Prince of Wales, Darnley, Macgregor, Energy, Lord Montrose, The Ruler, Carruchan Stamp, Knight Errant, and other celebrities.



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Orders can now be booked for Shearling Rams, Ram Lambs and Ewes, sired by the celebrated prize-winning English ram, Bar None. Also rams and ewes of this year's importation.

SHORTHORNS.

Choice young Heifers and Bulls by the celebrated Cruickshank & Co. bulls, Northern Light and Vice-Consul.

My stock in the above lines were very successful at all the large shows last year. Call and examine stock before purchasing elsewhere. Terms reasonable.



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Temperance St., Toronto, Can.

Patrons: Governor-General of Canada and Lieutenant-Governor of Ontario. The most successful Veterinary Institution in America. Experienced teachers. Classes begin on Wednesday, Oct. 14th, 1896. Fees, \$65 per session.

PRINCIPAL PROF. SMITH, F.R.C., V.S.,

TORONTO, CANADA

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FOR SALE

Two Choice CLYDESDALE STALLIONS

Large size, good color, and breeding of the best. Also one Shorthorn Heifer, two years old, which will make a prize-winner. Terms reasonable.

**JOHN DAVIDSON,
ASHBURN, ONTARIO**



"THE BRIARS"

SUTTON WEST, ONT.

Shorthorns of all ages bred from the best, and raised under the most favorable circumstances. No person who does not intend business need apply by letter. Visitors are welcome. Also young thoroughbred roadsters for sale.

F. C. SIBBALD,

J. CARSON, Agent, Yorkton, Assa.

631

H. I. ELLIOTT, Danville, P.Q.

Breeder of Scotch Shorthorns of Duchess of Gloster, Lovely, and Nonpareil strains. Young bulls and heifers for sale at the lowest prices.



**SHIRE
HORSES**

We have a number of Fillies, Mares in foal, and Stallions for sale. Imported and homebred; all choice, registered animals.

Address

**Morris, Stone & Wellington
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W. J. BIGGINS

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**SHORTHORN BULLS
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of Select Scotch
Breeding at Low Prices.

Fashionable Hackneys AND Prize-Winning Clydesdales

Of the best known strains

For Sale

A number of superior Hackney stallion and mares, sired by such well-known prize-winners as Ottawa, Banquo, Seagull, and the world renowned JUBILEE CHIEF, winner of the Hackney championship at the World's Fair. Also a number of Clydesdale stallions and mares sired by such famous stockgetters as Sir Walter and Eastfield Laddie.

**MATCHED HIGH-STEPPING CARRIAGE HORSES
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PINE GROVE STOCK FARM, Rockland, Ont.

On the C.P.R. and G.T.R. Railways.

Special bargains on young bulls of superior merit and select Scotch breeding. Also thick young heifers at the right prices. Two imported Crulckshank Bulls for sale; also Ayrshires, Jerseys, Shropshire Sheep, and Clydesdale Horses.

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703 JOS. W. BARNETT, Manager.



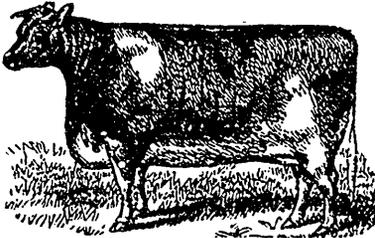
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Ayrshires, imported and homebred; herd headed by Imported Tam Glen 2nd, No. 1310 D. A. H. B. Jerseys all of the celebrated St. Lambert family; herd headed by Lisgar Pogs of St. Anne's 25704 A. J. C. C. Berkshire Pigs. Young stock of all the above breeds for sale. Post Office, Telegraph Office, and Railway Station, North Nation Mills, P. Q., on the C.P.R.

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GREENWOOD, ONT., P.O. and Telegraph Office,



Has for sale, at temptingly low prices, 17 extra good Short-horn Bulls, fit for service, and equally good lot of Cows and Heifers—the very best we ever bred. Send for Catalogue and prices. Enquiries answered promptly. Our motto—"No business, no harm."

Claremont Station, C.P.R. Pickering Station, G.T.R. 696

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Shorthorns and Berkshires.

The herd is headed by the imported bull, Blue Ribbon 17095 (63706). He by Royal James (54992), dam, Roslentz, Vol. 38, p. 298, E.H.B., by Gravesend (92460). Among the females are representatives of the Strathallans, Minas, Golden Drops, Mysies, Elvira—all pure Scotch breeding, except the Elvira, which are Scotch crosses.

The herd of Berkshires includes many prize-winners, and are an exceedingly choice lot.

Farm 7 miles from Ilderton Station, G.T.R. Stock of all kinds for sale. Apply to

O. M. SIMMONS, Ivan, Ont., or
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LINTON LUSTRE #18428

SIX BULLS FOR SALE

fit for service, at reasonable prices.

Write for particulars.

D. ALEXANDER,
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- 3 Scotch Shorthorn Bulls 3
- 10 Heifers now being bred. 10
- 30 Shropshire Ram Lambs. 30
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- 10 Perfectly Broken Small Ponies. 10

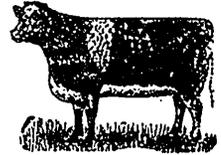
All of the best breeding and quality, and all for sale at low prices.

JOHN MILLER & SONS, Brougham, Ont.

Gherry Grove Stock Farm

We have yet for sale three beautiful bulls, 12 to 14 months old, by our stock bull, Royal Lavender, by Imp. Indian Chief, of superior quality and breeding; also some choice show heifers.

This cut is made from a photo of one of our breeding. Give us a call or write. Prices moderate.



JOHN MORGAN & SONS,
Wm. Muxlow, Man. KERWOOD, ONT.

SCOTCH SHORTHORN CATTLE AND BERKSHIRE PIGS

For Sale—Choice young cattle of both sexes of the most select breeding. Also young Berkshire pigs from sows selected from the herd of J. C. Snel, Edmonton, Ont. Write for prices. W. WARD,
BIRCHTON, QUÉBEC.

Farm one-half mile from station, C.P.R.

FOR SALE Shorthorns, Berkshires Southdowns and Leicesters.

Four very choice young bulls and a number of young cows and heifers. A fine lot of boars and sows of different ages. Also a few ram and ewe lambs.

WRITE ME, OR
COME AND SEE.

532 E. JEFFS & SONS, Bond Head, Ont.

FOR SALE, Five Shorthorn Bulls, aged from nine to twenty months, of the best Scotch Breeding—good size, good color, and Ar animals. Prices and terms to suit the times.

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 There Is No Doubt About the MERIT of THE KEYSTONE DEHORNER
It cuts both ways, does not crush. One clip and the horns are off close. Write for circular. The Keystone Dehorner Mfg. Co., Picton, Ont., Can.

SHORTHORNS AND AYRSHIRES.

Cargill Herd



of Shorthorns

For Sale Three Young Bulls and thirteen Heifers, all of good breeding and individual merit. Also a number of good homebred cows. Prices away down.

H. CARGILL & SON,

CARGILL STATION AND P.O., ONT.

**SPECIAL MARCH BARGAINS AT
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AYRSHIRE and GUERNSEY CATTLE.

SHROPSHIRE SHEEP.

IMPROVED YORKSHIRE SWINE.



Our stock is now in prime condition and cannot fail to please. Choice young bulls fit to head any herd, and calves of the best milking and prize-winning strains, will be sold at surprisingly low prices if taken this month. Our herd stands at the head of all competitors as prize winners. We have also some very choice young Shropshires and Yorkshires for sale on the same liberal terms. Write at once for particulars and secure first choice. Our prices will simply surprise you.

T. D. McCallum, Manager, Danville, Que.

PARK HILL HERD

OF

AYRSHIRES



Young Stock of both sexes for sale from the best milking strains. For pedigrees and full information address

JAS. DRUMMOND
PETITE COTE,
... QUE.

- CHOICE AYRSHIRES -

Two very handsome massive two-year-old bulls, five yearling bulls, and a few yearlings for sale. All guaranteed of the best quality and breeding. Also a fine lot of spring calves from Douglas of Loudoun 1384, bred by D. Morton & Sons, of Hamilton. Prices to suit. Write at once for particulars.



F. W. TAYLOR, Wellman's Corners, Ont.
Hoard's Station, G.T.R.

..SPRUCE HILL DAIRY FARM..

6 Fine Young Ayrshire Bulls **6**
of fine quality and choice breeding now for sale. If you want a good one write us for particulars. Our prices will suit you.

A. McCallum & Son, - Danville, Que.

MENIE STOCK YARD.

AYRSHIRE CATTLE

POULTRY

Light and Dark Brahmas ; P. Cochins ; S. G. and Colored Dorkings ; B. P. Rocks ; S. C. Brown, S. C. Black, R. C. Brown, and White Leghorns ; Indian Games ; S. S. Hamburgs ; Golden Polish ; Houdans ; Bronze Turkeys ; Toulouse and China Geese ; Aylesbury and Rouen Ducks.

EGGS AND STOCK FOR SALE
AT REASONABLE PRICES.

Wm. Stewart & Son,

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MENIE, ONT.

SOUTH BRANT STOCK FARM.

T. BROOKS & SONS, Breeders of Ayrshire Cattle, Imp. Chester White and Tamworth Pigs.

In Cattle we have fine young animals of both sexes for sale, showing good milking points. Two young bulls now fifteen months old, first quality, and fit to head any herd. Of Tamworths we are sold out for this month. Twenty-five Chester Whites, now four months old, useful stock. Come and see what we are offering at prices to suit the times, or address,
T. BROOKS & SONS, Box 86, Brantford, Ont.

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—OF THE—

RICHEST MILKING STRAINS

—AND THE—

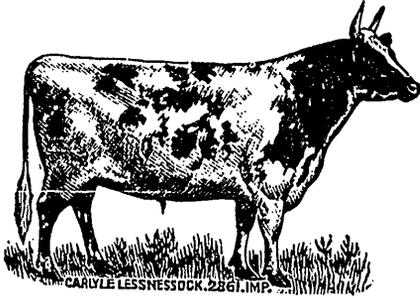
CHOICEST BREEDING

ARE KEPT AT THE GLEN FARM.

YOUNG BULLS AND HEIFERS FOR SALE

531 **WHITESIDE BROS.,**
Correspondence solicited. **INNERKIP, ONT.**

AYRSHIRES.



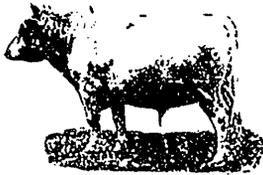
MAPLE GROVE AYRSHIRE STOCK FARM

IMPROVE YOUR STOCK.
INCREASE YOUR WEALTH.

Imported from Scotland from the most noted milk, butter and prize record Ayrshires, Champions of Scotland. The Stock Bull, Carlyle of Lessnessock, heads the herd. His grand dam was never defeated in milk and butter contests in England and Scotland, competing against all dairy herds for years in succession, and awarded more gold medals, cups and money prizes than any Ayrshire ever exhibited. With the large importation of females of noted individual records places me in possession of the choicest herd of Ayrshires in America. Live dairy farmers will consult their best interests by improving their Dairy Stock at reasonable prices. Stock always for sale.

R. G. STEACY, Importer and Breeder, LYN, Ont.

Choice Ayrshires



This noted Bull
"SILVER KING"

with an unbroken record of 18 first prizes and the sire of many prize winners, is

FOR SALE.

Also a few choice young animals of high merit.

WRITE ME.

D. McLACHLAN,
Petite Cote, Que.

GLENHURST HERD OF AYRSHIRES

Noted prize-winners, Choice quality and heavy milking families. Extra fine young animals of both sexes for sale.

Also Leicester Sheep and Berkshire Swine.



DAVID BENNING, Breeder,
WILLIAMSTOWN, ONT.

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AYRSHIRES ... For Sale

I now offer for sale the celebrated stock bull

"DOMINION CHIEF,"

which is considered one of the best stock bulls in Canada; also two choice young bulls, fit for service, sired by "Dominion Chief," as well as several choice young imported cows and heifers, and two Shorthorn heifers, sired by "Gibson Duke."

These bulls will be sold cheap if taken at once. Write me for particulars.

JOHN H. DOUGLAS,
WARKWORTH, - - ONTARIO.

Persons replying to advertisements will please mention FARMING.

THOMAS GUY
Sydenham Farm, Oshawa, Ont.



AYRSHIRE CATTLE LEICESTER SHEEP
BERKSHIRE PIGS

FOR SALE

6 Fine Young Bulls $\frac{4}{2}$ Yearling Two-year-olds and 4 Heifers

MAPLE CLIFF STOCK AND DAIRY FARM

FOR SALE—3 young bulls, also our stock bull Gold King. Would exchange one for an imported bull or first cross from imported stock. Gold King 1387 is by Chieftain Barcheskie (imp.) 1128, from Nellie Osborne (imp.) 2018. We are finished with Gold King, having used him three seasons. His heifers are a very promising lot.

R. REID & CO.,

729 (One mile from Ottawa.) Hintonburg, Ont.

CHOICE AYRSHIRES OF DEEP MILKING STRAIN
Largest and Oldest Herd in Canada

We have for sale this year a choice lot of young bulls and heifers sired by Leonard Meadowside, sweepstake bull at Ottawa.

Berkshire pigs and Shropshire Sheep always on hand.

Terms to suit the times.



J. YUILL & SONS. Carleton Place.

VALLEY STOCK FARM.

WALTER DRACUP, - - Wellman's Corners, Ont.
Breeder of AYRSHIRES.

A few choice Calves FOR SALE.

Maple Cliffe Herd of Ayrshires



NOTED PRIZE
WINNERS,

And heavy milking families.

Choice
Young
Stock.

For sale at prices to suit the times.

Apply to

ROBERT ROBERTSON, Compton, Que.

AYRSHIRES.

Special Offerings for March :::

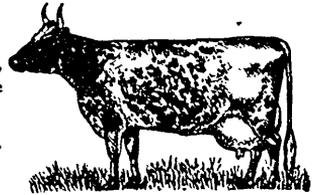
Two fine fashionably bred high-colored Heifer Calves, eleven months old. A few two-year-old Heifers in calf. Some Yorkshire Sows, of good breeding, ready to bre d.

ALEX. HUME & CO.,

Importers and Breeders of Ayrshire Cattle and Yorkshire Pigs

Burnbrae P.O., Ont.

Hoard's Station, G.T.R.



Wooler Stock Farm.



Dominion Lad, No. 1802.

First prize at Toronto, 1895; second, Toronto, and first at six other leading fairs in 1896.

Prize Winning Ayrshires. Oxford Downs and Berkshires.

My Ayrshires are very strong in young stock and are all in fine shape. At the Toronto Fair last year I won first for herd of four calves under one year, also second and third on Bull calves under one year, and second and third on Heifer calves under six months. My Ayrshires are all of the best milking strains.

YOUNG STOCK FOR SALE.

Satisfaction Guaranteed.

A. TERRILL, - - Wooler, Ont.

Woodroffe Dairy and Stock Farm

OTTAWA, CANADA.



AYRSHIRE BULLS FOR SALE.

One two and three-year-old. All prize winners at Ottawa Exhibition in 1896.

CLYDESDALES. YORKSHIRES.

J. G. CLARK, Ottawa.

Choice Ayrshire Bull Calf for Sale

Sire, Grand Duke (bred by Jas. McCormack, Rockton, Ont.); Dam, Brownie of Burnside (bred by R. Robertson, Howick, Quebec). Also Young Berkshires, not akin, from Snell's stock, along with our stock boar Watchman, sire (Imp.) Baron Lee 4th. **R. E. WHITE, Perth, Ont.**

AYRSHIRES

Always for sale. Some choice young bulls and heifers bred from the Glenhurst herd. **John Sandilands, Williamstown, Ont. 852**

8 Ayrshire Bulls six to eighteen months and a fine lot of in-calf cows and heifers that we will sell cheap. Have still a few good Red Tamworths, and a grand lot of sows in farrow for spring, also some good Berkshires. **Write us now.**

CALDWELL BROS.,

"BRIERY BANK FARM." Orchard, Ont.

FOR SALE

Choice young Ayrshires, of both sexes, sired by imported bulls Silver King and Glencairn. Write, or come and see them. **DANIEL DRUMMOND** Petite Cote, Que. 538

For Cheap Cattle Can load on Grand Trunk or Can. Pac. Railways. Car lots and less quantities.....

Address—JAMES WILSON, Monkland Mills. Fergus, Ont. Feed

ELM SHADE FARM

HOWICK, QUEBEC. FOR SALE—Lord Sterling, 1st Prize and Diploma at Sherbrooke, and 1st at Montreal. Dairy Lad, 1st at Sherbrooke and winner at Montreal, and other choice animals from prize winners. For pedigrees, etc., write



WM. WYLIE, Howick, Que., OR 228 Steury St., Montreal.

BOYS FOR FARM HELP

THE Managers of Dr. Barnardo's Homes desire to obtain good situations with farmers throughout the country for bright, healthy little boys from ten to twelve years of age, who will be arriving from the London Homes in several parties during the present season. There are at present nearly 5,000 in these Homes receiving an industrial training and education to fit them for positions of usefulness in life, and those who are sent to Canada will be selected with the utmost care with a view to their moral and physical suitability for Canadian farm life. Farmers requiring such help are invited to apply to

MR. ALFRED B. OWEN, Agent Dr. Barnardo's Homes, 214 Farley Avenue, TORONTO, Ont.

POLLED ANGUS, JERSEYS, AND HEREFORDS.

"RAPIDS FARM" LACHINE RAPIDS, ... QUEBEC ...



Royal Blackbird of Craigston.

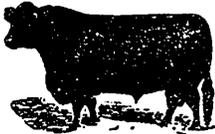
POLLED ANGUS AND AYRSHIRE CATTLE

THIS successful and present head of the herd is now for sale; also two young Bulls fit for service. Prices to suit the times.

COMMUNICATIONS REGARDING STOCK TO BE ADDRESSED TO

W. W. OGILVIE, *Proprietor.*ROBERT HUNTER, *Manager.*

WILLOW GROVE STOCK FARM.



Breeders and importers of highly bred Aberdeen Angus Cattle. Two prize-winning yearling Bulls and a splendid lot of females for sale at reasonable prices.

WILLIAM STEWART & SON,
Lucasville, Ont.

JERSEYS.

FOR SALE

A CHOICE LOT OF Jersey Heifer Calves

of good colors and rich breeding, both purebred and high grade. Dams have averaged the past year 330 lbs. of butter each, all sired by Canada's Hero, whose dam has a seven days' record of 19 lbs. 5 oz. For description and prices write to

W. C. SHEARER, *Bright, Ont.*

JERSEY COWS AND HEIFERS

The highest testing strains.
Rich breeding and good colors.

454 ALSO TAMWORTH PIGS.

JOHN PULFER, - *Brampton, Ont.*

BRAMPTON JERSEY HERD

A. J. C. C.

FOR SALE—Nineteen registered and high grade heifers, sired by or bred to Sir Ollie, also heifer calves. Six registered young bulls, suitable to head a show or dairy herd, bred from imported and the best homebred stock attainable. Pure St. Lambert and St. Helier blood. Prices low, quality considered. Now is the time to order B. Plymouth Rock eggs, bred direct from imported birds, price \$2 per setting. Farm within two miles of G.T.R. and C.P.R. stations. Inspector or communicate.

B. H. BULL & SONS, *Brampton, Ont.*

THE MANOR FIELD FARM OF JERSEYS

Combines blue blood with vigorous constitutions and undeniable dairy qualities. The St. Lambert bull, Kaiser Fritz 21173, bred by D. S. Dodge, Connecticut, U.S., heads the herd. Write or prices on young stock.

WILLIAM BACON,
Orillia, Ont.

548

HEREFORDS.

Ingleside Herefords . .

Largest herd of choice-bred Herefords in Canada. Winners of both the first and second herd prizes at Toronto, Montreal, and Ottawa, 1895 and 1896, also silver medals same years for best bull and best female.

This herd is of the "up-to-date-beef-kind," combining early maturity and quality.

Young Bulls for Sale.

As I am leaving for England January 16th, for three months, please address correspondence to FRED. MORTON, Herdsman, Compton, Que.

Farm 2½ miles H. D. SMITH, *Ingleside Farm,*
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Herefords

The undersigned, having rented the whole of his farm, offers for sale the remaining representatives of his herd of Herefords, which must be sold before spring. The herd is headed by YOUNG PINKHAM, a first prize winner at Toronto, and wherever shown in 1895 and 1896, with seven choicely bred females, from one to five years old, and four young calves. Eleven animals altogether.

May be seen by applying to MR. JOHN MILN, one-half mile from Weston Station (8 miles from Toronto).

Correspondence solicited.

F. A. FLEMING,

24 Front St. East, Toronto.

MEN AND WOMEN

Everywhere, to conduct business at home. No canvassing; work is simple writing and copying lists of addresses received from local advertising, to be forwarded to us daily. No previous experience required, but plain writers preferred. Permanent work to those content to earn \$6 or more weekly in spare time. Apply to WARREN PUB. CO., LONDON, ONT.

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**MAPLE HILL
Holstein-Friesians**

SPECIAL—Sir Pietertje DeKol, calved July, 1896, beautifully marked, will make a show bull. Sire, Sir Pietertje Josephine Mechthilde; dam, Inka Rose Pietertje DeKol. His forty-five nearest female ancestors have milk records which average over 84 pounds per day. In breeding and individual merit he is fit to head any herd in America. Price \$100 Cash.

G. W. CLEMONS - St. George, Ont.

**We have a number of
Choice Young Holstein Bulls and Heifers
FOR SALE**

Price and quality must sell them!

Mostly sired by Slepko 3rd Mink Mercedes Baron, a World's Fair prize winner.

Heifers and young cows bred to Sir Paul De Kol Clothilde, a milk and butter prince. His nineteen nearest relatives average twenty-two pounds of butter a week, and fourteen average 16,283 pounds of milk in one year. Write us for records of the dams of these young bulls. Four of our cows have won money in public tests (more to follow).

A. & G. RICE, Brookbank Stock Farm, Currie's P.O., Oxford County, Ont.

**SPRING BROOK STOCK FARM
Holstein-Friesian Cattle and Tamworth Swine.**

A few choice bulls ready for service. Also a grand choice in females of all ages. A bargain in bull calves. Breeding for quality and quantity. Write at once or come and see. Prices right. Tamworths of all ages for sale.

413

A. C. HALLMAN, New Dundee, St. Petersburg, G. I. R. Main Line. Watrloo Co., Ont.

**GEM HOLSTEIN HERD.
STOCK FOR SALE**

We only keep and breed Registered Holstein-Friesians. We have now some Choice Young Bulls and Heifers, also some older animals, all of the very best dairy quality, that we will sell one or more at a time on reasonable terms. Correspondence solicited.

600

ELLIS BROS., Bedford Park, Ont. Shipping Stn., TORONTO.

Helbon Stock Farm



Holstein-Friesians of the highest producing strains, founded on the best imported families of NORTH HOLLAND.

FOR SALE ---

Twenty females and a few young bulls, rising one year old. A rare chance to get the best stock at bargain prices.

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HOLSTEIN-FRIESIANS

Purebred stock of all ages, male and female, of Netherland, Johanna, Moore, and Peel strains, for sale at lowest prices. JOHN MCGREGOR, Constance, Ont. Lonsdesboro Stn.

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Choice young bulls and heifers, richly bred from BARNTON, BARRINGTON MERCEDES, and ARTIS strains. Prices reasonable.

807

T. W. CHARLTON, St. George, Ont.

**Four Superior Young
Holstein Bulls** of the very richest breeding for sale.

Also Eggs in season from choice pens of B. P. Rocks, Golden and S. L. Wyandottes, at \$1 for 15. Orders booked in rotation.

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MARCH OFFERING One officially tested two-year-old Heifer and two Heifer calves, from dams rich in butter fat. Also a few extra choice Berkshire sows ready to breed, and a fine litter now on hand from prize-winning stock.

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GUERNSEYS**



Awarded first prize at Montreal for BREEDERS' YOUNG HERD. Young animals of MERIT for sale. Pedigrees and particulars to parties wishing to purchase. Address, SYDNEY FISHER, Knowlton, Que.

FOR SALE.

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—OF—

CHOICE SHORTHORNS

As my farm is about changing hands, I am compelled to offer for sale at a sacrifice my entire herd, consisting of cows, bulls, heifers, and calves, selected from some of the best herds, including those of Lord Polwarth, J. & J. Russel, Bow Park, and John Miller & Sons. The whole lot are of the most superior quality and breeding. In good showing order. Took first prizes last year wherever shown. Full particulars on application to

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Or to T. G. MORTON, On the Premises, ALLANDALE, Ont.

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Ram and Ewe Lambs and Ewes of all ages, all registered. **Yorkshire Pig**, bred from J. E. Brethour's prize-winning stock.

Plymouth Rocks, best strain.

John Cousins & Sons,

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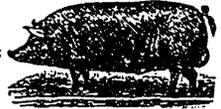
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Mammoth Bronze Turkeys

For sale. Write us.

858



One mile north of Claremont, on C.P.R.

MY COTSWOLDS won, in 1896, at three provincial and three county fairs 38 firsts, 31 seconds, 8 thirds, and 1 fourth, being first and second 26 times, and all pens shown for except one, and it was simply a give-away. We offer twenty good ram lambs, shearing and two-shear, at farmers' prices. Some excellent shearing ewes, bred to our best studs; fit for any company.

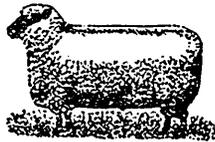
BERKSHIRE SOWS, ready to breed. Boars fit for service. 20 **PLYMOUTH ROCK COCKERELS**, choice. Visitors welcome.

632 C. T. GARBUTT, Box 18, Claremont, Ont.

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FOR SALE. — A fine lot of ram and ewe lambs, bred from imported sire and dams. Prices to suit the times.

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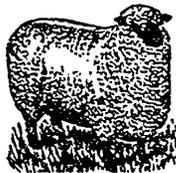


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Good values offered for early orders.

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"MINNIE MILES," twice winner over all breeds.

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I have for sale rams and ewes of all ages and both sexes at reasonable prices. All registered. Satisfaction guaranteed.

Some Choice Ewes for Sale, bred to Imported Rams. Won many honors at World's Fair.

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Guelph, G.T.R.
Arkell, C.P.R.

776

ARKELL P.O.

LARGE ENGLISH BERKSHIRES

Some prize-winners and some pigs from prize-winning boars and sows, September and October litters. Some fine young sows, farrowed in May. Also Clydesdale mares, from yearling to seven-year-old, eligible to registry. Prices right.



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Sunnyside Farm, 3 miles from Bright Stn., G.T.R.

A SPECIALTY OF **Improved Chester Swine and Leicester Sheep**



We have for sale a number of Chesters of both sexes and all ages.

Eggs from the following varieties of hens at \$1.00 per thirteen, L. Brahmas, Buff and P. Cochins, P. Rocks, S. G. Dorkings, S. L., G. L. and White Wyandottes, W. and B. Leghorns, Golden Polands, Indian and Pitt Game. Settings of above mixed if desired.

Bronze Turkey \$1.50 per nine. Pekin, Rouen and Aylesbury Ducks, \$1.50 per eleven. Have also for sale a few Cockerels, Gobblers and Drakes.

GEORGE BENNETT & PARDO,
770 CHARING CROSS, ONT.

POLAND-CHINAS at Williscroft.

ARE THE RIGHT KIND.

Brood sows for sale. Boars ready for service. Young sows ready to breed. Lots of pigs two to three months old; good long pigs with heavy bone. Prices right. Mention FARMING.



493 R. WILLIS, Jr., Glou Meyer, Ont.

Ghester Whites

and

Berkshires



For a boar or sow of any age, that are right in quality, right in breeding, right in price, and guaranteed to be all right. Address,

804

JAS. H. SHAW, Simcoe, Ont.



LARGE

ENGLISH BERKSHIRES.

My herd won 306 prizes, 11 diplomas, and 5 medals since 1888. Choice stock of all ages for sale.

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Stratford Station and Telegraph Office.

Registered Poland-China Swine

of July farrow For Sale Cheap for the next thirty days to quick buyers. Also B. P. Rocks and Black Minorcas.



Cockerels very Cheap.

R. B. McMULLEN, Blytheswood, Ont.

SWINE.

JOS. CAIRNS, - Camlachie, Ont.

IMPORTER AND BREEDER OF

Chester White Hogs

Stock on hand for sale at all times, of all ages, and at right prices.

LARGE ENGLISH BERKSHIRES

Sows in pig. Young boars fit for service. Orders booked for young pigs, sired by Baron Lee 4th, and Victor XII. For prizes won by us see Toronto Industrial and Guelph Fat Stock Show of 18 and 1896.



Write for prices or come and see us.

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MAYFIELD HERD OF BERKSHIRES

Now is the time to place orders for young pigs of January, February, and March litters. Sired by my champion English winner **Manor Hero (5141) 4117**. Four choice imported sows in herd. Some good young sows bred to Manor Hero for sale. Write for prices. Satisfaction guaranteed.

686 **S. COXWORTH, Whitby, Ont.**

NITHSIDE FARM HERD of BERKSHIRES

Four Choice Young Sows, also Two Yearling Sows, For Sale, bred to the fine young boar, Nonpareil, a son of Barron Lee 4th and Lady.

As we have been breeding Berkshires for the last fifteen years from the best that can be got, our customers can rely on getting choice pigs. None but first-class stock sent out, and satisfaction guaranteed in every case.



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IMPROVED LARGE YORKSHIRES.

ONLY ONE BREED KEPT

But the very best of that breed. A large herd to select from, and prices very moderate. Write for prices.

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Maitland Stock Farm... Large English Berkshire PIGS

OF THE BEST TYPES. Stock guaranteed. Young stock on hand and for sale at all times
FRANCIS RUSSELL,
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SWINE.

Large English Berkshires

CHOICE BOARS from 3 months to 18 months, also sows in farrow, and a number ready to breed now from the best strains. Registered pedigrees. Satisfaction guaranteed. Size, length, and heavy bone a speciality.



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Pine Grove Herd Duroc-Jersey SWINE
NOW IS YOUR CHANCE

to secure a choice breeding sow cheap. Also a choice lot of fall pigs to hand.



Write for particulars.

754 **CHAS. ANSTICE, Springfield, Ont.**

POLAND=CHINAS



My herd is composed of the most popular strains of prize-winning blood from imported stock. A choice lot of spring pigs from imp. Black Joe ready to ship. Also a twelve-months-old sow due to farrow in August (a show sow).

OLIVER DRURY,
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GOLDSRING HERD OF TAMWORTHS



Herd headed by the famous **King George**, an unbeaten winner, assisted by **Red Knight**, and such famous dams as **Amber Rose, Trilby, Goldspring Girl, and Nellie Bond**. Young boars ready for service, and sows ready to mate. Two grand September litters ready to ship. Prices right.

NORMAN BLAIN - St. George.

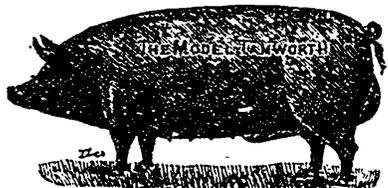
Parkhill Berkshire Herd

AND **POULTRY YARDS.**

I have a choice stock of all ages and sex for sale at all times. Terms and prices reasonable. Write for what you want. I am prepared to book orders for Spring Pigs, and can furnish pairs and trios not akin. Will book orders for Eggs from choice pens of **L. Brahmas, W. and B. P. Rocks, W. and B. Leghorns, W. and S. L. Wyandottes, W. Minorcas, S. G. Dorkings, P. Cochins.** 13 eggs, \$1; 26, \$1.50. Rouen and Pekin Duck Eggs, 10 for \$1. **M. Bronze Turkey Eggs,** 20c. each, 9 \$1.50. **D. A. GRAHAM, Parkhill, Ont.**



TAMWORTH'S SWINE



For Sale—Young Pigs from three to five months old.
Address, **JOHN BELL, Glydesdale Farm**
Agincourt Station, G.T.R. and C.P.R. Amber P.O.

FOR SALE.

Seed Oats For Sale.

SALVER'S SILVER MINE

A leading variety of White Oats, strong grower, and great yielder. Also a quantity of

IMPROVED AMERICAN

A splendid White Oat and

GOLDEN PROLIFIC.

Price for bushel, 50 cents. In ten bushel lots or more, 40 cents per bushel. Bags free.

ROBERT ROSE, Glenmorris, Ont.

... FOR SALE ...

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Exchange

Will sell two registered A.J.C.C. bull calves six months old or exchange for Ayrshires. Extended pedigrees mailed on application.

J. J. Keator,

BOX 356,

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Two Horse, For Sale at a bargain, as I am putting in steam and have no further use for it

G. F. Marsh, Thornbury, Ont.

FOR SALE

- ▼ One First-Class, Second-Hand Alexandra Cream Separator, capacity 600 lbs. per hour; runs by hand or power. A First-Prize Imported Guernsey Bull out of Irma 3421, silver medal cow at Toronto, 1896. Write
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Horse and Gattle

« Spice »

Only \$5.00 per 100 lbs.

—Sold elsewhere for—

\$8.00 per 100 lbs.

Freight prepaid on 500 lb. lots.

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Publishers of FARMING.
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Write for particulars.

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FOR SALE

Famous heavy-yielding **Beardless Barley**, at \$1.10 per cwt., or \$1 if 10 cwt. be taken. Out-yielded other Barley by one-third in past two years. Bags 15c. extra. Also eggs from P. Cochins, S. and W. Wyandottes, B. P. Rocks, Houdans, and B. Minorcas. Birds in our yards hatched from eggs from England this year. At six fall fairs (1895) we won 78 prizes; over 70 per cent. shown for. Last fall won 80 per cent. of all prizes. Have several breeds besides above. Males of India Games, Light Brahmas, and P. Rocks, \$2 each—dandies. Eggs from now on at \$1 per 13. No trouble to answer enquiries.

J. WEAVER & SONS, Chatham, Ont.

CHAMPION'S

**IMPORTED
BLACK
MINORCAS**

Were winners in England and Michigan's largest shows. Eggs \$3.00 per 13. My native stock with imported cock, \$3.00 per 13. My Black Breasted Red Games were imported January 17. They were winners in England's best shows. Eggs \$3.00 per 13. Imported birds, male and female, of above for sale, also Indian Games, Aylesbury and Pekin ducks. Also ten other varieties of native stock for sale. Eggs \$1.50 per 13. Send for circular and catalogue. 5 cents in stamps gets it, 48 pages, 7 x 10.

Agt. W. Woods Poultry Yds. **S. CHAMPION,**
Edwinstowe, Eng. Cass City, Mich.

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Go!**

All stock guaranteed

**Golden and Silver
Wyandotte Cockerels**
\$1.50 to \$3.00 each

Pullets, \$1 to \$2 each. Eggs in season, \$1 per 11. Stock bred for exhibition and utility.

Bronze Turkey Gobblers

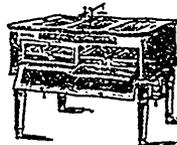
\$3 each; hens, \$2.50. Very large, and fine breeding quality.

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The firm who is afraid to let you try their incubator before buying it has no faith in their machine. We will sell you ours **ON TRIAL. NOT A CENT** until tried, and a child can run it with 5 minutes' attention a day.

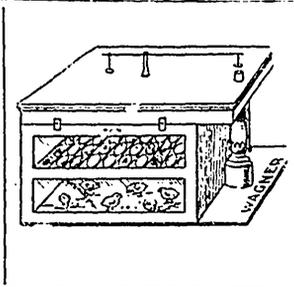
We won **FIRST PRIZE WORLD'S FAIR** and will win you for a steady customer if you will only buy ours on trial. Our large catalogue will cost you 5 cents and give you \$1.00 worth of practical information on poultry and incubators and the money there is in the business. Plans for Brooders, Houses, etc., 25 cents. N.B.—Send us the names of three persons interested in poultry and 25 cents and we will send you "The Bicycle: its Care and Repair," a book of 180 subjects and 80 illustrations, worth \$5 to any bicycle rider.

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Thermometer and Egg Tester included
Self regulating ; has drying-room underneath egg-tray

7 MEDALS and NUMEROUS PRIZES

Buff **EGGS** For hatching, from prize pen, \$3 for 13
Leghorn From great laying stock, \$1.50 for 13

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GOLDEN WYANDOTTES, also White Leghorns and Black Langshans. Purebred stock at hard times prices. Write for particulars. I guarantee satisfaction. Eggs in season.

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GAME COCHIN THE FINEST STOCK
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Thousands of premiums at the leading shows. Also Boston Terrier Dogs and Angora Cats of the bluest blood. Stamp for Catalogue.

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Lock Box L. Winchester, N.H.

S. L. Wyandottes, Red Caps, and Rose Comb Black Minoras.

EGGS, \$1 per 13.

Wyandottes and Red Caps for Sale.

All high-class stock.

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HATCH Chickens BY STEAM-
With the **MODEL**
-EXCELSIOR- Incubator
Simple, Perfect, Self-Regulating. Thousands in successful operation. Lowest priced first-class Hatcher made.
Geo. H. STAHL,
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Eggs for Hatching from first-class Stock

Blue Andalusians, \$1.50 per 13. Black Javas, \$1.50 per 13
Partridge Cochins, \$1.50 per 13. S. S. Hamburgs, \$1.50 per 13
Brown Leghorns, \$1.50 per 13. Black Hamburgs, \$1.00 per 13
Rouen Ducks, \$1.50 per 13.
One Rouen Drake, at \$2.00, also stock of any of the above varieties.

W. R. KNIGHT, Bowmanville, Ont.

LAKESIDE POULTRY YARDS

S. HOBART, COBOURG, ONT.

S. C. WHITE, BROWN, BLACK, BUFF LEGHORNS and BUFF COCHINS. Finest stocks of the above varieties. Noted for large size and great laying qualities. I have in my yards strains of the best breeders in America, Twenty-five fine Cockerels For Sale, either for Exhibition or as Stock Birds. **EGGS FOR SALE.**
Satisfaction Guaranteed in every case.

The Safety Incubator Won First Prize

At Toronto Industrial, hatching 81 1/2 per cent. after carrying the partly hatched eggs over fifty miles, while our competitors, whose machines were built and operated right in Toronto, hatched only 58 1/2 per cent. and 40 per cent. These facts should tell you exactly what machine to buy. Our machines for 1897 are surpassed by none. Consult your own interests by writing us for all further particulars.

A fine lot of **SILVER WYANDOTTES** for sale.
J. E. MEYER, Box M, Kossuth, Ont.

RIVER VIEW POULTRY YARDS

Eggs for Hatching, \$1.25 per 13.

Light and Dark Brahmas, Buff, Black, and Partridge Cochins, Golden Wyandottes, Black and White Plymouth Rocks, Black Spanish, R. and S.C. Brown and R.C.W. Leghorns. Settings mixed if desired. No discount on quantities.

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Young breeding stock for sale **52 Clarence St., London.**

For Sale

Silver Laced, Black, and White Wyandottes, White Plymouth Rocks, American Dominiques, S. C. White Leghorns, and Black Cayuga Ducks

Our birds won 70 prizes at the last exhibitions in Toronto, London, and the Ontario Poultry Show. Birds for sale at reasonable prices at all times. **EGGS, \$1.50 per 13.** Satisfaction guaranteed.

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Breeder of Golden Wyandottes (McKeen strain). Eggs in season. Orders booked in rotation at \$1.00 per setting. Some fine young birds for sale at \$2.00 each or \$5.00 per trio. Correspondence solicited.

BARRED PLYMOUTH ROCKS

I have as head of my best breeding pen a **Cock taking 1st against seventeen entries at the Toronto Industrial Exhibition.** Also other prize-winners.

Settings from the above at following prices:

One Setting, \$1.50 Two Settings, \$2.75

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Orders booked in rotation ; every customer satisfied last year.

132 Yards High Class Fowls

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PROFITS IN POULTRY!

Our Eleventh Annual Poultry Guide and combined catalogue tells how to earn these profits. What others are doing you can do. One hundred and forty-eight pages of valuable, practical matter.

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The Improved Reliable is Warranted to Hatch 80 per cent. of the fertile eggs. Hundreds of recent testimonials. Sixteen popular kinds of **TROUBLED FOWLS FOR SALE**, also full line of Poultry Supplies. Price of Guide 10c. in stamps-worth one dollar.
Reliable Incubator and Brooder Co., Quincy, Ill.

Cheap Cockerels!

Farmers who wish to increase the egg yield from their poultry should use a thoroughbred male bird of a well known egg-producing strain. Mr. Thomas A. Duff, Toronto, is offering Cockerels for this purpose of White and Black Minorcas and Barred Plymouth Rocks (same blood as his winners), at the extremely low price of \$1.50 each. Readers of FARMING who keep poultry cannot expend \$1.50 better than by investing in one of these Cockerels. Eggs \$3 per setting, \$5 for two settings. **THOMAS A. DUFF, Toronto, Ont.**

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**SHORTHORN CATTLE
OXFORD SHEEP
BRONZE TURKEYS**

Have on hand for sale 14 shears, 3 shearing rams; also a number of ram and ewe lambs. Prices right.

462 **JAS. TOLTON, Walkerton, Ont.**



EGGS, 13 for \$1.00, from extra choice matings of standard bred White Wyandottes, the best general purpose fowl in existence. Send for descriptive price-list (it's free). **F. W. WELLS, Prop.**, Reliable Poultry Yards, 8 Wall Street, Rochester, N. Y.

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Brown Leghorn and W. P. Rock fowls (Forsyth and Rice strain). Young stock for sale, \$2.00 each; \$5.00 per trio. Eggs in season, \$1.00 per setting. 1013

BARRED ROCKS EGGS, \$1 per setting
Bradley strain. No bird in pen scoring less than 90 points.

LANGSHANS EGGS, \$1 per setting
Forsyth strain. All high-scoring birds. Orders booked now.

A few fine birds for sale.
W. T. GIBBARD, Napanee.

W. W. REID, { Send for }
Circulars }
BREEDER OF **AYR, ONTARIO**
20 Varieties of High-Class Land and Water Fowl.

1077 **Birds and Eggs for sale in season.**

A. F. DIMINA,
Locust Hill Station. **CEDAR GROVE, Ont.**

Breeder prize-winning Rose Comb and Single Comb White Leghorns. The head of my Single Comb pen has taken nine first prizes out of ten exhibits. Eggs \$1.00 per setting of 13.

LUCKNOW POULTRY YARDS

Breeders and Importers of Buff Cochins, Light Brahmans, Houdans, Red Caps, S. L. Wyandottes, Black Minorcas, Pyle Games. Eggs \$1.50 per 13. B. P. Rocks, White and Brown Leghorns and Pekin Ducks, \$1.00 per 13. Eggs warranted fresh. Correspondence solicited.

Address **J. C. LYONS, Lucknow, Ont.**
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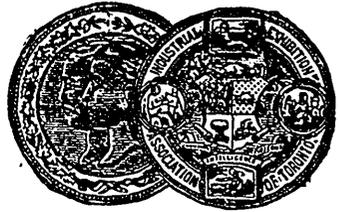
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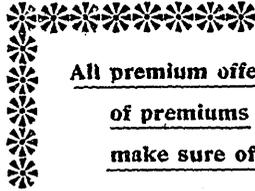
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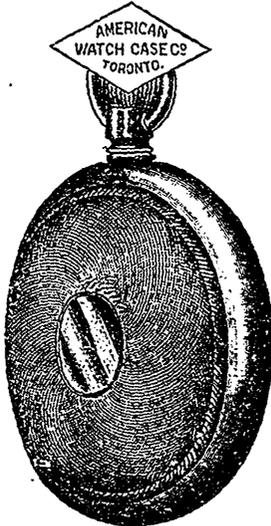
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faithfully yours
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FARMING

Vol. XIV.

MARCH, 1897.

No. 7.

THE DOMINION DEPARTMENT OF AGRICULTURE.

FIRST PAPER.

THE WORK OF THE DAIRY COMMISSIONER FOR THE DOMINION.

EDITORIAL.

The work done for our agricultural industries by the government of the Dominion is not as well, or as generally, understood as it ought to be. Not do those whom primarily this work is intended to benefit take as much interest in it, or follow its development as closely, as they should. A part of this lack of interest is no doubt due to the fact that, until very recently, the official head of the Department of Agriculture for the Dominion has never himself been a practical agriculturist. A suspicion, therefore, became far too general that the office was a political one, and was managed for political ends. In consequence it oftentimes happened that sincere and earnest efforts made by the Department for the improvement of our agricultural condition received but scant sympathy even from those whose material wellbeing these efforts were intended to promote.

The present head of the Department of Agriculture for the Dominion is a practical agriculturist, and the unanimity of good will with which his appointment has been received by all who are themselves engaged in any of the many branches of agriculture, quite irrespective of their political partisanship, is an evidence that the principle of associating with the office a personal practical experience in some branch or other of agriculture is one that commends itself to men's judgments, one, too, that it will in future be a political mistake to ignore.

We propose in two numbers of FARMING to review the work done by the Dominion Department of Agriculture from the beginning—that is, so far as its work bears directly upon agriculture.

The Department Includes Other Than Agricultural Affairs.

We may say, in passing, that besides purely agricultural affairs, there are several other branches of the public service which come under the administration of the Minister of Agriculture. Although these are extremely important, and by

no means should be unattended to, yet, as they must considerably occupy the time, the energy, and the thought of the Minister of Agriculture, they should be provided for otherwise. Copyrights, patents, human quarantine, statistics, have no necessary connection with agriculture, and the Minister of Agriculture should have no direct responsibility for them. He has to do with the occupations and industries, the trade and commerce, of seven-tenths of our population. Nor is it alone in the numerical magnitude of the agricultural constituency that the difficulty of managing its public interests lies. It is the fact that this vast constituency is spread over an immense area, and is placed amid every sort of condition as to climate, soil, facilities for transportation, market requirements, and market advantages, and is, moreover, so isolated in its individual parts, that causes it peculiarly to need government assistance in the way of education and the diffusion of information. A farmer's business necessarily isolates him from his fellows. He therefore gains little knowledge, except by reading, of what is going on in the world's centres of population where his products are for the most part consumed, or of what other people in the same line of business as himself are doing towards cheapening production or producing goods more desirable to purchasers. He is, therefore, to a larger extent than any other business man, unable either to improve his own methods unless aided and instructed by those with greater experience and wider purview than himself, or to guard against or to take advantage of market fluctuations and new market openings unless similarly directed. This instruction in new and improved methods, and this direction towards advantageous trade relationships and to advantageous markets, must, in our modern system of social economy, come from the Government, either local or national, as may best be fitting. Hence, it is very evident that the head of the Department of

Agriculture for Canada has an immense field for the exercise of every atom of ability he possesses without having any direct responsibility for copyrights, patents, human quarantine, statistics, or anything else that does not immediately concern the tillage of the soil.

Three Proper Lines of Government Administration.

There are three very distinct lines of action which a government administration of agriculture may properly take. Two of these are wholly educational in their object. The first has for its basis scientific research and experiment. By processes of investigation and trial far too extended and expensive for the individual worker to take up, principles are educed and facts estab-

development of our agricultural interests, and the discernment with which it leaves in abeyance problems that are of less importance, will be the measure of the appreciation in which such an institution will be held by the people, and of the justification for its support which will be extended to it by Parliament.

The second line of action referred to above has for its basis the direct application, by governmental intervention, of the principles and facts established by scientific investigation to the everyday practice of those actually engaged in the production of soil-products. These products may be the direct products of the soil, as the various kinds of grains, roots, grasses, fruits, etc.,



Residence of Agriculturist, Central Experimental Farm.
Occupied, 1890-95, by Professor Robertson, as Agriculturist.

lished which, if applied to actual practice, will result in improved methods and greater profits. These principles and facts are then set forth in plain language, together with such proofs of their soundness as can be readily understood by the people, and, as bulletins, are then distributed broadcast for the information of those interested and, it is hoped, for the betterment of their individual practice. This is the reason for the existence of such an institution as the Experimental Farm at Ottawa, with its corps of skilled scientific investigators. The directness with which it seizes upon problems that are in immediate need of solution because of their importance in the speedy

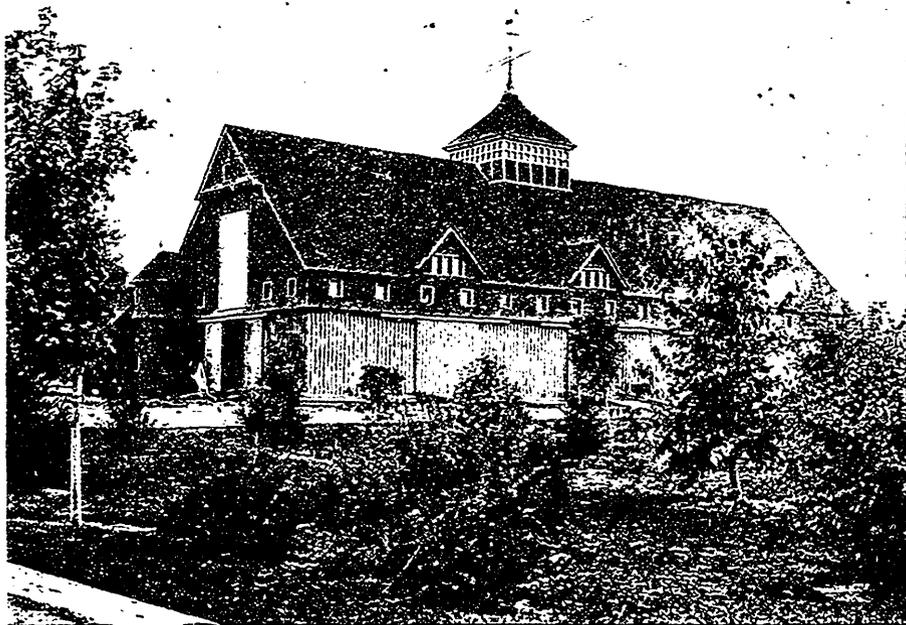
grown in our fields and orchards, or gardens; or they may be indirect products, as horses, cattle, sheep, swine, poultry, etc.; or secondary products, as beef, mutton, pork, bacon, hams, milk, butter, cheese, eggs, etc. Whenever governmental action can, by scientific teaching, illustrative processes, etc., cheapen the cost of production of any of these products, or improve the production at the same cost, or extend the production over wider areas, or establish it with more individuals in the same areas, then government is acting for the best interests of the people in taking such action. This is the justification of agricultural colleges and schools, and especially of

such institutions as experimental dairies, travelling dairies, and the like.

Governmental Administration may with Propriety be Increased.

The truth is that the propriety of governmental action in such matters is yet only beginning to be understood; and that in the future we shall have more of such action rather than less: and that we shall have, sooner or later, institutions, temporary or permanent as may be necessary, for instruction and illustrative work, not merely in buttermaking and cheesemaking, but in every other part of the farmer's business. The field is wide; the need is great. As compe-

a government administration may properly take for the promotion of agricultural industries is not wholly educational, but only partly so. It lies principally in the securing of the best trade facilities and market privileges, and in such directive effort as will ensure the agricultural products of the country being produced, and transmitted to the market-place of the consumer, in such conditions as regards quality, appearance, seasonableness, etc., as will serve best to obtain the highest market prices, with the least possible expense to the producer. The individual producer of any food product, say butter or poultry, for example, can neither establish suitable means of transporta. i n



Barn of Central Experimental Farm.
In charge of Professor Robertson as Agriculturist. 1890-95.

tion becomes keener and keener with the increase of the world's population, every branch of agricultural industry will have to become more and more economical in its processes, and more and more fitted to turn out products of the finest and most desirable qualities. Therefore it is that a Government Department of Agriculture will every year become more and more complex, and will every year demand greater and greater organizing skill and directive effort in its official head. The Government Responsible for the Character of our Trade Facilities.

The third line of action referred to above which

by himself, nor easily learn from experience what markets are most favorable to him; neither can he find out without great personal expense what conditions must be fulfilled by him in order to meet the requirements of the market where his produce is finally consumed. All this is the province of government. And not only should the government see that a trade route is established; it should also see that this route is made the most advantageous possible. And not only should it see that access to the world's markets is made as easy as possible, but it should also see that the necessary educational work is done to

enable every producer who sends produce to these markets so to prepare his produce that he will obtain the highest prices in these markets. Not only so, but, if need be, the government must be willing, in the interests of the people, to spend money in order to break down trade prejudices, and overcome trade customs and habits, when these are inimical to the material well-being of the producers whose interests it serves. Nay, further; it must be willing in its corporate capacity, as representing and embodying the whole people, to assist, and even perhaps to undertake, ventures of an experimental nature, which may be too great for the unaided resources of individual traders or producers, ventures having for their object the introduction of the products of the soil to new and promising markets.

This is a true function of government; and a government that does not recognize its duty in this respect falls far short of being a worthy guardian of the people's interests.

Of course, governmental action such as we have described is liable to abuse. But all government action is liable to abuse. An honest government, however, need not be afraid of abusing its trusts; and the people need not have any other than an honest government if they so choose.

The Work Done by the Dominion Dairying Service.

In this first paper of our review of the work done by the Dominion Department of Agriculture we shall confine ourselves to the work done by the Dominion Dairying Service. The other great department of work, namely, that done by the Dominion Experimental Farms, we shall leave to a subsequent paper. The work of the Farms is of great magnitude, involves many features, is not as well understood as it ought to be, and therefore calls for special treatment.

We may say at the outset that we conceive that the work done by the Dominion Dairying Service has been of immense importance to the agricultural interests of the Dominion. We doubt if ever in the history of this or of any other country there has been in so short a time so wonderful a development of a great industry as has taken place in Canada in the past seven years with respect to the dairy industry.

The development has not been merely in quantity; though in quantity alone there has been development of a very gratifying degree. In 1889 our export of cheese was 88,534 lbs., of which that exported to Great Britain was valued at \$81,571,205. In 1894 we exported to Great Britain alone 127,915,648 lbs., valued at \$13,086,204, or an increase of nearly 50 per cent., both in quantity and value. In 1895 the value of our

cheese exported to Great Britain was \$14,220,505; while the value of the export in 1896 was about \$1,500,000 greater than it was in 1895. In 1889 our export of butter was 1,780,765 lbs., of which that exported to Great Britain was valued at \$174,027; while in 1894 our export of butter to Great Britain alone was 2,339,344 lbs., valued at \$438,589. In 1895 the value of our butter exported to Great Britain was \$536,797, while the value of the export in 1896 was over \$1,000,000 greater than it was in 1895.

These figures indicate that the increase in the value of our dairy exports to Great Britain from 1889 to 1896 is for cheese about \$6,849,300 (the exact returns for 1896 are not obtainable yet), and for butter \$1,362,770; or a total increase in our dairy exports since the appointment of the Dairy Commissioner of nearly eight and one quarter millions of dollars!

Improvement in our Dairy Exports in Quantity, in Quality, and in Kind.

But, as we said above, the development has not been in quantity alone; there has been a development in quality, and there has been a development in kind. The cheese product of all the provinces has been improved (that of Quebec in particular) and made more uniform, so that now almost the total output of the whole Dominion obtains the topmost prices in the British market as the "Best Canadian." The butter product of the whole Dominion has also been greatly improved in quality, not alone domestic butter, but creamery-made butter as well. And the whole development of winter buttermaking in Canada, which in Ontario alone is estimated to be carried on during the current season—1896-97—in 140 creameries and factories, is a development that had its very first beginning so recently as the winter of 1891-92 in the establishment by the Commissioner of two experimental winter creameries. And in addition to all this there has been the extension of the area of dairy production into whole districts and whole provinces where previously it had no existence; and the establishment of dairy farming upon hundreds and thousands of farms where previously it had never been tried.

The foregoing is a rapidly summarized statement of the progress which our dairy industry has made in the past seven years. We shall now proceed to take up in somewhat more detail the work achieved by the Dairy Commissioner's Department since its establishment in February, 1890.

The Establishment of the Dominion Dairying Service.

A preliminary statement should be made as to the establishment of the Dairy Commissioner's

office, in the first place, and the appointment of Professor Robertson as Commissioner.

In April, 1889, a convention of representative delegates from all the leading dairy associations of the Dominion was held at Ottawa. The object of this convention was to form a Dairy-men's Association for the Dominion of Canada. The convention was in every way a successful one. The association was formed, and it included in its first directorate leading dairymen from every part of the Dominion. During the progress of the convention a committee from the association appeared before the House of Commons Select Standing Committee on Agriculture and

Mr. S. A. Fisher, M.P. for Brome, and now Dominion Minister of Agriculture, was the mover of a resolution of similar import.

Subsequently an audience was granted by the Premier of the government, Sir John Macdonald, Mr. Carling the Minister of Agriculture, and Mr. Mackenzie Bowell and other members of the cabinet, to a deputation from the association. At this audience the claims of the dairying interests of the country were preferred by Mr. D. M. Macpherson, of Lancaster, Mr. H. S. Foster, of Knowlton, Quebec, Professor Robertson, then of the Guelph Agricultural College, and others. The address of Professor Robertson was so apt,



Professor Robertson in his Plot of Ensilage Corn.
A part of his 40-acre lot, 1893.

urged the claims of the dairying interests of the country to increased attention and aid on the part of the Government. As a result of that appeal a resolution was passed by the House of Commons Committee as follows :

"That in view of the extension and importance of the dairy industry of Canada, and the necessity of protecting its interests, the committee thinks it its duty to recommend the appointment of a dairy commissioner, whose duty it shall be to watch over and promote, as far as possible, the progress of the different branches of this important part of the national industry."

Dr. Sproule, M.P. for East Grey, was the mover of this memorable resolution.

so logical, so full of illustrative evidence, that it had great weight with the members of the cabinet present, and the Premier, Sir John Macdonald, asked Professor Robertson to prepare a memorandum for the use of the government, setting forth the views which had been presented by the deputation.

Professor Robertson's Memorandum.

This *Memorandum*, drawn up by Professor Robertson, was the most lucid presentation of the growing importance to the country of the dairy industry, and the most cogent argument in favor of government assistance being given to it, that

up to that time had ever appeared. The Memorandum was drawn up with special reference to convincing the government of the propriety of granting \$3,000 to the newly-formed Dairymen's Association; but it also dealt with the advisability of appointing a Dairy Commissioner, though somewhat incidentally.

Professor Robertson Appointed Commissioner.

The government, however, saw that every argument that had been advanced in favor of support being given to the Association was of ten-fold more validity as applied to the advisability of appointing a competent officer to take charge in an effective way of all the dairying interests of the country, so far as these could be benefited by government assistance and encouragement. While, therefore, the government granted the prayer of the petitioners at once in so far as the giving of aid to the Dominion Dairymen's Association was concerned, it also recognized that the appointment of a Dairy Commissioner was imperatively necessary. This, however, was a matter that could not be lightly disposed of. It meant, in fact, the institution of a new department of public service, and the expenditure yearly of a very considerable sum of money. We believe, however, that the minds of Sir John Macdonald and other leading members of the cabinet were made up at once; and that they were convinced that it would be wise to institute the department and place Professor Robertson at the head of it just so soon as the necessary details could be arranged for. These were all provided for in the course of the year, and on February 1st, 1890, Professor Robertson entered upon his office.

Appointed also Agriculturist.

It was also arranged that, in addition to being Dairy Commissioner, Professor Robertson should be the Agriculturist of the Central Experimental Farm. This arrangement, although perhaps not quite sound in theory, worked well in practice. As Dairy Commissioner, Professor Robertson was directly responsible to the Minister of Agriculture. As Agriculturist he was subordinate to Dr. Saunders, the Director of the Dominion Experimental Farms. A very great portion of his time was necessarily taken up with the duties of the larger office. His work upon the Farm would also necessarily be dominated by his interest in dairy matters. But, as said above, the arrangement in practice worked very well. Dr. Saunders is a gentleman of great fairmindedness and exceeding courtesy. An arrangement that would have worked ill with a less fairminded man worked well with him. It was agreed that Professor Robertson's work at the Farm should be concerned

mainly with experiments and matters that were connected more or less intimately with dairying; while Dr. Saunders should continue to supervise the general agriculture of the Farm. Also in the stables and with the live-stock it was arranged that Professor Robertson's work should for the most part have close connection with his work as Dairy Commissioner, so that the experiments should have to do with, mainly, the production of milk or the use of the by-products of the dairy, or else the production of meat by the use of rations similar to those fed to dairy cattle.

The Central Experimental Dairy.

On the Farm also was built, in 1890, an Experimental Dairy Building, needed for investigations to discover what are the differences in quantity and quality of milk and butter that result from differences in "breeds," "feeds," and "care and treatment of the animals"; also to reveal the losses or gains that result from the treatment of milk, cream, butter, cheese, skim-milk, and buttermilk, according to different methods; and for many other useful experimental purposes.

Professor Robertson remained in connection with the Central Experimental Farm as Agriculturist, and in charge of the Experimental Dairy in connection therewith, until December, 1895, when he was appointed Agricultural and Dairy Commissioner for the Dominion. He then resigned his position as Agriculturist to the Farm, and ceased to reside in the residence which as Agriculturist had been provided for him on the Farm.

Professor Robertson's Qualifications as Commissioner.

We believe that the appointment of Professor Robertson to the position of Dominion Dairy Commissioner was one of the very happiest that could have been made. There are very many able men in Canada connected with the agricultural industry, and it is the pleasant duty of FARMING from time to time to present the merits of these men before its readers, so that the whole agricultural community may become informed in all its parts of what is being done everywhere to promote its welfare and improve its status. We therefore have occasion frequently to speak in terms of praise of men who by their industry, their energy, and their ability, are instrumental in advancing the interests of agriculture and its kindred industries. We trust, therefore, that when we speak of Professor Robertson's ability, and of his undoubted qualifications for the position he holds, we shall not be understood as disparaging in any sense the work of other men who

in other ways are doing excellent service for their country and their fellow-men.

In the commission under which Professor Robertson was appointed to his office it was set forth that the appointment was "for the purpose, by means of bulletins, conferences, and lectures, of diffusing practical information among the farmers of the Dominion on the most improved and economical methods of manufacturing butter and cheese, and of feeding cattle to produce the best results in obtaining milk."

We conceive that the government could scarcely in all the wide world over have made a more excellent choice for the carrying out of this commission. Professor Robertson's skill as a buttermaker and cheesemaker, and his ability as a teacher, were, of course, established before this appointment. He had also, while connected with the Ontario Agricultural College at Guelph, won enduring reputation as a lecturer at farmers' institutes and before assemblies of dairymen. He had, too, in his own business experience as a factoryman, won commercial success. But many a man who, in a local area, has stood prominently forward as a leader, fails, when placed in a larger sphere, in individuality, and in power to deal with the larger questions of his new position.

His Success.

It has not been so, however, with Professor Robertson. His technical and practical skill as an expert cheese and buttermaker has kept pace with the improvement which the application of scientific principles to dairying has, during the last seven years, introduced into the practice of dairying as followed in such advanced dairy countries as Denmark, Sweden, Holland, France, and Britain. His ability as a teacher, while not exercised since his appointment in any directly pedagogic sense, has shown itself however in the instruction of a corps of assistants who are living testimonies to that supreme characteristic of a teacher who is also a leader, the power of inspiration and of eliciting enthusiastic service. His ability as a lecturer has been put to every conceivable sort of test, and has never been found wanting. He has addressed audiences of every rank, from the humblest to the highest, in every province, one might almost say in every community, of the Dominion, and also in Britain; and whether he has had to speak on the spur of the moment or after due time for preparation, his addresses have been always lucid, always logical, always captivating, and always convincing. The language is simple and direct, but the diction is chaste and oftentimes elegant. Moreover, there is generally a delicate vein of humor cropping up often enough during his discourse to

give it that degree of enlivenment which is welcome even to the most sober-minded hearer. He has also a power of quaint epigrammatic condensation, which, when needed, crystallizes into a striking sentence, that falls upon a hearer with all the force of an old proverb, as much thought and argument as would take a less gifted speaker a page of oratory to set forth. But above all, and pervading all, is the earnest-mindedness of the man—full of his theme, charged with it, overflowing with it—that never fails to make his subject plain to his audience, and to convince them of its reasonableness and soundness. Without doubt the Dairy Commissioner is one of the very ablest speakers on agricultural topics that we have in Canada to-day.

His Bulletins and Reports.

His bulletins are equally models of clear statement, logical arrangement, and terse condensation. And, experts being judges, they are eminently practical.

His reports, both those that he has issued directly as Dairy Commissioner, and those that he has contributed as a member of the staff of the Experimental Farms to the volume issued annually by the Director, Dr. Saunders, are characterized by the same clearness of apprehension and lucid explanation which characterize his bulletins and addresses. He always has some definite, practical end in view—some cost of production to be lessened, some superior quality of product to be achieved, some market advantage to be won—and, seeing this clearly from the beginning, he simply uses one statement or explanation after another until he makes his reader see it as plainly as he himself does.

The Work of the Dairy Commissioner has Embraced Three Lines of Action.

We shall now briefly take up in detail some special aspects of the Dairy Commissioner's work. It will be seen, especially when his work as Agriculturist is taken into consideration, that it has embraced the three lines of action which, at the beginning of this paper, we said might rightly characterize governmental assistance of agricultural industry. In fact, it naturally divides itself into the same three divisions: (1) There has been the work of investigation and experiment carried on at the Central Experimental Farm and at the Central Experimental Dairy, and the publication of the results established thereby in the form of reports and bulletins. (2) There has been the establishment of dairy stations in different parts of Canada, and the institution of travelling dairies to visit places beyond the reach of the influence of the located dairies, by which means direct dairy instruction has been given to

almost all the professional buttermakers and cheesemakers of Canada ; by which means also new and improved methods of manufacture have been illustrated and made plain for the edification of buttermakers and cheesemakers, both professional and domestic. And (3) there has been a strenuous effort, continued from the very first, to establish better trade methods; to bring about a closer attention on the part of our producers to the wants of markets; to institute better transportation facilities, especially safer ones; to secure such means of packing and handling farm products as will ensure less loss from their deterioration in transit; to overcome market prejudices that are inimical to our trade; and, finally, to secure for our producers the utmost possible proportion of the price of the products which is ultimately paid by the consumer.

It is, we submit, this careful planning out beforehand of what he wishes to accomplish, and his definite, steady, purposeful "working to the plan," that has enabled the Commissioner to accomplish what he has accomplished in the comparatively short time of incumbency of his office—which, it must be remembered, has been only seven years.

The Work on the Farm.

Professor Robertson's work on the Experimental Farm has, like every other part of his work, been characterized by its purposefulness. He has always had a definite end in view. And that end has always been a very practical one. On the farm it has been, specially, the production of the greatest possible amount of suitable cattle food on a given area of land, and with the least possible expense for labor in cultivation and saving. And, mark, it is *suitable cattle food*: and the test is its suitability to produce milk that will make good butter and cheese at small cost. He early became convinced that corn was the product of the soil that came nearest to being ideal in this respect. He therefore became the apostle of corn culture. His assistants enthusiastically preached the same doctrine. And the result is that, to-day, in every part of the Dominion, corn is grown on hundreds of acres for every one it was grown upon seven years ago.

The "Robertson Mixture" for Ensilage.

But corn is not a perfect ration. It contains the carbohydrates in abundance. It contains, also, albuminoids and fat, and these in no meagre quantities. But when the albuminoids and the fat which the corn contains are compared with what are required in a perfect ration they are found to be deficient. The albuminoids are necessary as flesh-formers. They are necessary

also for the production of the casein or curd in the milk; likewise for the formation of the cells in which the fat globules of the milk are secreted; likewise, too, for the fat globules themselves from which the butter is made. The fat in the food is required to sustain the necessary heat and vital action of the body which the carbohydrates by themselves in our cold climate would only incompletely do. If corn, therefore, were partially deficient in albuminoids and fat it was clearly not a perfect ration. The deficiency could be supplied by feeding the meal of grain or cotton seed. But this was dear. After thinking the matter over for a long time Professor Robertson devised a combination of horse beans for the albuminoids, and sunflower heads for the fat, to go with the corn to form what may be called a fairly complete ration. The complete food could be produced at a small increase in cost over the ordinary ensilage fodder. And so satisfactory did this combination turn out to be, both for fattening steers and for the production of milk, that better and cheaper results were produced when it was used as the principal constituent of the regular ration than when any other fodder was used.

Professor Robertson attaches great importance to the value of this mixture (now known as the "Robertson mixture") of corn, horse beans, and sunflower heads, as a bulky fodder for both dairy cattle and growing beef cattle; but it has not yet been sufficiently used by farmers generally for any positive verdict to be pronounced upon it. A principal difficulty appears to be that in some parts of the Dominion the summers seem to be too hot for the growth of horse beans. We believe, however, that those who have been successful in raising the mixture have strongly pronounced in its favor.

The Forty-acre Lot.

One of Professor Robertson's most noted and successful experiments is that popularly known as the "forty-acre lot." His aim was to show that with a proper choice of fodders the number of cattle which the average farmer kept upon his farm could, without sacrifice of the revenue derived from any other source, be easily doubled. By arrangement with the Director he was enabled to devote forty acres of the Experimental Farm to the sustenance of cattle only, and he determined to keep up the fertility of this plot by using upon it only the manure obtained from the cattle fed upon it. He was able finally to feed thirty milking cattle for the year round on the produce of these forty acres; and he believes that this number may be considerably increased; even to forty, or one cow per acre. Of course he was able to feed his thirty cows only by the use of en-

silage (corn, horse beans, and sunflower heads), and he had to obtain elsewhere straw for bedding the animals. But the experiment was very useful in establishing the fact that the number of cattle ordinarily kept on farms can be very much increased if sufficient attention be given to the raising of the right sort of fodder.

Experiments with Cattle and Swine.

The experiments made by Professor Robertson, as Agriculturist, with cattle and swine had for their object the same general end as that which he had in view in the experiments which he made upon the Farm, namely, the ascertaining of what were the most economical fodders that could possibly be used, when the cost, the certainty, and the availability of the crop used as fodder, and the quantity and the quality of the product in milk, beef, or pork, as the case might be, were all considered. It was these experiments, pursued with this constant end in view, that led him to believe so unreservedly in the importance of fodder corn as a staple food for cattle. And subsequently it was similar experiments that led him to adopt horse beans and sunflower heads

as a cheap albuminoid and fat complement to the corn; by which means he was able to reduce the quantity of meal needed for steers fattening or cows milking by at least four pounds per day for every fifty pounds of ensilage used, less than what would be needed when ordinary Indian corn ensilage was used. Professor Robertson estimates that the saving to the dairy farmers alone of Canada, if they used this "Robertson mixture ensilage" instead of an equivalent amount of grain, for feeding their cows, would not be less than \$3,000,000 a year.

Experiments at the Central Experimental Dairy.

The Central Experimental Dairy was begun in 1890 and completed early in 1891. It was built after Professor Robertson's own plans. It served two distinct and very useful purposes. (1) In it were conducted a large number of experiments which had for their object the establishment of principles and practices in the arts of butter-making and cheese-making which afterwards were set forth in bulletins for the use of butter-makers and cheesemakers, or were exemplified in the teaching of the Commissioner's staff of assistants in the practical lessons given by them in the branch experimental dairies or travelling dairies established by him. (2) A large number of experiments also were conducted which had for their object the establishment of facts as to the quality and quantity of milk given by cows of various breeds, in various conditions as to thriftiness, lactation, etc., when fed upon fodders of various sorts, quantities, modes of preparation, etc. When we instance that over 20,000 distinct samples of milk were tested to establish one fact, namely, that when a cow has reached her maximum

percentage of solids in the milk she produces, an increase of richness in the ration she is fed does not produce an increase in the richness of her milk, but only an increase in the total quantity of milk she produces, we give what is only a fair illustration of the care which the Dairy Commissioner and his assistants took in preparing themselves for their work as authoritative instructors in the dairying art.

The Dairying Service Bulletins.

The bulletins issued by the Dairy Commissioner have been from the first characterized by great



Mr. J. C. Chapais, LL.B.
Assistant Dairy Commissioner, Dominion of Canada.

practical utility. While in his annual reports as Agriculturist and Dairy Commissioner the numerous experiments which have been conducted for the purpose of establishing the facts and principles upon which the practices recommended in the bulletins have been based are detailed with minuteness sufficient to enable any one who wishes to do so to follow them with exactness, the bulletins themselves are models of concise and definite statement leading only to practical ends. Of such character was his first bulletin on "The Production of Milk for Cheese Factories," recently reprinted in *FARMING*. Of such, too, have been the "Notes for Cheesemakers," and "Notes for Buttermakers," frequently issued. Of such was his bulletin on "Fodder Corn and the

tion of cold storage rooms in creameries is minutely described.

The foregoing constitutes the first division of the Dairy Commissioner's work in promoting agricultural industry.

The Second Division of the Commissioner's Work.

We come now to the second division of his work, the direct introduction of new and improved methods to the practice of those actually engaged in buttermaking and cheesemaking, and the extension of the dairy industry to parts of the country where hitherto it was unknown.

This is a subject far too extensive to be adequately treated by us within reasonable limits; we therefore can do nothing more than briefly summarize it.

The Experimental Dairy Stations.

The work has been prosecuted largely by the establishment of "Experimental Dairy Stations," and by means of "Travelling Dairies." The dairy stations have not been established all on the same plan. While none of them have been intended to be permanent institutions, and while some of them have had an existence only for a year or two, several have had an existence for some years. In every case the first establishment of a station, and its continuance from one year to another, have been matters that have been settled according to the necessities and conditions appertaining to the particular case.

The Argument for the Dairy Stations.

The general argument for the institution of these Experimental Dairy Stations was set forth in a Memorandum drawn up by the Dairy Commissioner and presented to the Government on January 5th, 1891. The need of them, the objects which they were intended to accomplish, and the plan on which it was proposed to conduct them, were detailed with great clearness, and with such effect that the Government at once enthusiastically accepted the duty of supporting them, and has liberally done so ever since.

Winter Buttermaking an Object Aimed At.

It should be noted that in this Memorandum the policy of making butter in winter, and of developing winter buttermaking as an important industry of the country, was distinctly enunciated. The Memorandum said:

"The export butter trade of Canada has almost clean gone from us, and in my opinion the only way to build up a large trade in butter is to encourage the manufacture of it during the winter. No endeavor will be made, or should be made, to displace the cheese industry by a butter industry. Our country is exceptionally well fitted for the production of cheese during the summer, even if



Mr. T. J. Dillon,

Dominion Dairying Service Staff. In charge of Dominion Dairy Work in Prince Edward Island.

Silo," which had great influence in introducing the silo and the growth of fodder corn into many districts of the Dominion where previously they were unknown. Of such, also, was that on "The Robertson Mixture for Ensilage," which detailed the methods of cultivation necessary for the successful growth of corn, horse beans, and sunflower seeds to be used as a cattle fodder, as above described. Of such, also, was that on "The Making of Butter," published in the season of 1894-95, intended for the use of butter-makers in creameries and large dairies, and designed to give an impetus to winter butter-making. And of such, too, have been his recent bulletins on "Cold Storage in Creameries," in which every detail necessary to the construction and successful opera-

it is not so well situated as many other competitive countries for the production of butter for export during that season. But it appears to me quite possible to develop the butter-making industry during the winter months to as great a magnitude, and that with more remunerative profits to agriculturists than those which arise from summer dairying in cheesemaking. The possibilities of cheap and suitable winter feed by the use of ensilage have been so well and so satisfactorily demonstrated that now milk can be produced at less cost during the winter than upon pasture alone during the summer. In the winter season, too, the average price of butter is almost twice as much as during the summer. Moreover, safe transportation can be economically provided for during the cold weather. . . . These branch Experimental Dairy Stations would encourage the farmers to furnish milk during the winter season, and also provide small quantities of finest butter

choice of his assistants, and always received from them the most enthusiastic service. He once stated before the House of Commons Committee that he believed "there was not a man on his staff who would not work his fingers off to serve the Department." On the staff as at first constituted were Mr. J. A. Ruddick, now Superintendent of the Dairy School at Kingston; Mr. T. J. Dillon, who, still on the staff, has charge of the Dominion dairy work in Prince Edward Island; Mr. John Robertson, who now, in the employ of the Government of New Brunswick, has charge of dairy work in that province; Mr. J. B. McEwan, now Dairy Commissioner in the colony of New Zealand; Mr. C. C. Macdonald, who now, as Dairy Superintendent, has charge of the dairy work of the Province of Manitoba; Mr. C. F. Whitley, still on the Dairy Commissioner's staff; and Mr. J. W. Wheaton, now Secretary of the Dairymen's Association of Western Ontario.



Mr. J. A. Ruddick,
Superintendent Kingston Dairy School. Formerly of
Dominion Dairying Service Staff.

The Work Done in 1891.

In Ontario during that season the work of instruction was carried on by means of the direct visitation of creameries and cheese factories, 194 in all being visited by Mr. Ruddick, Mr. Dillon, and other members of the staff. Experimental investigations were also pursued at different local factories, to supplement work of similar nature done at the Central Experimental Station. In Quebec a very useful work in lecturing, instruction, and illustration was carried on by Mr. J. C. Chapais, who had been appointed Assistant Dairy Commissioner, with the special charge of looking after the dairy industry in French-speaking districts, and by Mr. C. C. Macdonald, the two working together as one team. Instruction in that one season was given in Quebec to 166 cheesemakers and buttermakers. In New Brunswick, where a great deal of pioneer work had to be done, Mr. John Robertson and Mr. S. L. Peters were in charge. The Provincial Government co-operated by making a most liberal grant of money; and the results in the course of the year were: a great interest aroused in dairying, in the use of the silo, and in the growing of corn for fodder, the establishment of several new cheese factories, the improvement of the methods of manufacture in the few already established, and a beginning made in winter buttermaking. In Nova Scotia, where dairying was in its very infancy, similar results were accomplished through the labors of Mr. Wheaton. In Prince Edward Island, where only one factory was in existence, good introductory work was done by Mr. John Robertson. In Manitoba very effective work was accomplished by Mr. McEwan and Mr. Whitley.

to be used as trial shipments for introducing fresh-made creamery butter to foreign markets. *At present the buyers in England hardly know what fresh-made Canadian creamery butter is like. The butter exported is often stale before it reaches the consumer.*"

"Travelling Dairies" Instituted.

The Dairy Stations, however, were not immediately established. In the summer of 1891 the work of practical instruction was prosecuted by means of itinerant dairy instructors, who, being well supplied with "kits" for illustrative work in cheesemaking, and especially in butter-making, constituted what are now popularly known as "Travelling Dairies." The Dairy Commissioner has always had great felicity in the

Winter Buttermaking Actually Begun.

The year 1891, however, is to be remembered chiefly for the fact that *that year marks the beginning of our winter buttermaking*. Two temporary winter creameries were established, one at Mount Elgin, near Ingersoll, Ont., which was placed in charge of Mr. Dillon; and one at Woodstock, Ont., which was placed in charge of Mr. Ruddick. The buildings used were cheese factories rented from their owners; and the equipment in each case was simply that necessary to convert a summer cheese factory to a winter creamery. It was difficult to find places where a sufficient supply of milk would be forthcoming, and for the Woodstock creamery the supply was



Mr. C. C. Macdonald,

Superintendent of Dairying for Province of Manitoba.
Formerly on Dominion Dairying Service Staff.

short of what was necessary. But the results in both cases were highly satisfactory to all concerned. Every obstacle that had been suggested as likely to make the experiment a failure was proved to be imaginary. There was no real difficulty in collecting the milk; the cost of transportation to England was shown to be merely fractional; while the extra feed needed to keep the cows in milk during the winter season was, in the unanimous opinion of the patrons, fully compensated by the feeding value of the skim-milk returned to them after the cream from their milk had been extracted. It is no wonder that the Dairy Commissioner was highly pleased with the result of the trials. In his evidence, April,

1892, before the House of Commons Committee, he said:

"This seems to me to open up a branch of business which will pay the farmers remarkably well. The farmers of Mount Elgin express themselves so. They say that the skim-milk has been worth to them, for feeding calves and pigs, all the cost of the extra feed given to the cattle to keep them milking; that is, the skim-milk has been calculated as equal to the cost of the extra feeding. The receipts from the butter are really a direct gain, which they would otherwise not have had at all. . . . Now I believe we shall have within ten years \$5,000,000 from the sales of winter-made butter along these lines. The skimmed milk would make up for all the extra expense of feeding, leaving a clear gain of \$5,000,000. I do not mean to say that this is only possible, but to say that it is very probable that we shall have within ten years at least \$5,000,000 worth of winter-made creamery butter going to England, with cash coming back to the farmers.

. . . I make this statement merely to show the great possibilities of winter buttermaking. I am merely putting the gain by this practice against the loss from the previous and present practice. The cows require to be fed all winter in any case. I have not reckoned the total cost of feeding the cows and charged that against the butter, but only the cost of the extra feed which is given above what would be required if the cows were dry in the winter. That extra cost is compensated for by the skim-milk. According to the common practice in the past, the farmers have been feeding the cows all winter and getting nothing back, because the cows were dry from November."⁸

When it is remembered that our exports of butter in 1896 amounted to considerably over a million and a half of dollars, and that this exportation its almost wholly due to the development of winter buttermaking,† it will be acknowledged that the prediction of the Dairy Commissioner in 1892, that in ten years the export of winter-made creamery butter from Canada would in all probability amount to \$5,000,000, will be fulfilled.

The Work Done in 1892.

In the season of 1892 the work of dairy instruction was carried on with additional vigor. Experimental investigation in cheesemaking was conducted by Mr. Ruddick in the branch Experimental Dairy Station at Perth. Messrs. Ruddick, McEwan, Dillon, Macdonald, and Cornett, of the Dairy Commissioner's staff, gave practical instruction to cheesemakers in almost every part of Ontario. Mr. Chapais, the Assistant Dairy Commissioner, and Mr. Macdonald continued the work in Quebec which they had begun in 1891. By an arrangement made with the Dairy Association of the Province of Quebec an Experimental

* "Evidence," 1892, p. 9.

† "The buyers in England hardly know what fresh-made Canadian creamery butter is like."—Professor Robertson's Memorandum, January 5, 1891.

Station and Dairy School was established at St. Hyacinthe, under Mr. J. D. Leclair as superintendent and Mr. H. A. Livingston as assistant. In New Brunswick pioneer work begun in 1891 was continued, and experimental dairy station and creamery established at Kingsclear; a winter dairy station or creamery was also established at Sussex. Pioneer work was also continued in Nova Scotia, and an Experimental Dairy Station established on the Dominion Experimental Farm at Nappan. Mr. J. E. Hopkins, who had previously been an instructor employed by the Dairymen's Association of Western Ontario, was placed in charge of the work in Nova Scotia, and has ever since remained connected with it. In Prince Edward Island an Experimental Dairy Sta-



Mr. J. E. Hopkins,

Dominion Dairying Service Staff. In charge of Dominion Dairy Work in Nova Scotia; also Superintendent of Dairy School, Sussex, N. B.

tion was established at New Perth, and the dairy industry of the province, which some years before had had a bad start, and was now in a very languishing condition, was revived, and revived, too, with great hopes of lasting success. Mr. T. J. Dillon was placed in charge of the work there, and has ever since remained in charge of it. In Manitoba and the Northwest Territories active work was prosecuted by the Commissioner himself, and by Mr. Robert Cornett. Finally the experimental winter buttermaking stations at Mount Elgin and Woodstock in Ontario were continued for the winter of 1892-93, and two others, one at London, and one at Wellman's Corners, were established in addition.

The Work Since 1892.

The work since 1892 has been prosecuted vigorously and on precisely the same general plan.

In Ontario.

In Ontario, however, the direct application of Dominion assistance towards dairy development has, to a great extent, ceased. The practicability and profitableness of winter buttermaking having been established, the carrying on of winter buttermaking at the stations above mentioned, and at Chesterville and Renfrew, where also winter stations had been established, was discontinued by the Commissioner, and the equipment of these stations transferred elsewhere or sold. It was thought that the work done by the Commissioner's staff as instructors of cheesemakers and buttermakers could be sufficiently well attended to by the instructors appointed by the two Provincial Dairymen's Associations and by the Creameries' Association. The complete equipment of a Dairy Department at the Ontario Agricultural College at Guelph made it unnecessary to continue the branch experiment stations. In 1894 the Commissioner assumed responsibility for the work of dairy instruction at the new School of Agriculture and Mining established at Kingston, in connection with Queen's University, and for two seasons carried on winter buttermaking there, with Mr. Ruddick in charge, but in 1896 the Ontario Government took over this work. In fact, the thorough organization of dairy instruction in the Province of Ontario, both domestic and professional, which had been effected by the Provincial Government, made it needless for the Dominion Government to undertake further efforts in that province.

In Quebec.

In Quebec, however, and the other provinces the work, as said above, has been vigorously prosecuted. The school at St. Hyacinthe receives help to the extent of \$1,000 a year from the Quebec Dairymen's Association, but is otherwise supported by the Dominion Dairying Service. The attendance of students at this school has been as high as 328 in a single year. Temporary winter buttermaking stations have been instituted in the province, and the practice of winter buttermaking thoroughly established. The dairy industry of Quebec is very important. Two years ago it had nearly 1,200 cheese factories, and almost a fourth as many butter factories. To-day the province claims 1440 cheese factories and 400 creameries. About one-half of the total amount of cheese exported from Canada comes from Quebec.

In Nova Scotia and New Brunswick.

In Nova Scotia, where Mr. J. E. Hopkins is in charge, with headquarters at the Government Dairy Station at Nappan, there has been a steady increase every year, both in cheesemaking and in buttermaking. In 1894 sixteen new factories were built, ten of them putting in plant for both butter and cheese. In 1895 about fifty factories, in all, were in operation, and the province began to export cheese. In 1891 there were less than twenty. The station at Nappan serves as a sort of dairy school. In New Brunswick most satisfactory results have been accomplished. The stations at Kingsclear and Sussex, having fulfilled their purposes, have been transferred to private owners. A dairy school, how-



Mr. C. F. Whitley,
Accountant, Dominion Dairying Service.

ever, has been established at Sussex, with Mr. J. E. Hopkins in charge, and Mr. John Robertson as assistant, which is intended to serve the needs of both Nova Scotia and New Brunswick. The work in these two provinces has been very cordially and effectively assisted by the local governments; and now the dairying services of the Provincial Governments are so well organized that the probability is that with the exception of the maintenance of the Dairy Station at Nappan, and the assistance given to the Dairy School at Sussex, the operations of the Dominion Dairying Service in these two provinces will largely cease.

In Prince Edward Island.

In Prince Edward Island a very great work has been effected. The province is peculiarly

well adapted to dairying; but, as said before, the dairying industry originally started there had made a very bad beginning and had fallen into disfavor. To overcome the prejudice there was against it, the Dairy Commissioner took complete charge of the work of cheesemaking and buttermaking in the Island factories, as these were erected by the people. In 1892 there was only one factory. In 1893 there were eleven. In 1894 there were sixteen factories and two creameries. In 1895 there were thirty in all; now there are nearly forty. To give an estimation of the nature of the work done in Prince Edward Island we quote from the Commissioner's evidence before the House of Commons Committee:

"Nobody in any other part of the Dominion is being called upon to sustain the work in that part of Canada. I may sum up the whole of our work in Prince Edward Island in developing the cheesemaking industry by saying: The treasury of the Dominion has been recompensed for all that it has spent upon it; the good name of Canadian cheese has been sustained and improved; because no single province has sent out so much fine cheese out of the quantity it has sent as Prince Edward Island has done; and the people there have been benefited very much by what has been done for them. Moreover, the winter dairying movement has been commenced in a very satisfactory way."

The output of butter and cheese made in Prince Edward Island in 1895 was estimated at \$180,000, and in 1896 it was very considerably larger.

In Manitoba and the Northwest.

In Manitoba and the Northwest Territories the work was of two sorts. "Travelling Dairies" were employed for purposes of domestic instruction. The visits of these dairies were everywhere received with the greatest interest. The Manitoba Dairymen's Association said of them: "No work of the kind has ever had more useful results or met with more general appreciation." In addition, travelling instructors were delegated to visit newly-established cheese factories and creameries, to spend from two or three days at each, and to do what was possible to improve the practices of the makers. In Manitoba, however, the work is now sufficiently well looked after by the provincial authorities, and Mr. C. C. Macdonald, formerly on the Dominion Commissioner's staff, is now employed by the Manitoba Government as Superintendent of Dairying for the province, and is carrying on with great efficiency the work so excellently begun by the Dominion authorities. In the Territories an assistant was stationed for one season (1893) at Wolseley to act as instructor in butter-making to all who should visit the station; and

"Evidence," 1895, p. 5.

in 1894, at Moosejaw, a dairy station was established for the purpose of making a beginning in co-operative buttermaking, and this station has been continued ever since.

In British Columbia.

In British Columbia, while not so much work has been done there as in the other parts of Canada, still a good beginning has been made, and co-operative dairying has been thoroughly well established. The province was visited several times by the Dairy Commissioner or by members of his staff; and for some time Mr. J. A. Ruddick was in charge of a travelling dairy there. There are already four cream-

(1) To successfully introduce co-operative methods of dairying where these were unknown. We have done this in the Maritime Provinces, and we are getting it done in Manitoba, the Northwest, and British Columbia. (2) To establish winter buttermaking in factories. This is now thoroughly accomplished in Ontario; is almost so in Quebec and Prince Edward Island; and is rapidly becoming so in Nova Scotia and New Brunswick; while a start in this direction has been made in Manitoba and the Northwest. (3) To improve the general quality of the dairy products of all the provinces. To such an extent has this been accomplished that there never was such excellence in the cheese and butter products of the provinces as now. They are all graded up to nearly one standard of excellence. In consequence next year, that is, the financial year 1896-7, I expect that the Dairying Service can be administered with \$5,000 less than this year; and that in the following year, 1897-8, \$10,000 less again will be required. This is because the work of initiation is done, and the industry is now well set upon its feet, so that it may be safely left to the farmers themselves, and the enterprise of business men."

But a Principal Object has been the Extension of Dairy Farming.

It must not be supposed that the work done by the Dairy Commissioner and his staff in the different provinces has been wholly, or even mainly, confined to instructions given to buttermakers and cheesemakers. The Commissioner has gone down deeper than this, and has always tried to effect improvement of the dairy industry by beginning at the foundation. The main work has been with the farmers. The effort has been to get them to see the profitableness of dairying, and to undertake it in the right way. The great aim has been to bring about *economy in the production of milk*, and this (1) by the growth of cheap and suitable foddors; (2) by the construction of economical fodder rations; (3) by attention and gentleness in the care of cows; (4) by the weeding out of unprofitable cows; and (5) by the successful utilization of the by-products of the dairy, the whey, the skim-milk, and the buttermilk.

The Work in the Northwest for 1897.

It is not within the purpose of this paper to take up the work of the Dominion Dairying Service for 1897; but it should be mentioned that the programme for this year embraces a vigorous prosecution of pioneer work in the Northwest Territories. Fifteen thousand dollars were voted last session "to promote the establishment and maintenance of creameries" there. It is believed that "the creameries maintained will furnish a means by which the farmers will be able to obtain full market values for their milk; and that they will thus be encouraged to increase the num-

* "Evidence, 1895," p. 74.



Mr. L. A. Zufelt,
Assistant, Dominion Dairying Service.

eries that run the year round, and one cheese factory in the province.

Three Objects Aimed at in Organizing the Dominion Dairying Service.

It will thus be seen that the whole Dominion has been covered by the organized efforts of the Dominion Dairying Service—efforts undertaken to effect improvement in dairying methods, and to make dairy farming more general among the people. While domestic dairying has not been overlooked, the principal aim has been the extension of *co-operative* dairying, that being, in the Commissioner's opinion, the only sort of dairying that can have any permanent importance for the country. We quote, in substance, the Commissioner's own words:

"The objects of our dairy stations and of our organized work of dairy instruction have been:

ber of milch cows, raise more cattle, feed more swine, keep larger flocks of poultry, and to enlarge their sources of steady income." The plan proposes that a loan shall be made to each new creamery of a sum sufficient to provide for its proper equipment, and that the Dominion Dairying Service shall then rent these creameries, and control and manage them for and in the interest of the contributing patrons, and recoup itself for its loans by deducting from the proceeds of the butter sold one cent per pound in addition to the charge for making and marketing. The plan also provides for similar assistance and Government control in the case of creameries already established whose owners desire to place them for a few years under the management of the Dominion Dairying Service.



Mr. C. P. Marker,
Assistant, Dominion Dairying Service.

The Northwest scheme, though it is more comprehensive, is somewhat similar to the scheme that has been so completely successful in Prince Edward Island; and we have no doubt but that it will equally promote the dairying industry of the Territories.

The Third Division of the Commissioner's Work.

The third division of the Dairy Commissioner's work, namely, the means taken to establish better trade methods, to bring about a closer attention on the part of producers to the wants of markets, to institute better and safer transportation facilities, to increase the reputation of our dairy products with foreign buyers, and to secure

for the producer the greatest possible proportion of the ultimate selling price, will have to be very briefly touched upon by us. ✓

How and Why Winter Dairying was Advocated.

To accomplish these objects has been a constant effort with the Commissioner from the very first; and the hope of doing something that would help to do so has been the inspiration of many of his ablest and most effective addresses, both in Canada and in Britain. As an illustration of his policy in this respect we will quote a few sentences of an address he gave to the Creameries Association of Ontario at Berlin in January, 1891:

"Farmers say, 'We don't know exactly how well Canadian butter will sell in England; it might sell only as second class.' So they fear that if they go in for winter dairying the business might not pay very well. They say, 'We don't know that England will pay us a price for our fresh-made winter butter.' To meet the difficulty and dispel the doubt and hesitation I would [when the Government had established two experimental dairy stations] have the farmers send their milk to the stations all winter to be made into butter to be sent to England. This butter might be shipped every second week, or oftener; and if at first it did not sell at high prices, I think the Government has resources enough and interest enough in the dairy business to be able to stand all the loss on weekly shipments of fresh butter made for five or twenty weeks at two experimental stations until we establish a reputation in England and let the people know that our butter is excellent."

Again with regard to winter dairying, from the same address:

"If you will do these things you will find that dairying in our country will begin to take the place it should have in our agriculture. It will be the one thing to which all the rest of the farm work will mainly tend, and the selling of concentrated products will pay far better than the marketing of hay and coarse grains. A man can concentrate more skill and labor in a ton of butter, which at twenty-five cents a pound is worth \$500, than he can load into an equal weight of hay. Besides, he need not load into \$500 worth of butter one-tenth as much of real hard manual labor as into the hay required to fetch as much money. It will leave and compel more time to think; and thought always sells dear in products. So instead of going on—blindly grinding out blind results—merely following the men who have gone before us—we will find Canada certainly the best place to make milk, cheese, and butter—summer for cheese mainly, winter for butter mainly. The raising of beef stock in winter and the fattening of swine in summer can be combined. With these sheep and horses can be reared. The more of these products and animals, and the less hay, grain, and straw we sell, the richer we will keep our farms, and the wealthier will our farmers become. Along this line I believe winter dairying will come; and when it does come we will wonder why we have been so foolish so long."

We doubt if ever a clearer and more cogent statement of the true line that farming in Canada should take was ever spoken.

Improvement in Quality Advocated.

Discussing at Fredericton the means by which the producer should endeavor to increase the proportion of profit which the selling price afforded, he said :

"I would like to lay down this proposition and make it clear, namely, that men who farm for profit should concern themselves far more with getting profit by reducing *cost* than by trying to raise the market *price*. There is only one way in all the world whereby a man can raise for himself with certainty and equity the market price of anything he sells, and that is by improving its *quality*. The quality governs to every

"Canadian poultry," "Canadian fruit," etc., when bought by the British consumer. Speaking once on this subject, he said :

"I went over [to England] to investigate the newer preferences of the markets for butter and cheese ; and to these I added beef, bacon, poultry, and eggs. As producers we must strive to meet the exact requirements of the consumers who are able and willing to pay the highest prices for our goods. We have no time to educate the tastes of the British public up to liking and buying the things which in *our* judgment they ought to prefer. Unless one happens to have a century or two of leisure it would not be worth while attempting the task of educating the tastes of the great consuming public. It is more expedient and profitable to cater for those tastes as they at present exist. The working classes of Great Britain, who are large consumers of our Canadian food products, are both able and willing to pay for the exquisites and the delicacies in the foods which they buy. They are fastidious in regard to both flavor and appearance in the foods which they select. They are also very conservative in regard to names, and have a strong British sentiment which leads them to pay 20, 25, and 50 per cent. more for the very same goods under the name of 'Best English' than they are willing to pay and are required to pay under the name of 'Best Canadian.' I could find very few butcher shops where Canadian beef under its own name could be purchased. As one butcher said to me, 'We keep only the "Best English"; Canadian and American beef can be found only in the rough shops where the cuts are cheap.* I learned of one instance where a retail butcher was said to have made a profit of a million of dollars in five years by selling prime Canadian and American beef as the 'Best English.' Of course his customers were not wronged, because they got as good value in every pound which they purchased as could be got in a pound of beef ; but a very flagrant and a very great injustice was inflicted upon the English and Canadian farmers. It thus happens that in many cases the crafty shopkeepers get far too large a share of the price which the ultimate consumer pays for our food products. We must devise a way of preventing this—a way of getting the Canadian products more directly before the consumers under their own name. We must put the Canadian producers right in their relationship to the ultimate consumers without the intervention of somebody who by some means gets more than a fair share of the consumers' money for the service which he renders. . . . When I spoke before this Institute last year I had occasion to remark that a considerable portion of Canadian cheese was ultimately sold under the name of the 'Best English.† I have to repeat at this Institute what I said then, but with the added emphasis that a larger proportion of our



Mr. J. W. Ellorby,
Private Secretary, Dairy Commissioner of Canada.

man the price he may obtain. I will give you an illustration. In all the large cities of our Dominion butter ranges in price from 10 to 25 cents a pound. Now no single farmer, and no combination of farmers, can force the butter market up or down. If it is forced up too much, then the butter that would otherwise go abroad is kept at home ; if it is forced down the butter goes abroad. Thus we cannot influence the market price. But any man can raise himself from being a 10-cent-a-pound man to being a 25-cent-a-pound man by sending to the market just the butter for which the people will pay 25 cents."

Our Own National Name Advocated.

A favorite and oft-recurring theme with the Dairy Commissioner is the very great desirability of getting our Canadian products recognized as such, that is, as "Canadian butter," "Canadian cheese," "Canadian beef," "Canadian bacon,"

*Professor Robertson afterwards discovered that with this same butcher three-quarters of his total sales of beef were either Canadian-fed beef or American-fed beef. He bought his stocks at the comparatively low wholesale prices which Canadian or American beef commanded, and sold them as the "Best British" at the topmost retail prices.

†I am convinced that of the \$10,000,000 worth of cheese imported into Great Britain from Canada annually, not more than two-thirds of the quantity is sold to the consuming purchasers as Canadian."—"Professor Robertson in England," *Bell's Weekly Messenger*.

cheese and other products than I then thought is being disposed of in the English markets as the 'Best English' instead of under their true name."*

Advantages to be Gained by Using Our Own National Name.

And in speaking to this same question before the House of Commons Committee and of the importance of getting the name "Canadian" or "Best Canadian" associated with all our products in the English market, he said :

"In some shops I have found English cheese which was being sold at 22 cents a pound. Canadian cheese of as good and in some cases of better quality than that (the best Canadian make) was selling at 14 cents per pound. There was a difference of eight cents a pound due to the name. In some cases I found that the cheaper priced goods were superior both in nourishing properties and in flavor to those designated 'Best English.' Although 'Best English' was fashionable as a label, the product was only of commonplace quality. We lose something in this respect by not having our own goods known under their own proper distinctive name. In many cases I found that the finest Canadian cheese was being sold as 'Best English.' If our cheese were somehow branded indelibly as 'Best Canadian,' people in time would begin to look for it under its own name ; they would ask for it as such, and eventually we would get a relatively higher price for it. The same observations apply with regard to beef. I found that the best Canadian beef was being sold in many places as the 'Best English.' A pound of the best Canadian beef would not command as high a price under its own name as if it were sold as English. One service I was able to render the Canadians producers was the calling attention to the fact that our Canadian products were excellent and wholesome ; and I endeavored to induce the people to ask for them at the provision shops under their own name. . . . If we can make our own name, the name 'Canadian,' the synonym for excellence and honesty in our products we will soon find the advantage.†

The Branding of Cheese Advocated.

And again with reference to "branding" :

"In the matter of branding, I think it would be advantageous to have cheese made in Canada branded 'Canadian' on the cheese as well as on the box. The making of this compulsory might be a little distasteful to some of the cheesemakers at the beginning, but if it were made permissive for the first year I think most of the cheesemakers would avail themselves of it. The members of the Produce Exchange of London made very strong representations to me on this matter, saying that Canadian cheese should be branded 'Canadian' on the cheese as well as on the box, because they had good reason to believe that very frequently cheese were tendered to them on contract under the name of Canadian cheese which were not produced in Canada. One way to guard against this misrepresentation would be to have the name 'Canadian' branded on the cheese when

*Address at Central Farmers' Institute, Toronto, February, 1893.

†"Evidence," March, 1893.

made and on the boxes afterwards. I think we might do this with advantage."*

"French Cheese" Proven to be Equal to "Best Canadian."

These quotations are sufficient to show the general trend of the Commissioner's policy in respect to the economical and profitable marketing of our food products with the British consumer. Of course his principal efforts have been with butter and cheese, and in these he has had signal success. Especially so is this with regard to cheese. The total cheese output of the Dominion has been graded up to a high and uniform level of excellence. There was a considerable difficulty, for some time, with Quebec cheese, both in respect to its quality and to the way in which it was boxed for shipment. At one time there was an effort made in one of the ports of England to have "cheese made in the French section of Canada" designated as "French cheese," and ineligible to be "received in fulfilment of a contract as for 'finest Canadian cheese.'" The Dairy Commissioner promptly intervened to prevent this injustice being done to the cheese output of the Province of Quebec, much of which was of the finest quality. But he used the incident to incite the cheesemakers of the province as a whole to improve their product, and to pay more attention to their methods of packing and shipment. In a very short time he was able to say (in an address at Liverpool) :

"Cheese from the French districts of Quebec are now made in large quantities, in syndicates of cheese factories which are all under the supervision of competent instructors and inspectors. They are not at all what they were a few years ago. The sweet grasses, pure spring water, cool nights, cattle of excellent breed, and people of enterprise, all promise a very rapid extension of the trade between Quebec and Liverpool in cheese of the highest grade."

The "Finish" of Quebec Cheese Improved.

But the finish, the packing, and especially the boxing of the cheese made in Quebec were still drawbacks to the success of the trade and causes of diminution in the profits derived from it. In an interview published in the *Montreal Star*, June, 1893, he said :

"Many complaints reach me of the poor quality of the boxes in which our cheese is sent to England, particularly that from the Province of Quebec. . . . The irregularity in shape and size, the unworkmanlike finish, and the wretchedly bad boxes, are the worst features of some of the cheese made in that province. These defects could all be remedied in one season by a little more care and taste."

Finally, in an address delivered before a magnificent audience of farmers and dairymen in the

*"Evidence," 1893, p. 9.

city of Quebec, in the latter part of the winter of 1892-93, he rallied the cheesemakers of that province on their carelessness in this respect, and, it would seem, so effectually that such improvement followed as made a subsequent appeal ever afterwards unnecessary. A portion of this capital address may well be quoted as an example of the fine tact and humorous effectiveness with which the Dairy Commissioner makes his points when bent upon bringing about a reform:

"I know of no part of the Dominion which is capable of having its natural resources more quickly, easily, and successfully developed than this province. You have splendid pastures, plenty of pure, clear water, a rich, fertile soil, cattle of robust constitutions, and people of enterprise, with clear heads and good hearts. You have, however, one bad habit in your dairying business which militates against you. You may take the best of care of the milk, and make good butter and fine cheese; but after making them you often buy miserable tubs and shabby, frail boxes in which to put them. You buy the inferior box because it costs two cents less than a good box; and you send your cheese to England in them. I can tell you that the wretched-looking cheese boxes, of a worse fit than a tramp's shoes, and the unsightly butter tubs of the Province of Quebec, have done great injury to its dairy farmers. The people of France have the reputation of putting up things in the most attractive and elegant packages. In France you find articles done up for sale in the prettiest and most pleasing manner possible. Now you should put your butter into the best sort of neat tub, and your cheese into the best sort of strong, close-fitting box. You will then be better satisfied with your returns, because English people will pay higher prices for goods packed in that way than if packed in poor boxes or untidy-looking tubs. . . . I hope the people of Quebec will do themselves justice and vindicate my predictions about them in England. I have promised a great deal for you there in the way of better performance, and if you go back on me I will—I will learn to speak French in public, and come down the next opportunity I have and scold you most unmercifully."

The Cheese Output of the Dominion now Uniformly Excellent.

The excellent quality of the cheese made in Quebec was about this time most effectually established by the fact that at the Dominion Dairy Shows held at Sherbrooke, for two successive years, and also at the Toronto Industrial Exhibition, the highest honors were awarded to Quebec cheese by judges of the most experienced and important character, and that, too, in competition with cheese from the best cheesemaking districts of the Dominion.

We see, therefore, that the efforts of the Dairy Commissioner to secure with the British consumer an economical and profitable marketing of our cheese output, have, so far as what can be done on this side of the ocean is concerned, been success-

ful. Our total cheese output may now be described as excellent in every respect, both of quality and appearance.

A Difficulty in the Marketing of Butter.

In the marketing of butter, however, no matter how excellently it is manufactured, there has always been a difficulty in preventing deterioration of the quality. The difficulty begins in the storing-room in the creamery, which oftentimes is ill-ventilated, and generally very imperfectly refrigerated. The difficulty is continued on the railway train in which the butter is conveyed to the seaboard, ventilation and refrigeration being still lacking. It is further continued on the ocean steamer, and in the same way. And the difficulty remains until the butter is finally sold on the counter of the retailer in Britain.

Cold Storage Advocated.

During the last two years the efforts of the Dairy Commissioner have been largely directed toward the removing of this difficulty and securing what is popularly known as "cold storage" from the moment the butter is placed in the storing-room in the creamery until it is bought by the consumer in Britain. With respect to the necessity of preventing deterioration of quality by cold storage, Professor Robertson says:

"The butter made in creameries in Canada is as good when made as the butter produced in any part of the world. But if butter be kept at a temperature above 35°F., even during a short time the processes of change and deterioration begin and go on. The lower the temperature the more slowly do the changes occur. . . . When butter has begun to spoil it can never again be put back to its fine-flavored condition. . . . In the past four-fifths of the butter made in the creameries in Canada has been slightly spoiled before it has been sent from the factory, owing to the insufficient and inefficient storage rooms used at them. . . . Experience has shown that . . . if butter can be kept at the creameries where it is made for a week or two awaiting shipment, at a temperature of or about 35°F., and kept at a temperature under that point afterwards, until it is delivered to the consumers in Great Britain, or elsewhere, it should arrive at its ultimate destination almost as good as when three days old. . . . If Canadian creamery butter can be put on the English market in perfect condition, farmers may obtain relatively from 20 to 25 per cent. higher prices in the same markets than they have been getting in past years. This will lead to an enormous increase in the production of creamery butter, for which there is a good and growing demand in Great Britain when the quality is faultless."

Cold Storage Facilities Established.

In 1895 and 1896 a beginning was made in the establishment of a chain of cold-storage communi-

*"Cold Storage for Creameries," *FARMING*, December, 1896.

cation from the producer to the consumer by an arrangement with our principal railways by which during the heated term of the year refrigerated "through" cars were placed on leading routes at regular intervals for the conveyance of butter and other perishable products from important inland points to Montreal and other seaports. Cold storage also of a somewhat imperfect description was arranged for in warehouses at Montreal and on ocean steamships. But the refrigeration at port and on the steamships was not of the best kind, ice being used instead of the mechanical-chemical method which modern practice has shown to be necessary to commercial success. Besides the "chain" was not complete, in all its parts, and, so far as butter was concerned, lacked the essential requisite of cold storage at the very beginning of the chain, that is, at the creameries in which the butter was made.

"Cold Storage" Approved in the House of Commons.

At the last session of Parliament, however, the cold-storage question received the most complete attention. The House of Commons Select Standing Committee on Agriculture unanimously adopted a report on the subject to be presented to the House, of which the following is an extract :

"How are Canadian farm products to be laid down in the English markets in prime condition, equal to that in which they are offered for sale at home? To this question one solution alone appears satisfactory, and that is by the adoption of a system of cold storage which will keep the article stored in the condition in which it is deposited in the storehouse for a time sufficiently long to cover that required for transportation.

This, it must be understood, means (a) warehouses to receive and store the goods until shipped by rail; (b) cold storage cars to carry the goods to the port of export; (c) warehouses with cold storage appliances at the port to hold the goods until shipped by sea; (d) ships provided with cold-storage accommodation to carry to the port of destination; and (e) cold-storage warehouses to receive the goods in Great Britain until they are disposed of. . . . In the opinion of the committee it is not too much to say, taking one thing with another—articles which from their perishable character cannot be shipped, and articles which, although now sold for export, suffer much from climatic causes and natural decay, whereby their value is reduced fully one-half (which cold storage would avoid)—that the value of the farm products (including in this term the widest signification of animals and goods produced on the farm) would be increased fully twenty-five per cent. . . . The committee have been led to adopt this conclusion by the reflection that meats, cheese, fruit, poultry, butter, and eggs would benefit to an extent that it is difficult to exaggerate. For such a result a reasonable expenditure is surely warranted, and on public grounds can be fully justified. . . . The scheme, to be a success, involves the estab-

lishment of cold-storage warehouses in central parts of the various provinces and of the Northwest, and what may be a cold-storage chain of communication reaching therefrom to the important centres in the motherland, where food products are in demand and command the highest prices. The committee has arrived at the conclusion that these facilities cannot be secured within any reasonable period without governmental aid in some form or other. . . . The committee, therefore, do not hesitate to advocate the wise and judicious expenditure of public money in the promotion of the cold-storage scheme which is suggested in this report."

"Cold Storage" Adopted by the Present Government.

The policy of promoting our agricultural industries by establishing such a chain of cold storage extending from the producers in Canada to the consumers in Great Britain has been most cordially adopted by the present Dominion Government. Twenty thousand dollars was voted by Parliament at its last session as a beginning of expenditure in this direction, and in October, 1896, the Dairy Commissioner was authorized to announce that the Government would assist in establishing cold-storage rooms in creameries to the extent of \$100 for each creamery.†

Thus the first link in the chain is provided for, so far as butter is concerned, and we have little doubt that the prediction of the Dairy Commissioner will be amply fulfilled when he said, "In the course of a few years the export butter trade of Canada will almost equal in value the export trade in cheese."‡

The Cold Storage "Chain" Now Almost Complete.

As said above, it is no part of this paper to discuss what is happening in 1897; but it is not amiss to state that the Minister of Agriculture for the Dominion, the Hon. Sydney Fisher, has publicly announced that he has perfected his plans for establishing this system of cold-storage service so far as transport in Canada and on the ocean is concerned. The details have not yet been made public, but we may be sure they will be complete and effective. We have no doubt but that the completed service will prove one of the most important advantages to Canadian producers that has ever been brought about by parliamentary means.

A Plan Advocated for Putting our Meats on British Markets as "Canadian"

One of the most important and far-reaching plans for the benefit of our producing industries ever put forward by a responsible public officer

* See FARMING, December, 1896, pp. 259, 260.

† See FARMING, December, 1896, p. 264.

‡ FARMING, December, 1896, p. 263.

was that proposed by the Agricultural and Dairy Commissioner to the Government and Parliament of Canada in the beginning of last year (1896). It was a plan for Government assistance in the placing of our meats—beef, mutton, lamb, poultry, etc., but especially beef—before the British consumer as *recognized Canadian products*, at prices that would tempt him to lay aside his prejudice in favor of “Best British,” but also at such prices as would net our producers here a much larger proportion of the price which the British producer pays for our products which he buys than the proportion we now get. The scheme was a large one, and involved a public credit in its favor of \$300,000 as working capital (which was supposed to remain intact), and a vote for expenses and losses that might be incurred in getting the plan started, of, say, \$30,000. But, large as it was, we believe that it had been thoroughly well worked out by the Dairy Commissioner, and that had he gone on with it he would have brought it to as complete and successful an issue as that which crowned his efforts for getting winter buttermaking established in Ontario, and for getting co-operative dairying established in Prince Edward Island. Indeed, the difficulties that stood in the way of the successful establishment of dairying in Prince Edward Island were of quite as large a magnitude as those that confront the successful introduction of our beef and other meat products into the retail markets of Britain under their own national name.

Some Such Plan Ought to be Carried Out.

Be that as it may, one thing is certain: until our Government, in its capacity as corporately representing the whole Canadian people, *does* undertake to remedy the present wrong by which our meat products are bought in wholesale at low prices as “Canadian,” and sold under misrepresentation, or rather through want of *truthful* representation, at much higher prices than fair profits justify as “British,” then *so long* will our producers of beef cattle suffer grievous injustice and fail to obtain that proportion of the price ultimately paid for their products by the British consumer which they in equity ought to obtain.

We trust that this plan of the Dairy Commissioner's will not be allowed to fall through. We do not in the least attach any blame to the present Government of Canada for not going on with it until they had satisfied themselves of its soundness in every particular. We conceive, too, that the success of the scheme depends on such a system of cold-storage service being established as, as yet, has not been forthcoming. But once a cold-storage service across the ocean is perfected,

then we should like to see a plan adopted by which our prime beef could be found under its own national name, and at reasonable prices, in all the principal retail meat depots of England. When one learns that it has been authoritatively asserted in England that one butcher made in *five years* the vast sum of \$1,000,000 by buying Canadian and American beef at current wholesale prices and selling it again at retail as “Best British”—that he made this vast sum in that short time over and above what he would have made had he bought Scotch beef or English beef—then one cannot but come to the conclusion that an immense wrong is being done to our beef cattle producers, and that it is the duty of our Government to *right* this wrong as speedily as possible—no matter what it costs.

Canadian Dairy Products at the World's Fair.

We will conclude this paper by a reference to the splendid successes achieved by the dairy industry of Canada at the World's Columbian Exposition, held at Chicago in 1893. Although, of course, the credit of these successes must be largely ascribed to the many individual dairymen and dairy associations that took part in the exhibition, yet there is no doubt that a great deal of the success is directly due to the originative power and organizing ability of the Dairy Commissioner; and a part also is *indirectly* due to him for the degree of development to which at that time the dairy industries in the provinces had attained. We shall tell the story of the exhibition as far as possible in the Dairy Commissioner's own words:

The Story of the Mammoth Cheese.

“Our object in going to the World's Fair was to advertise the resources of the Dominion and to illustrate the attainments of Canadians in dairy products. I had no hope or desire to boom the cheese or butter market. Our main object was to advertise our resources, and to show dairy farmers that there was an opening to earn a good living here in this class of work. To advertise successfully you need to have something unique, and that was why the “Mammoth Cheese” was made. If we had sent as large a quantity of cheese in ordinary shapes it would never have got more than three or four paragraphs in the newspapers, that nobody would have seen; but because it was unique it was paragraphed in more than two-thirds of all the papers in Europe and on this continent. Add to this the fact that there was not fifteen cents spent in advertising. That is one little crow that the newspaper men have to pluck with me. . . . I may mention one of the cutest things printed about the big cheese. I had gone to see the men of four or five of the Chicago papers with reference to the big cheese and our exhibits. One paper did not print a line, but the other three or four gave us good notices. Two or three days afterwards the paper that had



Dairy Exhibit, World's Columbian Exposition, Chicago, 1893.
 Showing Mammoth Cheese; also the four one thousand pound cheese manufactured by D. M. Macpherson,
 Allen Groye Combination, Lancaster.

not said anything gave an illustration—a *great disc like the moon*, rising in the background, and hundreds of heads looking at it. You remember the old story of the benevolent-looking man who sat by the wayside with a grindstone, and invited

all the boys who passed that way to school to take a turn at the handle. At the front of the illustration two persons looking at the big disc rising (the Mammoth Cheese from Canada!) were conversing. One of them, a boy, was saying to his

father: 'Father, is that the moon rising?' 'No, sonny,' replied the father, 'that is not the moon; it is a grindstone. Do you want to turn the handle?' (Laughter.) Still, that editor turned the handle for the Canadian cheese all the same, in that kind way. It was in order to attract attention that the big cheese was made; and made, too, of excellent quality. It was in excellent condition when exhibited in Chicago. I have certificates from the judges, and private letters which I have received from them since, in which they say the cheese was a marvel of excellence.*"

The "Mammoth Cheese" referred to above constituted, as is well known, not only a chief feature of the Canadian dairy exhibit at the Columbian Exhibition, but also one of the most striking features of the whole show. It was made in September, 1892, at the Dominion Experimental Dairy Station at Perth, Ont., under the supervision of the Dairy Commissioner. Mr. J. A. Ruddick, then on the Commissioner's staff in charge of the station, now superintendent of the Dairy School at Kingston, Ont., was the cheesemaker, and he had the assistance of the cheesemakers of twelve adjacent factories. There were used in making the cheese 207,200 lbs. of milk, which would be equivalent to the milk produced by 10,000 cows for one day in September. The cheese measured twenty-eight feet in circumference by six feet in height, and weighed 22,000 lbs. net. It was encased in a hoop of steel specially made to form the mould in which it was pressed. A pressure of more than 200 tons was used in pressing it. It was taken to Chicago on a special train, and was viewed by throngs of sight-seers at almost every station until it reached Windsor, at which point it left Canadian territory. During the progress of the exhibition at Chicago it was stationed in a glass building, where the temperature ran from 90° or 95° a very great deal of the time, and yet when it was officially judged in the middle of October it was awarded a score of 95 out of a possible 100, and received a medal and diploma.

Magnificent Successes of Our Cheese Exhibits.

The attention which the mammoth cheese received at the World's Fair was, however, in reality of slight significance compared with the magnificent successes won by the Canadian dairy exhibits as a whole. The Canadian dairymen competed in two of the five monthly competitions authorized by the exhibition authorities, namely, in June and October. In the June competition the judges decided that exhibits of cheese receiving a score of 96 points or over (out of a possible 100) should be awarded a medal and diploma.

We will continue the narrative in Professor Robertson's own words:

"We had a second object in going to Chicago; apart from the advertising of our resources, we wanted to gain a better reputation for having a fine quality of cheese in all parts of Canada. We had cheese from Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, and all the way from Manitoba, sent to Chicago and exhibited as Canadian cheese. In doing that we got together from even Manitoba and Prince Edward Island cheese that rated the very best—higher than the highest rated cheese from any part of the United States in the same class. I need not detain you with many figures, but I should like to show you how great our success was. In the first competition we sent to Chicago 162 lots of cheese and carried off 129 awards. That was in June. The dairymen of the United States at the same time had sent nearly 500 exhibits in the same classes, and they carried off nine awards. Then they said we had caught them napping; that they would not be so caught the next time. During the summer they would make sufficient preparations, and in the fall they would at least divide the awards evenly. Well, in the fall of the year we sent over altogether a much larger number of exhibits from some of the provinces—539 in all. With these 539 exhibits we carried off 490 awards. As compared with our 490 awards the United States dairymen carried off only about 54 in the same classes, although they had six months at least in which to do the best they could."*

The June Competition.

In the June competition "thirty-one exhibits of Canadian cheese were scored at a higher number of points severally than the highest award given to any exhibit from any other country in the same classes." The following are the numbers of awards won by the different provinces of the Dominion:

Ontario.....	71
Quebec.....	52
Maritime Provinces.....	6
	129

The October Competition.

In the October competition it was decided that exhibits of "cheese of 1892" scoring 90 points or over should be awarded a medal and a diploma; and that exhibits of "cheese of 1893" scoring 95 points or over should be awarded a medal and diploma. The following table shows the exhibits by provinces:

CHEESE OF 1892.

	Exhibits.	Awards.
Ontario.....	59	58
Quebec.....	45	42
Prince Edward Island....	2	2
Nova Scotia.....	5	4
New Brunswick.....	4	4
	115	110

* "Evidence," May, 1894, pp. 31, 32.

* "Evidence," 1894, p. 34.

CHEESE OF 1893.

	Exhibits.	Awards.
Ontario	274	259
Quebec	113	105
Prince Edward Island..	19	8
Nova Scotia.....	10	3
New Brunswick.....	4	2
Manitoba.....	4	3
	424	380

"One hundred and thirty of these exhibits received severally a higher number of points than the highest award given to any exhibit of cheese from any other country in the same classes. Less than 10 per cent. of all the exhibits of cheese from Canada were not recommended by the judges for awards. The general excellence and superiority of the Canadian cheese were thus clearly established. The keeping quality of Canadian cheese—one of the points of the greatest commercial value—was also brought out impressively by the 115 exhibits of cheese of the make of 1892. Of these no less than 110 carried off awards, and were described by the judges (two United States experts and one Canadian) as the finest lot of old cheese which they ever examined."

It should be stated that the judges in these competitions were experts of the greatest experience. Each judge made his score separately, without consultation with the others, and the final score was the average of the individual scores; and the "several exhibits were presented to the judges in a room in such a way that the source as to locality or individual exhibitor could not be known to them."†

The Success of the Butter Exhibits.

Although the awards won by the Canadian dairy exhibits for butter were not proportionately so numerous as those won for cheese, owing largely to the impossibility of making comparison and selection beforehand, still the success attained by our butter exhibit on the whole was very creditable. In the June competition Canada had only a few exhibits, but thirteen of these were awarded medals and diplomas, eleven being from Quebec and two from Ontario. In the October competition Canada had 167 exhibits, and was awarded twenty-seven medals and diplomas, sixteen being from Quebec, nine from Ontario, one from New Brunswick, and one from Manitoba. It was found that the principal fault of the Canadian butter that failed to win high scores was its inferiority in flavor. This was discovered to have arisen from the use of inferior salt or of salt that acquired foul flavors or odors from exposure in the holds of vessels or in warehouses. The lesson was one that could not possibly be forgotten, and has doubtless resulted in much greater care being

* Dairy Commissioner's Report, 1892-93, p. 191.

† Mr. A. F. Maclaren, M.P., of Stratford, was the Canadian expert judge of cheese in all the competitions.

taken ever since in the choice of salt for dairy purposes.*

The Benefits of These Successes to Canada.

We cannot better conclude our paper than by making the following apposite quotation from the Dairy Commissioner's report on the Chicago results:

"The immediate effect of our sweeping achievement at Chicago will be to still further enhance the reputation of our cheese in the British markets. It will also further stimulate our dairymen to pay more attention to the home end of the business. I estimate that the resulting improvement in the quality of our cheese throughout the whole Dominion will represent an increase in intrinsic value of not less than from one-quarter to one-half cent a pound. As the exports of cheese from Canada are now over 130 millions of pounds annually, the monetary value directly resulting from the success at Chicago will not be less than four or five hundred thousand dollars. To this must be added the permanent benefits of the acquisition of knowledge, improvement in practice, and gain in prestige.

"The lessons from the World's Columbian Exposition, when applied to our buttermaking, will doubtless prove beneficial; and it is my opinion that while we shall be able to carry forward our cheese business to still wider extension and higher attainment, we shall be able at the same time to bring up the reputation and the quality of our butter abreast of it within five years, if the individual dairymen give their hearty co-operation to the work and follow out carefully the instructions which are provided for them.

"The results of the whole matter will be of prime and far-reaching value to Canada. Everything that promotes the dairying business increases the demand for labor on the farms. That helps to retain a larger population in our rural districts. It necessitates also such increased attention to rotation of crops and improved methods of culture as will help to increase the fertility of the soil. In the largest and best sense it will further the material prosperity of the people, and, therefore, promote their contentment and happiness."†

THE ASSISTING STAFF OF THE DOMINION DAIRYING SERVICE.

Biographical Sketches.

MR. J. C. CHAPAIS, of St. Denis, Kamouraska County, Province of Quebec, Assistant Dairy Commissioner for Canada, is the son of the late Hon. J.C. Chapais, Senator. He was born at St. Denis in 1850. He was educated at St. Ann's College, and is an LL.B. of Laval University. Mr. Chapais is considered one of the most practical and successful dairy farmers in the Province of Quebec, and he has a thorough knowledge of all the modern methods of cultivating the soil. He is also an experienced fruit-grower. From 1879 to 1890 he was assistant editor of *Le Journal d'Agriculture Officiel*, published by the

* Mr. J. S. Pearce, of London, was the Canadian expert judge of butter in the June competition, and Mr. A. A. Ayer, of Montreal, in the October competition.

† "Report," 1892-93, pp. 192-193.

Department of Agriculture of Quebec. As a dairyman, horticulturist, and general agriculturist, he has been honored with election to many important offices in his native province. He has been president of the Pomological and Fruit-growers' Society of Quebec; vice-president of Quebec Dairymen's Association; director of the Quebec Provincial Dairy School at St. Hyacinthe; secretary of the Dominion Dairymen's Association; and secretary and treasurer of the Quebec Forestry Association. As a lecturer on agricultural, horticultural, and especially dairy topics, Mr. Chapais is exceedingly popular and interesting, and his addresses are always eminently practical. His work as Assistant Dairy Commissioner is principally to look after the dairying interests of the Dominion in French-speaking districts, and in this work he has visited several times almost every French-speaking community in Quebec, Ontario, Manitoba, New Brunswick, and Prince Edward Island.

MR. THOMAS J. DILLON is universally admitted to be one of the very best cheesemakers in the Dominion of Canada. Professors of dairying in a number of the best American colleges have been glad to come and stay with him at his work so as to become acquainted with his methods. He was born in the county of Elgin, Ontario, in 1857, and began his cheesemaking career in the Brownsville factory, in Oxford county. He was afterwards at the Kenilworth factory. In 1887 he took charge of the large factory at Bluevale, where his excellent work in making cheese of the very highest quality won for him an almost continental reputation. He was repeatedly a prize-winner in all the leading dairy shows, and his cheese always sold at prices very considerably over the market price. In 1891 Mr. Dillon was placed by the Dominion Dairy Commissioner in charge of the winter experimental creamery at Mount Elgin, Ontario. His success there was very marked, and it was even more so in the following winter. In 1892 Mr. Dillon took charge of the Dominion dairy work in Prince Edward Island. His success there has been so pronounced that the whole island is rapidly becoming one big dairy farm, and there is every possibility that it will soon rival Denmark as a dairying county.

MR. J. A. RUDDICK, the recently appointed superintendent of the Kingston Dairy School, was for five and a half years on the staff of the Dominion Dairy Commissioner. For two summers he was connected with the Perth Dairy Station, and had charge of the making of the mammoth cheese when it was made there in September, 1892. In 1892-3 he had charge of the winter dairy station at Woodstock. For three summers he did a very great deal of valuable pioneer dairy work in Manitoba, British Columbia, and the Northwest Territories. When the Kingston Dairy School was opened in 1894 Mr. Ruddick was placed in charge of it, still remaining on the Commissioner's staff, and when, in 1896, the school was taken over by the Ontario Government Mr. Ruddick was appointed its superintendent, and resigned his position on the Dominion staff.

MR. C. C. MACDONALD, now Superintendent of Dairying for the Province of Manitoba, was born near Cobourg, Ont., in 1863. He began to take an interest in dairying while still a schoolboy. At nineteen he had full charge of a cheese factory in the county of Glengarry. After seven or eight years spent in that work he was appointed by the Government of Quebec provincial dairy instructor for that province. After one year's service in that capacity he secured an appointment on the Dominion Dairy Commissioner's staff, being one of the first members. For three or

four seasons he continued to do excellent work in the Province of Quebec in conjunction with Mr. J. C. Chapais, Assistant Dominion Dairy Commissioner. He also did very effective work in Ontario, Manitoba, and other parts of the Dominion. In 1895 he was appointed by the Government of Manitoba Dairy Superintendent for the province. One of his efforts was to make an extended trip through the Province of British Columbia for the purpose of enquiring into the extent and requirements of the market in that province for dairy products, with the object of ascertaining if it would be available for Manitoba dairymen. The result of his trip was a great extension of the dairy industry in Manitoba. Another result of his work as dairy superintendent has been the establishment by the Manitoba Government (in 1896) at Winnipeg of a Provincial Dairy School and Dairy Station. The school was placed under Mr. Macdonald's superintendence, and has been exceedingly successful. In its opening year it had thirty-five students in the professional courses and 110 students in the domestic courses. Mr. Macdonald's work as dairy superintendent is exceedingly highly appreciated by the Government and people of Manitoba.

MR. J. E. HOPKINS, who now is stationed at Nappan, in charge of the Dominion Dairy work in Nova Scotia, was born in the celebrated dairying county of Oxford, in Ontario. He lived on his father's farm till he had reached manhood, when he left it to learn cheesemaking, and he has been engaged in cheesemaking ever since, now almost twenty-four years. He has had charge of some of the most successful cheese factories in Ontario, among which may be mentioned Lyons, Mount Elgin, East Zorra, Blandford, and Brownsville. In 1888 the Western Dairymen's Association appointed him their instructor and inspector, which position he held for three years. For one year he bought and shipped cheese for Messrs. Hately Bros., Brantford. For the past five years he has been upon the staff of the Dominion Dairy Commissioner in service in Nova Scotia, stationed at Nappan, as above stated. He also has charge of the dairy school at Sussex, N.B.

MR. C. F. WHITLEY, accountant in the Agricultural and Dairy Commissioner's branch of the public service at Ottawa, was born in England, and was educated there. After serving eight years in the factories and counting-house of his father's wholesale manufacturing business he came to Canada in 1888. He took the three years' course at the Ontario Agricultural College and was graduated in 1891 with the degree of B.S.A. from the University of Toronto. He then joined the staff of the Dominion Dairy Commissioner as "Travelling Dairy Instructor," and has remained on the staff ever since.

MR. L. A. ZUFELT was born in 1865 in the county of Dundas. Having obtained a good education he taught for two years; he then took a course at the Ontario Business College, Belleville. In 1887 he began his career as a cheesemaker, and worked at the business for five years. In 1892 he attended the Dairy School, Guelph, and won first honors. The next session he was appointed instructor in milk-testing at the school, and in April, 1893, he joined the staff of the Dairy Commissioner. Since he has been upon the staff he has been employed during the summer seasons in travelling dairy work in Manitoba and the Northwest Territories. During the winter seasons he is employed in dairy school work. In the winter of 1895-6 he was one of the instructors in the dairy school at Sussex, N.B. Mr. Zufelt is recognized as an excellent cheesemaker. At the World's Fair in Chicago, 1893, cheese made by him scored 99½ out of a possible 100.

MR. C. P. MARKER was born in 1868 in Vium, Denmark, where his father was a farmer. He began his dairying career in 1884 by beginning to learn the art of buttermaking, and for six years he served as a pupil in some of the best creameries in Denmark, which country, as is well known, is one of the foremost dairying countries in the world. In 1890 he emigrated to Canada, and, coming to Toronto, was engaged as buttermaker by Mr. William Davies, who, at that time, had a magnificent herd of Guernseys at Markham, Ontario. In March, 1891, Mr. Marker entered the service of the Dominion Dairy Commissioner, and for some time had charge at the Central Experimental Dairy Station at Ottawa. He then took up more general work, and has

served as instructor in several of the provinces (in British Columbia with the Travelling Dairy). For one winter he was connected with the Dairy School at St. Hyacinthe, Que.

MR. J. W. ELLERBY, private secretary to the Dominion Dairy Commissioner, was born in 1862, near Woodbridge, Ontario. For some time he was a teacher. He was graduated from the Ontario Business College, Belleville, in 1884, and from Bengough's shorthand and typewriting school, Toronto, in 1884. In 1889 he was appointed private secretary to President Mills and Professor Thomas Shaw, of the Ontario Agricultural College. In May, 1890, he was appointed to his present position.

THE MINISTER OF AGRICULTURE FOR THE DOMINION.

In connection with our special article on "The Dominion Dairying Service," we have pleasure in presenting to our readers a very recently engraved portrait of the present Minister of Agriculture for the Dominion, the Hon. Sydney Fisher, M.P. for Brome.

In FARMING for December last we had the opportunity of giving our readers an account of Mr. Fisher's life, and of his work as a farmer and as a public man. Mr. Fisher's incumbency of his present position is of too recent a commencement for much to be chronicled of what he has done as Minister of Agriculture. But short as his term of occupancy of this

office has been he has shown that he possesses in no small degree the best of qualifications for his

position, namely, a thorough sympathy with, and a thorough acquaintance with, the needs of Canadian agriculture as it is to-day conditioned ;

and a keen perception and a wise appreciation of what should be done both by Parliament and by the farmers themselves to meet these needs.

This eminent fitness for his work has already been evidenced by his attitude towards the report on our agricultural difficulties and necessities which was drawn up by the Special Sub-committee on Agriculture, and presented to the House of Commons at its last session (See FARMING, December, 1896, page 257) on railway



Hon. Sydney Fisher, M.P.
Minister of Agriculture for the Dominion of Canada.

discrimination, ocean freights, and cold storage, and by his practical adoption of the policy out-

lined in that report. It has also been shown in the steps which he took to establish the first links in an efficient chain of cold storage communication reaching from our Canadian producers to the consumers in Great Britain, namely, the authorizing of the expenditure of public money, for the purpose of assisting our cheese and butter producers to put cold storage chambers into their cheese factories and their butter factories; and in the arrangement which he has made to still further complete the chain by getting efficient refrigeration upon regular trains running from important inland points to the seaboard during the heated term, and in the arrangement which he has recently effected to have cold storage facilities provided on all our important trans-Atlantic freighting steamships.

But it has been shown perhaps most strikingly of all in the very energetic means which he took to secure the free admission—so far as quarantine difficulties are concerned—of our cattle, sheep, and swine into the United States.

This last achievement is one of especial importance to our stockmen, especially to our cattle breeders. The old regulation of a ninety-day quarantine was almost a complete bar to the exportation to the United States of even our pure-bred cattle, no matter how desirable they might be to American breeders; and, so far as the exportation of fattened beef cattle, and of stockers, and of cattle intended for shipment to England by way of American ports, was concerned, it was an entirely prohibitory regulation. But under the new regulation it is certain that a very important export trade in commercial cattle will spring up,

for already the exportation of stockers and of fat heeves to the United States by way of Buffalo, Brockville, and Prescott, that has taken place since the new regulation went into force, has far exceeded all expectations. Not only this, but we may hope to see large numbers of American stockmen coming here for choice animals with which to supply themselves with the "new blood" which is always in demand by progressive breeders; and our own stockmen will, without doubt, equally avail themselves of the privilege of replenishing their herds by purchasing from American breeders. The energetic action taken by Mr. Fisher to secure this boon for our stockmen and cattle dealers is worthy of all praise.

Another action taken by Mr. Fisher as Minister of Agriculture which should be specially mentioned is that to secure the acknowledgment on the part of the American customs' authorities of our horse, cattle, sheep, and swine records. That these records have not been recognized in recent years by the American customs' authorities has been a great injustice to our stockmen with no corresponding benefit to American breeders. The contemplated arrangement by which in future our records will be recognized by the American customs' authorities will, no doubt, result in a great expansion of international live-stock trade, and will prove beneficial in helping to maintain the integrity of the stock records on both sides of the line.

We are sincerely glad that Mr. Fisher is seeking to effect this recognition, and we trust he will soon be able to announce that he has succeeded in doing so.

WEBB PUBLISHING COMPANY, St. Paul, Minn., Feb. 27, 1897.—You are making a very fine publication of FARMING. We fear that our people would hardly support so fine a monthly even at the low price of \$1 per year. Yours very truly, A. G. WILCOX, Editor *Northwestern Agriculturist*.

MAXVILLE, February 12th, 1897. EDITOR FARMING. Dear Sir,—I have read the February number of FARMING and think it is just grand. Why, the papers by Hon. W. D. Hoard and Prof. Dean are worth to me, as well as to every farmer in Ontario, ten times the price of FARMING for a year! Yours truly, K. C. McRAE.

BRUCE MINES, February 15th, 1897. Dear Sir,—I herewith enclose \$1 for FARMING. I have been reading it this last year, and am delighted with its contents. I think as a farming journal it is at the head of the list. I am yours truly, A. G. McD.

SAGINAW, Michigan, February 12th, 1897. SIRS,—Enclosed find payment for FARMING for this year. I and other members of my family are delighted with FARMING, and believe it to be the best magazine to be had in its line. The stock and poultry pictures are elegant. In

fact, the feeling of covetousness is growing upon me so strongly that I must have some of those birds so finely pictured in the January number. Yours, W. H. MUIR HEAD, 213 Ward street.

DEPARTMENT OF AGRICULTURE, MANITOBA, Winnipeg, February 15th, 1897. The Bryant Press, 20 Bay street, Toronto, Ont.: Dear Sirs,—Your special dairy issue is, indeed, an excellent and valuable publication. You certainly deserve great credit for the extremely valuable and handsome magazine you have made it. Wishing you and FARMING the great success you deserve, I am, yours sincerely, C. C. MACDONALD, Superintendent of Dairying for Manitoba.

THE PLUMMER LOOM Co., of Campbellford, write: We think your magazine deserves the greatest praise.

AN INTERESTED READER.—A well-known Ontario Government official became so interested in poultry raising through reading the February number of FARMING that he read it every word through, and then obtained from the Department of Agriculture copies of the back poultry reports to read them through. He says he will at once go into the business of raising chickens.

THE CONDITION OF THE SHORTHORN INDUSTRY.

BEING THE ANNUAL ADDRESS OF THE PRESIDENT OF THE DOMINION SHORTHORN BREEDERS' ASSOCIATION.*

By ARTHUR JOHNSTON, Greenwood.

MR. ARTHUR JOHNSTON, the President of the Dominion Shorthorn Breeders' Association, is so well known to most of the readers of *FARMING* that a sketch of his life in connection with his address, as printed below, is almost superfluous. But as there are constantly coming forward into the ranks of stockbreeders many young men to whom a man of even Mr. Johnston's reputation would be for a long time scarcely more than a name, we have pleasure in reprinting for the benefit of such the following excellent account of



Mr. Arthur Johnston,
President Dominion Shorthorn Breeders' Association.

Mr. Johnston's life and work written for *The Canadian Live Stock and Farm Journal* in May, 1891, by one who knew him well, and was very competent to pass upon his work the opinions expressed:

"Mr. Arthur Johnston, of Greenwood, Ont., has made a name for himself in connection with importing and breeding live stock which is at once continental and transatlantic. His career amply illustrates the possibilities that are within the reach of our young men who possess the requisite determination and energy, although they may be called upon in the upward journey to overcome difficulties which may at first appear to be insurmountable.

"Mr. Johnston was born in the north of Ireland in 1840, and removed with his parents to Ontario in 1845. They located in the county of Peel, where the usual privations of those early days were met by the family. He had reached the age of thirteen years before he attended school at all, but by dint of perseverance and strong effort was enabled in due time to obtain a certificate as a teacher from the Normal School in Toronto.

"After some years Mr. Johnston abandoned the profession of teaching, and turned his attention to farming and importing and breeding live stock. As an importer of Cotswold sheep he was known both far and near, but for some years past his importations have been confined to Clydesdale horses and Shorthorn cattle. The first importation of Shorthorns was made by Mr. Johnston in 1874. Since that time he has made an importation of more or less magnitude every year. The Shorthorn importations are all from Scotland, and consist largely of animals of Cruickshank blood. More of them have been drawn from the Kinellar herd than from any other source.

"The wisdom shown by Mr. Johnston in making his selections has been more than justified by the success which has attended his efforts. As regularly as the seasons recur, so regularly do we find animals from the Greenwood herd carrying off a goodly share of the highest honors in the Shorthorn show-rings, although for many years past Mr. Johnston has not himself shown any animals. From the date of the first importation the Greenwood Shorthorns have been favorably known in the Western States, so that as regularly as the seasons come and go American breeders who are seeking show animals visit the Greenwood herd. But as Mr. Johnston does not confine himself exclusively or mainly to the selection and breeding of animals for the show-ring, persons who are desirous of obtaining material upon which to found herds, or for improving those which they have, will be amply repaid by making a visit to Greenwood.

"While Mr. Johnston has in this way been furthering his own interests, he has done a grand work for the province. He has been the means of introducing into this country a goodly number of animals, which, without a doubt, have done much to improve our native stocks; an improvement which, in judicious hands, will perpetuate itself, and will thus bring increased returns to those who handle these cattle for years to come. The herd at present is in fine form. The animals in it are a uniformly good lot, with the massive bodies and fine fleshing properties which characterize the Scotch cattle, and its numbers over threescore and ten.

"Mr. Johnston has for many years past given much attention to the improvement of our Shorthorn records. He was a leader in the agitation which culminated in the establishment of the British-American Shorthorn Association, and also took a prominent part in the negotiations which ended in the merging of the two herdbooks into one."

It needs only to be added that since 1891 Mr. Johnston's career as a stockman has been the natural development of what is above outlined, although of late years his attention has almost exclusively been given to Shorthorn cattle. No man in the Dominion is considered a higher authority than he in all Shorthorn matters, and no one devotes himself more unremittingly to the promotion of Shorthorn interests in every possible way. In 1905, on the resignation of Mr. Richard Gibson, Mr. Johnston was elected President of the Dominion Shorthorn Breeders' Association, and at the late annual meeting he was chosen for the third time to fill that important and honorable position.

*Delivered at Toronto, February 3rd, 1897.

In addressing you, at the beginning of another Shorthorn year, I think I cannot do better than refer briefly to the past history, the present state, and the future prospects in this country, and in the United States, of the Shorthorn industry, as seen from a business point of view; and, in doing so, I wish to call your attention to some of the causes which, in my opinion, have led up to nearly all, if not all, the depressions we have experienced during the past thirty years or more.

THREE PERIODS IN CANADIAN SHORTHORN HISTORY.

First, then, as to the past history, I may say that it has consisted of a series of three distinct and widely different periods, viz. : (1) A period of healthy, even, and progressive business; (2) a period of speculation; (3) a period of rational business enterprise, burdened with more or less depression.

In the period which I have described as one of healthy, even, and progressive business any man of known honesty, intelligence, and perseverance could make a success of Shorthorn breeding, and a little money:—well out of what I think is a pleasant calling, and in this period I think I may say few excepting such men were engaged in the trade.

During this period of straight business, and honest effort on the part of the breeders and importers of, say, thirty odd years ago, success depended, as it ought, on producing good animals, with sound old pedigrees. These good ones sold at good prices, though at no better prices than their merits deserved, and these prices attracted the attention of men of wealth.

But, alas! they also attracted speculators and adventurers who had neither money nor judgment, nor even a fancy for the animals they attempted to breed, but who entered the business solely to make money out of it, and to make it quickly.

These men, by their lavish expenditures, and their extravagant advertising, soon seemed to monopolize the foremost ranks among breeders; though they very seldom bred anything but pedigrees, if, indeed, they took time between their public sales to breed at all.

Then when certain animals, bred or imported by the genuine breeder and fancier, brought good prices on their individual merits, this circumstance would induce the speculator to fly off and buy all the sisters, aunts, and nieces of these animals that he could find, all of which were absolutely certain to figure in an extensively advertised sale within a year, or perhaps in a very much shorter period.

This, then, was the period of speculation to which I have referred.

For a time the methods of the speculators seemed to succeed. Animals of no real merit, from the genuine breeder's point of view, soon supplanted the best of the breed, and monopolized all attention—the attention, I mean, of what had now become a fraternity of jobbers in pedigrees, instead of enthusiastic breeders or producers of good cattle.

From this it was an easy descent to the so called line-breeding, or pedigree craze, which culminated in the famous New York Mills sale, when a cow sold for the enormous sum of forty thousand six hundred dollars, one of the worst days for the Shorthorn trade in its whole history.

After this sale, for a time, good cattle, unless they were bred in a particular line, became a comparative drug in the market, but if they had the good fortune to be so bred individual merit, as far as fetching a big figure was concerned, might almost be said to be unnecessary.

After lasting long enough almost to kill legitimate breeding for merit, this period of speculation was followed by a more rational one, when during the eighties, while cattle were rightly required to have good pedigrees before they could be counted on to bring good prices, pedigrees without individual merit in the cattle were, as they ought to be, of little value.

CAUSES OF THE RECENT DEPRESSION.

When this period succeeded to the preceding one, nearly the whole of the speculators, and, I am sorry to have to say, most of the moneyed men, dropped out, and in this way vast sums of money were withdrawn from the Shorthorn business, which circumstance could have no other effect than to greatly depress the business.

This depression we have all been feeling in recent years; and I am sorry to have to say that we are feeling it still, in the low prices that we obtain for our stock. But while we are still feeling the depression, I am bound to say that I believe at the present time our business is not suffering from the hard times any more than most other lines of business, and perhaps not so much.

Another and a very potent cause of the recent depression in Shorthorn matters has been the rush of so many of our farmers into the so-called milking breeds. This to a very great extent is no doubt due to an undoubted increase in the consumption of dairy products all over the British world and a consequent increased demand for them. The force of this (in many cases) foolish rush is, I believe, now spent, and a reaction is unquestionably taking place.

With regard to the present state of the Shorthorn trade I think I may say that while it cannot be called good, yet there is nothing a farmer can produce that meets with a readier market or pays better than really good young Shorthorn bulls of reliable breeding; and by good, reliable breeding I mean animals bred from really good ancestors on all sides, especially animals whose more recent ancestors are really good.

THE FUTURE PROSPECTS OF SHORTHORN BREEDERS.

As to the future prospects of our business, or as I would like to call it our profession, I may say that it is dangerous to predict, even when everything looks favorable, as is the case with regard to Shorthorn matters at the present time.

In the first place, I may say that really good cattle of *any breed* are well known to be scarce and in demand, though prices are still low in their case, as in the case of all other lines of business.

In the second place, the dairy boom has, I firmly believe, to a very great extent, spent its force; so that while suitable districts and certain well-qualified men may still continue in the milk business, this business will not, I am certain, be followed so indiscriminately by unskilled men and in unsuitable districts as it has been in recent years.

Not only this, but the demand for good feeding cattle, and the consequent rise in their price that must take place, are certain to draw farmers to the good old standard general purpose breed—the only breed that can be relied on to produce good milkers and at the same time to furnish the very primest of steers and heifers for the butcher. We have now, as I said before, gotten rid, to a very great extent, of the speculators, and we have, I believe, seen the end of the injurious effects of the withdrawal of so much money from the business. This puts us on a sounder basis than we have in recent years occupied.

During the big price period to give credit was almost invariably the practice; for the speculators counted on selling their cattle before they paid for them. But there is now vastly less credit given than at any previous period for thirty-five years back, and this is another promising feature in the trade, and not the least promising.

On the whole, I cannot but feel greater confidence in the future of the Shorthorn business than I have felt for many years.

There never has been a keener, or a *more* general, demand for young bulls than we have experienced during the past two months, notwithstanding the great stagnation that exists in almost

all other lines of business, as well as the low prices that obtain for beef, pork, and, indeed, almost all kinds of farm products.

It is true we have sold at possibly the lowest prices known for many years; but the prices obtained for Shorthorns, small as they have been, have been quite as good as the prices realized for other farm commodities, and, I believe, *better*, all things considered.

THE INTEREST OF MONEYED MEN NEEDED.

If I were asked my opinion as to the greatest want of the Shorthorn business both in this country and in the United States, I should unhesitatingly answer, "Moneyed men to take an active and participating interest in this, and in all other matters pertaining to agriculture."

In the old lands it is vastly different. There, from royalty down to the tenant farmer, all take a patriotic pride in, and desire to be connected with, the soil on which they live, other than for mere ownership, or for the revenue to be derived therefrom.

I think this matter is worthy of the consideration of our men of wealth. It is not to be expected that the wealthy can make money in any line of farming, but the country can never prosper if its farm methods are poor and unenterprising; and if men of wealth and social standing hold aloof from the soil, the more moderately wealthy will also avoid it; whereas if our wealthiest citizens made it fashionable to take up some lines of agriculture, moneyed men of less means would imitate them, and the certain result would be improved methods and more ambition to excel.

In England, Scotland, and, indeed, in all the old lands, the tenant farmer has many opportunities during the year of meeting, on equal terms, with his lordship of high degree who is engaged in farming in the vicinity. Even the Queen and the Prince of Wales are largely engaged in farming and in the raising of purebred stock.

SHORTHORN BREEDERS MEN OF HIGH CHARACTER.

In conclusion, I desire to say that no class of men in the world during the past fifty years have stood higher, when viewed from a moral standpoint, than the real breeders of Shorthorn cattle.

This has been so not only in Canada, but also in the United States and Great Britain. It is much to say, but I believe the statement will not be contradicted.

If we do not number in our ranks men of great wealth, we do number among us men of great

ability and of considerable influence. And I venture to say that in every neighborhood in which Shorthorn breeders are found they carry at

least a full share of the respect and trust of the locality. And this is so in all countries of which I have any knowledge.

SOME EVILS IN THE SHORTHORN BUSINESS.*

By D. ALEXANDER, Bridgen, Ont.

I think one of the evils working against us, as a body of intelligent men, engaged in perhaps the grandest, the most useful, and, to the agricultural world, the most intellectual, as well as the most fascinating of all the branches of agriculture, I believe I may say *the worst evil*, is that men engage in the breeding of purebred stock without having the first talent required to make a successful breeder.

We can all see to mind men who thought they knew as well as any man how to choose good animals, how to feed them, and how to mate them, and who, in their own estimation, soon became second to none as breeders of purebred stock. But, gentlemen, of these men I can reckon dozens who have not only lost ground from the start, but who have brought evils, decided evils, on others engaged in the business. The natural talents of stockmen are not theirs. Love for the business is not in them. The fascination and the natural delight in caring for animals and in mating them thoughtfully and intelligently are absent; and if we look closely we shall find other motives operating with them, such as the hope of receiving increased remuneration for their labor. The prices they expect to get are far more fascinating to them than any interest they may take in, or love they may have for, breeding; but as time passes, and they see that the prices they hoped for are not being realized, our friends, in addition to being not adapted to their work, become careless as well, and offer their stock, deteriorated in vigor and in form, and depreciated in value, at prices that will never pay them. Then the men who are really breeders are met with the only too common remark: "Oh, I can get Mr. So-and-so's stock for half your price." If we ask them what this stock is like, the answer is: "Oh, not as nice as yours, of course; but the blood is there, and the price is one-half yours."

Yes, I say, the price is certainly only one-half; the other half of the price this sort of breeder has lost; and he will ever continue to lose it until he altogether gets out of a business he should never have gone into.

I defy you to satisfy the general public greed. When once it is known that purebred cattle may be bought for half the price, that such cattle can really be bred and sold for by those who carry on their business properly, and so as to get a decent living out of it, it is very difficult indeed for the legitimate breeder to realize remunerative prices for his stock. The downward plunge of our friend throws its spray over us all.

A STANDARD OF QUALIFICATION PROPOSED.

What can be done to remedy this? The Shorthorn Association raised the standard of the breed. Why is it not possible to raise the standard of the breeder? I have often thought that imposing an intellectual standard or an examination of qualification on those applying for membership might be adopted to the advantage of all, and might succeed better than at first sight would seem probable. For instance, a few questions might be asked that would set men thinking, such as the following:

"What are the considerations which should induce a person to go into the breeding of purebred stock?"

"What are the requirements of a successful and intelligent breeder?"

"Describe how you would feed and care for purebred Shorthorns."

"Give an estimate showing the cost to the breeder of a purebred Shorthorn, male or female, twelve months old, as you would care for it?"

I need not give other examples. The able men I see before me could easily frame a standard such as I suggest better than I could do it. This, however, is the idea, and I believe that, by applying it, it would be possible to raise the standard of intelligence in those who are about to engage in our business.

THE GRADE BULL NUISANCE.

Another evil is the grade bull nuisance. I am satisfied that what is called "pride in our work" will never do away with this hindrance to progress; it will never stop the practice of using grade bulls as sires. The country swarms with

* A paper read at the annual meeting of the Dominion Shorthorn Breeders' Association, February 3rd, 1897.

them, and legislative enactment is the only sure remedy for the disease. By enactments men are forced to respect their neighbor's rights; as, for example, in the building of their fences, their houses, and their places of business; also as to who shall manufacture or sell liquors; and as to many other things. Our municipal laws abound with instances where individual rights are more encroached on than they would ever be by taxing a grade bull or stallion ten to fifty dollars a year.

Why, gentlemen, need I remind you that none of us can take a wife to himself unless he pays a tax, or let all the world know of it weeks previous?

After years of close and painstaking observation, I estimate that one-third of the males in use in our province are from common cows, and in some districts the proportion is more. The worst of it is that the farmers who use these

grade sires are the very ones who really cannot afford to use them, because a grade bull when used for service is dear at any price.

CO-OPERATION NECESSARY.

All our live stock associations should work hand in hand for the overthrow of this curse to the stock industry of our country. "Pride in our work" or "moral suasion" will never accomplish it. But legislative enactment can do so, and it ought to be set in operation at once, and it will help those foolish people who now degrade their stock by using inferior sires more than it will help anybody else.

This accomplished, and an intellectual standard of admission to our business established, just as standards of admission have been established for other businesses and professions, we shall be on a much sounder business basis than we have ever been.

WHY DO PEOPLE BREED SHORTHORNS?*

By ALEX. W. SMITH, Maple Lodge, Ont.

To this question probably almost every breeder would answer: "To make money." And no doubt this would be a true answer; yet it is no less true that the breeder who is in the business simply to make money is seldom a success as a breeder, while he invariably proves to be an injury to the breed.

The most successful breeders have, undoubtedly, always been those who have had in view not alone the profit to be made from the individual animals they have been breeding, but also the *profitableness of the type* which they have had in their mind's eye, and which they have been constantly striving to realize in the stock they breed.

This was the case with Bates, who while always gaining a handsome profit from what his beautiful, graceful broad-backed creatures yielded him in dairy produce had in mind constantly the development of a type of animal which, while it should be able to improve the beefing qualities of the common cattle of the country, should also have prominent value as a dairy animal.

So it was, too, with the Booths, and all those who bred to *their* type, who made fortune as well as fame with their grand, large, heavy-fleshed cattle, that sold profitably because of their massiveness and readiness to fatten, but that, nevertheless, developed into an enduring type that has ever since had its influence on the beefing stock of the country.

And so it was again with the Scottish breeders, Cruickshank, the leader of them all, who, after years of patient perseverance, won abundant reward for producing still another and a different type, one which, while it somewhat resembled those already mentioned, embodied other qualities necessary to suit a change in the demand, that is so say, a smaller animal, but one that matured quickly, and so proved profitable wherever introduced judiciously.

And so it has been with the successful breeders of to-day, who, casting aside all prejudices as to families and strains, gather the best from the fruits of the labors of all those great improvers of the breed whose names I have mentioned; and as the master artist with his skilful brush produces a picture which captivates the world, so these breeders produce an animal which yields a full ripe carcass of beef, of good size, in appearance massive and attractive, and of an age unthought of in the earlier days of the breed; an animal, too, possessing milking qualities to recommend it as the type of cattle for the general farmer, and characterized also by all the grace and dignity of carriage that are necessary in the successful show animal of to-day. These breeders attain an ideal higher than any realized in the past; and at the same time they make more profit than is possible to the man who is breeding simply for the money that is in the business.

*A paper read at the annual meeting of the Dominion Shorthorn Breeders' Association, Toronto, February 3rd, 1897.

THE TRUE BREEDER ALWAYS HAS AN IDEAL TYPE IN VIEW.

All these breeders I have referred to have worked, and thought, and waited for the realization of their desire to produce an animal approaching more or less closely to an ideal type existing at first only in their own imagination; and they were willing to accept the profit, oftentimes small, which they knew would be sure to follow, knowing that they had a higher reward in that improvement of the breed which their efforts were resulting in. Breeders such as these are always a benefit to the breed.

On the other hand, there is the speculating capitalist who invests largely in Shorthorns (a benefit to some individual breeder very often, I will admit), as has been done so frequently in the past, and who then breeds simply on paper or from pedigree, and whose highest ambition as to improvement is to "corner" some family or strain of blood, and by systematic booming force the animals belonging to it up in price. Then having made them fashionable, if he be adroit and does not foolishly imagine himself a breeder in the best sense of the word, he will sell out, perhaps with some money to the good; but, on the other hand, seventy-five per cent. of those who purchase from him will lose money. The result is injury, and sometimes almost disaster, to the breed.

A more numerous class of breeders both now and in the past, and one whose injury to the breed is farther reaching, is composed of those who are ever ready to attempt to follow in the wake of other men, who to them seem to be making money. They, perhaps, see bull calves selling for \$100 or over, and see in this price a clear advance of \$75 or \$80 over the steers they themselves have been raising. They purchase a

cow or two, and then without any idea of the type of animal they wish to breed they simply have the cows raise calves. The sire they use may be a very inferior one, of a type indeed that would probably be avoided altogether by the skilful breeder. Nevertheless they expect their calves to sell for \$100 the same as his, and, of course, they are disappointed. They forget that when they purchased their cows they did not at the same time purchase the skill and experience of the successful breeder, and that he, in all probability, for years has sold his surplus stock for one-half the price he now gets for them, although he has determinedly gone on breeding to obtain the realization of the improved type he has had in view.

This class of breeders soon become dissatisfied with the breed, and not because of any fault of the breed, but because of error in their own judgment; and, being dissatisfied, they generally rid themselves as quickly as possible of what they think is a losing property. Or, what is worse, through continued ill-mating and carelessness, they allow their stock to degenerate, and then they denounce the result as due to their misfortune or ill-luck, and by citing their disappointment to everyone they meet cause a further injury to the breed. In short, they discourage men who would be a benefit to the breed, and a credit to the ranks of the breeders, from investing in Shorthorns as they would otherwise do.

But men who have a natural love for a good and comely beast, one that they can raise with a reasonable hope of profit, and can shape to their own taste, will always find the Shorthorns to be a breed to their liking; one that will prove profitable to them in the individual animals they breed, and one that they may always have a hope of developing into a breed more valuable than any now existing.

W. T. HALL, Highclere Farm, Newbury, Berkshire, England, says: "I think your paper is an excellent one, and is well got up."

MR. A. F. DIMMA, Cedar Grove, writes under date of 24th December: "The December number of FARMING is well got up, very neat, and contains a host of useful information."

AMELIASBURG, Dec. 24th, 1896.—FARMING: Sir,—enclosed find post office order for my renewal subscription to FARMING. A grand magazine. I am well pleased with it. Yours, etc., JAS. E. GLENN.

D. Z. GIBSON, B.S.A., Willow Grove, Ont., writes: "FARMING has come into our home for years, and will continue to do so, I hope, as I believe it is improving every month, and is one of the best up-to-date solid agricultural journals publishers.

AN AD. IN FARMING PAYS.—Mr. W. J. Stevenson, of Oshawa, in sending in the "copy" for his advertisement in this issue says: "I have found that an ad. in FARMING brought me more enquiries and business than I ever expected."

ANCASTER, Dec. 22nd, 1896.—Enclosed you will find \$1, my subscription to FARMING. I like it very well, and have liked it from the first. Yours truly, JOHN TAYLOR.

MR. G. P. RAYMOND, of Mount Vernon, N.Y., says: "I find FARMING a most interesting journal—admirably gotten up, replete with valuable articles, and sound in every respect."

E. C. CARPENTER, Simcoe, writes: "Enclosed please find two dollars in payment of two years' subscription to FARMING. I think FARMING the most valuable and interesting agricultural publication of this or any country."

RETROSPECT.

A REVIEW OF THE SHORTHORN INDUSTRY OF CANADA FOR 1896.*

By RICHARD GIBSON, Delaware.

MR. RICHARD GIBSON, of Delaware, is undoubtedly one of the best known and most highly esteemed all-round stockmen in Canada. There is scarcely an honor or a position in the gift of his fellow-breeders which has not been conferred upon him. A notable instance of the honorable estimation in which he is held was the presentation to him of a magnificent gold watch and an address by the members of the Dominion Shorthorn Breeders' Association on his retirement from the presidency of that association in February, 1895. As an expert judge of live stock his services are in constant demand at all our leading exhibitions. In the press, as a writer on live-stock topics, his opinions are considered final, while his pleasing style and faculty of apt illustration win for him the interest of every one of his readers.

As an evidence of Mr. Gibson's popularity as an expert judge we may mention some of his engagements for 1896: The Canadian Horse Show, Toronto, Shires and coaches; the New York State Agricultural Society's Show, Syracuse, all breeds of beef cattle; the Industrial, Toronto, Shorthorn cattle; Indiana State Fair, Indiana, all mutton breeds of sheep; Central Canada, Ottawa, all mutton breeds of sheep; Illinois State Fair, Springfield, all beef breeds of cattle; the National Horse Show, Madison

Square Gardens, New York, Hackneys, ponies, and French coaches; the Live Stock Society of America's Annual Fair Stock Show, New York, sweepstakes in all the beef breeds, and all the Shorthorn classes.

Mr. Gibson was born in 1840, in Lincolnshire, in England, where his father was a very successful, progressive farmer. In the year of his birth his father won a prize for having the best farm in his shire of over 200 acres; and subsequently, having removed to Derbyshire, his father won the first prize for having the best farm of over 400

acres in that shire. His early training was thus of the best sort for his subsequent career as a farmer; and while even yet a lad he won prizes for his plowing. He received a good education, having attended for some time the grammar schools of Derby and Lincoln. He then spent three years in the office of a grain merchant; after which he came to Canada. This was in 1861, when he had just reached the age of twenty-one. He resided here for eighteen months, and then went to New York state, where he took charge of a 1100-acre farm on Long Island, on

which a large flock of Merino and Shropshire sheep were kept, and also a large dairy herd. For the main portion of our sketch we will quote *The Canadian Live Stock and Farm Journal* for January, 1892, in which an account of Mr. Gibson's life and work was given:

"From Long Island Mr. Gibson went to New York Mills, where at that time Jerseys and Ayrshires were bred, as well as Leicester sheep. Afterwards Shorthorns were added, and two importations were made, principally of Booth cattle, Mr. Gibson having the honor of purchasing the first cow from Warlaby that had ever been sold for breeding purposes. The half of the Shorthorn herd of Mr. J. C. Sheldon was afterwards acquired, and eventually the remainder was added, thus making a corner

of the whole of the pure Duchess family in existence. Mr. Gibson's connection with the New York Mills herd extended over a period of six years; and when the herd was disposed of by that famous auction in 1873, it is sufficient to state that 110 head were sold for \$382,000, while one fetched \$35,000. 'This,' remarked Mr. Gibson, in a conversation on the subject with the writer, 'was naturally most gratifying to myself, the more so as I was always supposed to be crazy when purchasing the herd; and when I found that I always paid a dividend of ten per



Mr. Richard Gibson, Delaware.
Ex-President Dominion Shorthorn Breeders' Association.

* A paper read at the Annual Meeting of the Dominion Shorthorn Breeder's Association, February 3rd, 1897.

cent. each year on the amount invested, and that at the distribution after six years the whole realized over \$200,000 more than the original cost, I may, perhaps, be excused in mentioning with pride my connection with the New York Mills.'

"When at its full complement," continued Mr. Gibson, 'the stock comprised about 150 Shorthorns and 120 Ayrshires, and we won, for eight years, nearly every first prize at the New York State Agricultural Society's Show; indeed, I doubt if there were ever as many good Ayrshires in one herd. I sold one row of 22 yearling heifers at one deal to a breeder for \$4,400, an average of \$200 apiece, and at the sale sold one yearling for \$750. In addition to the Shorthorns and Ayrshires, a herd of about 35 head of Jerseys were kept, as well as Lincoln sheep.' After severing his connection with New York Mills, Mr. Gibson returned to Canada, where he rented a farm and continued his work of breeding and importing the finest stock. His operations in this respect have been very extensive, and up to the present time he has imported nearly 100 head of Shorthorns, besides Lincoln and Shropshire sheep, and he has crossed the Atlantic 33 times for the purposes of his business. Mr. Gibson's name is more intimately associated in Canada with Shorthorns and sheep; but, as we have related, he has had a large and equally successful experience with the milk breeds, and at the present time, besides his well-known herd of Shorthorns, he also breeds some choice Jerseys."

"Watchman, tell us of the night."

"*Cloudy overhead, but bright and clear in the East. And all's well.*"

By this quaint illustration from olden days' custom may we, not inaptly, describe the present condition of the Shorthorn interest. It is without doubt "cloudy," but "all's well"; and I think if we take a retrospect of the last year's operations there may be lessons learned which may prove not only interesting and instructive, but also profitable.

In the first place it is "bright and clear in the East." If we consider the situation in England we must confess the outlook is decidedly bright. Prices have been fully maintained. Two notable sales have taken place, at each of which higher prices were realized than for some time previous; while the high water mark for years past has again been reached—that of one thousand guineas, or five thousand dollars. Again has South America been the principal purchaser, not only in numbers, but also in quality; the very best that could be got have been secured, and price, apparently, was not thought of if only the purchasers were able to get the best.

THE SOUTH AMERICAN DEMAND FOR SHORTHORNS.

In connection with this South American trade there are some facts to which I wish to direct your thoughts.

The first is the continued demand for bulls. Last year, in drawing your attention to the same

In 1880 Mr. Gibson went to England as a special commissioner from the Ontario Government; and in the same year he was appointed a member of the Agricultural Commission which drew up that able and very valuable report (published in 1881), to which reference is so frequently made in these columns. Mr. Gibson's range of experience, success as a stockman, and literary ability, eminently qualified him to be a member of this commission; and he was undoubtedly one of its best and most useful members.

We cannot close this short account of Mr. Gibson more fittingly than by quoting once more from the sketch above referred to, which, we may say, was written by one who knew Mr. Gibson well, and who was thoroughly qualified by his own experience to speak authoritatively:

"In all places where matters of interest to live stock or agriculture are going on, whether it be the showyard, the sale-ring, or meetings of associations, Mr. Gibson's well-known face will almost invariably be seen. His good humor and racy anecdotes endear him to his many friends, while his practical good sense and business capabilities render him a shining example, by way of contrast, to many of his countrymen who have gone to the wall.

"It would be well for Canada if England would spare us many more men of Mr. Gibson's type. There is abundance of room for them here, and they would do much towards raising the standard of agriculture in the country."

fact, I asked, "Can nothing be done by which we may get a slice of this trade?" Surely our climate, our crops, and the amount of sunshine we get must more nearly resemble the conditions of Argentina, than do those of England? Upon her domain, the poet informs us, the sun never sets; yet for weeks and weeks together he fails to rise in the tight little isle, at least to the naked eye.

It may be urged we have not the stock. My reply is: there are no Shorthorns worth buying either in England or in Scotland with which we cannot claim kinship for some of ours. Moreover, I make this striking statement, that whereas \$7,500 is the most, so far as I am aware, that has ever been paid for one animal in Britain to come to the North American continent, yet \$35,000 has been paid by Englishmen for an animal here; and for years England's breeders came here for their bulls. So that argument does not hold good.

It was anticipated, when last I addressed you, that the Dominion Government of the day contemplated getting closer in touch with the stock breeders of the country by appointing a Live Stock Commissioner for the Dominion—someone knowing the wants of stockmen, one of themselves, as it were, whom they could consult with, etc. It seems to me as though one of the duties of such an appointee would be to enquire constantly into the condition of foreign markets, and to look out for chances whereby we might secure outlets for our surplus cattle, sheep, and horses.

This is a matter which private enterprise, as far as our breeders are concerned, can scarcely attempt. We have been so heavily handicapped of late that but few can afford to grapple with the market question single-handed. The thought arises here, would it not be advisable for us as an association, pending Government action in the matter, to divert a small sum from our surplus towards assisting to ascertain the cost of transportation, facilities for shipping, and best course to be pursued, towards getting a footing in the South American markets.

The second fact I would call your attention to is this: Most of these bulls are being bought to get steers, and so successfully have they been used that the steers shipped from South America to the English markets compare favorably with ours; so that if we expect to be in the race at all it behooves our steer breeders to bear in mind the fact that as steer getters \$50 bulls cannot compete with \$500 ones, and that they must buy better bulls than they have been doing, and be prepared to pay the breeder of purebred stock correspondingly higher prices.

A third consideration is this: If these South American republics, with their depreciated currency and consequent big premiums on gold, can pay such prices for purebred stock as they have been doing, are we to assume they could pay bigger ones if their national finances were on a so-called sounder foundation? I am not a silverite, but I am almost persuaded to be one when I see such results; and more than a passing thought is their due.

THE SHORTHORN AS A DAIRY ANIMAL.

Another phase of the English situation is the interest taken in the dairy Shorthorn. There is evidence that a boom in that direction is at hand; and so persistent are those who believe in the value of the Shorthorn as a dairy animal that there are heard mutterings of a break from the parent

society, and of the establishment of a new record, even as the breeders of the Lincolnshire Reds have done.

The belief of Mr. Bates is gradually being more and more impressed on the breeders of England "that milk, butter, and even cheese are of almost equal importance with beef in the selection of a breed cattle."

Turning to ourselves, "cloudy overhead, but clear in the East," may pretty accurately describe our situation. "Cloudy," indeed; but I believe the god of morn is surely rising high in the East and dispelling the clouds.

The first rift I note is the assurance that quarantine is to be removed. No such calamitous blow was ever dealt at the cattle industry as the quarantine and the tuberculin combination. It paralyzed the breeder's efforts, destroyed his enterprise, and circumscribed his territory.

Fresh blood may now be infused into our herds, and the race with South America for England's beef markets is made more equal; and with the establishment of the dead meat trade I see the clouds rising higher and higher and the golden lining appearing.

And with a free field we ask no favors. Though Argentina may have a kindlier climate, we can more than offset that by the skill and perseverance of our breeders. Though the United States may have a luxuriant corn belt and many natural advantages that we do not possess, still, we have our superior root crops to counterbalance them, and our people are more thorough in their methods and management than theirs are. So that, though we are handicapped in many ways, we hesitate not to enter into friendly rivalry with them; and now that the clogs upon our industry are likely to be removed I hope you all may feel as sanguine as I do, and that at our next annual meeting you may echo the watchman of old's cry,

"All's well, all's well."

UPPER KENT, N.B., Jan. 27th, 1897. Editor FARMING: Dear Sir,—While remitting my subscription to FARMING for another year I wish to say that, in my opinion, the January number is worth the whole subscription price to any farmer. Yours truly, D. STEWART.

THE STRATFORD HERALD, Feb. 2nd, 1897, says: FARMING is "one of the most practical as well as superb publications issued in any country in the interests of agriculture."

OWEN SOUND, Jan. 26th, 1897. Gentlemen,—I was more than pleased with the January number of FARMING, and feel safe in saying each number seems better than the last. We always look forward to the time when FARMING is due to come home from the post office. Yours, M. A. WILKINSON.

SECRETARY'S OFFICE, Michigan Shropshire Sheep Breeders' Association, Agricultural College, Mich., Feb. 4th, 1897. FARMING, Toronto, Canada: Gentlemen,—We do not lose an opportunity of speaking of FARMING as a monthly farm journal, especially strong as a live stock periodical. Yours respectfully, HERBERT W. MUMFORD, Assistant Professor of Agriculture, Agricultural College, Michigan.

SAMUEL CUSHMAN, late poultry manager at the Rhode Island Agricultural Experiment Station, Kingston, Rhode Island, writes: "I assure you that, leaving out what has reference to myself, I thoroughly appreciate your poultry number. It may well lead the special numbers of the best poultry periodicals. It ought to do more to extend a knowledge of poultry and to start a new interest in poultry in your section than can well be realized."

THE PRESENT CONDITION OF THE CLYDESDALE TRADE.

BEING THE ANNUAL ADDRESS OF THE PRESIDENT OF THE CLYDESDALE HORSE ASSOCIATION OF CANADA.*

By ROBERT DAVIES, Toronto.

MR. ROBERT DAVIES, of Thorncliffe Stock Farm, Toronto, President of the Clydesdale Horse Association of Canada, is one of the best known, most popular, and most extensive breeders and importers of purebred stock in the Dominion. He breeds and imports Clydesdale horses, Thoroughbred horses, Standard-bred horses, Welsh and Shetland ponies, Shorthorn and Ayrshire cattle, and Shropshire sheep. He owns, or has owned, some of the best individual specimens of these classes of stock ever imported into or bred in Canada. He is a member of



Mr. Robert Davies, Toronto.

President Clydesdale Horse Association of Canada, and President Canadian Horsebreeders' Association.

most of our stockbreeding associations, and an important office-bearer in many. Besides being President of the Clydesdale Horse Association of Canada, he is President of the Canadian Horse Breeders' Association, and Chairman of the Management Committee of the Canadian Horse Show. His farm, "Thorncliffe," near Toronto, is one of the best equipped and best managed farms in the country, and we purpose at an early date to give to the readers of FARMING an account of the agricultural methods pursued there.

I have much pleasure in again welcoming you to the annual meeting of the Canadian Clydesdale Horse Association, and am glad to say that while everything is not as rosy as we could wish, yet we may hope that we are approaching better times with more hopeful business prospects for

the association and for ourselves individually in view than for some time past we have been favored with.

In the secretary's report for the last year's business of our association you will notice that the number of transfers and registrations is increasing, and I would point out that as a result of a conference between the Hon. Mr. Fisher, Minister of Agriculture for the Dominion, and the Hon. Mr. Dryden, Minister of Agriculture for the Province, and the authorities at Washington, with some assistance by various associations in sympathy, no doubt we shall be able to come to terms with the United States authorities whereby our certificates will be recognized on equal terms with their own registrations.

Some years ago Canada found a very large market in the United States for Clydesdales; but through the enterprise of some of the large breeders there, who had purchased in the old country some of the best stock that could be had, the Clydesdale breeders of the United States are now finding a ready market both in Canada and in England for their stock, with which they have competed and taken the highest honors at the old country shows.

In my reports for the last two years I have mentioned that we should still continue to breed only the best class of Clydesdales, as we would then find a ready market for our horses at good prices.

You are aware that at the present moment the prices of dray horses are at least 50 per cent. higher than the prices that have been ruling for some time past. Our province just now has many foreign buyers who are anxious to purchase horses from 1,600 to 1,800 lbs. weight, and the reports I hear are that it is almost impossible to get a sufficient supply of that kind of horse to meet the demand. Further, our breeders have sold a lot of their best brood mares, and on account of the lack of breeding that there has been in consequence thereof during the past few years the Clydesdale horse is bound to become still more valuable.

Your attention is directed to the fact that a large and increasing trade of horses from this province is being done with the old country.

* Delivered at Toronto, February 4th, 1897.

The regret is that much of this trade has been shipped from American ports, instead of from Canadian ports. Having this knowledge, it was thought desirable that an effort should be made to have this trade done from Canada direct, and for that purpose last week Mr. John Sheridan and myself waited upon the Deputy Minister of Marine at Ottawa, and asked him that better accommodation and more comfortable stalls be given to shippers for their stock, and we are assured that the necessary order-in-council embodying the carrying out of these desired improvements will be passed as soon as possible.

Mr. Sheridan, who is one of the largest shippers of horses in Canada, gives the following as an instance of the difference made in the value of

horses by the condition in which they are landed in the old country. In one shipment made under these desired regulations the horses arrived in splendid condition and brought the highest price ever paid in the London market for Canadian horses, netting fully £7 per head more than they would have brought had they been shipped from our own ports under the old state of affairs.

The display of Clydesdales at last Spring Show was one which anybody who is interested should be proud of, both in regard to numbers and to quality. The Canadian Horse Breeders' Association and the Country and Hunt Club are making arrangements for a Horse Show this spring, and, I have no doubt, that a satisfactory agreement will be arrived at.

PLANTING AND CARING FOR FRUIT TREES.

By A. M. SMITH, Dominion Nurseries, St. Catharines.

In connection with the practical article by Mr. Smith here given we have pleasure in presenting our readers with his portrait, and with the sketch of his life and work as a fruit-grower which appeared in *The Canadian Live Stock and Farm Journal* for July, 1897, and which was written



Mr. A. M. Smith, St. Catharines.

by one who was thoroughly competent to speak authoritatively in the matter :

"Mr. A. M. Smith has for many years been closely identified with much that is progressive in the development of fruit culture in this country. To a natural industry of application he has added patient thought and deliberation, hence a large measure of success has crowned his numerous undertakings in the line of fruit culture and fruit development. At a meeting of the Fruit Growers' Association, held

in Grimsby in 1888, a resolution was passed with great unanimity according to Mr. Smith the unique honor of having done more than any other man to encourage the development of 'that most prominent and remunerative of all industries in the Niagara peninsula, the cultivation of large and small fruits.'

"The United States takes many of our most promising and useful citizens, but does not give us many such in return. Mr. Smith is one of the few exceptions. He was born amid the glories of the Green Mountains in the State of Vermont, and served an apprenticeship to nursery work near Lockport, New York. In 1856, becoming enamored with the surpassing beauties of the country around Grimsby, between the mountain and the lake, he settled there, after having entered into a partnership with Mr. C. E. Wolverton, which lasted for fifteen years. His penetrating judgment led him to foresee the great future development of the fruit industry in this sunny garden of the Dominion, which has in part already been witnessed by the people of to-day. Branches of the nursery business were established in Lockport, Drummondville, and St. Catharines. He removed to St. Catharines in 1880, where he now resides.

"Mr. Smith is one of the charter members of the Ontario Fruit Growers' Association, which was organized in 1859. Since that time he has figured prominently at its meetings, and has thrown his energies into the furtherance of its objects. He has served many years on its directorate; was its president in 1889, and has also rendered considerable service since that time in addressing various Farmers' Institutes in the employ of the Ontario Government."

It should be added to the above that in connection with Mr. C. E. Wolverton, Mr. Smith planted the first commercial peach orchard ever planted in the Grimsby district, now so famous for its annual output of peaches; and that in connection with Mr. W. W. Kitchen he started the first fruit-canning establishment ever undertaken in Canada. Since the above was written Mr. Smith has been continuously as active as ever in promoting the fruit-growing interests of the country. Besides being still engaged in the lines of work above mentioned he is a prominent member of the Board of Control of the Fruit Experiment Stations of Ontario.

What varieties of fruit shall we plant? Where shall we plant them? and where shall we get our stock?

Every farmer, if he is wise, is now making his plans for his next season's work—deciding what to plant, which field to plant it in, and where to get his stock, his seeds, etc. No doubt many readers of FARMING are intending to plant fruit of various kinds. If so, I would remind them that there is no sort of planting that requires more careful consideration than fruit planting.

Grains and vegetables are but for a season, and if a mistake is made in their selection the mistake may be remedied the next year. But fruits are planted to remain for years, and if we make a mistake in selecting them and plant varieties that are not adapted to our soil or climate, or are not wanted in our markets, it is a hard matter and takes a long time to remedy the mistake, while there is also a great loss to the planter.

The planting of fruits in this country that was done in early days was of necessity largely experimental. The pioneers, of course, did not know what fruits or varieties of fruit would succeed; and being anxious to grow fruit they planted almost everything that was recommended to them.

This country for a time became the Eldorado of Yankee tree agents, grafters, and nurserymen; and their surplus stock and culls were dumped into Canada at prices that to-day would make our nurserymen grin with satisfaction.

The consequence was that three-fourths of the money that was expended for trees in many parts of the country in those early days was worse than thrown away. It entailed the loss of the use of the land that was planted, and also of the labor of planting and cultivation. The trees were too tender for the climate, or else were of varieties that were worthless. Many sorts that were considered by the early settlers as valuable for home use or for cider were totally unfit for commercial purposes. Many orchards, too, failed from being planted on unsuitable soils and in exposed locations, the planters being desirous to get them as near to the house as possible or in "some out-of-the-way place."

But there is no excuse for this kind of work any longer. Fruit-growing has now become one of the established industries of the country, and through the enterprise of individual growers and of the Fruit Growers' Association of Ontario varieties of every sort of fruits have been found adapted to nearly all parts of the country; and a person planting an orchard needs only to exercise common sense and look around and see what varieties are doing well in his own vicinity and in similar localities and on similar soils, and also see

what varieties are most in demand in the markets to which he has access.

Moreover, to assist in obtaining information of this sort, and in order to ensure its being thoroughly reliable, the Ontario Government has established experiment stations in all the fruit-growing sections of the province. These stations are established to test varieties of fruit, both old and new, and reports of each will be issued yearly which will give comparative accounts of these varieties—as to their value, their productiveness, their freedom from disease, their market qualities, etc., etc. These reports will certainly be of the greatest value to planters.

Then in answer to the question, *what to plant*, first consider what you are going to plant for—whether for home use or for home markets or for foreign markets, and then look to the sources I have indicated for the right information.

Don't rely on some travelling tree agent to come along and tell you. These agents always have something new, something better than anything yet introduced; something that will make you rich in a short time if you will only invest in it. I have known a good many to get rich (in experience) by listening to them.

In regard to *where to plant* I would say: Select your most sheltered location, providing the land is well drained. If your ground is hilly or rolling an easterly or northern exposure is better than a southern or western one.

No fruit will thrive on a cold, wet subsoil; hence underdraining is an absolute necessity where such a condition exists. Hundreds of acres of fruit trees have failed from being planted in unsuitable soil.

Where to get your trees and plants is another important question. If you were buying a horse or a cow, or an animal of any other sort of stock, or some valuable farm implement, you would not be likely to give your order to some unknown travelling agent who happened to come along, with permission to send you what he thought you wanted, and if he had not got that to send you something else which he might think to be equally good. And yet this is what hundreds of farmers do when they order fruit trees, and a good tree is often of as much value as a horse or cow on the farm.

You would go and select an animal yourself, or give definite orders to someone whom you had confidence to choose it for you and bring it to you, and you would not accept a mule if you had ordered a horse.

Be just as sensible in ordering fruit trees. If you can do so go to some reliable nursery and select them yourself; if you cannot do this send

to some reliable nurseryman for them, and accept no substitutes.

PLANTING, PAST AND PRESENT.

Preparing the soil and planting the trees is a work that is often performed in a very careless and thoughtless manner.

In early days it used to be done by many by simply digging a post hole in the sod, or in a fence^s corner somewhere, large enough so that the roots could be crammed in and covered up, and then the tree would be let alone and supposed to live and bear fruit.

When the land was new and fertile, trees planted and cared for in this way sometimes did survive the treatment, and some of them lived to bear fruit; but I will venture the assertion that not one-half of the trees planted in Canada, previous to the year 1850, ever lived to bear fruit, and a large proportion planted since that date have been equally useless. They were planted in sod and in exposed and unsuitable localities, and were browsed and broken down by cattle, gnawed by mice, and frozen from being too tender, and so proved a total loss to the planters; though such work made prosperous times for the nurseryman and the tree pedlar.

Orchards, too, that did survive were not cultivated nor cared for as they should be. They were cropped year after year with grain and other crops without any extra fertilizing or feeding, and soon the ingredients in the soil necessary for producing fruit became exhausted, and men wondered why their orchards did not bear "like they used to."

These same men would not think of growing two crops of any other farm product on the same ground year after year without extra manuring or feeding; nor would they ever dream of raising a horse and a cow on the feed of one animal, and expect to see them thrive and grow fat.

SOIL AND FOOD.

It is necessary for the successful cultivation of fruit that we not only have good varieties adapted to our locality and soil, but that the soil of the orchard should be thoroughly drained, and be well supplied with plant food adapted to the wants of the growing trees and the fruit they are to bear, and that this food should be thoroughly incorporated with the soil, and in such a manner that the rootlets of the young trees and plants can feed upon it.

And should trees take hold and make a good, healthy growth the first year after planting, planters should not expect this growth to continue without a constant supply of food in the future.

Trees are great feeders, and require plenty of food and water. When there is a lack of rain a sufficient supply of water can be obtained by mulching or by constant cultivation, which keeps the water that is in the soil from evaporating, but food must be supplied to fruit trees as constantly as it is to live stock, although indeed not so often.

Animals will at once begin to decline if their food supply is shortened, and they will perish when it is exhausted, and it is exactly similar with trees or plants.

Animals, too, will thrive best and produce the best results on what we call a "balanced ration." The same is true of fruit trees. There are certain ingredients in the soil which when present in the right proportion constitute what may be termed a "balanced ration," that is, a food supply that will produce the best fruit. These are nitrogen, potash, and phosphoric acid. Keep a good supply of these where your trees can get hold of them, and you may expect fine fruit and plenty of it.

NOTHING BUT CHOICE FRUIT, CAREFULLY PACKED, PAYS NOWADAYS.

And the time has come when it will not pay to grow anything but fine fruit, just as it will no longer pay to produce poor butter or cheese, beef, or any other farm product.

Nor will it pay to put your fruit on the market in a slovenly or bruised condition, as used so frequently to be the case. The day of marketing berries in pans and pails, and apples in meal bags, is past. Care and attention have to be given to packages and packing nowadays quite as much as to the selecting of the best varieties for market; and if the old-time fruit-grower does not heed these things he is going to be left.

PLANTING AND CULTIVATING.

A few hints on planting, cultivating, etc., may be briefly put as follows:

Select young, thrifty trees; not large, old, overgrown ones. Have your ground thoroughly fertilized and prepared. Make the holes for the trees large enough, so that you may straighten out the roots in their natural position. If it is dry when the planting is being done, pour in water enough to settle the earth around the roots in the hole. But be sure to cover the top with dry soil, so as to prevent baking, and press it down firmly with the foot. When the planting is done, either mulch around the trees, or stir the earth around them frequently; this is to retain moisture.

Cultivate often between the rows to keep the moisture up through the early part of the season, and to keep the weeds down.

If your soil is sufficiently rich you may plant some root crop among your trees, keeping it at a proper distance from them; but *never sow grain*.

Early in the fall discontinue cultivating, especially among tender varieties; this is in order that the growth may be checked and that the young wood may harden up for winter.

PRUNING.

I will end with a few hints on pruning. Com-

mence when you plant your trees. Take off all surplus branches and shorten in the rest, taking care to leave buds where you want limbs to come out to form your top. Rub off all surplus shoots that come out in the summer, and, if necessary to form more limbs or shape the top, cut back leaders the following year. Continue this process constantly, and it will never be necessary to mutilate your trees by cutting off large limbs when they get old.

COMMON SENSE IN MANURING.

By GEORGE HARCOURT, B.S.A., Stock and Farm Editor of FARMING.

Every industry in the land has been quick to take advantage of new ideas worked out by inventive minds through the application of scientific truths.

Business men have not been slow in taking advantage of the aids offered them through science and invention to cheapen the cost of production and transportation, and to increase their profits.

Farmers, too, have been quick to take advantage of the application of science and invention to their work as seen in the improved labor-saving machinery now on every farm. They have been quick to see the economy in feeding their livestock, of proper stabling, and of adapting the food to the requirements of the animal body and to the object in feeding.

But have farmers been equally quick to take advantage of the aids *nature* has thrown at their feet? Business men have reduced the cost of transporting farm products; have farmers reduced the cost of producing these products by studying the soil and its relations to the plants that grow in that soil? Have they studied the nature of the living plant under their care? Have they realized that the soil needs to be supplied with certain plant foods, and that it is as necessary to study the feeding of plants as it is of animals? These subjects are oftentimes not very well understood by farmers, yet they deserve careful study, and are subjects that will demand increasing attention as the fertility of the soil becomes exhausted and recourse is had to some form of artificial fertilizer to *assist* the farmyard manure in keeping up the store of fertility in the soil.

MEANING OF MANURING.

The original meaning of the word manure is "to work with the hand." So in its broadest sense manuring includes proper cultivation as well as applying fertilizing material. While the idea that cultivation or tillage will take the place of

manure is no longer tenable, yet the work of Jethro Tull and the Rev. Mr. Smith, of Lois-Weeden, go to show that cultivation does play a very important part in farm practice. Thorough cultivation must go hand in hand with any system of manuring, and especially so when artificial manures are used.

CONDITIONS FOR PLANT GROWTH.

That we may understand this question of manuring more thoroughly, let us look at three of the conditions necessary for plant growth. Two of these are the proper amount of moisture in, and the proper temperature of, the soil. Could we control these two conditions, we would always have good crops; because, as Warrington says in "The Chemistry of the Farm," "the influence of water upon crops is greater than the influence of manure." These conditions are, unfortunately, beyond our control; yet perhaps not altogether, for by frequent shallow cultivation, and by storing large amounts of humus (decayed vegetable matter) in the soil, adverse conditions, in regard to lack of moisture, can be largely overcome, because the cultivation retards the evaporation of the moisture from the soil and the humus has great power of holding water.

The other essential condition for plant growth is the presence in the soil in an available form of the necessary plant foods.

THE NECESSARY PLANT FOODS.

Scientists have found, through years of patient study and experimentation, that there are ten elements necessary for the growth of plants. These elements are carbon, nitrogen, oxygen, hydrogen, sulphur, iron, magnesium, phosphorus, potassium, and calcium. Without these ten elements none of the cultivated plants can be grown, and the farmer should become thoroughly acquainted with them. The plants obtain their carbon from the atmosphere, hence we do not

need to trouble about the supply of it. Some plants obtain their supply of nitrogen largely from the atmosphere, others from the soil, and all obtain the rest of these elements from the soil, and all soils contain varying quantities of them.

THE MOST IMPORTANT PLANT FOODS.

Scientists have also found that of these ten essential elements nitrogen, phosphorus, potassium, and, to some extent, calcium, are the most important ones, and that the others, while necessary to plant-growth, seem to be present in all soils in abundance, and, therefore, may be left out of our calculation altogether. Phosphorus, potassium, and calcium are always taken up by the plant in combination with other elements. In manures the compounds which contain the above three important elements are known as phosphates or phosphoric acid, and potash and lime respectively.

Nitrogen seems to act as a regulator of plant growth in all non-leguminous plants; potash has a tendency to produce succulency; while phosphoric acid seems to be more concerned in the ripening processes.

Now let us see what supply we have in the soil of these three most important plant foods.

NITROGEN IN THE SOIL.

Nitrogen is the most important of the three. It exists in the soil as ammonia and nitrous acid, but these rapidly change into nitric acid, which plants take up readily. The nitric acid is also changed into nitrates in the soil, and these are also readily taken up by the plants. By far the larger amount of nitrogen in the soil is found there in humus, and through processes of fermentation it is gradually made available to plants.

Nitrogen forms about four-fifths of the atmosphere, and consequently is in the soil air. Lately it has been shown that certain microscopic organisms in the knots or tubercles on the roots of leguminous plants have the power to convert the nitrogen in soil air into forms of plant food that can be made use of by these plants.

PHOSPHORIC ACID IN THE SOIL.

F. H. Storer, Professor of Agricultural Chemistry in Harvard University, says: "Although phosphoric acid is universally acknowledged to be one of the most important manures, and, after nitrogen, and in some places potash, the one of which ordinary soils stand in the greatest need, it must always be borne in mind that minute quantities of phosphates occur in almost every kind of rock, and, consequently, in soils which result from the disintegration of these rocks.

"But, although widely diffused in nature, phos-

phoric acid is seldom abundant in any rock or soil. On the contrary, it must be regarded as one of the rarest kinds of plant food. It is one of the ingredients of the soil which is most likely to be exhausted."

In the plant it is found in greatest abundance in the grain and the seed of fruits, while potash is found in greatest abundance in the straw or stalk.

In the young plant phosphoric acid, along with potash, seems to be necessary to give the plant a vigorous start, but phosphoric acid seems to enter into the ripening processes more than does potash.

It is also wanted in the growing animal for the production of bone, muscle, etc., and in the production of milk. Hence farmyard manure is very apt to be deficient in phosphoric acid. It is constantly being carted off the farm never to return.

A ton of farmyard manure contains only from 4 to 5 lbs. of phosphoric acid, so it can readily be seen that the small store of this food in the soil may be easily exhausted, and this may furnish a possible explanation why clover has not done well in some sections during recent years.

POTASH IN THE SOIL.

Professor Storer says: "Practically, a great deal of potash is returned to the land upon farms in the form of stable manure, in the refuse from crops, and in composts of one kind and another prepared from vegetable matter. . . . It is not with potash as it is with phosphoric acid. Potash does not accumulate to such an overwhelming extent in seeds and fruits as phosphoric acid, nor in the animal body either. Hence, in general, in all well cultivated districts a much larger proportion of the potash that has been taken from the land is returned in the form of manure than is the case with phosphoric acid; and in consequence of this fact considerable difference of opinion has existed as to the utility of buying potash compounds for manure.

"The truth of the matter seems to be that in well tilled, highly cultivated regions, where the land is dunged heavily, and especially where the rocks from which the soil has been produced are feldspathic, there is not apt to be any marked deficiency of potash in the soil."

The most of our soils have been formed by the decomposition of rocks containing a considerable amount of potash; hence they are naturally rich in this compound. This is true particularly of the heavy lands. The growth of vegetation, and the burning of the timber in clearing the land, has increased the supply of available potash.

Of course, there are soils somewhat deficient in potash, such as some of the lighter sandy lands; but, speaking generally, there are not so many soils deficient in potash as there are in phosphoric acid.

ARTIFICIAL FERTILIZERS.

Mention has been made of the requirements of, and the essential foods for, plant growth, and also of the distribution of these foods in the soil. It may now be in place to say a word about artificial fertilizers, or, as they are sometimes called, commercial fertilizers.

As men intensified their farming a need arose for more farmyard manure to keep up the fertility of the soil. It was not forthcoming in quantities to supply the demand. Resort was then made to various substances that contained the elements of farmyard manure, and out of this has grown the present business of artificial fertilizers.

ARTIFICIAL FERTILIZERS OFTEN NOT SATISFACTORY.

Special manures have been planned for certain crops, based either upon the amount of nitrogen, phosphoric acid, and potash contained in the crop or upon the feeding powers of the crop. Thus special manures for grapes, hops, the different fruits, grains, and vegetables have been made and sold, without taking any account of the amount of plant food in the soil. In many cases the fertilizers have not given sufficient increase in the crops to make the use of them profitable, and very often the purchaser has paid for fertilizing material that was abundant in the soil. A farmer has no need to buy a complete fertilizer, that is, one containing nitrogen, potash, and phosphoric acid, for it may be said that no soil lacks all these three fertilizers at the same time; also nitrogen can be obtained more cheaply by growing clover than by buying an artificial fertilizer containing nitrogen.

FRAUDULENT FERTILIZERS.

Too often fraudulent fertilizers, claiming to contain certain percentages of plant food, have been put upon the market. They may contain the percentage of plant food claimed for them, but it is apt to be in such a form that it is yielded but very slowly, if at all, to plants.

ROCK PHOSPHATES TOO INSOLUBLE.

Ground rock phosphates have been found to yield their supply of phosphoric acid very slowly. The phosphoric acid in them is in an insoluble form, and is only slowly liberated by vegetable acids in the soil. To render it more readily sol-

uble it is treated with sulphuric acid, and is then called superphosphate. In this form a large portion of the insoluble phosphate is made soluble; but in the soil, if the soluble phosphate is not speedily used by the plant, it is rapidly converted into a partially soluble form, and finally into an insoluble form, by the lime in the soil. The same changes take place in the soil when bone superphosphate is applied. Many superphosphates contain an excess of sulphuric acid, which is an objectionable feature.

BONES ALSO NOT SATISFACTORY.

The phosphates in bones are also in an insoluble form. When fresh bones are buried in the soil they decay slowly; first the nitrogen (of which there is about five per cent.) goes off; then very slowly the vegetable acids of the soil decompose the insoluble phosphates. Every farmer knows that this is too slow a process. The bones have been ground, forming fine, medium, and coarse ground bone, so that the vegetable acids might act more readily on them. Good results have been obtained from, and many florists stake their success on, fine ground bone, because it gives immediate results.

RESULTS FROM BONES OFTEN DUE TO NITROGEN.

This immediate result is nothing more or less than from the nitrogen being liberated by decomposition, but the phosphates are as insoluble as ever, and are only slowly made available by the vegetable acids in the soil. Thus what has been attributed to bones is only due to the nitrogen they contain, and not to its phosphates. Purchasers are paying for phosphates and getting very small returns for their money; for the nitrogen has all to be liberated before any of the phosphate is dissolved.

A NEW PHOSPHATIC FERTILIZER.

During the last ten years a new phosphatic fertilizer has been put on the market. It contains from fifteen to twenty per cent. of phosphoric acid, and is obtained as a by-product in the manufacture of steel by the basic process. The names given to it are Thomas' slag, basic phosphatic slag, and Thomas' phosphate powder. It is ground and put on the market in a very fine powder. Only a small percentage of the phosphate is soluble in water, but nearly the whole of it is readily soluble in dilute acids, or by the vegetable acids in the soil, and by the acid sap of plant roots.

For a long time experimenters have held that only water soluble phosphates were available for plant food, but now it is known that there are

forms of phosphates called insoluble by the chemist which are practically quite as available to plants as ordinary water soluble compounds.

Professor Paul Wagner, director of the Experiment Station at Darmstadt, Germany, has proved very conclusively that the basic phosphate made in England was equally effective with good forms of superphosphate in producing grain upon clay, sandy, and vegetable soils. He found upon a clay soil that it was more effective than superphosphate, and had a more lasting effect, as it showed its effects for as much as four years.

Thomas' phosphate powder has proved itself of great value in England, where it is used in enormous quantities, and is the cheapest form in which to buy phosphates.

HOW TO GET NITROGEN, PHOSPHORIC ACID, AND POTASH IN THE CHEAPEST FORM.

Farmers, gardeners, and fruit-growers are not always satisfied with the results they have obtained by the use of artificial or commercial fertilizers. Farmers have largely given them up and are shy of them. If they could get a fertilizer that they could depend upon giving them good returns, they would have no hesitation in using it to supplement the supply of farmyard manure. Fruit-growers are using large quantities of fertilizers with varying success, and say they must have them if they are to succeed in growing good crops.

So this question of manuring comes to everyone for settlement. There is a common-sense way of settling it; an economical and safe one that all may follow.

(1) *How to Get Nitrogen in the Cheapest Form.*

Fortunately for farmers, all plants do not take up nitrogen in the same way. Scientists have found out that there is a class of plants that require a large amount of available nitrogen in the soil for successful growth.

(2) *Nitrogen Gatherers and Nitrogen Consumers.*

These plants may be called *nitrogen consumers*, and are represented by the cereal crops, such as wheat, barley, oats, rye, etc. Scientists have also found that there is another class of plants which use large amounts of nitrogen, yet store up large quantities of it in the soil. These plants may be called *nitrogen gatherers*, and are represented by the legumes, such as the clovers, peas, vetches, etc. These plants have the power of gathering the nitrogen from the air in the soil by means of organisms working in the knots or tubercles on their roots.

(3) *No Need to Buy Nitrogen*

Nature has thus provided a cheap, easy, and sure way of supplying the nitrogen needed in soils for the successful growth of crops. Experimenters have also found that the nitrogen gatherers are not benefited by the application of manures containing nitrogen, but, on the other hand, that they readily respond to manures containing phosphoric acid and potash. In fact, these plants have some difficulty in obtaining their necessary supply of these two foods.

The key, then, to the problem of obtaining nitrogen in the cheapest way for the growth of successful crops is to sow nitrogen-gathering plants and assist them to attain their greatest development by supplying them with potash and phosphatic manures, so that they may store in the soil the large quantities of nitrogen needed for the successful growth of nitrogen-consuming plants.

It will not pay any farmer to buy nitrogen, because it is the most expensive of all plant foods, and he can get it for *nothing*, simply by growing clover, which is one of the nitrogen-gathering plants, and, perhaps, the one that best exemplifies the nitrogen-gathering character.

(4) *Clover the Key, How to Get It.*

The complaint comes from all parts of the country that it is more difficult to grow clover than it used to be. Can we find a reason for this?

It has just been stated that the nitrogen-gathering plants obtain with difficulty their supply of potash and phosphoric acid, and, as clover is one of them, it will experience this difficulty.

Potash has always been recommended for clover, and great stress laid upon it; but, in view of the fact that potash is largely returned in farmyard manure, and is naturally present in the soil in considerable quantity, and that phosphoric acid is removed from the soil by crops and animals, and is present in it only in small quantities, may not more stress be laid upon phosphoric acid than there has been in the past?

Recent German experiments go to show that there should be more stress laid upon it, that greater returns were obtained when it was used along with potash, and that in soils rich in potash a dressing of phosphates alone gave very marked results. May not a lack of phosphoric acid be one reason why clover does not do as well as it used to do?

(5) *How to Get Phosphoric Acid in the Cheapest Form.*

The importance of phosphoric acid has been dwelt upon in several places. The peculiarities of phosphatic manures have been referred to under the head of "artificial fertilizers," and the most suitable form of phosphatic manure mentioned under the head of "a new phosphatic fertilizer." Professor Paul Wagner, in a lecture on "How are Nitrogen and Phosphates to be Obtained in the Cheapest Way?" says: "If you desire to enrich the soil with a store of phosphoric acid to serve for continuous cultivation for perennial fodder fields, meadows, vineyards, orchards, etc., then there is no phosphate more suitable for the purpose than Thomas' phosphate powder."

(6) *How to Get Potash in the Cheapest Form.*

It will be seen from previous statements that the supply of potash in the soil is usually large, and that it is constantly being augmented; therefore there is, perhaps, not so much need of purchasing potash. But if the soil should need it, the form of potash fertilizer known as "German Kali" or "Kainite" will be the most suitable.

In concluding his lecture referred to above, Professor Wagner says: "That at the present time cultivation of the Leguminosæ, Thomas' phosphate powder, and potash are the three most powerful levers by the combined action of which we must endeavor to raise to the highest possible magnitude the yield of the soil, as well as the clear profit obtainable by cultivating fields or meadows."

TUBERCULIN.

By A. W. BITTING, D.V.M., Veterinarian, Purdue University Agricultural Experiment Station, Lafayette, Indiana.*

NOTE.—Our quarantine laws have required that all cattle entering Canada must successfully pass the tuberculin test, and thus show that they are free from tuberculosis.

This test is still to be continued under the regulations that have recently been authorized by agreement with the United States authorities, with this difference, however, that it may be made on the breeder's own premises at home instead of at the frontier, as used to be necessary.

A brief description of what tuberculin is, and of the way the test is operated, will be of interest to our readers at the present time, and we therefore have pleasure in printing the following description by Dr. Bitting, of the Agricultural Experiment Station of Indiana.—Editor FARMING.

WHAT TUBERCULIN IS.

Tuberculin is the product formed by the growing tubercle bacilli. A pure culture of tubercle bacilli is placed in a proper culture medium and allowed to grow for some weeks. At the end of this time the whole is boiled for sufficient time to insure the death of all germs. The material is then filtered to remove the germs from the solution. It is again boiled to reduce the mass to a proper degree of concentration and bottled ready for use, care being taken to keep the material sterile. As a rule the material is diluted with a two per cent. solution of carbolic acid before using. The complete product, ready for use, contains no living germs.

HOW A TUBERCULIN TEST IS CONDUCTED.

A tuberculin test is conducted as follows: The temperature of the animal to be tested is taken every two hours, beginning at six or eight o'clock in the morning and continued until ten o'clock at night. Thirty drops of a ten per cent. solution of tuberculin are injected under the skin at that hour, and temperature again taken the succeeding day on the corresponding hours. The hours suggested for making the test are merely for convenience, as it requires the minimum amount of night work. The place selected for making the injection is usually over the shoulder blade, as this region is one easily penetrated by the hypodermic needle, and the movements of the animal during operation offer least interference to the operator. Immediately before making the injection the spot is carefully washed out by an antiseptic solution to prevent infection by outside organisms. The object in taking the temperatures on the day before the injection is to determine the normal temperature of the animal, and if it run above 102° F. a test should not be made, as this indicates fever. The tuberculin does not produce a reaction under six or eight hours, so that it is not necessary to begin taking the temperatures for six hours succeeding the inocula-

*From a bulletin published by the station, entitled "Bovine Tuberculosis in Indiana."

tion, and in practice it is usually made eight. A careful comparison is made of the temperatures or the corresponding hours of the two days, and if disease be present there will be a rise of temperature, beginning about eight or ten hours after the injection. The temperature should gradually increase until about the fourteenth or sixteenth hour, and then decrease, returning to normal at about the twentieth to the twenty-fourth. The rise may start a little earlier or later, but should gradually increase and decrease. A very sudden rise and fall is not indicative of this disease. If tuberculosis be not present there will not be a characteristic rise and fall of temperature. The following temperature readings from our test will illustrate the reaction which occurs : *

DAY	A.M.			M.			P.M.		
	6	8	10	12	2	4	6	8	10
Manada.....	22	102.6	102	106.8	101	101.4	101	101.2	101
	23	102	103.6	104.8	106.8	106.2	105.4	104	104
Commodore..	22	100	100.8	101	100.4	101	101	101	101
	23	100	100	101	100.8	100	100.6	100	100
Jennie.....	22	100.2	102	101	101.2	101	101	101.4	100.6
	23	102.2	103	103.6	104	105.6	105.6	103.8	102.8
Roxanna.....	22	101.8	102.2	101.6	101.4	101	101.4	101.2	100.6
	23	102	101.4	102	101.6	101	101	101	100.6
Caspian.....	22	100.2	101	100	101.2	101	100.8	100.4	100.4
	23	100	102	103.4	105	105	104	103.4	102.6
Blossom.....	22	101.6	101.6	100.8	101.2	101.4	101.2	101.2	100
	23	101.8	101.8	102	101.8	101.8	101.8	101.8	100.2

The degree of elevation in temperature has no relation to the extent of the lesions, a very mild form of the disease producing a very high temperature, while sometimes animals in the advanced stages fail to react at all ; the latter is ex-

* In the readings where the figures are in heavy-faced type the gradual increase and decrease of temperature are indicative of disease.

ceptional, however. If a doubt exists as to the reaction, a second test may be made in about four months, using about one and one-half times the usual amount of tuberculin.

OBJECTIONS TO THE TEST NOT VALID.

Objections have been made to the tuberculin test because it is not infallible in the temperature reaction, failing to react in some cases, and indicating disease in others where there is no disease at all, and indicating disease when the lesions are so small that they appear harmless. It should be remembered, however, that no remedy is infallible. In 924 animals slaughtered by the Vermont State Board of Agriculture, only four failed to show the presence of the disease, and these were not subjected to a microscopic examination.* The errors made by the use of tuberculin in careful hands are too small to stand as a valid objection. That it does indicate disease when the lesions are very small only argues the delicacy of the test.

The argument sometimes advanced, that it produces the disease, is untenable, for no living germs are introduced.

NO ILL-EFFECTS WHEN USED ON HEALTHY STOCK.

The effect of tuberculin upon healthy stock has been studied by Dr. Law. Seven full injections were made upon healthy cows at intervals of one week, without any appreciable effect upon the health, milk production, quantity of butter-fat, body weight, temperature, pulse, or respirations. The same result was obtained by the Bureau of Animal Industry. All the animals in our herd have been tested once, a part twice, and a part three times, at intervals of one year, and no ill-effects noted. The observations of many veterinarians accord with our own. If ill results follow, they must be due to impure material or faulty operation. The specific effect is to temporarily aggravate existing tuberculosis.

OPINIONS OF EXPERTS CONCERNING THE TEST.

The expression of the highest opinion upon the value of tuberculin as a diagnostic agent is found incorporated in the resolutions of the United States Veterinary Medical Association for September 12th, 1895, the European Veterinary Congress held at Berne, Switzerland, during the same month, and the United States Veterinary Medical Association of September 3rd, 1896.

The resolutions of the meeting at Berne are as follows :

* Report of the Vermont State Board of Agriculture for 1896, acting as cattle commissioners.

"Tuberculin is a reliable diagnostic agent.

"There need be no fear that tuberculin, properly used, will cause generalization of pre-existing disease."

The resolutions of the United States Veterinary Association, September 3rd, 1896, are as follows:

"Tuberculin furnishes incomparably the best means of recognizing tuberculosis in living animals.

"Tuberculin, properly used, for diagnostic purposes is entirely harmless to healthy cattle,

and is so exceedingly accurate in its effects that the few errors resulting from its use cannot affect the general results, and are of less frequent occurrence than following the use of any other method of diagnosing internal diseases."

While the testing seems to be a simple matter, we cannot recommend the owners of cattle to do the work. It will always be best to employ a competent veterinarian.*

* Tuberculin may be obtained from the Pasteur Vaccine Co., Chicago, Ill.

THE CENTRAL CANADA EXHIBITION ASSOCIATION.

EDITORIAL.

When, last autumn, the Central Canada Exhibition was being held, the opinion of everyone visiting it from the middle and western parts of the province was that in every way the exhibition was a success. The representatives of FARMING who were present, and who, indeed, at one time or another, had attended exhibitions held by all the important fair associations of the continent, returned to Toronto loud in their praises of the Central Canada—of the energy of the directors, of the courtesy of the officers, of the liberality of the civic authorities, and of the enterprise of the Ottawa citizens generally.

We understand that the constitution of the Exhibition Association is as follows: There are twenty-four directors; five of these are appointed by the County of Carleton Agricultural Society, four are appointed by the city council, and the remainder (fifteen) are elected at a general meeting of the members of the association held in February of each year. The members of the association are (1) citizens of Ottawa who, in 1888, subscribed some twelve or thirteen thousand dollars (in sums ranging from \$10 to \$500), in order to start the association; and (2) annual subscribers of the sum of \$5 each. But the members of the association as such bear no responsibility in the management of the association. The whole responsibility for the success of the association, *financial and otherwise*, rests upon the twenty-four directors aforesaid; and it speaks well indeed for the public spirit of the citizens of Ottawa that there has never been any difficulty in forming a directorate, although the directors, in their enterprise in bringing the annual exhibitions to their present pitch of excellence, have had to incur *personal liabilities* to the amount of \$13,000.

This \$13,000 is not, as perhaps might be supposed, due to annual losses incurred in holding the exhibitions. The excess of receipts over expenses in 1896 was nearly \$650. In 1895 there was a somewhat similar good showing. But the \$13,000 of liability is due to the enterprise of the directors in beautifying their grounds, and in fitting them with buildings of the most modern types for the purposes needed. At the end of 1895 something like \$7,000 had been spent in this way; and in 1896 \$6,000 more was spent by the directors for the same purpose, bringing up the liability which the directors are responsible for to the sum of \$13,000, as aforesaid. This is a very large sum for twenty-four gentlemen to be personally liable for, especially when, by the charter of incorporation, no director can benefit to the extent of even one dollar in any financial success that the exhibition may make, the surplus of receipts over expenditures in every case being by the charter allowed to be spent in improvements only.

But let it not be supposed that the City Council of Ottawa have not on their part also been liberal in their dealings with the Exhibition Board. For years they have contributed to the Exhibition Association annually quite a large sum; but this sum, large as it has been, has scarcely been more than enough in any year to keep the buildings and grounds in their necessary condition of repair; certainly not enough to build new buildings and undertake the improvements which modern exhibition enterprise demands. In 1896, too, it must be said, the city came down handsomely, and contributed \$40,000 for the permanent improvement of the fair grounds and buildings. But the directors found it necessary to spend \$46,000 for the purpose; so that

their previous personal liability of \$7,000 was increased to \$13,000, as has been said.

Liberal, however, as the city has been, it seems to us that it should yet do more. It should relieve the directors entirely of their financial responsibility, and assume as its security the whole right, title, and proprietary interest in all the assets of the association. This is the fit and proper thing to do. The Ottawa Exhibition has passed its tentative stage. It is now a permanent institution, and one of the things the city can take a real pride in. Well managed (as it has always been, and as there is every reason to believe it still will be), it no doubt every year will more than cover its ordinary current expenses. What more fitting permanent investment, then, can the city make than to assume responsibility for all the debt incurred in getting the fair to its present

status of excellence and reputation, especially when it will have in real estate and in buildings and improvements of permanent value a full equivalent for the same? The real estate, so we believe, it already has in its own fee simple. It would seem to us, therefore, almost like unfairness if it does not relieve the directors of responsibilities incurred entirely in making this real estate more valuable. We trust that we shall soon hear of the city taking action in the way we suggest.

We said above that the Central Canada Exhibition is an institution that the citizens of Ottawa may well take pride in. We are glad to add that it is far more: it is an institution that all Canadians may well be proud of; hence its affairs are more than of local interest. That is why FARMING discusses them here.

FEBRUARY MEETINGS.

Specially reported for FARMING.

I. THE HOLSTEIN-FRIESIAN ASSOCIATION OF CANADA.

The fourteenth annual meeting of this association was held at the Albion Hotel, Toronto, Feb. 2nd, 1897. There was a very good attendance of breeders from all parts of the province. The president, Mr. H. Bollert, of Cassel, occupied the chair. In his annual address he congratulated the association on the successful work of the association in the past year and their excellent financial standing. He advocated a more thorough system of testing cows. The short test at the fairs was not enough; he thought a longer and more severe test was needed.

The report of the secretary and treasurer, Mr. G. W. Clemons, of St. George, was read and approved. The association had a cash balance on hand of \$427.43.

A number of items of general business were disposed of. It was decided that in the future the travelling expenses of delegates attending all cattle committee meetings of the different fair boards should be paid by the association.

The same amount of money as was given last year is to be again given by the association this year for dairy tests at the fall shows, namely: Toronto, \$100; Ottawa, \$50; Winnipeg, \$50; the Provincial Fat Stock and Dairy Show, \$50. Half of these grants are to be duplicated by the respective fair boards, and will, when so duplicated, be open to all breeds competing at the tests; the remaining half will be awarded in addition if Holsteins win the test. The Holstein men are to be commended for their liberality in this matter. None of the other associations offer money that may be won by animals other than of their own breed.

A slight change was made in the by-laws of the association owing to the change in the quarantine regulations. Section 2 of article vi. of the by-laws requires a certificate from the inspector at quarantine that animals imported into this country have passed quarantine before they will be accepted for registration here. The secre-

tary was instructed to accept a certificate from the port of entry in lieu of one from the inspector at quarantine.

A report was made in regard to obtaining a charter of incorporation from the Dominion Government. At present the charter would have to be granted under the Joint Stock Companies Act. To this the Holstein men object,



Mr. R. S. Stevenson, Ancaster.
President Holstein-Friesian Association of Canada for 1897

because they are not a company, and do not as such want to make money, their object being simply the registering of their cattle and the advancing of the interests of their breed. What they want is a simple act passed by the Dominion Parliament under which any live stock association may obtain a charter, which would be operative throughout the whole Dominion. At present most of the live stock associations have taken out their charters

under the Joint Stock Companies Act, passed by the Ontario Legislature, and are thus only provincial in character.

A committee was appointed to try to obtain a charter from the Dominion Parliament which should give the association simply a legal standing as a live stock association with power to carry on the necessary work of the association.

It would seem to be a very simple matter for the Dominion Parliament to pass an act under which all the stock associations of the Dominion could take out working charters.

THE ELECTION OF OFFICERS.

The following officers were elected for 1897: President, R. S. Stevenson, Ancaster; first vice-president, A. C. Hallman, New Dundee; 2nd vice-president, W. G. Ellis,



Mr. G. W. Clemons, St. George.

Secretary Holstein-Friesian Association of Canada.

Bedford Park; third vice-president, T. W. Charlton, St. George; fourth vice-president, A. Rice, Currie's Crossing; directors, Wm. Shunk, Sherwood; Wm. Armstrong, Locust Hill; G. A. Gilroy, Glen Buell; A. Hoover, jun., Emery; secretary-treasurer, G. W. Clemons, St. George; auditors, Wm. Suhring, Sebringville, and J. H. Patton, Paris. Delegates to fair boards: Toronto, Wm. Shunk and W. G. Ellis; London, J. W. Johnson and W. B. Scatcherd; Montreal, G. A. Gilroy, and Neil Sangster, Ormstown, Que.; Ottawa, G. A. Gilroy, and J. Fletcher, Oxford Mills; Fat Stock and Dairy Show, G. W. Clemons and H. Bollert; Winnipeg, James Glennie, Longburn, and R. McKenzie, High Bluff.

II. THE DOMINION AYRSHIRE BREEDERS' ASSOCIATION.

The tenth annual meeting of the above association was held at the Albion Hotel, Toronto, February 2nd, 1897. In the absence of the president, E. E. Eyre, Mr. W. W. Ballantyne, of Stratford, was elected chairman.

The secretary, Mr. Henry Wade, read his annual report and it was adopted.

Mr. Ballantyne gave notice that he would move at the next annual meeting to reduce the annual fee from \$3 to \$2.

The third volume of the Herd Book will be published at once.

The sum of \$50 was voted for prizes at the Provincial Fat Stock and Dairy Show: \$25 to be duplicated by the Fat Stock Show for Ayrshire classes in the milk test; the other \$25 goes with the sweepstakes prize in the dairy test if the winner is an Ayrshire cow.

Mr. W. W. Ballantyne gave notice of a motion to do away with the appendix in the Herd Book.

The following officers were then elected for 1897:

President, John Crosby, Campbellford; first vice-president, W. M. Smith, Fairfield Plains; second vice-president, A. Kains, Byron; directors, Wm. Stewart, Menie; James McCormack, Rockton; Joseph Yuill, Carleton Place; R. G. Steacy, Lyn; J. C. Nichol, Platts'ville; W. W. Ballantyne, Stratford; Wm. Baldur, Mount Charles; J. C. Smith, Hintonburg; Robert Davies, Toronto. Delegates to Industrial Exhibition, James McCormack, Rockton; W. W. Ballantyne, Stratford. Delegates to Western Fair, A. Kains, Byron; M. Ballantyne, St. Marys. Delegates to Ottawa Exhibition, Joseph Yuill, Carleton Place; J. C. Smith, Hintonburg. T. M. Bell, St. Marys, and J. G. Clark, Ottawa, were proposed as experts for judging at the exhibitions.

III. THE DOMINION SHORTHORN BREEDERS' ASSOCIATION.

The eleventh annual meeting of this association was held in the Auditorium, Toronto, February 3rd, 1897. There was a very fair attendance of breeders. The president, Mr. Arthur Johnston, of Greenwood, presided.

The president read his annual address. It will be found in this issue of FARMING.

The report of the secretary and executive committee was then presented by the secretary, Mr. Wade. The report showed that seventy-four more members paid their annual fees during 1896 than during 1895.

Volume XI. of the Herd Book was sent out in March, and Volume XII. was finished and sent to subscribers towards the close of the year. The pedigrees recorded in 1896 will make Volume XIII. Entries are now being made for Volume XIV.

The financial statement showed a cash balance in the bank of \$5,184.55, a gain during the year of \$1,398.01. The total assets of the association are \$12,885.55; liabilities, nil.

The president thought that with such a good bank account all fees should be reduced to as low an amount as possible.

RESOLUTIONS ADOPTED.

At a meeting of the directors held the evening of February 2nd, a number of resolutions were adopted, which were now brought before the meeting for approval. They were unanimously endorsed. They are as follows:

(1) That the date of "over age animals" be extended from eighteen months to two years, the change to come into force immediately.

(2) That, in case the Prince of Wales' prize money be given this year to the Shorthorn Breeders' Association, it be given to a bull and four females under two years old, bred by exhibitor.

(3) That the sum of \$400 be put into the hands of the executive committee with instructions to award \$150 to the Provincial Fat Stock and Dairy Show, wherever held; to place \$150 as they think best on Canadian Shorthorns

or Shorthorn grades winning at the Chicago Fat Stock Show; and to award the other \$100 in duplicate prizes in the dairy departments offered by the different fair boards, which may be won by Shorthorns.

Short addresses were then made by Mr. T. C. Patteson, Toronto, and Mr. J. I. Hobson, Mosboro.

At the afternoon session the election of officers for the ensuing year was the first item of business. It has been a custom that no person shall continue to occupy the position of president longer than two years. Mr. Johnston has occupied the position for that length of time, but it was thought best by the members of the association that he should continue in office one year more, pending the settlement of the difficulties in regard to the transportation of cattle.

OFFICERS FOR 1897:

President, Arthur Johnston, Greenwood, Ont.; first vice-president, James Russell, Richmond Hill; second vice-president, John I. Hobson, Mosboro'.

Vice-presidents from provinces: Robert Miller, Brougham, Ont.; J. H. Ladner, Ladner's Landing, B.C.; James Cochrane, Hillhurst, Que.; Josiah Wood, M.P., Sackville, N.B.; J. S. Ross, Moose Jaw, Assa.; O. Chase, Church Street, N.S.; John E. Smith, Brandon, Man.; G. F. Bowyer, Georgetown, P.E.I.

Board of Directors, C list: Alex. Smith, Maple Lodge; H. Cargill, M.P., Cargill; John Isaac, Markham; W. G. Pettit, Freeman; C. M. Simmons, Ivan. A list: Edward Jeffs, Bondhead; H. Smith, Hay; T. E. Robson, Ilderton; F. I. Patten, M.D., St. George; William Dawson, Victoria. B list: W. J. Biggins, Clinton; David Rae, Fergus; James Tolton, Walkerton; William Linton, Aurora; John Davidson, Ashburn.

Executive and Finance Committee: Arthur Johnston, Greenwood; James Russell, Richmond Hill, Ont.; Robert Miller, Brougham, Ont.; John I. Hobson, Mosboro', Ont.; William Linton, Aurora, Ont.

Delegates to Industrial Exhibition: Hon. John Dryden, Brooklin, Ont.; John I. Hobson, Mosboro', Ont. Delegates to Ottawa Exhibition: W. C. Edwards, M.P.; R. R. Sangster, Lancaster. Delegates to Western Fair: H. Smith, Hay, Ont.; C. M. Simmons, Ivan, Ont. Secretary and editor, Henry Wade, Toronto.

The secretary, in the absence of the writer, then read a paper entitled "A Retrospect," by Mr. R. Gibson, of Delaware. Following this was a paper on "Evils in the Shorthorn Trade," by D. Alexander, Bridgen, which was read by Capt. T. E. Robson, of Ilderton. Then Mr. Alex. Smith, of Maple Lodge, gave a paper on "Why do we Breed Shorthorns." All three papers will be found in this month's issue of FARMING.

The president stated, for the benefit of those who did not know, that an animal could be shipped any distance over 100 miles without an attendant by securing from the local freight agent permission to do so, and by giving a certificate releasing the railway company in case of accidents from all responsibility for damages that could have been prevented by an attendant. He said that the Shorthorn Breeders' Association was doing all it could to bring pressure to bear upon the railway authorities, but they were only one association out of many. Pressure must be brought by the Cattle Breeders' Association, which represents all breeds, and he urged all Shorthorn men to support the Cattle Breeders' Association.

THROUGH CAR TO THE NORTHWEST.

Mr. John I. Hobson, president of the Cattle Breeders' Association, stated that through the efforts of Mr. F. W. Hodson, the secretary of the Dominion Cattle Breeders'

Association, a car rate of \$70 had been secured from the railways. Thus, if the breeders would club together, a carload of stock can be taken out to the Northwest at a rate of about \$5 a head. The stock would have to be collected at some central point, and one attendant would be all that would be required to go with the car. The Cattle Breeders' Association are trying to secure the privilege of having the collecting of the animals to the starting point included in this rate.

Mr. Hobson thought this was an important matter, and one the value of which could hardly be estimated. Even if the breeders had to pay local freight rates to the central starting point the benefit to be derived from the through-car rate would be very considerable. He thought it would be to the interest of breeders to take advantage of these through-car rates.

Mr. D. D. Wilson, Seaforth, thought the through-car rates would be a good thing for the breeders. When among breeders he felt that he was among men standing high up. Although he had quit breeding Shorthorns he wished to retain his connection with the association. He thought the breeder must aim high; he must try to accomplish more than he has done in the past. He said, we want men who will rank with Booth, Bates, and the Cruickshanks. We want to breed a higher type of animal than ever has been done.

Mr. R. Miller, of Brougham, said that while in England last year he had met the buyers from Argentina, and found that they were experiencing some difficulty in getting all the Scotch cattle they wanted. He said that there are more good Scotch cattle in Canada and the United States than there are in England; that he had told these buyers so, and that this stock could be bought and collected at New York for one-third the money they were paying for it in England. He thought something should be done to secure a share of this trade.

Mr. W. G. Pettit, of Freeman, thought that a portion of the funds of the association might be well spent in seeing if they could not get a share of the South American trade.

The matter was left in the hands of the executive. The executive were also asked to try to get the Dominion Government to secure representatives from Argentina to visit our fall fairs.

HON. MR. DRYDEN'S ADDRESS.

The Hon. John Dryden then addressed the meeting. He congratulated the association on their excellent bank account, and he hoped they would do something with it to bring the breed more to the front. The United States and Canada cannot do without the old reliable Shorthorn. It was to the Shorthorn that Canada owed her reputation as a cattle-exporting country. There was a danger in the increase of dairy cattle of getting the stock of the country so mixed up that steers would not come up to the standard required for export; but he was glad to see by the increased membership of this association that there was no fear of the Shorthorn going behind.

MORE INDIVIDUALITY.

It was necessary, if stockmen would keep up their herds, that they must have the opportunity to go abroad for fresh blood, such as would suit their purpose.

Every individual breeder ought to understand his own wants and endeavor to fill them independently of everybody else.

Those breeders in the old land who had made reputations for themselves had made them by following their own judgment rather than the precedents established by somebody else.

Canadian breeders had felt it desirable that sometimes they should be able to go to the United States and to the old land for a little change of blood; but between the United States and Canada and between Great Britain and Canada there had been a wall erected over which it was practically impossible to get. It had not been merely that there was a ninety-day quarantine, which was now removed, so far as Canada and the United States were concerned; but there had been another obstacle in the form of the law in Canada and the United States that every animal crossing the boundary had to be subjected to the tuberculin test. This he felt to be rather a harsh arrangement, as a breeder might pay his money for an animal abroad which would not stand the test, or he might be exporting an animal which would similarly fall short; hence but little importing or exporting had been done of late.

Recently there had been an arrangement made between Canada and the United States by which each country will accept the certificate of test of a responsible veterinary officer on the other side. It was a capital thing; but the arrangement might be broken up at any time, and the result was that breeders were placed in a very delicate position in regard to the matter at present. No breeder wanted to run the risk of having an animal tested at the border; should it not stand the tuberculin test it would mean ruin to him.

PROVISION FOR TESTING HERDS.

While in Washington Mr. Dryden said that he used all the influence he was capable of in order to prevent the test being continued. However, as it was impossible to accomplish this, when he came home from Washington he at once gave orders that the departmental bacteriologist at the Agricultural College should be sent to Washington to ascertain whether it were possible to undertake the manufacture of tuberculin in this province. The bacteriologist reported that it was possible, and that the expenditure of a few hundred dollars would put the department in a position to begin operations. It would be a desirable thing, the Minister said, that this tuberculin should be available for testing herds in this province, so that every breeder might know just what position he occupied.

Educational work along this line should be undertaken. Would it not be well, he asked, to arrange that a breeder could get the services of an expert from the college, if found necessary, one whose standing would be recognized by the United States authorities, who would apply the test to ascertain the condition of his animals, and whose work would be of a confidential character?

He had suggested to Mr. Fisher the desirability of providing for the benefit of breeders a proper description of the disease and of the plan of action to be pursued in regard to it, in order that the herds might be rid of the little disease that might be found in them.

He thought that all the evidence went to show that tuberculosis did not largely exist in this country. He wanted to rid the country of any disease that might exist, but he wanted to do it carefully, so as not to injure the men who had invested their money in live stock.

The Dominion authorities have placed tuberculosis on the list of contagious diseases. Now, supposing a man tests his herd and finds that some animals do respond to the test, under the present law they must be separated and they must not be sold; yet those animals may practically be perfectly healthy. He had told Mr. Fisher that the law must be changed.

The Dominion and Provincial authorities, he said, must work together in this matter.

Mr. Dryden expressed the hope that the effort to secure recognition of Canadian registration by the United States would be successful.

A vote of thanks was tendered Mr. Dryden for his able address; after which the meeting was adjourned.

IV. THE SHIRE HORSE ASSOCIATION OF CANADA.

The eighth annual meeting of this association was held in Toronto at the Albion Hotel, February 4th, 1897. There was a good attendance of members.

The president, Mr. H. N. Crossley, Rosseau, occupied the chair. In his address he called attention to the fact that the association had been organized at the close of a period of prosperity, and even at a time when prices were



Mr. H. N. Crossley, Rosseau.
President Shire Horse Association of Canada for 1897.

on the decline. They had struggled through, however, and were now hoping for better times. The price of heavy horses is on the rise. The demand is greater than the supply.

At the fairs the classes for aged animals were usually well filled, but the younger classes were sadly lacking in entries. Though this is too much the case with all classes, yet the lack of young animals at our shows is an evidence that the supply of thoroughbred mares is not what it should be.

At the beginning of the year the association was thrown on its own resources by the disestablishment of the Agriculture and Arts Association. The membership fee was made payable annually, and now, with the fees, constitutes the only source of revenue.

The report of the secretary was then read. It showed that little progress had been made during the year, but that a change for the better might be looked for. Eleven

animals had been recorded during the year, as against ten the previous year. The society had on record 365 stallions and 115 mares, but the pedigrees of ninety-two stallions and seven mares had been totally lost by fire. The financial statement showed receipts \$37, and expenditures \$26, leaving a balance of \$11.

The following officers were elected for the coming year. President, H. N. Crossley, Rosseau; vice-president, W. E. Wellington, Toronto. Directors: John Gardhouse, Highfield; W. V. Hendrie, jr., Hamilton; W. Wilkie, Toronto; J. Y. Ormsby, Woodstock; J. M. Gardhouse, Highfield; G. Garbutt, Thistleton; John Semple, Tottenham. Delegate to Industrial Exhibition, J. Gardhouse; to Western Fair, Henry Wade and H. N. Crossley.

V. THE HACKNEY HORSE SOCIETY OF CANADA.

The fifth annual meeting of this society was held in the Albion Hotel, Toronto, February 4th, 1897. There was a fair representation of the breeders present. The



Mr. Robert Beith, M.P., Bowmanville,
President Hackney Horse Society of Canada for 1897.

president, Mr. Robert Beith, M.P., of Bowmanville, presided.

In his address the president stated that since its inception the association had made good progress. He believed the Hackney horse was bound to be the most popular and fashionable horse of the time, because of his superior conformation, quality, and action. A good deal of money had been spent in introducing Hackneys and breeding them here, for which no returns had been received, but the returns were now beginning to come in. He thought the prospects of the Hackneys were very bright.

The report of the secretary was then presented. It showed that thirty-three animals had been recorded during the year. The total number recorded up to date was sixty-seven stallions and eighty-five mares.

The financial statement of the treasurer showed that the receipts for the year, including a balance of \$101, had been \$234; and the expenditure \$101.90, leaving a balance of \$132.10

It was decided to apply to the English Hackney Society for silver medals to be offered for a Canadian-bred mare and stallion out of imported stock shown at the Spring Horse Show, also to recommend the Industrial Exhibition Association to apply to the English society for medals to be offered for imported mares and stallions.

A letter was read from Mr. James A. Cochrane, suggesting that mares by standard-bred or thoroughbred stallions out of full registered Hackney dams be eligible for half-registry. The proposed amendments were referred to a committee. The committee will await action on the part of the American society before reporting.

It was decided to draw up a memorial on the death of the late Mr. George Hastings, of Deer Park, who occupied the position of second vice-president of the society.

An interesting paper entitled "Lessons from the Shows," by Mr. R. Gibson, Delaware, was then read by the secretary.

In his paper Mr. Gibson stated that too much size was asked for by many of the Hackney breeders in the United States. A height of sixteen hands was demanded by some authorities, but he advised the breeders here not to try to cater to this demand. Action was not everything; there must be, in addition, quality and conformation. By quality is meant a certain high appearance, with good head and neck, hard, flinty, flat legs, and clean, well-defined hocks; and by conformation is meant an evenly balanced whole, special notice being taken of the shoulders and withers. There are too many Hackneys with loaded gross shoulders, and too few with well-laid and sloping shoulders.

He would again emphasize the necessity of showing the Hackney at the larger shows in harness. They must be shown at work as well as at large if their popularity is to be maintained.

The future success of the Hackney will depend much upon the wisdom shown in the selection of mares. For crossing on the cold-blooded mares of the country a stallion having lots of quality is wanted.

A grant of \$25 was then made for a sweepstakes prize for the best stallion shown at the Canadian Horse Show, and a similar grant was made for sweepstakes for best mare shown. A grant of the same amounts to be awarded as sweepstakes prizes at the Toronto Industrial was also made.

OFFICERS.

The officers for 1897 are as follows: President, Robert Beith, M.P., Bowmanville; first vice-president, H. N. Crossley, Rosseau and Toronto; second vice-president, John K. Macdonald, Toronto. Vice-presidents from the provinces: Ontario, A. G. Ramsay, Hamilton; Quebec, James A. Cochrane, Hillhurst; Nova Scotia, W. W. Black, Amherst; New Brunswick, Hon. D. McLellan, St. John; Alberta, A. M. Rawlinson, Calgary; Manitoba, A. J. Moore, Swan Lake. Directors: O. Sorby, Guelph; Robert Graham, Claremont; Robert Davies, Toronto; Dr. A. Smith, Toronto; G. Pepper, Toronto; Major R. McEwen, Byron; Robert Miller, Brougham; John Holderness, Toronto; Robert Bond, Toronto. Delegates: To Industrial Exhibition, H. Wade; to Western Fair, R. McEwen and A. G. Bowker; to Montreal Fair, James Cochrane; to Ottawa Fair, R. Beith, M.P.

VI. THE CLYDESDALE HORSE ASSOCIATION OF CANADA.

The eleventh annual meeting of this association was held in the Albion Hotel, Toronto, February 4th, 1897. There was a good attendance of Clydesdale men. The president, Mr. Robert Davies, Toronto, presided.

THE PRESIDENT'S ADDRESS.

In his address the president prophesied better times both for the association and for the individual members. As the result of a conference between our Ministers of Agriculture and the Washington authorities there was a probability that terms would be arranged whereby Canadian certificates would be recognized on the other side of the border on equal terms with American registrations.

He urged the breeding of the best class of Clydesdales. Prices for heavy draught horses had risen at least fifty per cent., and many foreign buyers were coming into the province on the lookout for horses between 1,600 and 1,800 pounds. According to reports the demand was greater than the supply.

It would be well for Canada to try to secure a larger share of the export trade with the old country, which had been hitherto principally confined to American ports, and with that end in view he, as president of the association, and Mr. John Sheridan had waited on the Deputy Minister of Marine, and represented the necessity of better accommodation to shippers for their stock, and they had received an assurance that an order in council to this effect would be passed as soon as possible.

The display of Clydesdales at the last spring show was one of which everyone should be proud, both in regard to numbers and to quality.

THE SECRETARY'S REPORT.

Mr. Henry Wade, the secretary, reported that during the year 100 registrations and 13 transfers had been made, as against 76 registrations in 1895, but there had been a falling off of 25 members during the year. It was expected that many more registrations would be recorded during the present year, as there was a possibility that the association's certificates would be recognized across the line. The financial statement showed receipts, including a balance from last year of \$39.85, to be \$289.85; while the expenditures amounted to \$197.18, leaving a balance of \$92.67.

RESOLUTIONS.

The following resolutions were carried:

By Mr. Robert Miller, of Brougham, that a grant of \$100 be made towards a prize for the best heavy draught team sired by a Clydesdale stallion shown at the Canadian Horse Show.

By Mr. John Davidson, of Ashburn, that three prizes, amounting to \$50, be given for the three best colts foaled on or after January 1st, 1896, shown at the Canadian Horse Show.

THE ELECTION OF OFFICERS.

The election of officers resulted as follows: President, Robert Davies, Toronto; first vice-president, R. Graham, Claremont; vice-presidents for provinces: Ontario, D. Sorby, Guelph; Quebec, R. Ness, Howick; Nova Scotia, Col. Clarke Blain; New Brunswick, A. S. Murray, Fredericton; Prince Edward Island, Hon. James Clow, Murray Harbor; Manitoba, J. E. Smith, Brandon; Northwest Territories, A. Turner, Calgary. Directors: R. Beith, M.P., Bowmanville; John Davidson, Ashburn; George Cockburn, Baltimore; R. Miller, Brougham; J. Vipond, Brooklyn; G. Clayton, Peepabun; A. Dogherty, Ellesmere.

Delegates to Fair Boards—Toronto Industrial: W. Smith, Columbus; O. Sorby, Guelph. Western Fair: R. Graham, Claremont; W. Charlton, Duncrief. Ottawa: John Davidson, Ashburn. Montreal: R. Ness, Howick.

Mr. Robert Beith's name will be suggested as judge of Clydesdales at the Canadian Horse Show.

The following list of expert judges was appointed: Messrs. W. Graham, Claremont; R. Ness, Howick; J. Lee and R. Miller, Brougham.

VII. THE CANADIAN HORSE-BREEDERS' ASSOCIATION.

The annual meeting of the Canadian Horse-Breeders Association was held at the Albion Hotel, Toronto, Feb. 5th, 1897.

In the absence of the president, Mr. David McCrae, Guelph, was appointed chairman. The president, Mr. Robert Davies, came in before the meeting was through and then took the chair.

The report of the secretary, Mr. Henry Wade, stated the object of the association, which is to encourage the improvement of all the better breeds of horses, in every way possible, especially by holding and assisting shows at different times of the year. It was the intention of the association to take part again with the Country and Hunt Club, of Toronto, in holding a third annual joint horse exhibition in the Toronto Armouries on the 29th and 30th April and the 1st of May next.

The committee appointed at the last meeting of the association had already waited on the Provincial Parliament, and had explained that if the association and the Canadian Horse Show were to have a prosperous continuance it was absolutely necessary that the same grant as last year should be given. Hon. Mr. Hardy had promised that Mr. Dryden would consider their request, and the Minister of Agriculture informed the deputation that the grant would in all probability be renewed.

The treasurer's statement showed that the receipts for the year had been \$2,939.26, and the expenditure \$2,349.35, leaving a balance on hand of \$589.91.

ELECTIONS.

Directors to represent the various horse-breeding organizations were elected as follows:

Hackneys—R. Beith, M.P., and John K. Macdonald. Shires—H. N. Crossley and W. E. Wellington. Clydesdales—R. Davies and R. Miller. Thoroughbreds—Dr. A. Smith and W. Hendrie, jun. Trotters and Pacers—Dr. Hodgson and J. Ross Robertson, M.P.

Delegates to Fairs: Toronto Industrial Exhibition—R. Beith, M.P., and H. N. Crossley. Western Fair—R. McEwen and O. Sorby. Ottawa Exhibition—William Hutchinson, M.P., and Robert Graham. Montreal Fair—James A. Cochrane and Robert Ness.

THE PRESENT OUTLOOK.

Major Robert McEwen, of Byron, read an interesting paper on the present outlook of the horse trade. He thought there was too much haphazard breeding, not enough definite plan or purpose in breeding. He said there must be some object in view, such as getting a special horse for a special purpose. A few years ago English army officers visited this country and spent considerable time in every town of any importance in the country looking for recruits for the army. They found a few desirable mounts, but not enough to warrant their placing a purchasing agent here. Now here was a market coming a-begging to us, and apparently no effort had been made to meet it.

Too often the best mare on the farm is kept in harness and the poor mare bred. Care, perhaps, is exercised in selecting the stallion, but none with the mare. Such a practice is ruinous to the farmer and to the horse trade.

A man's success in breeding is estimated by his judgment in mating the parents, together with his skill in feeding and developing the progeny. Mistakes in some lines of business can be remedied, but in breeding animals mistakes seldom can be remedied. The cause of failure must be studied and, in the future, avoided.

A source of serious loss to many breeders is the "spare-the-feed-and-stunt-the-colt" sort of policy to which they cling. Can any one name a single noted breeder of any kind of stock who does not feed liberally? Hosts of horses remain in the hands of their original owners for no other reason than lack of condition.

ELECTION OF OFFICERS.

At a meeting of the directors held subsequently Robert Davies was elected president; Dr. A. Smith, first vice-president; R. Beith, M.P., second vice-president; and Henry Wade, secretary-treasurer.

A committee was appointed to confer with the Country and Hunt Club in regard to the coming Horse Show.



FARMING

AN ILLUSTRATED MONTHLY MAGAZINE DEVOTED TO FARMING
IN ALL ITS BRANCHES.

Succeeding *The Canadian Live Stock and Farm Journal*.

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an unregistered letter is unsafe, and will be at the sender's
risk.

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scriber wishing to discontinue must notify us by letter or
postal card. All arrearages must be paid up before a name
can be taken from our list.

Changes of Address—

In ordering change of address, be sure to give the old address
as well as the new. We cannot find a name on our books
unless the post-office address is given.

Communications—

All business communications should be addressed to
"FARMING, 20 Bay Street, Toronto, Canada."

Communications for the Editorial Department should be ad-
dressed to "The Editor, FARMING, 20 Bay Street, Toronto,
Canada."

Matter of any kind for publication must reach us before the
15th of the month preceding date of publication.

W. W. CHAPMAN, Representative for Great Britain and
Ireland,

Fitzalan House, Arundel St., Strand, LONDON, E.C.C.

Contents for March.

The Dominion Department of Agriculture. Paper I: The Work of the Dairy Commissioner for the Dominion	45
The Minister of Agriculture for the Dominion	47
The Condition of the Shorthorn Industry	48
By Arthur Johnston, Greenwood, Ont.	
Some Evils in the Shorthorn Business	48
By D. Alexander, Bridgen, Ont.	
Why Do People Breed Shorthorns?	48
By Alex. W. Smith, Maple Lodge, Ont.	
Retrospect	48
By Richard Gibson, Delaware, Ont.	
The Present Condition of the Clydesdale Trade	49
By Robert Davies, Toronto, Ont.	

Planting and Caring for Fruit Trees	490
By A. M. Smith, St. Catharines, Ont.	
Common Sense in Manuring	493
By George Harcourt, B.S.A., of FARMING.	
Tuberculin	497
By A. W. Biting, Lafayette, Ind.	
The Central Canada Exhibition Association	499
February Meetings	500

Dominion Cattle Breeders' Association.—
A directors' meeting will be held at the Palmer
House, Toronto, at 1 o'clock sharp, March 23rd.

Dominion Sheep Breeders' Association.—
A directors' meeting will be held at the Palmer
House, Toronto, at 1 o'clock sharp, March 24th.

Dominion Swine Breeders' Association.—
A directors' meeting will be held at the Palmer
House, Toronto, at 1 o'clock sharp, March 25th.

Provincial Fat Stock and Dairy Show.—
A directors' meeting will be held at the Palmer
House, Toronto, at 1 o'clock sharp, March 26th.

Washing Machines.—Mr. P. Vallmar, of
Chatham, advertises the Perfect Washer in this issue.
We have much pleasure in calling attention to his
announcement.

Sewing Machines.—The announcement of the
Peoples' Wholesale Supply Co., which appears in
another column of this issue, seems to us to be
worthy of investigation.

Incubators.—Mr. G. J. Lovell, manufacturer of
incubators and poultry supplies, advertises in another
column. He receives frequent enquiries for prop-
erties suitable for poultry and fruit farming, and would
be glad to hear from those wishing to buy, sell, or
rent such properties.

Cleaning Seed Grain.—We have to thank Mr.
Manson Campbell, of Chatham, for a small pamphlet
issued by him containing some practical information
on this subject. Its chief aim is, no doubt, to adver-
tise Mr. Campbell's famous Chatham Fanning Mills,
but it will be found interesting and instructive as
well, and will well repay the trouble of sending for it.

One More Handsome Catalogue.—Messrs.
J. J. H. Gregory & Son, the well-known seedsmen of
Marblehead, Mass., have issued a catalogue for 1897
which is not one whit inferior to those of their com-
petitors either in appearance or practical utility. It
may be obtained free on application, and we are
quite sure that it will most amply repay the very
slight trouble of sending for it.

A Portable Engine.—There is no more neces-
sary or more economical piece of machinery than a
portable steam engine, and no farm can be said to be
properly equipped which is without one. Those of
our readers who care to enquire as to the cost, etc.,
of such machinery are referred to the advertisement
of the John Abell Engine and Machine Works, Co.,
who are offering second-hand engines at very low
prices.

The Art of Incubation and Brooding.—
E. & C. Von Culin, of Delaware City, Del., publish a
work bearing this title, with a view to meet the
requirements of those whose interests lie in the use
of artificial appliances for raising poultry. It con-

Publisher's Desk—Continued.

tains a very large fund of information relating to the hatching of almost every kind of fowl, including ostriches. It seems to be a book which every one interested in poultry would find useful. Price, \$1.

Vegetable Gardening.—A very useful little volume by Samuel B. Green, professor of horticulture in Minnesota University, has recently been issued by The Webb Publishing Co., St. Paul, Minn. Price, \$1.25. There are few books of this class which can be said to cover the subject thoroughly, especially from a modern point of view. This one should be welcomed if for no other reason than that it is written from the standpoint of recent investigation and modern authority. But it is more than this. It is a practical manual of gardening written by a gardener who is noted for thorough and systematic methods in everything he undertakes. We commend it to all who are interested in the farm and garden.

John A. Bruce & Co.'s Catalogue.—The annual catalogue of this well-known firm of seedsmen is a very artistic production. The front cover is a representation in color of the ten varieties of sweet peas, comprising "Bruce's Royal Nosegay," and the back is made up of the Empire collection of asters, a collection of dwarf nasturtiums and pansies. The whole work is highly attractive, besides containing the usual interesting and valuable information. It will be sent to any address on application.

The Gem Wire Fence.—McGregor, Banwell & Co., whose advertisement appears in this issue, have, it is claimed, made a departure from the usual course of trade in respect of wire fences. They offer their patrons the privilege of making wire fences by means of what they call the Gem Wire Fence Machines. Any kind of wire may be used. There appear to be some substantial merits in the plan, which we think may very profitably be made the subject of investigation by anyone who contemplates the construction of such fences. Write Messrs. McGregor, Banwell & Co., Windsor, Ont., for full information.

Full Value.—There unfortunately stand so many people between the farmer and the consumer, as well as between the farmer and the manufacturer, that no matter whether he wants to buy or sell he is not likely to receive full value for his money or his produce if he is not particularly astute and business-like in his methods. The Wilkinson Plough Co., of Toronto, therefore strike the keynote in their advertisement in this month's issue. They promise their customers full value for their money, and from personal dealings with them we believe a substantial performance of the promise may be reasonably expected.

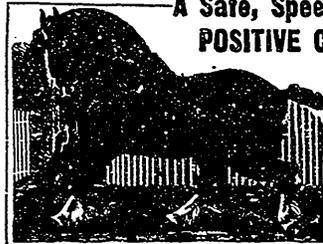
The Larimer Ditching Plow.—We are pleased to call the attention of our readers to the advertisement of Mr. R. G. Scott, which appears in another column. Expensive ditching machines have been used successfully, but are beyond the reach of the average farmer. The Larimer plow is not an expensive implement, but it is claimed it will do the work for which it is intended in a most thorough manner. Mr. Scott, who is a practical farmer himself, says it is the best tool he has on his place. We are very strongly of the opinion that Mr. Scott would not offer his brother farmers anything which he did not believe to be for their benefit, and we advise every farmer to write to him for particulars.

A Fine Variety of Grapes.—On a recent visit to Messrs. A. G. Hull & Sons, of St. Catharines, a

Horse Owners Should Try

COMBAULT'S Caustic Balsam

The GREAT FRENCH VETERINARY REMEDY

A Safe, Speedy and
POSITIVE CURE.Prepared
exclusively
by J. E.
Gombault
ex-Veterinary
Surgeon to
the French
Government
Stud.

SUPERSEDES ALL CAUTERY OR IRON

Impossible to produce any scar or blemish. The Safest best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, Etc., it is invaluable.

WE GUARANTEE that one tablespoonful of **CAUSTIC BALSAM** will produce more actual results than a whole bottle of any liniment or spavin cure mixture ever made.

Every bottle of **Caustic Balsam** sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by Druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address
THE LAWRENCE-WILLIAMS CO. TORONTO, ONT.

representative of FARMING had an opportunity of testing some Vergennes grapes from a basket brought directly from the fruit house where they had been placed last autumn. They were precise, in the same position and condition as when picked from the vines, not one having fallen from the bunches. In flavor and appearance they were excellent. The flavor is similar to that of the California white grape, and in color they resemble the Brighton variety. The very superior keeping and shipping qualities of the variety to which these grapes belong, added to their excellent flavor, fine appearance, and hardy nature, combine to make it one of the best we have seen. It is also said to be a most prolific bearer.

A Sure Investment.—No man will put his money into a business venture which he knows will bring him no returns; and the best evidence of the value of an investment is the fact that keen business men continue to use it as a means of profit to themselves. That is why advertisers in FARMING continue their outlay for advertising space year after year. They have proved it to be a good investment. Mr. R. B. McMullen, the well-known breeder of registered Poland-China swine, of Blytheswood, Ont., says: "I have made a great many sales through my ad. in FARMING," and his experience is that of all the rest. His stock is of the best, and is always kept in prime condition. Therefore, when FARMING introduces him to a buyer a sale is easily effected. FARMING introduces its advertisers to the best class of buyers in the Dominion, and is a sure and profitable investment to them.

The Reliable Heir.—The incubator business is taking on astounding proportions. This is true in the use, as well as in the manufacture, of these

Publisher's Desk.—Continued.

machines. The latter business could not have attained its present dimensions had it not been for the success of the machines in actual practice all over the country. There has been too much success in the use of incubators, and too much money made by this process to claim at this late day that the most improved incubators are anything but successful and profitable when correctly managed. We are led to these reflections by receiving the superb 168 page catalogue of the Reliable Incubator and Brooder Co., Quincy, Ill. Their machine is one of the most popular and most largely used. The catalogue can be obtained by any one who will send ten cents to the Reliable Incubator and Brooder Co., Quincy, Ill., but if in writing you state that you are a subscriber to FARMING you can get it free, and in that case need not enclose the dime. It is worth sending for.

Perfect Ventilation.—Mr. W. S. Hawkshaw, of Glanworth, an importer and breeder of Shropshire sheep, is very enthusiastic over the results that he has obtained from the introduction of Mr. Usher's system of ventilation in the stabling under his new barn. The walls and floors of the stable are of Queenston cement concrete, and the feed alley was raised so as to admit this system of ventilation. Under date of January 23rd, 1897, Mr. Hawkshaw says: "A thermometer hangs in the centre of the stable, and careful notes taken of the readings at various times show that the temperature of the stables this winter has not been below 45° or above 50°. . . In the morning, when the stables are first opened, the air is pure and free from any objectionable taint and just as pure as it is during the day time. I would advise farmers to investigate this system of ventilation." Mr. Usher has patented this system of ventilation, but supplies it free to the patrons of Queenston cement. To those using his scheme with other cements, a royalty of not less than \$20 nor more than \$50 will be collected for each building in which it is used.

Stock Notes.

Items concerning conditions of stock, also information as to recent sales, purchases, milk performances, or any other matters that will be of interest to our readers as news freely admitted in these columns. Items describing stock for sale, or anything else of an advertising nature, will be inserted only if paid for.

Mr. J. J. LINTON, Oshawa, says: "My advertisement of poultry in FARMING brings me a hostful of enquiries with every mail."

FRANK MARSH, Richmond Hill, reports his stock as wintering well. His sheep are doing particularly well. He has a young Hackney mare, sired by Lord Bardolph, which promises to be something extra nice.

GRAHAM BROS., Claremont, have sold a large number of their horses. Their stallions are wintering well, particularly The Royal Standard, the Hackney stallion. This firm expect to be out in full force for the coming horse show.

MR. JOHN I. HOBSON'S SALE.—We trust those interested will not forget the sale of Shorthorn cattle and heavy draft mares, to take place on the farm of Mr. John I. Hobson, Mosborough, on April 6th. The stock to be sold is good.

C. T. GARbutt, Claremont, has his celebrated Cotswolds in good condition, and lambs are expected soon. He has a number of shearlings that give promise of making something extra. He has lately been adding to his herd of Berkshires. His flock of Plymouth Rock hens are shelling out the eggs.

MR. R. HOWKS CURME is about to retire from dairying, and will sell his entire herd of about twenty thoroughbred Holsteins by auction on Wednesday, the 31st of March, 1897, at one o'clock, and will be pleased to send catalogue on application. His address is Masenville, Ont.

MR. F. W. TAYLOR, of Wellman's Corners, Ont., reports the following recent sales: Three cows to John Taylor, Rockwood; one cow to George Taylor, Rockwood; one yearling

GREGORY'S SEED CATALOGUE FOR 1897

This book should be in the hands of all who wish to be successful in planting. It is a safe guide to right seeds and right methods. It makes you acquainted with

Gregory's Seeds

the purity and reliability of which are known to all successful planters. Gregory's Seed catalogue is sent free of charge to anyone anywhere.

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Marblehead, Mass.



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CLINTON, ONT.
Guarantee prompt shipments.
Fine, Coarse or Land Salt.
For Table or Dairy use

Coleman's Dairy and Table SALT

Dispersion Sale of THOROUGHbred SCOTCH SHORTHORN CATTLE

There will be sold by public auction on Wednesday, April 14th, 1897, at my farm, three miles from Lancaster, Ontario, my entire herd, comprising seven bulls and nineteen females of the very best quality and breeding. Catalogues will be ready in middle of March and will be mailed free to all applicants.

R. R. Sangster,
Lancaster, Ont.

Stock Notes—Continued.

heifer to Robert Steven, Petrolia; one two-year-old bull to Æmilus McCrea, Merrickville. As will be seen by Mr. Taylor's advertisement he still has a number of choice animals on hand.

JOHN DAVIDSON, Ashburn, reports his Clydesdales as coming through the winter nicely. The stallion is improving right along. The Shorthorns are of that low-set, thick-fleshed type loved by all feeders of stock. The young things promise well; two heifers, a two-year-old and a yearling, are just about right.

MR. THOMAS GUY, of Oshawa, reports his young stock as coming through the winter in good shape and developing well. He has a number of young bulls of high breeding, closely related to his World's Fair winners, that are promising ones, as well as a number of young heifers, which should make capital milkers and prize-winners.

J. & W. RUSSELL, RICHMOND HILL.—The stock of this famous firm of Shorthorn breeders are coming through the winter in good shape. The prize animals are doing well; some young heifers that have never been shown promise to beat the prize ones. The young calves are a thrifty, blocky-looking lot, and testify to careful breeding.

SALE OF CRUICKSHANK AND CAMPBELL SHORTHORNS.—Attention is called to the sale of Mr. R. R. Sangster's entire herd, which is announced in our advertising columns to take place on Wednesday, 14th April next, at his home near Lancaster, Ontario. The herd is a good one, and we have no doubt Mr. Sangster will have a successful sale.

MR. G. W. CLEMONS, of St. George, Ont., writes: "I am glad to be able to report a great demand for richly-bred bulls. Have sold three in the last three days, and have more sales in prospect. The calf I am advertising for sale this month is a grand good one, bred from the best butter strains in America, and I would not sell him if he were not closely related to a great many of my females."

JAMES I. DAVIDSON, Balsam: The two Clydesdale mares that did so well at the fairs last fall have gone on improving, and will more than hold their own again next year. The yearling stallion, Pride of Balsam, has done well and will give a good account of himself at the shows again. Some of the Shorthorn cows have good-backed, blocky calves with them, that promise to make good ones.

MR. A. C. HALLMAN, of New Dundee, writes: "My stock is wintering finely. Several of my heifers, which have recently calved, indicate very high breeding, and will make their mark. The whole of my young stock is of the richest quality, and the young bulls will do justice to their breeding wherever placed. My Tamworths are also in good shape, and as the breed becomes better known the greater is the demand for it."

MR. ARTHUR JOHNSTON, of Greenwood, has had a splendid demand for cattle. During the last few weeks he has had about 100 enquiries for stock. He reports that the demand is increasing, and the prices have almost doubled. His stock is in grand shape. Some of the cows have come in, and the calves are coming good and strong. The young heifers are deep, thick fleshed animals, carrying a wealth of natural flesh. A number of them are hard to beat.

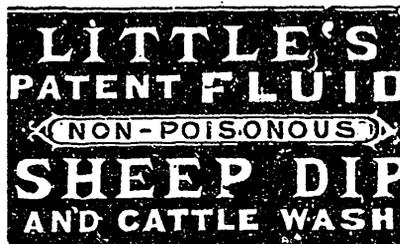
SALE OF DR. MORTON'S HERD OF SHORTHORNS.—Attention is called to the announcement of Dr. Morton, of Allandale, which is to be found in our advertising columns. Those who are looking out for good animals at reasonable prices will do well to make a note of it. The herd has been built up by purchases from the best breeders, and we are informed that it is in fine condition. As the doctor is giving up farming purchases may expect some liberal bargains.

MESSRS. JOHN MILLER & SONS, Brougham, have on hand a large herd of Shorthorns, headed by three famous stock-getting bulls. The cows are in good condition, and several bunches of thick fleshed, deep-bodied heifers show what skillful breeding and careful feeding can do. The flock of Shropshires that went the rounds of the American shows are doing well; so are all the sheep. The pens of ram and ewe lambs contain many exceptionally good sheep. The Clydesdales and ponies are also coming through the winter in fine shape.

E. JEFFS & SONS, of Bond Head, Ont., write: "We have a number of enquiries for young bulls, of which I have four choice ones and some equally fine females. I have sold one young Berkshire boar and two sows to Mr. Archibald Torrence, of Thornton; one young sow has just farrowed nine pigs, showing the breed to be very prolific. I have six young sows of one litter just ready to breed. The Southdowns and Leicesters are doing very nicely, and we hope to have a bountiful crop of lambs."

H. I. ELLIOTT, of Danville, Que., writes: "There have been several enquiries for young stock the past few weeks, chiefly for young bulls. I am pleased to say they are all from the Province of Quebec, which shows that farmers and farmers' clubs are now turning their attention more to the Durhams than ever before. We have had the most beautiful winter weather the past month, and stock of all kinds seems to be coming through in good shape. I am much pleased with

TOSTOCKMEN AND BREEDERS



For the destruction of Ticks, Lice, Mange, and all Insects upon Sheep, Horses, Cattle, Pigs, Dogs, etc. Superior to Carbolic Acid for Ulcers, Wounds, Sores, etc. Removes Scurf, Roughness and Irritation of the Skin, making the coat soft, glossy, and healthy. The following letters from the Hon. John Dryden, Minister of Agriculture, and other prominent stockmen, should be read and carefully noted by all persons interested in Live Stock:

"MAPLE SHADE" HERDS AND FLOCKS.

BROOKLIN, ONT., Sept. 4th, 1890.

DEAR SIR,—I can not afford to be without your "Little's Sheep Dip and Cattle Wash." It is not merely useful for Sheep, but it is invaluable as a wash for Cattle, etc. It has proved the surest destroyer of lice, with which so many of our stables are infested. I have ever tried; it is also an effectual remedy for foul in the feet of Cattle. I can heartily recommend it to all farmers and breeders.

JOHN DRYDEN.

17 Gold, Silver, and other Prize Medals have been awarded to "Little's Patent Fluid Dip" in all parts of the world. Sold in Large Tins at 75c. Special terms to Breeders, Ranchmen, and others, requiring large quantities. Ask your nearest druggist to obtain it for you; or write for it, with pamphlets, etc., to

ROBERT WIGHTMAN, Druggist, Owen Sound,

700

Sole Agent for the Dominion.

DISPERSAL SALE



MR. HERBERT FARTHING'S world-known prize-winning and registered flock will be offered for sale by auction, in consequence of the owner retiring from business,

on THURSDAY, APRIL 22nd, 1897,

at Thurtaxton, Taunton, Somerset, England.

The flock was established in 1862, since which time it has been continuously and constantly bred under the direct and personal control, management, and superintendence of its owner, who has spared neither time nor expense to bring it to the highest state of perfection. None but most carefully selected sires and ewes have been added to the flock, and during its career it has from time to time been recruited by purchases from all the most noted and leading breeders of these sheep. The showyard career has been most successful, upwards of 200 prizes having been won at all the principal shows of England. There will be included in the sale the whole flock, numbering about 330 ewes, in aged; 150 ewe lambs; 10 two-teeth rams, and 20 ram lambs.

Catalogues and full information can be obtained from Mr H. Farthing, at the above address.

Stock Notes—Continued.

your January number, and consider the poultry notes alone well worth the price of subscription."

MAPLE GROVE STOCK FARM.—Mr. H. Bellert, of Cassel, Ont., writes: "The Maple Grove herd of Holsteins was one of the first established in America. It is composed of a number of highly bred animals from such stock as Netherlands, Aaggie, Colantha, Alpekerk, Pieterje, Barrington, Jennie B., Bonnie Queen, and Sir Henry of Maple Wood. At the Provincial Exhibition in 1886, the last time they were exhibited, they won, on five entries, two firsts, two seconds, the silver medal for best bull of any age, and the diploma for best female of any age."

Mr. K. C. McRAE, of Maxville, Ont., has two Jersey cows, two and three years old, and weighing 600 and 700 pounds, respectively. During the last eight months they have made 354 pounds of butter, which was sold at an average price of 20c. per pound. Their two calves sold for \$35 on October 1st, and they have won prizes to the amount of \$6.50 at the local fair in Maxville, the total earnings of the two being \$112.30. Besides this, Mr. McRae's family have used what milk and cream were required for ordinary family purposes. Mr. McRae considers this record would be pretty hard to beat.

Mr. ARTHUR JOHNSTON, of Greenwood, reports stock matters steadily improving, though prices still remain low, like the prices of all other farm products. "The Greenwood herd is now in uncommonly nice form for breeding purposes, with a capital lot of show things coming on. Our young Short-horn bulls, of which we still have a fine lot of big, sappy fellows for sale at moderate prices, are growing immensely. They are reds and roans of the best breeding and finest quality, and fit for immediate service. Our two-year-old and yearling heifers are going on grandly. We have now nineteen young calves, with many more to come. They are all doing splendidly."

Mr. T. A. COX, of Brantford, writes: "I consider FARMING one of the best mediums for advertising stock published, and think every breeder and farmer should patronize it. As a result of my advertisement I am pretty well sold out. Those of my Berkshires left are looking well. Amongst the lot are a few exceptionally good ones, and I am booking orders for spring pigs sired by Fitz Lee. Some of my recent sales are as follows: E. Shaver, Ancaster, one boar; Ketchen Bros., Copetown, one sow; J. A. Feierheller, Mount Elgin, one sow; C. Campbell, Burford, one sow; F. Fisher, Murray, boar and sow; C. Riley, Golspie, boar and sow; T. A. Good, Brantford, one sow; H. Williams, Brantford, two sows; R. McEwen, Brantford, two sows; F. Wasley, Gravenhurst, one sow."

GREEN VALLEY FARM.—One of our staff, while in the vicinity of Fenella, called upon Mr. F. J. Macklin, proprietor of the above farm, and inspected his herd of cattle and stock of poultry. Mr. Macklin has some very fine animals, particularly a Jersey cow and the heifer calf illustrated in FARMING for February. They have also an excellent bull calf, which should make its mark. The stock of poultry was very good. There were in particular a very good Partridge Cochins and hen. There were also some very nice White Leghorns, and a fairly good Barred Plymouth Rock cockerel at the head of the pen of Rocks. The poultry house is very well built, and, with the exception of perhaps being a little too high, would suit the requirements of every farmer.

MESSRS. C. J. GILROV & SON, of Glen Buell, in sending a change of advertisement, report that their celebrated Holstein herd are still doing good work, and that sales are fair. They have recently sold their one-year-old bull, Carmen Sylvia's Inka Prince, to C. A. McNeil, of Gananoque, Ont. Oxford Jewell, a fine young cow, with a record of fifty-eight pounds milk daily, went to Mr. Keeler, of Greenbush, Ont. This cow was third-prize winner at Toronto in cow class in 1895. This cow was started in official test and was making over two pounds butter daily when Mr. Keeler purchased her. "We expect the remaining members of our show herd to yield for cows 14,000 lbs. milk in ten months, with two-year-olds from 10,000 to 12,000 lbs. in same period. In next issue of FARMING we expect to be able to give an account of how Canadian Holsteins score in authenticated records in competition with the American breed."

R. BEITH & Co.—A representative of FARMING recently visited the stud of R. Beith & Co., Bowmanville, Ont. He found the horses in excellent condition. The imported brown Hackney mare, Lady Aberdeen, was in prime condition, and will do herself justice at the coming horse show. Jessica, the brown two-year-old filly, awarded first place at Toronto, has gone on improving. She has been broken to harness, and will give a good account of herself. Mopsy, a bay filly, by Ottawa, is developing finely. The cobs and ponies are in particularly good condition, and in high spirits. The stallions Jubilee Chief and Banquo are doing well. A promising young son of Banquo's attracted particular attention; other young stock by Jubilee Chief, Ottawa, Seagull, and Banquo show evidences of superior quality. The Clydesdales, also, were

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'High Grade' Seeds,
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The Steele, Briggs Seed Co.
TORONTO, ONT.

ONTARIO AGRICULTURAL COLLEGE

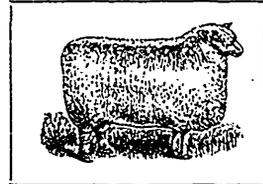
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SEED GRAIN and POTATOES

Address WM. RENNIE, Farm Superintendent, Guelph, Ont

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Tick Destroyer



Effectually Destroys

TICKS, SCAB, and all VERMIN. Makes the skin clean and healthy, and imparts a silky softness and lustre to the wool.

HUGH MILLER & CO., - TORONTO, ONT.

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EXPERIENCE.

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beautifully illustrated, largest circulation of any scientific journal, weekly, terms \$3.00 a year; \$1.50 six months. Specimen copies and ILLUSTRATED BOOK ON PATENTS sent free. Address

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Successful

growers of fruits, berries, and all kinds of vegetables, know that the largest yields and best quality are produced by the liberal use of fertilizers containing at least 10% of

Actual Potash.

Without the liberal use of Potash on sandy soils, it is impossible to grow fruits, berries and vegetables of a quality that will command the best prices.

Our pamphlets are not advertising circulars boasting special fertilizers, but are practical works, containing latest researches on the subject of fertilization, and are really helpful to farmers. They are sent free for the asking.

GERMAN KALI WORKS,
93 Nassau St., New York.

SELECTED SEEDS

Illustrated Catalogue now ready and mailed Free to all sending us their address.

Carefully Selected

FARM, GARDEN, and FLOWER SEEDS

Comprising all the best varieties of Europe and America....

Recleaned Lower Canada Timothy, Clovers, Grasses, Corn, and Seed Grain of all the leading sorts.

WILLIAM EWING & CO.,

Seed Merchants Montreal, Que

20 acres rich, level farm land free from rocks and swamps, and especially adapted for truck, fruit, cotton and tobacco raising, for \$300, payable \$10 down and \$4 or more weekly. Convenient to great eastern markets, in thickly settled section of Virginia. Genial climate all year. Splendid water. Schools, churches, stores, mills, and desirable neighbors. Deed free and title guaranteed. No malaria, mosquitoes, blizzards or floods. Taxes and freight rates low. For further information write to D. L. Risley, 211 S. 10th Street, Philadelphia, Pa.

Stock Notes.—Continued.

doing well. This firm expect to be out in full force with their breeding stock, high stepping carriage horses, cobs, ponies, and saddle horses at the coming horse show.

MR. S. CHAMNION, of Cass City, Michigan, one of our advertisers, writes: "I have recently imported a large consignment of prize-winning fowls. Amongst them are seven Black Minorca females and two cockerels. The females were exhibited at the Michigan State Show, Detroit, January 5th to 9th, and were awarded first for hen and first for pullet, scoring 92.2 and 93.2½ per cent. for weight, respectively. I also received four black-breasted Red Game pullets and one hen, the latter being winner of first and cup special at Wheelbeck; also a cock which won first and cup special at Wheelbeck, first and cup special at Beeston, second at Birmingham, V.H.C. at Crosgate and Tabshelf. Amongst the consignment were also pairs of Pekin and Aylesbury ducks, the latter winning first for duck and first for drake at Detroit. The Pekin ducks, as well as the others, suffered from the long confinement of sixteen days; otherwise they would doubtless have made even a better showing. My pens are all complete and in fine condition for the season's business."

MR. HOBSON'S SALE OF SHORTHORNS.—Attention is again directed to the announcement in our advertising columns of the closing-out sale of this fine herd of cattle, which is the result of careful breeding and selection for some twenty years with a view to uniformity of type and useful qualities in which we believe Mr. Hobson has been successful to a high degree. The cattle are of the modern type, low-set, thick-fleshed, and early-maturing. The cows are all young or in the prime of life, and the catalogue embraces over a dozen exceptionally good two-year-old heifers in calf, besides a number of really good young bulls. The stock bulls, which will also be included in the sale, are War Eagle, a sweepstakes winner at the Toronto Exhibition, and Royal Standard, a grandson of the famous Barnpton Hero, and a show bull in any company. Several of the best Scotch-bred families are represented by excellent individuals, and nearly all the pedigrees are topped by high-class bulls bred in the purple. Mr. Hobson has sold his farm, and the cattle will be sold without reserve. The date of the sale, April 6th, is favorable to buyers, as the winter feeding will be well over. The place is convenient, the building being within one minute's walk of Mosboro Station, five miles west of Guelph. The prospect for the trade in beef cattle is encouraging. Send for a catalogue of this sale.

MR. JAMES BODEN, manager for Mr. Robert Reford, of Tredonnock Farm, St. Anne de Bellevue, Quebec, has recently returned from Scotland with one of the most important importations of Ayrshire cattle which has been made into this country in some years. While in Scotland he visited all of the principal herds of Ayrshires, and found them in excellent condition. He says there is a very brisk demand at paying prices for the large type of Ayrshires, both for home breeding and foreign shipment. Indeed, so great is the demand for bulls of that class of cattle that they can scarcely be bought at any price, especially for shipment abroad. Mr. Boden brought out with him seven head of exceedingly choice stock. Two of them, the heifers White Glen and Kate Wallace, were purchased for Mr. William Wylie, of Elmshade Farm, Howick, Que.; another heifer, Queen Wallace, was for Mr. James Cottingham, of Ormstown, Que. The other four, Napoleon of Auchenbrain (3303); Kersty Wallace (10592); and Queen Primrose (App. Vol. xix., p. 309), were purchased for and have been added to the fine herd of Mr. Reford at Tredonnock Farm. *The Scottish Farmer* selected this importation for the illustration of its issue of January 30th, and devotes a leading article to it, in the course of which it says: "The principal aim in selecting this consignment has been to secure stylish good animals with big teats, and bred from the best milking strains. That this aim has been attained is evident to all who see the cattle." We should like to copy the whole article, including a full description of each animal and its pedigree, but lack of space will not permit us to do so in this issue. In a later issue we hope not only to give this description, but to reproduce portraits of the animals as well; and also to give our readers some interesting notes respecting the stock of Mr. William Wallace, of Mauchline. Mr. Boden also brought with him some fine well-bred collie dogs, all of them being prize-winners at the principal shows in Scotland. With these

Capital City Business College

A thoroughly up-to-date institution.

Write for particulars. Address

A. M. GRIMES, President,

OTTAWA, CANADA.

Stock Notes—(Continued).

he hopes to greatly improve that line of stock. The whole collection reflects the utmost credit upon their selectors.

Mr. JOHN CAMPBELL, Woodville, reports: "There is great activity in the Shropshire trade. Seven choice ewes of the Fairview Shropshires, among them four of the 1894, 1895, and 1897 prize-winners, were sent to Messrs. P. A. Beardsley & Son, Iowa, early in February. In the middle of the same month eleven ewes and ewe lambs were sold to Hon. T. Greenway, Premier of Manitoba. That shipment contained much of the cream of the Fairview flock. Guelph's champion 1894 ewe lamb, winner that season of \$110 cash; a first prize-winner at Madison Square Gardens, New York, last November; a pair of highly commended ewes at the Royal, England, last June; and other winners, with daughters of winning sires and dams, composed the lot. It was very gratifying to have the purchasing commissioners, after visiting several flocks, make such a handsome purchase from the Fairview flock. Another shipment of one ram and two ewe lambs went to Chilliwack, B.C., good enough to stand in any showing. An enquiry comes from the Pacific Coast for fifty rams. Three sheep sent beyond Vancouver last August were invertisers, as they went their long journey of eight day duration in crates. When near the end their fine, fresh, attractive appearance drew the attention of ranchmen; hence the enquiry. I can truly say that the present demand for Shropshires of good size, right type, and full of quality, is the briskest I have seen."

JAMES S. SMITH, of Maple Lodge, writes: "In announcing our annual public sale of Shortorns at this time we do so with a good deal of confidence, chiefly because we have always been liberally treated by the public who wished to buy stock of the kind we had to sell, and also because we feel there is a more hopeful spirit among farmers and breeders generally than has existed for some time. In the Maple Lodge herd we have always made it an important feature of our management to bring the milking qualities of our cows prominently to the front. The result of this is that we have a grand lot of good milkers in our herd, and as proof that the beefing qualities have not been neglected we point to the fact that two heifers selected from our herd at Maple Lodge won first and second in their respective classes at the last Fat Stock Show at Guelph, which has been conceded to be the best show of its kind ever held in the province. The winnings of the Springhurst herd, the property of H. & W. Smith, at all the large shows in the province during the last few years are proof of the standard of excellence to which this herd attained. Some of the greatest winners in America have been descended from animals in these herds. The fact that three of the very best bulls in the Dominion are in service in our herd is guarantee of the exceptional quality of our young things, and of the value of the calves being carried by the females we offer for sale. The catalogue, which we send upon application, contains the pedigrees of such grand Cruickshank families as Village Blossom, Lovely, Duchess of Gloster, and other valued families; besides Constances, and other of the best Bates families, topped out with the richest of Scotch blood. Maple Lodge is easily accessible from any part of the province, being but a mile from Lucan Crossing Station, where the main line of the Grand Trunk Railway from Toronto and Stratford to Sarnia crosses the London and Wingham branch of the same road. We hope for the privilege of welcoming all our old customers on the day of our sale, and as many new ones as will accept our invitation to be present."

PUREST AND BEST

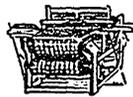


For Household Use
For Making Butter
For Making Cheese

Composed of Natural Crystals—uniform—and dissolves readily.

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SEND FOR OUR
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Farmers'
Catalogue
SEEDS FREE
J. A. SIMMERS, Toronto.



The Cheapest, Most Durable,
and Easiest Running
FLY SHUTTLE RAG CARPET LOOM
Made.

Send for Catalogue.
The PLUMMER LOOM CO., Box 63, Campbellford, Ont.



SEE THIS

A complete set of repairing tools to repair your own boots, shoes, rubbers, harness, and tinware. Do it yourself at your own home, in the evening by your own fireside, and save from \$25 to \$50 a year besides time, and teach the boys to be handy. Price away down—within the reach of everybody. Write us for price list and circulars giving full particulars.

A few good reliable agents wanted. Address:

The SAFETY LANTERN CO., 34 Adelaide St. W., Toronto.

Ayrshires

—BY—

Auction...

The Farm I am moving to in Spring being unsuitable, I am forced to sell out my entire herd of Ayrshires.

The herd, which includes a number of imported animals, has had a most successful showyard career. Has taken either first or second herd prizes, and my noted Imported Bull, **Silver King**, has been champion Ayrshire at Toronto, London, Ottawa, Sherbrooke, Quebec, Hochelaga, and Montreal. I will offer some very fine young bulls that are fit to head the best herds in the country.

Full particulars later as to date and place of sale—catalogue is being prepared. Please write for one to the undersigned, or to **WILLIAM EWING & CO.** Seedsmen, Montreal.

DUNCAN McLACHLAN,

Near Montreal.

Petite Cote, Que.

HIGHLY IMPORTANT AND UNRESERVED

AUCTION SALE

of R. Howes Crump's

Thoroughbred Holstein-Friesian Cattle

ON

WEDNESDAY, MARCH 31st, 1897

At one o'clock.

AT

THE WALDRONS STOCK FARM

Lot 14, Con. 4, London Township, three and one-half miles north of London.

Seven months' credit on approved joint notes; under \$10 cash.

Attractive Public Sale

—OF—

SHORTHORNS

At Maple Lodge Stock Farm

—ON—

THURSDAY, 25TH MARCH, 1897.

BY **CAPT. T. E. ROBSON, AUCTIONEER.**

On the above day we will offer a choice selection of our best young **Bulls, Cows, and Heifers**, from the **MAPLE LODGE** and **SPRINGHURST HERDS**, about 20 head, one-half of them bulls. The whole offering is exceptionally good and includes a lot of good show material. The bulls are low down, thick and stylish, with grand quality, and in good flesh. Sired by **British Flag** (by Barmpton Hero) and **Abbottford** (first prize three-year-old at Toronto and London). The females are of similar type. They are all young and in prime condition. Some are carrying calves, and some have calves at foot by the grand young stock bulls now in use in our herds **Abbottford, Calthness, Village Squire**. In selecting for this sale we have drawn largely from our best **Milking Strains**.

Send for catalogue with full particulars, and come to our sale.

JAMES S. SMITH, Maple Lodge, Ont.

H. & W. SMITH, Hay, Ont.

— THE —

"Rutherford" Butter Box

With Patent Removable Cover—Made with kiln dried lumber.



Dovetailed at corners—Smaller at bottom than top. All boxes paraffined.

TO BE HAD FROM ALL

Dairy Supply Furnishers

Great Dispersion Sale of

I will sell my entire herd of **50 head of high class Shorthorns**, also an exceptionally fine lot of **Clydesdale Mares**, by Public Auction, on

TUESDAY, APRIL 6th, 1897

at the Farm, close to Mossborough Station, G.T.R., 5 miles west of Guelph. Terms—8 months on approved notes; 5 per cent. off for cash. Sale to commence at 1 p.m. Catalogues ready—send for one.

JOHN SMITH, M.P.P.,
Auctioneer, Brampton, Ont.

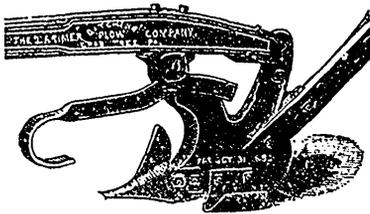
JOHN I. HOBSON,
Mossborough P.O., Ont.

Shorthorn

Cattle...

THIS IS THE

Larimer Ditching Plow...



Patented in Ottawa for the Dominion of Canada and in Washington for the United States

The completest Ditching Plow in the world. Two men and a team have finished over 700 feet of drain in a day with it.

It has done more to make work on the farm pleasant and profitable than any other implement of the day.

WM. RENNIE, Farm Superintendent, Agricultural College, Guelph, wrote: "I wish you success with this plow."

JNO. SHORTREED, JR., Walton, Ont., bought a plow last November, and wrote: "I dug about 40 rods with it. It works well."

A WIDOW says "I sold a cow to buy the plow. Land that would not support one cow before now that it is drained finds ten thriving on it."

Because I have found it the most important implement on my own farm, I commend it; and am glad to have my fellow-farmers rejoice with me.

Send for pamphlet telling what forty farmers in one neighborhood who came to see it work thought of it. Free.

Thousands of farmers are working at a disadvantage because their land is sour, wet, not drained. Here is the implement to work a remedy.

You can have it laid down at your nearest railroad station for less than \$20. A farmer said: "If I could not get another, no man could buy mine for \$200."

All information to be had by writing to

R. G. SCOTT or "Mount Joy Farm,"
Perth, Ont. Martintown, Ont.

2076

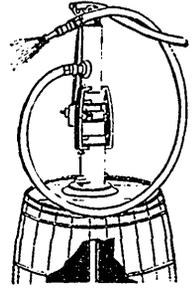


Bees AND Supplies

We make New Process and Superior Comb Foundation Also all other supplies of best design. Catalogue of Bee Supplies and Samples of Comb Foundati. free on application.

Ideal Spray Pump.

Iron or Brass Parts
Dash Agitator
For Top or Side of Barrel as Ordered
Thousands in use
Guaranteed
Trial Given



BRANTFORD



Steel Wind Mills

With Patent Roller Bearings
Galvanized Steel Towers and Wheels

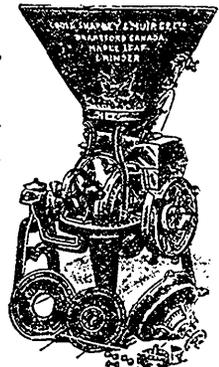
The Best in America
Ideal Spray Pumps, Iron Pumps, Water Tanks, Piping, etc.
The Ideal Solid Power Mill, with Roller and Ball Bearings, is a wonder. Send for circular, and mention this paper.

The Celebrated "Maple Leaf" Grinder

10 inch Reversible Plate.
Fine and Coarse Sides.
Ball Bearings for Plate Relief Springs.
For any Power or any Work.
Always Guaranteed.



BRANTFORD CAN.



MANUFACTURERS OF

Steel Wind Mills,
Iron Pumps, Tanks,
Grain Grinders,
Mention FARMING. Beekeepers' Supplies

SEED GRAIN.

Siberian Oats

This variety has headed the list in yield at the Ontario Experimental Farm for a number of years. We have a limited quantity of pure seed free from any weeds we know of for sale at 40 cents per bushel. Bags free.

Blue Peas

We have also a limited quantity of this variety for sale at 65 cents per bushel; there are a few bugs in them, otherwise a good sample. Bags free.

Mr. W. Rennie, the well-known seedsman and farm manager says: that these are the most profitable varieties of these grains for a farmer to grow.

JAMES BOWMAN,

Elm Park Farm - Guelph, Ont.

CHOICE SEED OATS

Improved American.—This oat has proved to be the heaviest yielder we have tried in recent years. Grain large, white, and plump, with an abundance of straw.

Golden Prolific.—A promising new early variety. Grain plump with thin hull. Straw stiff, and of a good length.

Price 50 cents per bushel. New cotton bags 20 cents each. New linen bags 10 cents each.

JOHN MILLER,

Locust Hill, C.P.R.
Markham, G.T.R.

MARKHAM, ONT.

SEED GRAIN, PURE AND CLEAN

Barley six rowed, Duck Bill two rowed; Oats, Tartarian and American Banner; Clover Seed, (Red); Potatoes, White Elephant and Empire State.

The above varieties for sale at reasonable prices. Bags furnished at cost.

Simpson Rennie,

MILLIKEN, Ont.

ULRICH'S

Ensilage Seed Corn

Leads all other varieties. Sales, 1896, over 150,000 bushels for seed in Canada. Ask your dealer to secure seed for you.

Ten cash prizes—\$20, 50—for best yields in Canada on one acre, to be given away in 1897. Open for you. No fancy prices. Write for particulars, book of testimonials, also free samples.

MAMMOTH WHITE | A Specialty.
GIANT PROLIFIC

E. R. ULRICH & SON,
Springfield, Ill., U.S.A.

The Farmer's Advocate will award the above prizes. Just send them an affidavit, giving yield.



THE BEST AT ALL TIMES.

Trees, Vines, Plants, Roses, etc., for Orchard or Lawn. Our New Priced Catalogue is free to buyers—showing that money is saved when ordering at The

Central Nursery. Nut trees, Columbian Rasp, Plants, Choice Seed Potatoes.

Discount on Early Orders. No Agents Employed.

A. G. HULL & SON,
Box 367, St. Catharines, Ont.

THE WINNER.



All bicycle riders are not racers; perhaps you are a rider and yet do not look with favor upon the racing element.

Still, when you conscientiously consider the matter, you cannot help admit that the bicycle that wins races on the track is the easy-running bicycle for the road or pavement.

The Yellow Fellows have won; hence the reputation of the Stearns as a fast, easy-running, much-talked-a'out wheel.

E. C. STEARNS & CO.,
MAKERS,
TORONTO, - ONT.

AMERICAN RATTAN CO.,
CANADIAN SELLING AGTS.
TORONTO. 54

THE CANADIAN OFFICE & SCHOOL FURNITURE CO. LTD.
PRESTON, ONT.

FINE BANK OFFICE COURT HOUSE & DRUG STORE FITTINGS

OFFICE, SCHOOL, CHURCH & LODGE FURNITURE

SEND FOR CATALOGUE.

FIRE PROOF
ROOFING
ILLUSTRATED CATALOGUE FREE
METALLIC ROOFING CO.
MANUFACTURERS, TORONTO.

EDWIN BUSS, Elphicks, Horsmonden, Kent, England

Breeder and Exhibitor in 1895 of the celebrated champion Berkshire Sow "Elphicks Matchless," sold to United States, where she also won first and champion prizes. The champion Yorkshire Boar and Sow at Oxford A.S., 1895, also bred at Elphicks.

15 firsts, 4 champions, 7 seconds, and 16 R. & H.O. won during the season 1895.

Boars, Yelts, and in-pig Sows always for sale at moderate prices.

Pigs exported to all parts of the world.

Station—**GOUDHURST, S.E.R., one mile distant.**

33

Henry Dudding

**RIBY GROVE, GREAT GRIMSBY,
LINCOLNSHIRE, ENGLAND.**

Has always for inspection, and sale, the largest flock of pure Lincoln Longwool Sheep in the county, including many prize-winners, having taken prizes for many years at the Royal and other shows for both Rams and Ewes, including champion medals at both the Paris Exhibitions, Vienna, Amsterdam, Canada, Australia, New Zealand, and all the leading prizes at the Chicago Exposition; also the first for the best collection of Lincoln fleeces of wool at the Royal Windsor Show and the Lincolnshire Show, which proves the character of this flock. The sheep are famous for their great size and one hundred and twenty-five years' good breeding. At Lincoln Ram Sale, 1896, this flock's consignment not only made the highest individual average of any consignor, but also made an average price exceeding that made by any other breed in England, *viz.*, \$511 per head, the first six making an average of \$840. The sheep for sale this year are all sired by noted rams and are fully equal to their predecessors in every way.

Rail Stations: **Stallingborough, 3 miles distant,
and Great Grimsby 7 miles.**

Telegrams: **"Dudding, Keelby, England."**

S. E. DEAN & SONS

**DOWSBY HALL, FOLKINGHAM,
LINCOLNSHIRE, ENGLAND,**

HAVE always for inspection and sale fine specimens from their FLOCK of PURE LINCOLN SHEEP (No. 47 in Lincoln Flock Book), including SHEARLING EWES and RAMS, also RAM and EWE LAMBS. Sheep from this flock have been exported to nearly all parts of the world, where their great substance and large fleeces of beautiful quality wool give the greatest satisfaction to purchasers. Early in 1894, about twenty Rams from this flock were sold by public auction in Buenos Ayres, and realized the highest average ever obtained for Ram Hogs exported from England. The flock is most carefully bred, and none but the very best sires used. Messrs. Dean also send out selections from their flock to purchasers who are unable to come to England to inspect them, and they have given great satisfaction. Messrs. Dean have also for sale purebred Bates SHORTHORNS and pure LINCOLN RED SHORTHORNS.

Dowsby Hall is one mile from Rippingdale Station, on the Great Northern Railway, Bourne and Steaford Branch.
TELEGRAMS:—**DEAN, RIPPINGDALE.**

**REGISTERED KENT OR ROMNEY
MARSH SHEEP.**

MR. J. H. PARKIN'S Registered Flock No. 31 of the above Sheep is one from which breeders of these most excellent Mutton and Wool Sheep can rely upon obtaining specimens of the highest merit, with grand wool and even fleeces as well as being true to type and character. The breeding and pedigree of the flock is second to none in England. For the last thirteen years every sire used in the flock was specially selected from that noted flock of Mr. T. Powell, who now has the direct personal management of this flock, from which specimens are always for sale on application to

T. POWELL,

East Lenham, Maidstone, Kent, England.

"THE EARL CARNARVON,"

Highclere Castle, England.

Herd of about 200 Berkshire Pigs, all registered or eligible for registration in the British Berkshire Herdbook. Thirteen awards with fourteen exhibits at four of the leading shows in the country this season, 1896. Boars and Yelts always on sale. Prices moderate. Apply to **W. F. HALL, Highclere Farm, Newbury, Berks., England.**

PAGHAM HARBOUR CO.,

Selsey, Chichester, England.

Flock of 1,000 ewes, winners Southdown Challenge Cup in 1893-4, 1st prize Wool; Jubilee, Royal, and Royal Prize Ram Lambs in 1892-93-94. 24

JAMES FLOWER, . . .

. . . Chilmark, Salisbury, Wilts, England.

Flock of about 1000 registered Hampshire Down ewes. Established 50 years ago by owner's father. Prizes won at all leading shows in England, including Royal, Bath and West of England, Royal Counties, and Wilts County shows; the Challenge Cup at Salisbury being won two years ago (1894-1895 in succession) by ram lambs from this flock. Specimens always for sale. Annual sale August 12, Bretford Fair. 39

J. E. Casswell,

**Stock Book No. 46. LAUGHTON, FOLKINGHAM,
LINCOLNSHIRE, ENGLAND.**

THIS well-known flock has been established more than 100 years, and the pedigree Lincoln long-wooled rams and ewes have been noted throughout the Colonies and South America for their "size, symmetry, and lustrous wool." Ewes from this flock have always passed from father to son, and have never been offered for sale. Mr. J. E. Casswell's grandfather Mr. G. Casswell, of Laughton, was the first breeder in the county to let his rams by public auction. At Lincoln Ram Fair, 1895, Mr. J. E. Casswell made the highest average for 20 rams. During the last two years the following amongst other noted sires have been used: Bakewell Councillor and Baron Rigby, for each of which very high prices have been refused; Laughton Baron, Laughton Major, Laughton Style Laughton Choice, No. 5; Ashby George, 60 guineas; Laughton Judge, 95 guineas; his son, Laughton Justice Lincoln, 200 guineas; Lincoln, 152 guineas; Welcott, 70 guineas; Lincoln, 72 guineas; and his sire, Laughton Ribby. Shire horses, Shorthorn bulls, and Dorking fowls are also bred. Inspection and correspondence invited. Visitors met by appointment. TELEGRAMS: Casswell, Laughton, Folkingham, England.

**JAMES LAWRENCE, Stall Pitts' Farm,
Shriveham, Bucks, England**

... BREEDER OF ...

Registered Berkshire Pigs, from stock unsurpassed for true characteristics, size, and quality. One of the oldest established herds in England. 17

Enquiries Solicited. - - - Prices Moderate.

J. R. & R. R. Kirkham

**BISCATHORPE HOUSE,
LINCOLN, ENGLAND,**

Have always for inspection and sale pedigree registered Lincoln Longwool Rams and Ewes from their registered flock (Flock Book No. 32), which has been most carefully bred for upwards of one hundred years, each Ram and Ewe having full pedigree. Royal, 350 guineas, used in the flock this season.

BRITISH ADVERTISEMENTS.

Secretary to the National Sheep Breeders' Association of England and the Southdown Sheep Breeders' Association; Hon. Secretary Kent Sheep Breeders' Association.

W. W. CHAPMAN,
**PEDIGREE LIVE STOCK AGENT
 AND EXPORTER.**

All kinds of Registered Stock, Horses, Cattle, Sheep, and Pigs supplied on Commission.

References—**JOHN JACKSON & SON**, Abingdon, Ont.; **N. CLAYTON**, Selsey, Chichester, Eng.

Offices:
 Fitzalan House, Arundel St., Strand, London, England.
 Registered address for cables—"Sheepcote, London."

HAMPSHIRE DOWN SHEEP.

**Great English Pedigree Sales. July,
 August, and September, 1897.**

WATERS & RAWLENCE, Salisbury, England, will sell by auction during the season upwards of

50,000 Pure Bred Ewes, Lambs, and Rams, including both Rams and Ewes from the best registered prize-winning flocks in the country.

Commissions carefully executed. Address

WATERS & RAWLENCE,
 Salisbury, England.

62]

Bruce's Seeds

For Farm and Garden

RECLEANED CLOVER AND GRASS SEEDS **

Medium and Mammoth Red, Alsike, Lucerne, and Crimson Clovers.

Timothy Seed, Orchard, Blue, Red Top, and other Grass Seeds.

Our recleaned seeds are in great demand amongst farmers who appreciate a pure article.

Samples and prices on application.

A full description of our selected stocks of Sugar Beet, Field Carrot, Mangel Wurzel, and Turnip Seeds, also Vegetable and Flower Seeds, will be found in our Catalogue, just published, which we mail free to applicants.

RECLEANED SEED GRAINS **

Seed Barley and Oats, imported and home grown; Spring Wheat, Seed Peas, and the best varieties of Fodder and Ensilage Corn.

We were awarded the World's Fair Medal and Diploma at the Columbian Exposition, Chicago, in 1893, for the superior quality of our exhibit of Oats, Peas, Rye, Millet, and Timothy Seed.

JOHN A. BRUCE & Co., Seed Merchants,
 HAMILTON, ONT.

The Famous Chatham Fanning Mill

IT WILL SAVE YOU
 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$

THE MILL WILL CLEAN
 ALSIKE CLOVER SEED
 TO PERFECTION

6,000 sold in 1896

Bagging Attachment is run with a chain belt that cannot slip. The elevator cups are also attached to endless chain that cannot slip nor clog. The Mill is fitted with screens and riddles to clean and separate all kinds of grain and seed, and is sold with or without a bagger; but it is not wise to do without the bagger.

21,000

Bagging Attachments now in use

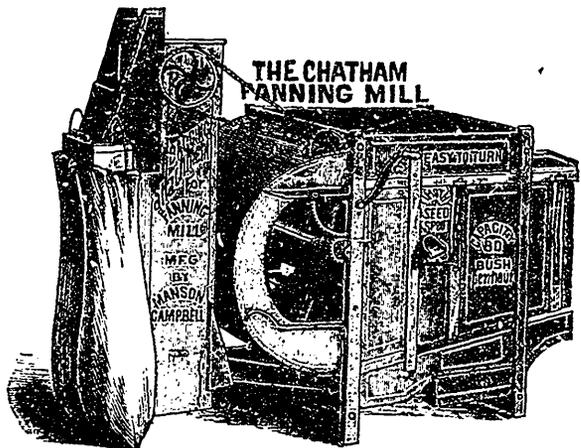
Most all farmers have more or less Timothy Seed in their fall wheat. If an old meadow is broken up and sown with wheat, the Timothy Seed in it next crop amounts to very considerable.

The Chatham Mill saves it all

Satisfaction guaranteed. Send for circular and price list. Address

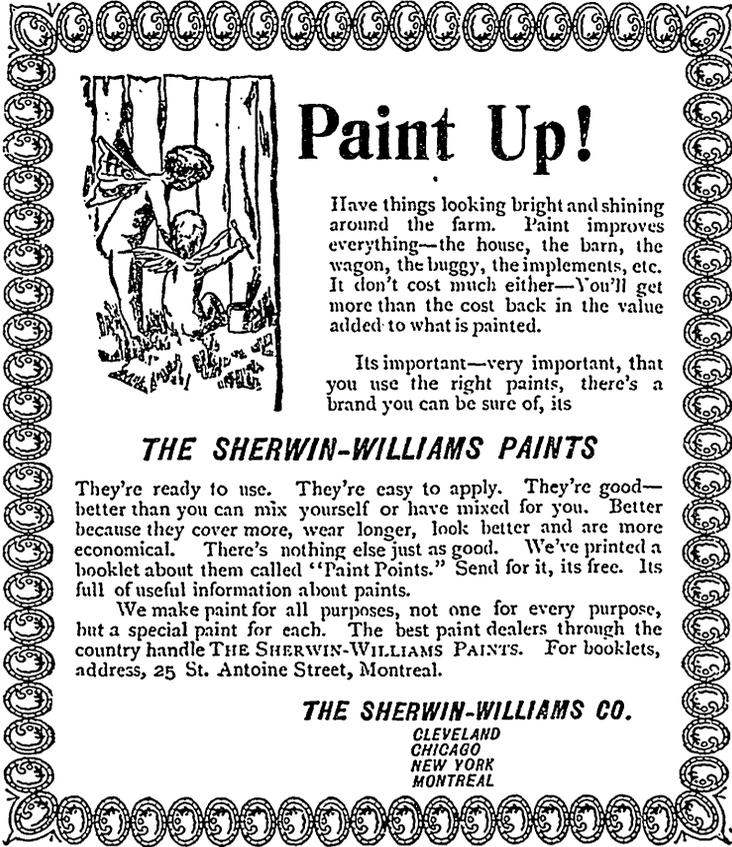
MANSON CAMPBELL
 CHATHAM, ONT.

BOX 106



50,000 Chatham Mills now in use

Four times more than have been sold by all the factories in Canada put together



Paint Up!

Have things looking bright and shining around the farm. Paint improves everything—the house, the barn, the wagon, the buggy, the implements, etc. It don't cost much either—You'll get more than the cost back in the value added to what is painted.

Its important—very important, that you use the right paints, there's a brand you can be sure of, its

THE SHERWIN-WILLIAMS PAINTS

They're ready to use. They're easy to apply. They're good—better than you can mix yourself or have mixed for you. Better because they cover more, wear longer, look better and are more economical. There's nothing else just as good. We've printed a booklet about them called "Paint Points." Send for it, its free. Its full of useful information about paints.

We make paint for all purposes, not one for every purpose, but a special paint for each. The best paint dealers through the country handle THE SHERWIN-WILLIAMS PAINTS. For booklets, address, 25 St. Antoine Street, Montreal.

THE SHERWIN-WILLIAMS CO.

CLEVELAND
CHICAGO
NEW YORK
MONTREAL

MICA ROOFING

USE

Mica Roofing

On all your buildings.
It is cheaper than shingles.
Waterproof and Fireproof.



USE

Mica Paint

To Repair Leaky Roofs.
Shingle, Iron, or Tin Roofs painted with it will last twice as long.

RAPIDLY TAKING THE PLACE OF SHINGLES.

Is put up in rolls of one square each, 40 feet long by 32 inches wide, and costs only \$2.25, including nails, thus affording a light, durable, and inexpensive roofing, suitable for buildings of every description—especially flat roofs—and can be laid by any person of ordinary intelligence.

HAMILTON MICA ROOFING COMPANY,

Office—101 Rebecca Street, HAMILTON, ONT.

Fruit Growers and Farmers

Why be a slow-coach all your life?
 Get out of the rut of "old-fogyism."
 Secure a **Spramotor** and spray your trees and plants, and reduce the cost of production one-half.
 You might as well go hunting without a gun as to try to grow much fruit without a **Spramotor**. (See our ad. last month for results.)
 The proof of efficiency is in the award.

Certificate of Official Award

This is to certify that at the contest of Spraying Apparatus held at Grimsby, on April 2nd and 3rd, 1895, under the auspices of the Board of Control of the Fruit Experimental Stations of Ontario, in which there were eleven contestants,
The Spramotor
made by The Spramotor Co., of London, Ont., was awarded first place.

H. L. Hill
M. P. Hill
 Judges.

You run no risk.
 You're safe with a
SPRAMOTOR

Send 3c. stamp for 68-page treatise on "The Diseases Affecting Fruit Trees, and Their Remedies."

AGENTS
 WANTED

Spramotor Co.

357 Richmond St.

London, Ont.



HAVE YOU SEEN →

The American Cream Separator

The most simple, durable, and easiest cleaned machine on the market. It is the latest and most improved Separator, being patented in Canada on Feb. 26th, 1896. It has but one piece to the bowl, and for capacity and quality of work is the best and cheapest machine on the market. Any prospective purchaser may try one.

Agents Wanted in all Unoccupied Territory
We still lead in the manufacture of all kinds of Cheese Factory and Creamery goods.

OUR PATENTED STEEL GANG CHEESE PRESS

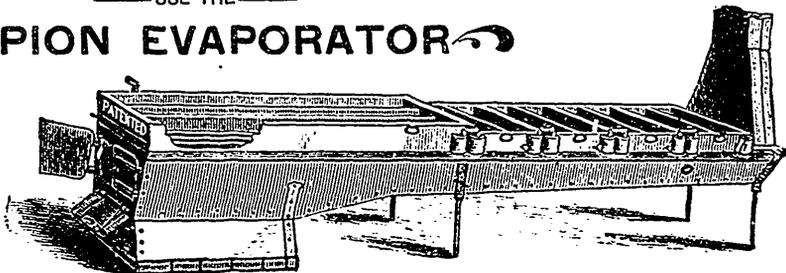
Continues to be the best, and every user gives it his best recommendation. If you require anything in our line, we solicit your correspondence, and know that we can satisfy you in anything and everything, both in price and quality of goods.

Make all your enquiries and send for catalogue to **Richardson & Webster**
ST. MARYS, ONT.

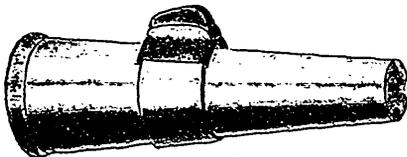
Maple Sugar Makers

— USE THE —

CHAMPION EVAPORATOR



And Tap your Trees with the **RECORD SAP SPOUT** (Patented).



[Cut full size.]

A full line of Storage and Gathering Tanks, Sap Pails, Syrup Cans, and everything necessary for the Sugar Camp.

Illustrated Catalogue and Sample Spout free.

THE G. H. GRIMM MFG. COMPANY

84 Wellington St., Montreal.



Sheep Labels

Fanning Mills

With Bagger, which is death on Wild Tares and Wild Oats



BAG TRUCK with Bag Holder on it

Any boy can fill bags and load them on the waggon with it.

Please send for circular.

R. W. JAMES,
BOWMANVILLE, ONT.

higher
up If you want to get away from mean competition.
“Climb

This has been the motto of the

CENTRAL Business College

Yonge and Gerrard Sts., Toronto.

It now occupies the tip-top place. More seats, more teachers, more students than ever is the order just now. It all comes from perfect methods and good, honest work. Three experienced male teachers for the Shorthand Department. Enter any time. Get particulars. **W. H. SHAW, Principal.**

The Canada Salt Association

CLINTON, ONT.

Guarantee prompt shipments.
Fine, Coarse or Land Salt.
For Table or Dairy use

COLEMAN'S SALT

Small Fruit Plants by Mail



If you want Strawberries, Currants, Grapes, Raspberries, Blackberries, or Gooseberries, you can have them delivered at your Post Office, guaranteed to come in good condition, at much less cost than you can buy them from agents. Also Trees of every description, by express or freight. Cheap and reliable. Send for Catalogue and prices to

A. M. SMITH,
Dominton Nurseries, St. Catharines, Ont.

THE SALT OF THE EARTH.

“Rice’s Pure Salt”

Absolutely Pure
and Doesn't Cake

For Table, Butter, Cheese, Cattle,
Land, and all purposes....

MADE UNDER PATENT PROCESS

Sole
Makers **The North American Chemical Co.,**
GODERICH, LIMITED ONTARIO.

Get our Price List.

.....
Diamond Jubilee Sale of
Gold Medal Nursery Stock

At half price and less

None better in the World

The Leslie Nurseries,
4 Lombard St., TORONTO, Ont.

The Gurney Scale Co.

ESTABLISHED 1856

MANUFACTURERS OF

STANDARD SCALES.

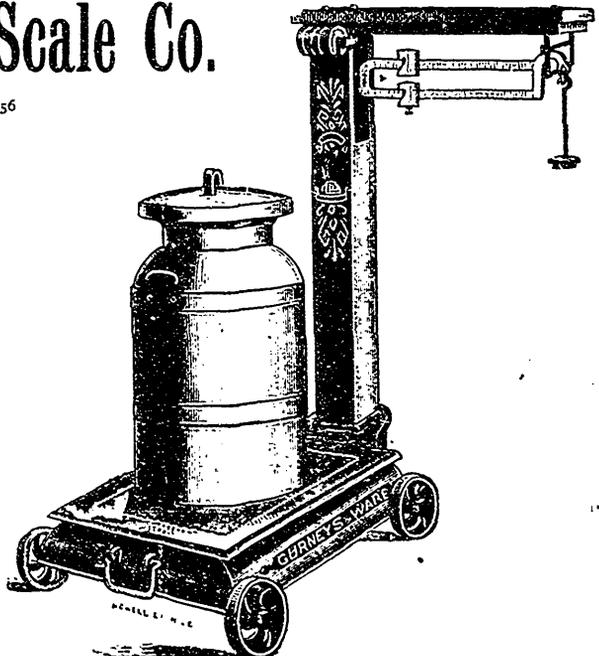


It has paid others to weigh
their goods.

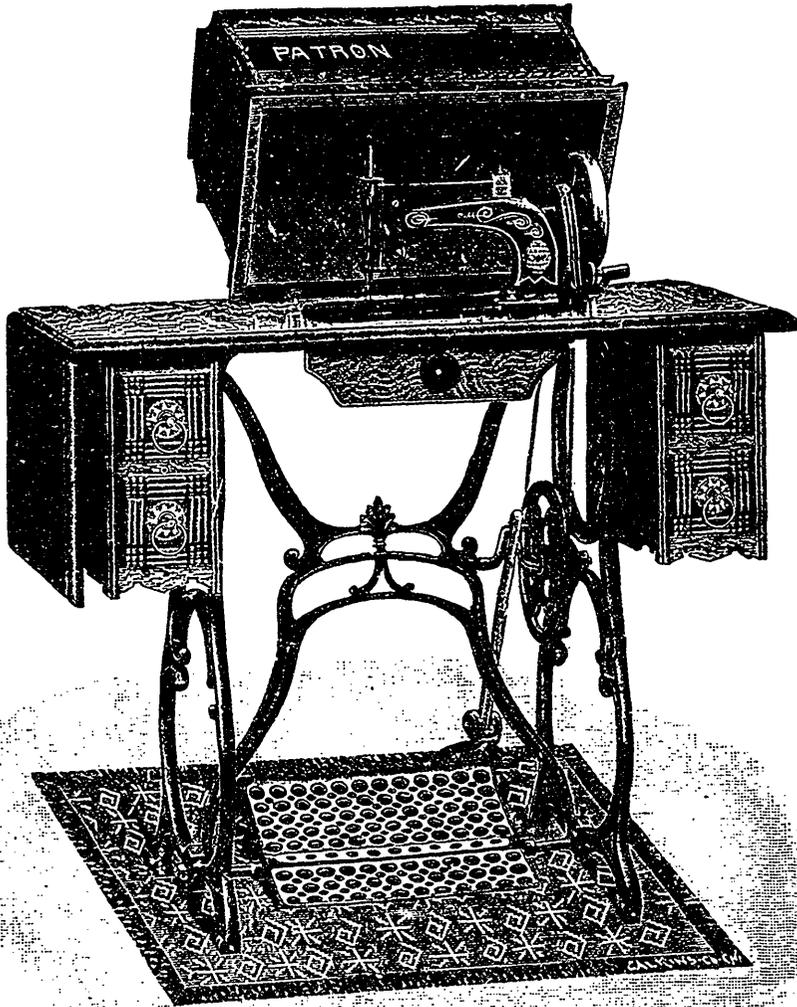
Will it not pay you?



Hamilton, - Ont.



Sewing Machines



THE above is a cut of the People's **PATRON SEWING MACHINE**. Price, freight paid, in Ontario, \$17.00. The **PATRON** is an American-made machine, in either oak or walnut frame, and is sold by no other firm in Canada for less than \$25.00. Every machine is sold on two weeks' trial. No risk in buying a machine from the People's Company. You will find everything as represented. For a full description of all lines of goods which a farmer needs, send for illustrated catalogue, which will be sent free to every farmer on application.

The People's Wholesale Supply Co.

R. Y. MANNING,
Manager.

144 KING STREET EAST,

TORONTO.

Recent Improvements, In Farm Implements

ROLLER BEARINGS in Theory and Practice.

WHAT is the difference between a Roller Bearing and an Ordinary Bearing? This is what people want to know, as there is so much

and efficient in the application of roller bearings to agricultural machinery is not so simple and easy a matter as may at first be supposed. These bearings must be scientifically made and applied or it makes all the difference between success and failure.

For some years past men have been



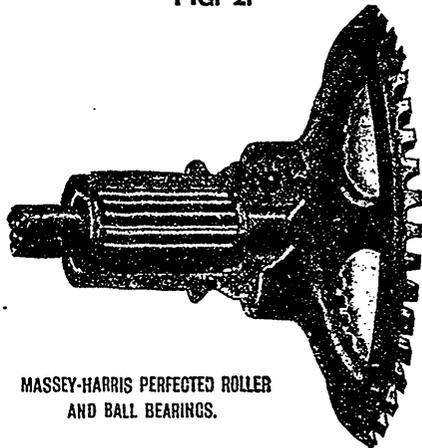
FIG. 1.

talk about Roller Bearings just now. The method shown in the two pictures following, illustrates the difference in a very simple way, and demonstrates the theory very clearly.

Holding the hands in the position shown in Figure 1, and rubbing the palms together gives a frictional contact as in any ordinary bearing. Now take a lead pencil and placing it between the palms try to rub them together as before, and note the surprising difference. This is a rolling contact. So much for the theory. To make this theory practicable

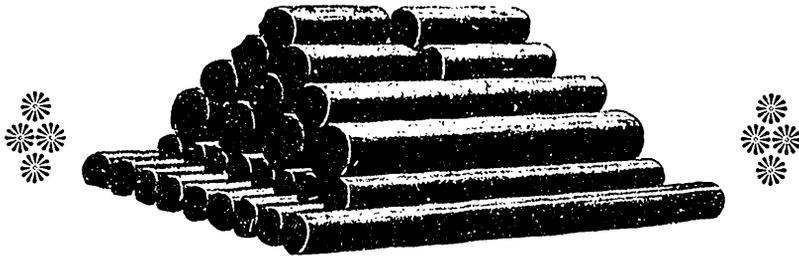


FIG. 2.



MASSEY-HARRIS PERFECTED ROLLER
AND BALL BEARINGS.

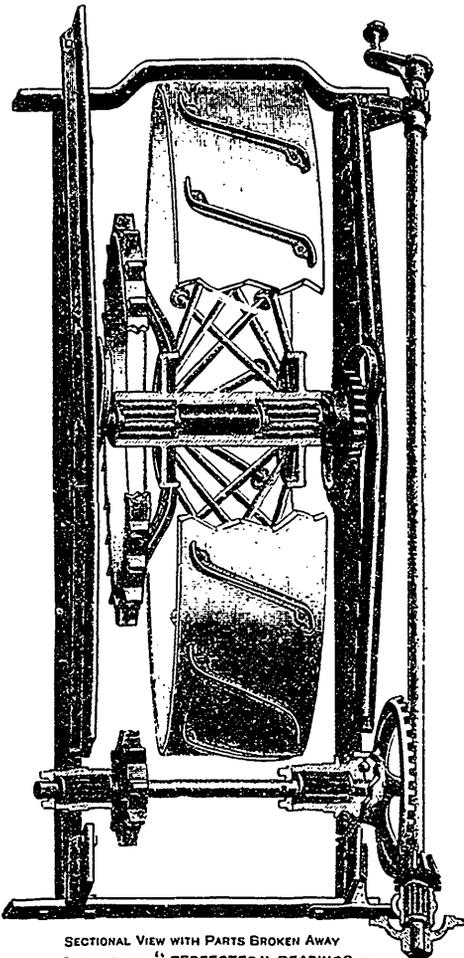
MASSEY-HARRIS ILLUSTRATED.



POLISHED STEEL ROLLERS FOR MASSEY-HARRIS PERFECTED BEARING

experimenting on Roller Bearing schemes as applied to heavy tools and revolving apparatus of great weight, such as swing bridges, revolving towers, domes, and so forth. More recently the practicability of the adaptation of these bearings to lighter tools and machinery has been demonstrated. However, the application of Roller Bearings to farm and other portable machinery has required much experimenting and thought. Without waiting to determine fully the peculiar necessities and features required in order to make their use in portable machinery successful and satisfactory, some very unsuccessful Roller Bearing devices have been put on the market. The Massey-Harris inventive staff have made a very thorough research of this whole matter, and, as a result, we have the Massey-Harris Perfect Roller and Ball Bearings, which purchasers of farm machinery will do well to compare with the devices put into competitors' machines. Attention is directed to the Massey-Harris Perfect Roller Bearing equipment, it being constructed with large polished steel rollers, having flat steel, square-shouldered braces connecting and holding in place the end-keepers. These Perfect Roller Bearings were put to the severest possible test during the past harvest, and have proved themselves "perfected" in every sense of the word. The Rollers are large

enough and long enough to distribute the bearing surface over a wide area,



SECTIONAL VIEW WITH PARTS BROKEN AWAY AND SHOWING THE "PERFECTED" BEARINGS IN THE MAIN DRIVING GEAR OF THE MASSEY-HARRIS WIDE-OPEN BINDER.

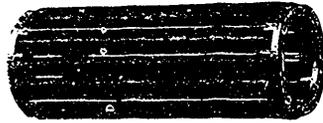


POLISHED STEEL BALLS FOR MASSEY-HARRIS PERFECTED BEARINGS.

and the Rollers are so spaced as to avoid all rubbing friction and any possibility of crowding. So great is the reduction in friction when these "Perfected" Bearings are applied to a machine that the reduction in power required to run it is so great as to be almost incredible. In the ordinary bearing, no matter how perfectly fitted, oil must be freely used to reduce the friction, which increases in proportion as the supply of oil diminishes. When Roller Bearings are properly applied, as in the case of our "perfected" equipment, there is no slipping

or sliding contact, but a real rolling contact. A rolling contact means traction instead of friction. On shafts where there is a tendency to end thrust, as in the case of bevel gears, we have introduced Ball Bearings to receive the thrust, and thus eliminate the friction.

In all the principal bearings of the Massey-Harris Binders, Mowers and Cutting Boxes, especially where there is weight to carry, rollers have now been

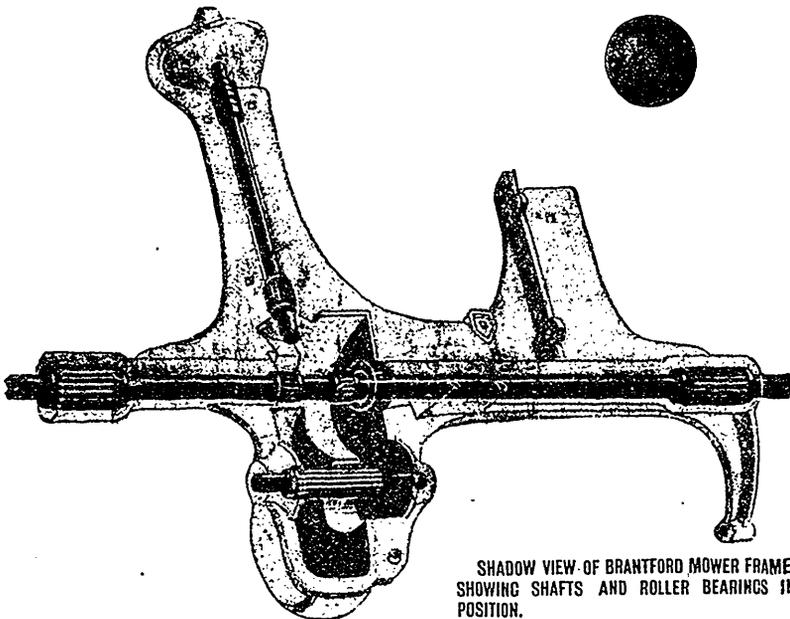


COMPLETE ROLLER EQUIPMENT.

LESS THAN 1/3 ACTUAL SIZE.

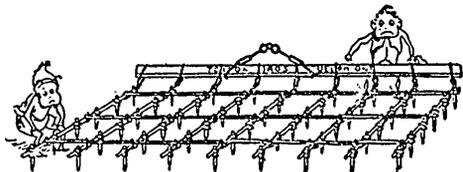
introduced, and these machines which were always noted for their very light running qualities, are now of much less draught than ever before.

The Massey-Harris line of Farm Machines for 1897 is undoubtedly the finest ever turned out from any factory.



SHADOW VIEW OF BRANTFORD MOWER FRAME. SHOWING SHAFTS AND ROLLER BEARINGS IN POSITION.

Why in these hard times is there such a great demand for this All-Steel Flexible Harrow ? Because



Parties wishing a first-class Harrow will do well to write us direct, or apply to the local agent.

Our Motto, "Not how Cheap, but how Good."

TOLTON BROS., - GUELPH, ONT.

The flexibility of the Harrow enables it to adapt itself as readily to rough and uneven ground as to smooth, and the oscillating motion produced by its flexibility pulverizes the ground, and leaves it in a loose and more porous condition than any other Harrow, and it is made of the very best material money can buy for the purpose. The bars are made of

HARD SPRING STEEL,

very stiff and strong, the hinges and teeth being of solid steel, all of which are of a higher grade than is possible to use in any other make of Harrows. We can guarantee more than double the strength and wear in this Harrow than there is in any other make.

CHURCH'S ALABASTINE

The Permanent Wall-Coating.
Does not RUB or SCALE from any hard surface.
Cost over cost can be applied.
No more washing or scraping of walls necessary.
Alabastine is The Sanitary Wall-Coating.
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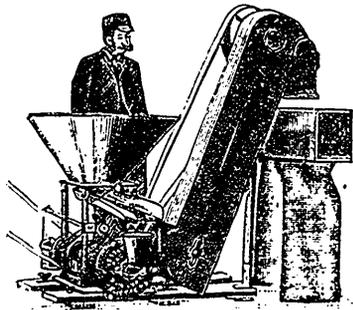
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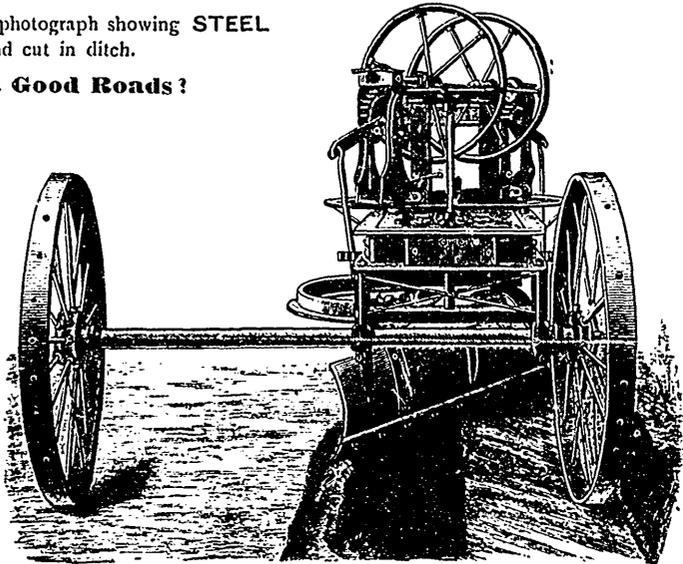
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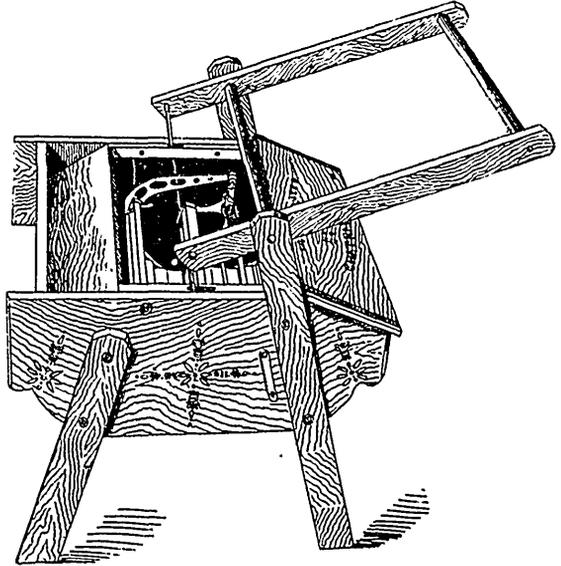
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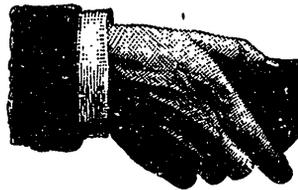
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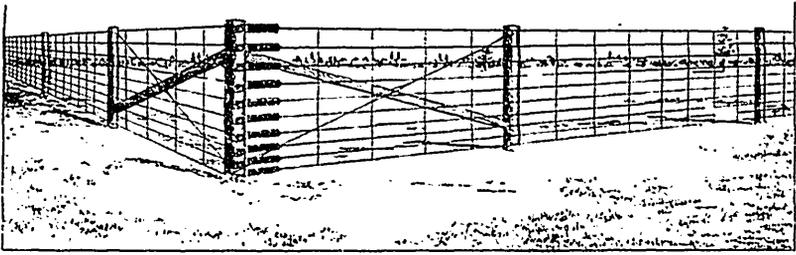
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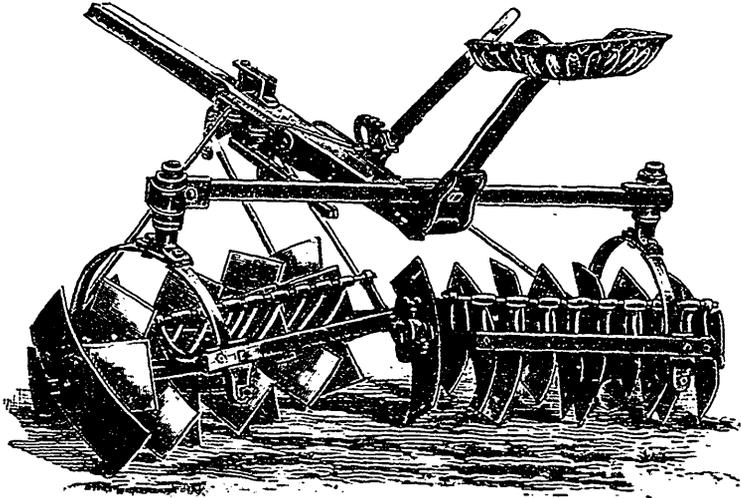
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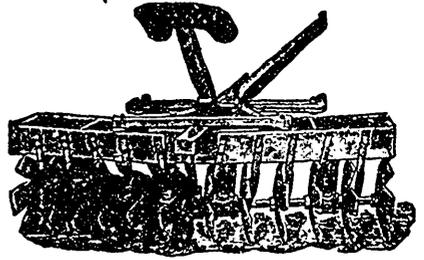
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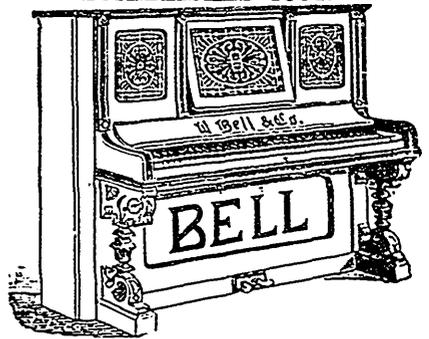
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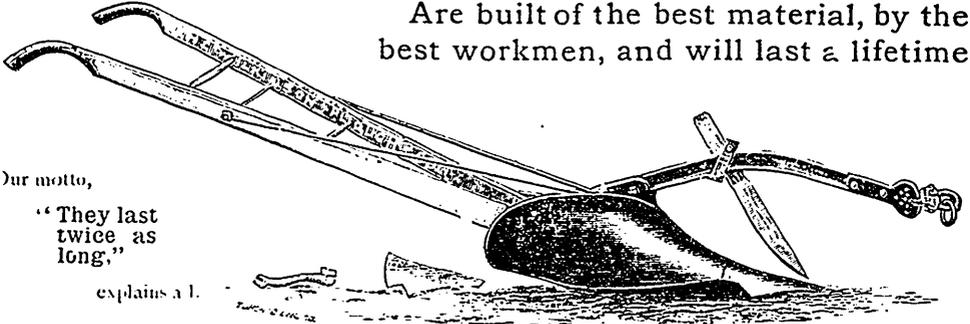
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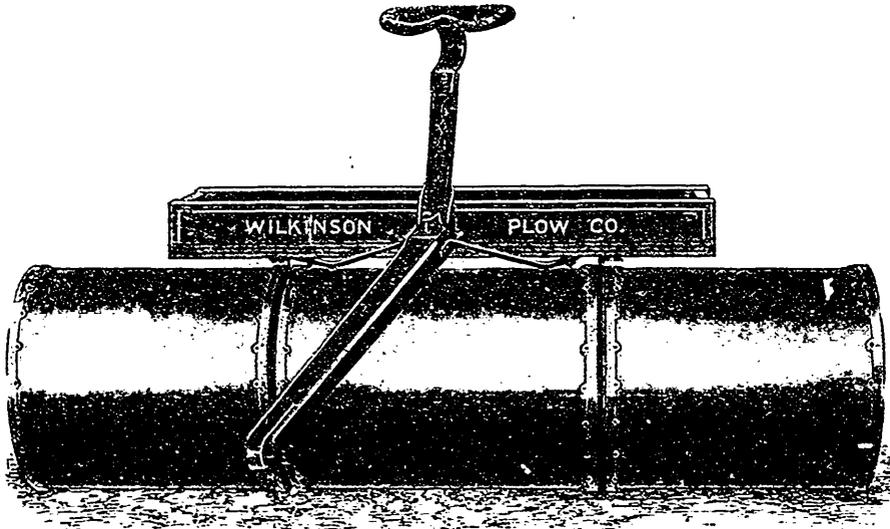
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