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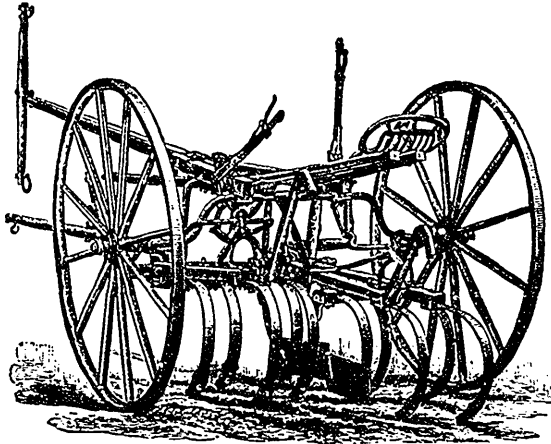
JULY  
1897



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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. . .



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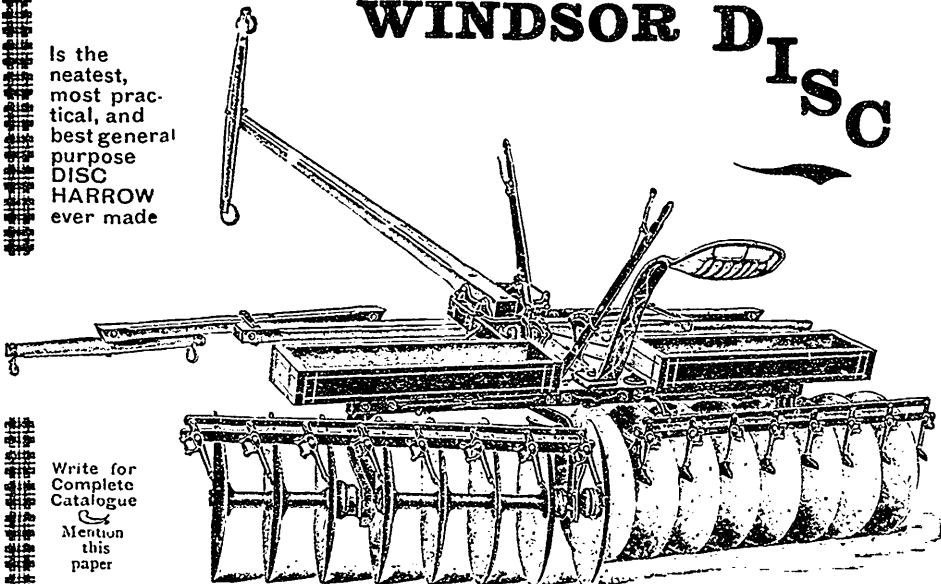
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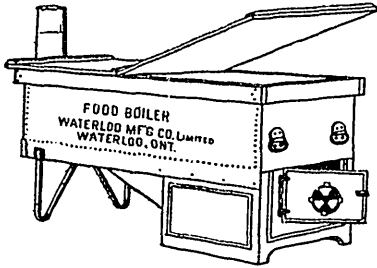
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# The Waterloo Food Boiler

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**Cattle and Swine Breeders**

Hot water can be had in a few minutes.

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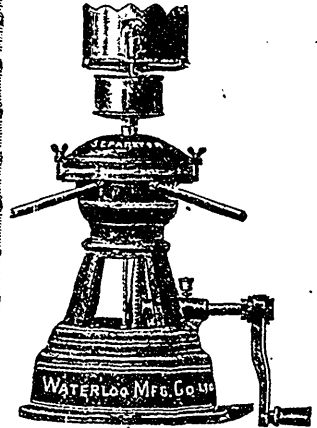
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**TRACTION AND PORTABLE ENGINES, THRESHERS,  
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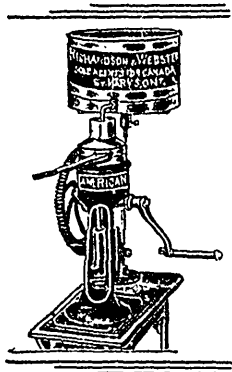
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**Waterloo Manufacturing Co.**  
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The Page Fencing is as nearly perfect as fencing can be. It is not expensive. You may be surprised that such a fence can be sold so cheaply. If interested, send to the Page Wire Fence Company, Limited, Walkerville, Ontario, and they will forward full particulars and some nice advertising matter.



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## 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.

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Continues to be the best, and every user gives it his best recommendation.

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THE construction of the Calgary and Edmonton Railway, and the Qu'Appelle, Long Lake, and Saskatchewan Railway, has opened up for settlement two new districts of magnificent farming land, viz., that between the North and South Saskatchewan Rivers, and that between Calgary and Red Deer.

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Before going elsewhere!

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Over 10,000,000 acres of land in the province have never been cultivated, and can be purchased on easy terms from \$2.00 to \$10.00 per acre.

For information write to

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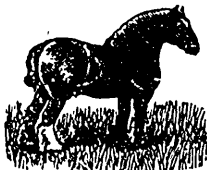
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I have on hand the best young **Clydesdale Horses and Mares** on this continent. Bred from the well-known sires, Prince of Wales, Darnley, Macgregor, Energy, Lord Montrose, The Ruler, Carruchan Stamp, Knight Errant, and other celebrities.



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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.

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Choice young Heifers and Bulls by the celebrated Cruickshank 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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THE THOROUGHBRED STALLION AND RACE HORSE

**ZAMOR**

Record, Mile 1.42 3/4

Stands 16 hand 2 inches, is a dark bay, good and sound, sure foal getter and good stock getter. Sired by imported Mortimer; dam, Zoo Zoo, record, 1 1/2 miles 2.43 1/4, 1 1/4 miles 3.10, by imported Australian. Will sell or exchange for thoroughbred registered Sheep or registered Swine as part pay. For further particulars and prizes won, address

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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.

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

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We have a number of Fillies, Mares in Foal, and Stallions, for sale. Imported and homebred; all choice, registered animals; also good teams suitable for export.

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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.

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A Premier 5x7 inches with 4 plate holders, sliding front, good lens and tripod complete. Camera has only been used a few times. Also a 4x5 Premier with 8 plate holders, tripod and leather carrying case. These will be sold at less than half price.

Apply to **THE BRYANT PRESS,**  
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CLINTON, Ontario. 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 stallions 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 SUPERIOR SADDLE HORSES FASHIONABLE COBS HANDSOME PONIES

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**W. C. EDWARDS & CO., Breeders and Importers.****PINE GROVE STOCK FARM,  
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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 Cruickshank Bulls for sale; also Ayrshires, Jerseys, Shropshire Sheep, and Clydesdale Horses.

Post Office, Telegraph Office, and Steamboat Landing, Rockland, Ont., on the C.P.R.

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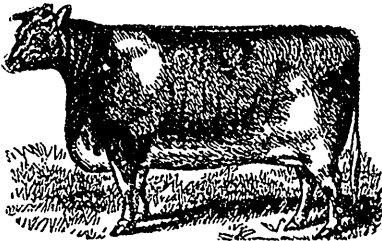
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Ayrshires, imported and homebred; herd headed by Imported Tam Glen 2nd, No. 1310 D. A. H. B. Jerseys all of the celebrated St. Lambert family; herd headed by Lisgar Pogle of St. Anne's 25704 A. J. C. C. Berkshire Pigs. Young stock of all the above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

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

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696**SHORTHORNS****SIX BULLS  
FOR SALE**

fit for service, at reasonable prices.

Write for particulars.

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**FOR SALE Shorthorns, Berkshires,  
Southdowns  
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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.

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**SIMMONS & QUIRIE****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, Elviras—all pure Scotch breeding, except the Elviras, 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

C. M. SIMMONS, Ivan, Ont., or  
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Send for free pamphlet on feeding, treatment, etc., and catalogue of foods, etc.

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**Gargill Herd****of Shorthorns****For Sale**

Good young cows, two years old; yearlings and heifer calves, out of Imported and Homebred cows, and the Imported bulls, Royal Member and Rantin Robin. Come and see them or write if you want something special. Station on the farm.

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ISALEIGH GRANGE STOCK FARM...

June Announcement

Ayrshire and Guernsey Cattle.

Improved Yorkshire Swine.

Shropshire Sheep.



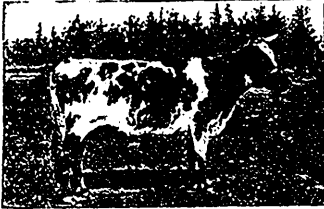
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Young Stock of both sexes for sale from the best milking strains.

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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.

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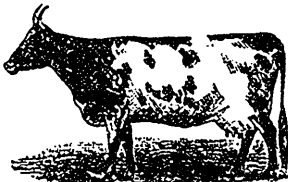
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**GLENHURST HERD OF AYRSHIRES**

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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 ... 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,**

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**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.**

**MAPLE CLIFF STOCK AND DAIRY FARM**

**FOR SALE** this month: Ayrshire Bull calf, Jock of Maple Cliff seven months old, by Gold King and from Mysie Carrick, a very deep milker, \$35.00. Tamworth pigs two months old, \$7.00 each. Large English berkshire pigs one month old, \$5.00.

**R. REID & CO.,**

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**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.

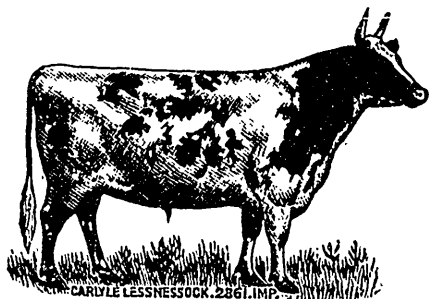


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MAPLE GROVE AYRSHIRE STOCK FARM

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.

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.

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Satisfaction Guaranteed.

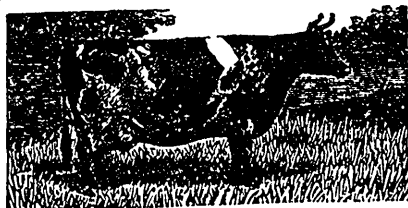
A. TERRILL, - - Wooler, Ont.

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.

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FOR SALE

6 Fine Young Bulls 4 Yearling and 4 Heifers  
2 Two-year-olds

CHOICE AYRSHIRES

FOR SALE one two-year-old Bull and two Yearlings. All guaranteed of the best quality and breeding. Also three Bull Calves sired by Douglas of Loudoun 1384, bred by D. Morton & Sons, of Hamilton. Prices to suit. Write at once for particulars.



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Woodroffe Dairy and Stock Farm

OTTAWA, CANADA.



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BULLS  
FOR SALE.

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

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J. G. CLARK, Ottawa.

SOUTH BRANT STOCK FARM.

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

Young Bulls fit for service from grand dairy stock. Extra quality. A few choice Boars and Sows from fall litters left. Orders now booked for Spring Pigs which are coming very fine. To see them is to be suited, or write us.

T. BROOKS & SONS, Box 86, Brantford, Ont.

AYRSHIRES

-OF THE-

RICHEST MILKING STRAINS

-AND THE-

CHOICEST BREEDING

ARE KEPT AT THE GLEN FARM.

YOUNG BULLS AND HEIFERS FOR SALE  
WHITESIDE BROS.,

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Correspondence solicited.

INNERKIP, ONT

AYRSHIRES.

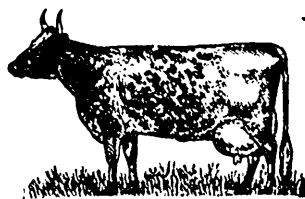
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**Bull Calves, Cows, and Heifers**, all of the choicest breeding and individual excellence. Barly spring Sows, younger Boars. A lot about a month old, and more in a few days, we offer cheap. For prices or anything in Ayrshires or Yorkshires, write us.

**ALEX. HUME & CO.,**  
Importers and Breeders.

**Burnbrae P.O., Ont.**  
Hoard's Station,  
G.T.R.



**AYRSHIRES**

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

**8** six to eighteen months and a fine lot of in-calf Ayrshire Bulls 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**

Ayrshires of the finest quality, all Tuberculin tested by Dr. McEachran, Government Inspector, and certified free from Tuberculosis. **DANIEL DRUMMOND**  
538 Petite Cote, Que.

**Hickory Hill Stock Farm**



Two young Ayrshire bulls for sale. One out of Dandy = 2223 = the first prize in milk test at Guelph, 1896; the other out of Briery Bank Susie = 2847 =. Write or come and see.

**NAAMAN DYMENT,**  
Clappison's Corners, 3 miles from Dundas.

**WOODSIDE CLYDESDALES FOR SALE**

The well-known Clydesdale stallions, "Lawrence Again" and "Life Guard," and a number of highly-bred fillies of all ages. Also the French coach stallion "Kordofaw," a highly-bred, well-built horse, and a very stylish traveller, with great knee and back action.

Young Ayrshire Stock for Sale.  
**R. NESS & SONS,** - Howick, Que.

**ELM SHADE FARM**



**HOWICK, QUEBEC.**  
**FOR SALE—**  
Lord Sterling, 1st Prize and Diploma at Sherbrooke, and 1st at Montreal.  
Dainty 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 Bleury St., Montreal.

**Ayrshires for Sale.**

Our young bull, 16 months old (a handsome animal), and several bull calves dropped this season; all sired by our noted stock bull, Uncle Sam of Trout River, and from deep milkers. Prices to suit the times. **W. F. & J. A. STEPHEN,** Brook Hill Farm, Trout River, Que.

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**Portable Engines**

In Good Running Order FOR SALE at

**LOW PRICES**

**The John Abell Engine & Machine Works Co.**

(Limited)

**TORONTO, - CANADA.**

**TREDONNOCK STOCK FARM, ST. ANNE DE BELLEVUE, QUEBEC.**

**Pure Bred Ayrshire Cattle**

**Selected, Imported, and Bred for Usefulness.**

Special attention given to constitution, size, and milking qualities. Four young Bulls fit for service now for sale. Prices reasonable. All communications regarding stock should be addressed to

**ROBERT REFORD,**  
Proprietor.

**JAMES BODEN,**  
Manager.

## POLLED ANGUS AND HOLSTEINS.

# "RAPIDS FARM" MACHINE RAPIDS, ... QUEBEC ...



Royal Blackbird of Craigston.

## POLLED ANGUS AND AYRSHIRE CATTLE

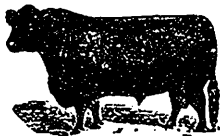
THIS successful and present head of the herd is now for sale; also two young Bulls fit for service. Prices to suit the times.

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,

Lambton Co.

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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.

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A grand lot of cows and heifers of all ages now for sale; all bred to the milk and butter king, Sir Pieterje, Josephine Mechtild, and the great show bull, Count Mink Mercedes. Heavy production, fashionable breeding, and show-ring quality are characteristic of this herd.  
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**Ingleside  
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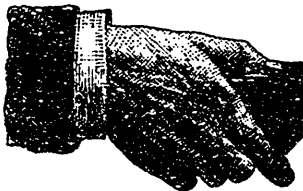
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The highest testing strains.  
Rich breeding and good colors.

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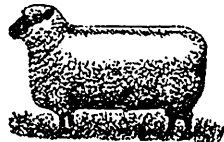
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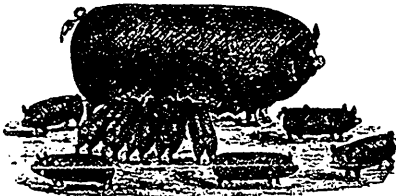
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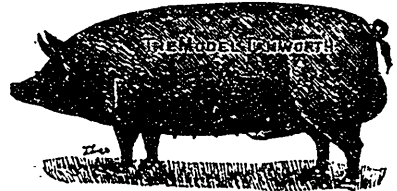
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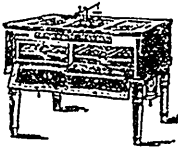


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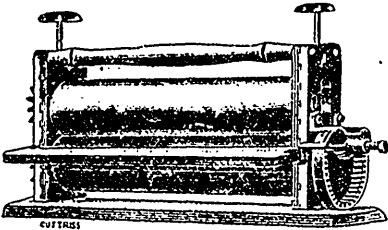
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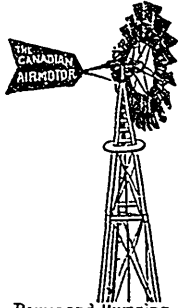
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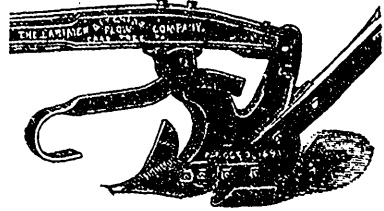
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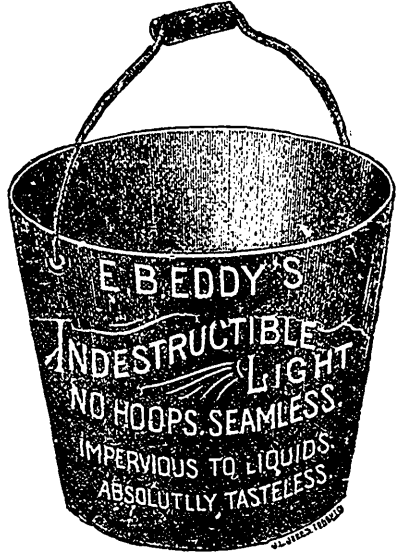
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# FARMING

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## THE DAIRY COMMISSIONER FOR CANADA.

In connection with Professor Robertson's description of our "Dominion Cold Storage System," which appears in another place, we have pleasure in presenting our readers with a recent portrait of

Professor Robertson, and with a very brief account of his personal history. Professor Robertson's public work is too well known to our readers for any account of it to be given here; but we cannot refrain from reprinting a reference to it made by our esteemed contemporary, *Hoard's Dairyman*, especially so, as it comes from the pen of one

who is himself considered one of the foremost workers in behalf of dairying interests on our continent. In publishing some time ago a similar portrait of Professor Robertson, *Hoard's Dairyman* said:

"It is with much gratification that we are able to present our readers this week with so excellent a likeness of Professor J. W. Robertson, of Canada, one of the foremost thinkers and workers in dairy problems on the American continent. The readers of *Hoard's Dairyman* have never read a

hundredth part as much from him as they would like, and we know he has never written a tenth part as much for them as he would be glad to do. There are but few busier men in Canada or the United States than Professor Robertson. In a great many ways he is dependent upon to pioneer every new idea and plan which shall have for its purpose the dairy prestige and renown of Canada. Hence he must be out on the advanced picket line at times, and then quickly be back to where the closet work is being



Professor J. W. Robertson.

done. The editor of this paper has been a very much interested observer of Professor Robertson and his work in Canada, the United States, and England for over twelve years, and we believe him to be, in very many respects, the best equipped and most successful dairy thinker of the day.'

James W. Robertson was born in Dunlop, Ayrshire, Scotland, November 2nd, 1857. He is, therefore, now barely forty years old. We believe there have been few men in Canada who have been able to show so large an output of useful work to their credit at forty years of age as Professor Robertson has been able to accomplish. His youth, until he was fourteen years of age, was spent upon his father's farm. He then entered a counting-house in Glasgow where he remained until 1875 when, his father coming to Canada, Mr. Robertson, then in his eighteenth year, came with him. He spent a year with his father on his father's new farm, near London, Ontario, and then he began to learn cheesemaking, his first employment being at Salford, near Ingersoll. In 1877 he started to make cheese on his own responsibility, being employed at the North Branch factory, six miles east from London. Here he remained for four years. In 1881 he went to the States and spent some time there looking into the newer methods of making butter as practised in the leading creameries of New York and other dairying districts. Returning to Canada he started business for himself at Cotswold, near Harriston, Ontario, building for this purpose his own factory, with a view of making both butter and cheese in it. Before very long he had eight factories under his control. Even to this day the patrons of these factories speak of the satisfaction they had when their factories were under the control of Mr. Robertson. In the winter of 1885-6 Mr. Robertson, at the request of the members of the Dairymen's Association of Western Ontario, addressed a series of meetings of the patrons of cheese factories, doing pioneer work in the advocacy of better methods in the production and care of milk intended for cheese-

making. In April 1886 he was appointed Professor of Dairying at the Ontario Agricultural College, at Guelph, and thereupon gave up his own business. In his position at Guelph his duties at first were not so much concerned with teaching as with the getting into successful operation of the creamery newly established there. He spent much time, too, in Farmers' Institute work. The inspectors employed by the Western Dairymen's Association were also under his direction. In the fall of this year (1886) he was appointed to take charge of the cheese and butter exhibit of Canada at the Colonial and Indian Exhibition at London, England. And while abroad he made a visit to Denmark for the purpose of studying the dairy methods adopted in that progressive dairy country. In the spring of 1887 he resigned his position at Guelph and went to Montreal to engage in a general dairy exporting and shipping business. But in November of the same year, at the request of the Ontario Government, he returned to Guelph and remained there until February of 1890, when he was appointed Dairy Commissioner for Canada and Agriculturist of the Central Experimental Farm. His work at Guelph during his second incumbency there was a continuation of what it was during his first term of office; but more particularly he devoted himself to the promotion of the dairy interests of the province by means of addresses at farmers' institute meetings, dairy association conventions, and the like. He also did a good service to the dairy cause by organizing and improving the work of inspecting milk at factories, and by organizing the work of instructing cheesemakers. For an account of Professor Robertson's work since his removal to Ottawa, we would refer our readers to *FARMING* for March, pages 453-476.

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## FARMING FOR 1897-8.

FARMING is now about completing the second year of its existence, our next (the August) number being the last in the year. We think we can refer with some pride to the store of valuable information which we have been able to present to our readers in the volume just ending. Including the August number the year's

issues will comprise no less than 780 pages of solid reading matter besides a very great deal of information printed in our "extra pages," making in all a volume of more than 1,200 pages well printed on paper of excellent quality, with hundreds of beautiful illustrations. Our aim has been to make the information which we

have given in FARMING thoroughly practical; also to have it thoroughly up to date and fresh. The best agricultural authorities, in Canada, in the United States, and in England, have been represented in its pages. No branch of agriculture has been over-looked; and we doubt if in any other volume ever published, a larger amount of sounder, more practical, more profitable information concerning all sorts of farm work could be found than what has appeared in FARMING for 1896-7.

In FARMING for 1897-8 we are able to make some announcements which we think will give satisfaction to our friends and patrons. A very strong wish has often been expressed that we should print FARMING in larger type. After a good deal of consideration we have decided to adopt the suggestion made to us by our friends, and we have been so fortunate as to secure a type for our general reading matter, which while larger and more easily read than the type we have been using, gives practically the same amount of reading per page as before. We have thought it best to begin the use of this larger type in our present issue.

In the past FARMING has been almost wholly concerned with the practical work of the farmer, and has very rarely gone outside of that limit. But for the future we intend that FARMING shall keep its readers in touch with everything of im-

portance going on in the world that bears even indirectly on farm work. We propose also that all matters of government action that concern the interests of farmers shall be reviewed in our columns. In short we propose to make FARMING indispensable to every one who wishes to keep abreast of all movements that may tend to improve or affect in any way the condition of agriculture or the position of the man who works at agriculture.

For the rest we trust our past will be the best evidence of what we may be expected to do in the future. We have many plans of improvement that we intend to put into effect during the coming season, but it would be somewhat premature to announce them now. But this promise we will make, that FARMING for 1897-8 will be found abler, more useful, more up-to-date, and more interesting, than ever it has been.

We trust our friends will show their appreciation of our efforts by helping forward our circulation. We can conceive of no better miscellaneous work for any man to engage in, than to induce his neighbor to subscribe to so useful a publication as FARMING. For any of our subscribers who secures for us one new subscriber we will advance his own subscription six months; for two new subscribers we will advance his subscription a year. *Be sure to induce your neighbor to begin with the September number.*

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## TOPICS OF INTEREST FOR THE MONTH.

### Cold Storage.

Mr. Fisher has got his cold storage scheme through parliament, not only without opposition, but with the hearty good wishes of all parties that it shall prove a great success. Cold storage accommodation is to be provided on four steamers and a (probable) weekly service to Liverpool, on six steamers and a weekly service to London, on two steamers and a fortnightly service to Glasgow, and on five steamers and a weekly service to Avonmouth. The Avonmouth steamers are to have a capacity of 20,000 feet each, and the others 10,000 feet each. The cost of the refrigeration plant and insulation is estimated to be \$10,000 per

steamer for those with 10,000 feet capacity, and for the others \$12,000 per steamer. Of this amount the government will pay one-half in three equal annual instalments. Power is given to enter into contracts for providing cold storage accommodation at Toronto, Quebec, Halifax, St. John, and Charlottetown, the government granting a dividend of five per cent. annually for three years on a sum not exceeding \$40,000 on the cost of premises and plant at Quebec, Halifax, and St. John, and on a sum not exceeding \$50,000 at Toronto, and on a sum not exceeding \$20,000 at Charlottetown. It is intended also that a cold storage steamship service shall be secured from St. John, Halifax, and Charlottetown. When this is effected

our cold storage transportation system will be fairly complete.

### The New Fast Atlantic Service.

We cannot but feel some apprehension about the wisdom of the action of the present government of the Dominion in determining to establish a new fast Atlantic steamship service. As is well known, the late government of the Dominion had almost concluded arrangements for such a service at a cost to the Dominion annually of \$750,000. We believe that the agricultural community of Canada was almost to a man opposed to such an expenditure. The present government have secured authority from Parliament to establish a similar fast service at an annual cost to the Dominion of \$500,000, which, however, they hope, by savings, to reduce to \$300,000. We trust they have taken every precaution against failure, even when only this amount is concerned. A particularly fast line of passenger steamships is not what this country most needs. What it imperatively needs is a moderately fast, but *cheap, frequent, and safe* freight service; a service that shall be able to land our produce of *every sort* at British ports in as perfectly good condition as it was when it left the producers' hands. It's a grievous wrong that our producers of fruit, butter, meat, eggs, and every other sort of perishable product, were not able, *years ago*, to get their goods into the hands of British consumers without loss, not due alone to length of time, but also to heated holds, that *spoiled the goods in transit*. The fast service is needed but by very few of our people, and its benefit to our produce trade will be very slight. We admit that it will have an indirect benefit in increasing the interest that the people of Great Britain take in us, which may possibly lead to some trade benefits, without which, indeed, their increased interest would be of little value. But until our produce freight service had been *infinitely* improved we could have well afforded to let the fast passenger service stand.

### Our Canals and the Intercolonial.

The present government are endeavoring to win a reputation for themselves for looking after the *business* interests of the country. In so far as they really will

look after these interests without regard to the interests of party, they will receive the support of all business men whatever their party ties may be. The move to deepen the St. Lawrence canals, and make it possible for ocean vessels of light draught to ascend to the upper lakes and return with the freight of our west and northwest lake ports to be taken in unbroken cargoes to ports in Britain, is one that will benefit tremendously our producing classes; but we regret that the larger scheme of deepening the canals so that ocean vessels of deep draught might ascend them also, is still out of sight. That freight must be handled in large bulks is now an axiom in transportation economy; but the lesser scheme is perhaps all that the country can stand at present, and so we must be content with it. The action of the government in arranging to bring the Intercolonial into Montreal, and securing connection there with both the Grand Trunk and the Canadian Pacific systems, has been pretty generally approved by business men, although the bargain made by which it is to be done has been very sharply criticised in parliament. The business men of Montreal are said to approve of the bargain, and they ought to know its value. The Intercolonial has been a dear bill of expense to the country from the beginning. If it can be made to afford a big link in a real line of competition between the west and the seaboard, its extension to Montreal will be a benefit to our producers, and therefore should be commended. Competition among railways seems, however, too good a thing to be looked for. But the fact that the Intercolonial is directly under government control may lead to its freight rates for transport from the west to the seaboard being subjected to criticism that will make them rational.

### Our Freight Transportation Service.

Mr. George Hague, the retiring General Manager of the Merchants' Bank, in his recent annual address did the country good service in drawing attention to a matter (discussed by Mr. E. D. Smith in FARMING for June), namely, the very inadequate ocean transport service which our fruit exporters have to put up with in the autumn when our apples are ripe for shipment to Britain. The

shipping agents endeavor to shove off the blame upon the fruit packers; and undoubtedly with them some of the blame ought to lie. But this is no real reason why our fruits, and our apples especially, should not reach Britain in the best of condition, and the chief reason why they do not do so is that they rot in transit because of the heat of the hold in which they are stored. We lost thousands and thousands of dollars last year on account of our inability to ship our apples to Britain in good con-

choice. In its remarks it says: "Many complaints are heard at every horse show in regard to the decision of the judges. Much bitterness is engendered and the welfare of the show is anything but promoted thereby." This remark applies only too pointedly to some of our own shows. The scheme proposed by *Rider and Driver* is outlined by that journal as follows:

"As at present selected, the judges are entirely the choice of the horse show associations. Whereas no question can



Thoroughbred Stallion, June Day,

The property of W. C. Edwards & Co., Rockland, Ont. Born 1887. Sire, Falsetto, by Engineer, by Leamington. Dam, Virga, by Virgil, by Vandal. June Day is a rich brown, 16 hands 2 in. high. As a two-year-old June Day won a three-quarter mile sweepstakes in 1:15½, beating nine others. Later he won a three-quarter mile in 1:13½, beating five others. He has not been raced since.

dition. No greater boon can our Minister of Agriculture confer upon us than securing a good transportation service for our fruit.

#### Selection of Horse Show Judges.

This question is giving our American friends trouble as well as ourselves. The *Rider and Driver*, of New York, in discussing the matter suggests that the exhibitors should have a direct voice in the

be raised touching the sincerity and integrity of the associations, or the judges, it would seem that the exhibitors, who are the most concerned in the awarding of prizes, should have some voice in the selection of the judges. By adopting this plan, the horse show associations and the judges themselves would be saved responsibility and avoid the criticism natural to such an important function. The manner of reaching a vote would be a mere matter of detail. It would be at



the utmost a very simple procedure, as, for instance, the naming of a judge by every exhibitor when sending in his entries, the stipulated number of judges to be chosen in accordance with the number of ballots cast. By the adoption of such a method an *entente cordiale* would be established between the associations and the exhibitors. The much-mooted question as to which is the better, professional or amateur judging, would also be settled by this means."

We should like to hear the opinion of some of our horsemen whether the proposed plan would work well in this country.

### The Holstein-Friesian Association.

The condensed report of the Holstein-Friesian Association of America, prepared by the association's energetic secretary, Mr. Frederick L. Houghton, Brattleboro, Vermont, has been received. It is full of facts and information interesting to the Holstein and general dairy breeder, from which we make a few gleanings. The association is increasing, there being twenty-nine more members this year than last. The total membership is now 514. Last year 1885 cows and 651 bulls were registered. The association claim that the records of their cows can now challenge competition with those of any or all breeds, the only deficiency being the per cent. of the fat in the milk. They claim, however, that statistics show that Holstein cows giving lower percentages of fat are more economical butter producers than those giving a higher percentage. The president maintained in his annual address that "it has been demonstrated time and time again that a Holstein-Friesian giving three and a half per cent. milk, when in competition with a Jersey giving six per cent. milk far outstripped the Jersey in the production of butter, and also produced enough of surplus milk to drown the poor little Jersey at the end of the contest. This is a point that the association is now going to prove by authenticated tests. The association, however, admits that "the public at the present time seems to be calling for milk rich in butter fat, and that, therefore, the producer, to be successful, must cater to the caprice of the market." A difficulty of this sort the association has had to contend with this

very year, namely, a disposition on the part of the New York Legislature to prohibit the sale of milk that contains less than 4 per cent. of butter fat. They contend that should this "cranky legislation succeed half of the dairy stock of New York would be outlawed." The association takes great pride in its "official tests." These tests are conducted by independent experts, and have been instituted for the purpose of establishing the capacity for butter production of individual cows of members of the association. In the seven days' tests for 1896 the average of the full age cows is 19 lbs. 7 oz. per cow. In the four year old class the average per cow is 18 lbs. 2 $\frac{1}{4}$  oz. In the three year old class the average per cow is 17 lbs. 8 $\frac{1}{2}$  oz. During the last year it is claimed that fifteen of the cows tested made a higher record than the highest record made by any cow of any breed at the World's Columbian Exhibition. The association is doing a capital work for itself by giving prizes to be competed for at great fairs in dairy tests where all breeds compete together. Last year such prizes were offered at twelve great fairs, of which two were the Toronto Industrial and the Provincial Fat Stock Show. This year similar prizes will be offered at some thirteen or more such fairs. The association was exceedingly pleased with the record made by Holstein cows last year, and is quite confident of a similar good showing this year. The prize in each case will be a duplicate of what the local association offers.

### Following Canadian Methods.

The action of our Dominion Government in taking vigorous measures to introduce Canadian dairy and other products into the English market is receiving all the time strong commendations of approval from the press of foreign countries. Just now there is an agitation to establish a Department of Agriculture for Ireland, and the success of our Dominion Department of Agriculture in getting Canadian products on the British market is being freely quoted by the Irish press in favor of the plan. Again, in a recent issue, *Hoar's Dairyman*, in commenting on the exertions now being made by the Dominion government authorities to promote our poultry and our fruit trade with Great

Britain, has these compliments to pay to Canadian energy :

"Now in these things, the dairy farmers, creamerymen, poultry and fruit farmers of the United States can see what intelligent, businesslike efforts are being put forth by the Canadian Government to supply the British demand. The farmers of the United States are equally interested. The simple logic of the situation would seem to dictate to follow the example of the Canadians. Let our Secretary of Agriculture use the funds of his department to promote the commercial gain of our perishable products in the same way the Canadians are doing. Let him employ some able man to do just such work as Professor Robertson is doing. Let the question of cold storage facilities, both on the cars and on the steamship, be well worked out, and the conclusion be laid before our dairy, poultry, and fruit shippers. . . . Our Canadian cousins are more shrewd and practical, from their government to the farmer, than we are, and we can afford to learn of them."

But, perhaps, the strongest testimony to the importance of the work which our Dominion Dairy Department has been doing is seen in the action which already has been taken by the United States Department of Agriculture to get United States butter into the British market. Secretary Wilson (formerly director of the Iowa State Agricultural Experiment Station), who is thoroughly well acquainted with the methods which our Canadian government has employed, is making shipments of butter to the London market on government account. Two or three of these shipments have already gone forward. The butter is made with the greatest care, according to instructions sent out by the department. It is packed in such packages as the English buyers most approve. It is colored and salted to suit the English taste. It is taken direct from the creamery to the refrigerator car, and in Chicago it is passed upon by experts connected with the department before being allowed to go further forward. In New York it is taken charge of by an agent of the department, and placed in cold storage on the ocean steamer, and every precaution is taken to prevent its contracting any disagreeable ship odors during transportation. At Southampton it is taken charge of by an

other agent, and before it is put upon the London market it is again tested. Every precaution, therefore, is being taken by the American authorities to put their butter in the hands of the British consumers in the very primest and most acceptable condition. The confident expectation is that a large share of the British market can be captured for the American butter-maker. It is, then, quite obvious how very unremitting must be the efforts of our own authorities to see that the good reputation which our Canadian butter has been making for itself during the last two or three years, be not lost. The great danger now lies in the imperfect storage facilities of the creameries where our butter is made. These deficiencies, therefore, should be attended to at once.

#### Let Our Dairymen Beware.

As remarked in another place, Secretary Wilson, the new head of the Department of Agriculture at Washington, is making a determined effort to promote the interests of United States dairy products in Great Britain. In this he is certainly very much to be commended; and it is pleasing to note that the benefit to United States agriculture in having a practical agriculturalist in charge of agricultural interests at Washington, is receiving that recognition at the hands of farmers which it deserves. But none the less must our Canadian farmers, and especially our agricultural authorities at Ottawa, be on the look out to see that this new and somewhat unexpected competition is met with increased vigilance on our side of the line, so that the advantage we have gained by our enterprise and forethought be not lost. We have been so long used to inertia and indifference on the part of the American authorities with regard to the British market, that we perhaps had come to the conclusion that they were no real competitors of ours, and that our only competition would come from Denmark, Sweden, Switzerland, Normandy, Ireland, and so on. But if Secretary Wilson's vigilant activity be continued as it has begun, we shall soon find out that our biggest competitor in the British markets, even for our very best class of products, will be the American producer. Secretary Wilson's latest move is to enforce the carrying out of the provisions of the American law in

regard to filled cheese. By this law, which, however, has hitherto been a dead letter, every cheese not wholly made from the product of the udder of the cow (cotton seed oil, for example, is often used) shall be branded four times on its side and once on its face, in two-inch black face letters with the words "filled cheese." As this law has been very successfully evaded, the result has been that the English consumer has been bitten again and again by so called American cheese, until the entire American cheese product has so fallen into disfavor that the English import of American cheese has fallen off fifty per cent. and bids fair to cease altogether, "the place once occupied by American cheese," to quote Secretary Wilson's own words, "being now occupied by Canadian cheese." Secretary Wilson is taking steps that the law shall not in future be evaded in the least, and he hopes to be able to restore the American made cheese to its former place of honor in the consideration of the English consumer.

#### "Made in Canada."

Germany has advertised itself throughout the whole civilized world by insisting that all of its manufactures when exported to other countries shall bear the words "Made in Germany" plainly exposed upon their surface. For some years past our Dominion Dairy Commissioner has advocated a similar regulation to be made law with respect to our Canadian dairy products. His wish has now been realized. By a recent act promoted by the Dominion Minister of Agriculture, all butter and cheese made in Canada and destined for export to other countries shall have plainly printed upon the outside of their containing packages the word "Canadian" or "Canada"; and in the case of cheese, the same word is also to be put upon the cheese itself. The date at which the butter or cheese is made may also be stamped upon the containing package, but this provision is not compulsory. The wrongful dating of the time of manufacture is however prohibited. Provision is also made for the use by each cheese factory or creamery of a distinctive number, which number may be registered, in which case its use by any other factory or creamery will be prohibited.

#### We Must Please the Buyer.

One of the points on which our Dairy Commissioner, Professor Robertson, has laid the strongest emphasis is that it is *foolish* to try to educate the British buyer into our ideas of what he should like or not like. If life were a hundred years long on the average, and there were no rent bills to meet in the meantime, it might pay to do this. But as things are now arranged in this world, it pays best to supply your customer with what he *wants*, and not to try and sell him what he does *not* want. Our American cousins are finding this out in their trial shipments of butter sent over to London with a view to capture the British butter trade. Cautious as they went to work about this matter they overlooked some points, and did not reckon sufficiently on the rigid fixedness of British prejudice. One of the things they forgot was that the English hundredweight was 112 lbs, and the half-hundredweight 56 lbs, and the quarter 28 lbs. Hence 60 lb. tubs had to be sold for 56 lbs., and the 30 lb. tubs for 28 lbs. Again, the British retail merchant prefers cubical boxes to round tubs. Butter from the Iowa Experiment Station packed in cubical boxes, brought from  $1\frac{1}{2}$  to  $1\frac{7}{10}$  cents a pound more than was paid for the same butter packed in tubs. Another matter is the salting. English judges seem to be pretty unanimous that American butter to meet the English taste should not contain more than  $\frac{1}{4}$  oz. of salt to the pound of butter. It was thought beforehand that  $\frac{1}{2}$  oz. to the pound would do. And in regard to this matter of salting it is well for us to note that both American and Canadian tastes are veering round to the English standard of an almost perfectly saltless butter. The presence of salt is being recognized as either destructive to the *finer flavors or aromas of the butter*, or else as a means of hiding or rendering for the moment unobservable deleterious flavors, which, however, will assert themselves as soon as the butter is used on bread. Our butter-makers must, therefore, prepare themselves to meet this change in taste, for the new taste is going to prevail just as sure as any taste founded on education will prevail.

### The Farm Separator System.

Canadian farming is becoming, every year, more and more intensive. We have little doubt but that the time will soon come when in the older districts of the country no grain, or none but fall wheat, will be sold from any first-class Canadian farm. Beef cattle, sheep, hogs, dairy products, fruit, and poultry, will be the sole farm products. The realization of this consummation depends, first, upon the energy with which our governments, Dominion and Provincial, push forward the work of educating the people in the most economical methods of production, and of handling and shipping; and second, upon the energy with which our Dominion government secures for us the best, the safest, and the most economical means of transportation to the great markets of the world. Just now our principal line of advance seems to be in butter-making. Creameries are being established in many places, and buttermaking is being pursued on many farms, not in the old fashioned and undesirable methods formerly in vogue, but after the most approved modern plans. This being so we trust our readers are giving every consideration to the advisability of using the farm separator. In the Western States, in Wisconsin and Iowa, where dairy progress during the past eight or ten years has been greater than anywhere else in the Union, dairy farmers are now almost everywhere, adopting the plan of separating the cream on the farm by means of a modern separating machine. Wherever, at least, ten cows are used this plan is most confidently recommended. First, at least twenty-five per cent. of butter fat is saved over any possible plan where ice is not used and thus the cost of the machine almost wholly saved in one year. Second, the skim milk obtained can be fed at once to calves and pigs in its best state, and the evil consequences of feeding them sour milk are thus avoided. Third, a tremendous saving in "haul-labor" is effected, at least four-fifths. Fourth, a great saving of farm labor is made when only the cream is to be looked after, and not the cream *and* milk. Fifth, it is possible to make the very best grade of butter from separated cream perhaps more easily than from cream obtained in any other way. We notice that in the States

mentioned, where new creameries are being erected, they are built with the intention of using cream only, and each patron is provided with a separator to begin with. The Babcock tester, or the oil test churn, enables the cream to be estimated at the creamery at its full worth and paid for accordingly.

### Shortage in Beef Cattle.

The scarcity of good Shorthorns for breeding purposes, in fact the scarcity of all good young beef cattle bulls has been matter of common notoriety all this spring. But there promises to be even a more serious scarcity, that is a scarcity of beeves. Stock papers in the States are discussing the matter vigorously. Here is what the *Drover's Journal* says:

"There has been talk of cattle shortage for several years past, but there has not been a time for many years when there was such a sure enough shortage as at present. As long as there are plenty of calves and young cattle in sight the shortage of fat cattle does not amount to much, but a time has now come when there is a big shortage of not only matured cattle but of calves, yearlings, and breeding stock. Not only are cattle scarce in the corn belt, but they are scarce in every section of the country to which one may turn. The Eastern States are short in spite of rather liberal purchases from Canada, and the south-western purchases of Mexican cattle have seemed to cut no figure. Texas has been drawn upon for all the young cattle she could spare by feeders in Missouri, Iowa, Kansas, and Nebraska. California has no surplus; Arizona, New Mexico, and Colorado are short; Utah has had some to sell, but not many; Idaho and Nevada have no surplus; Oregon and Washington are lightly supplied, and Montana, Wyoming, and the Dakotas will not have as many cattle to ship or put on the ranges as last year. The South-Eastern States have not enough cattle to supply them in beef. There is, unquestionably, a great shortage in cattle, young and old, and of all kinds. Buyers who have to look out for the future are well aware of the situation, and are scouring the country in all directions trying to "get a line" on the situation. A man who always puts up several thousand cattle in the fall for distillery

feeding says he has already bought about what he will need next fall, being afraid to delay buying, and says it is the first time he has ever made purchases so long in advance. The outlook for cattlemen is certainly very good. Conservative stockmen estimate that there will be twenty per cent. less cattle marketed this year than last, and it is a well-known fact that farmers are fattening even their young things and she stock more closely than ever before."

### One Reason for the Scarcity.

The very decided scarcity of young beef stock on the other side of the line (as also here in Canada) is having the effect of attention being called to a cause for it which at first sight would escape notice. During the past few years the tendency has been to market calves and yearlings instead of maturer steers, for apparently it is much more profitable to do so. But when this course is pursued, to make as much aggregate gain as before a larger number of head must be kept, and provision must be made for this increase of the producing herd. For example, suppose the average fattened calf or yearling steer weighs 800 lbs., and that the mature three-year-old steer weighs 1,600 lbs. It is evident that to supply the community with the same quantity of beef will require, in the one case, twice as many cows to be kept as in the other. This increase in the number of cows has, as a rule, not been provided for. On the contrary, the depressed prices which have prevailed for beef during the past few years have had the effect of frequently causing the young heifer calves to be sacrificed. The candle thus has been burnt at both ends. The males have been killed off more quickly than usual for market purposes, and the supply of dams has been shortened by sacrifices. The *present* effect, however, of this shortage of beef cattle, so far as Canada is concerned, will be a very decided strengthening of beef cattle prices. Already we hear that the American buyer is relying for his stock upon what he can get upon our side of the line. We have every reason for believing, therefore, that better times are in store for our beef cattle producers, and therefore for our producers of purebred beef stock. That these good times will be welcome goes without saying.

### Retaliation in Prospect.

The policy of Great Britain, France, and Belgium in excluding United States and Canadian sheep and cattle from importation into their inland markets is undoubtedly a protective policy in disguise. We in Canada have no animal diseases to warrant any such action being taken by any foreign country; and as for the United States, their system of inspection is as thorough as science and a liberal expenditure of money can make it. There is absolutely no reason whatever why Canadian and United States live cattle should not (under proper inspection measures) be admitted into inland points in Great Britain as they formerly were, except such reason as is inspired by the desire of the British farmer to look after his own interests. In bringing about prohibitory regulations the British farmer is, of course, right from his own point of view; but the more straightforward plan would have been to avow his reasons openly, and not bring about what he desires by a quarantine arrangement which is based on a misconstruction or an ignorance of actual facts. All the same, it is somewhat amusing to note the energy with which Secretary Wilson, of the Department of Agriculture at Washington, a member of the most decidedly protective administration that ever held power, either in the United States or any other country, is trying to secure a relaxation of the English, French, and Belgian quarantine regulations as regards American sheep, cattle, and meat products. As soon as the British Jubilee festivities are over, it is intended that a decided and united effort shall be made by the American Ministers in London, Paris, and Brussels to have the regulations discriminating against the importation of United States animals and meat products done away with. They will claim that these regulations are due to the clamors of the agrarian element in the parliaments of England, France, and Belgium (which is true enough); and that while the regulations are ostensibly intended to protect the farmers in these countries against the importation of disease, their *real* object is to prohibit the importation of American animals and meat products (which is also true enough). But why an administration which believes in a "Dingley

Bill" can see any injustice in English, Belgian, or French cattle-raisers trying to keep American cattle out of their own markets, *by any means within their power*, is not very obvious. However, the American ambassadors, Col. John Hay at London, Andrew D. White at Paris, and Belamy Storer at Brussels, are going to unite in representing to the English, French, and Belgian Governments that American cattle and meat products are as exempt from disease as those of any other country in the world, and they are also instructed to accompany their representations by "the significant warning that if the unjust discriminations are continued proper action will have to be taken" by the United States Government in the way of retaliation. We don't see how this retaliation is going to be carried out practically; but when nations make up their minds to go to war with one another, we suppose it will not be difficult to find weapons.

### The Oleomargarine Defeat.

A very general satisfaction is felt by all who are interested in the development of dairy products, in regard to the passing of the Illinois Oleomargarine Bill. By the bill, now become law, the manufacture of oleomargarine, colored to look like butter, is absolutely prohibited within the State of Illinois, and all oleomargarine offered for sale must in future be sold for what it is, and not as butter. A tremendous fight against the bill was put up by the great cattle slaughter and packing houses of Chicago, and the passing of the bill was scarcely expected. The magnitude of the oleomargarine manufacture has been very considerable. It is computed that the Chicago factories alone made 65,000,000 lbs. of it a year. That the sale of it was largely effected through deception is seen by the opposition against the clause forbidding the oleomargarine to be colored to imitate butter. Its natural color is white; but when left white it will not sell. It is, in fact, principally bought by poor and ignorant people in the south and other parts, who in buying it suppose it to be butter. The fact that so large a manufacture will perhaps be stopped altogether, or, at any rate, be considerably lessened, will have an effect on the demand for tallow and cotton seed oil, which are the principal

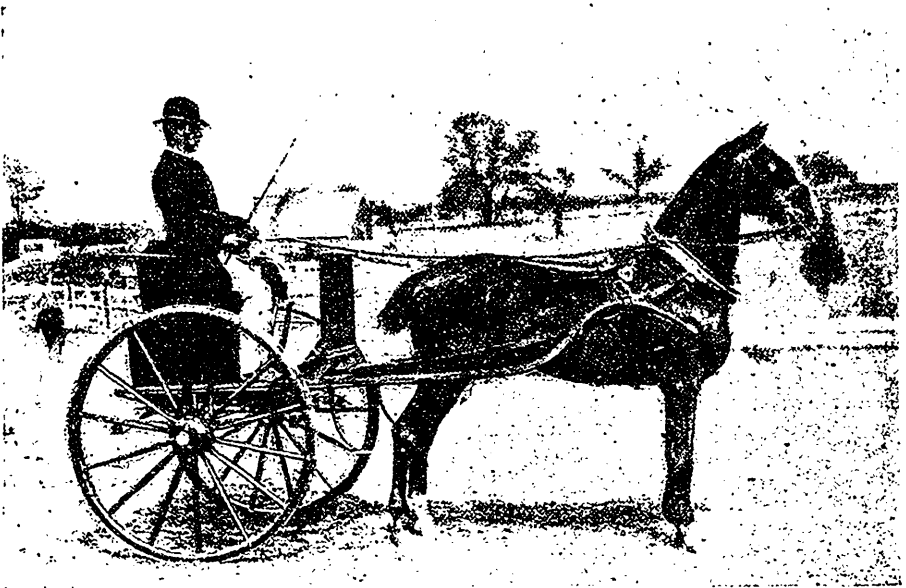
ingredients used in making the oleomargarine. This tallow is now largely got from the dairy steers that are fattened and sold as beef cattle. The cessation of the oleomargarine manufacture will certainly have the effect of lessening the demand for that sort of beef. Upon the farmer, however, the effect of the bill as a whole will be extremely beneficial. It will certainly have a tendency to increase the price of his dairy products by cutting off some of the competition of spurious imitations. It will also have a beneficial tendency on the price of well-bred beef cattle by cutting off the demand for the inferior grades that have been bought largely for the tallow which lines their intestinal cavity, and which is, therefore, easily got at. The only farm product that it will militate against is this latter class of beef cattle, for the most part dairy steers. But this hurt will be more than made up for by the increased price which dairy products will obtain. Although this question is almost wholly an American one (oleomargarine is not made in Canada), yet indirectly it concerns the Canadian farmer very deeply. Whenever dairy products or beef products are enhanced in value in the States there cannot help but be a somewhat similar upward movement of these products within our own borders.

### The Philadelphia Horse Show.

The Philadelphia Horse Show, held in the last week of May, was judged to be the finest open air horse show, and in some respects the finest horse show of any sort, ever held on the continent. There were between six and eight thousand persons present every day after the opening day. The weather was delightful. The show of Hackneys was especially fine. We regret that there was only one Canadian exhibitor, Mr. Cochrane, of Hillhurst, Quebec. His Barthorpe Performer, however, won high honors, and was placed first in the class for stallions 15.1 hands or over. Mr. Robert Beith, M.P., of Bowmanville, Ont., was one of the three judges that acted in all the Hackney classes. Mr. Bourne's Enthorpe Performer was a very sensational attraction. The reports say: "He certainly did go great guns. We never saw him go faster, nor higher, nor straighter, nor steadier." Mr. Cassatt's Cadet won the blue ribbon for stallion and four of

his get. In the harness class Hackneys and Standard-breds competed together. There was a great contest between Mr. O. H. P. Belmont's Sundown, a trotting-bred animal of Wilkes blood, and Mr. Arthur's Leader the Scotchman, an imported Hackney (from Yorkshire), said to be the finest Hackney ever shown in heavy leather in the States. Sundown is a \$4,500 horse, while \$4,000 has been refused for Leader the Scotchman. We reproduce from *The Rider and Driver* a portrait of Sundown, so that our readers may see what sort of horse the American

ple above all things want speed, and speed is what they will pay for. Therefore the breeders, both Hackney breeders and trotting horse breeders, have come to the conclusion that speed they shall have. Speed in light harness with light loads the American trotting-bred horse has for a long time been showing to perfection. But the demand is now for speed in heavy harness, the horse pulling a heavy vehicle in order to carry a load. This also the American trotting horse is trying to show; but the Hackneys have the start. Heretofore Hackneys have been



Sundown.

American Standard-bred Trotting Stallion, about 16 years old. Winner of 1st prize in his class at the late Philadelphia Horse Show; also winner of the first prize for "high-steppers," beating in this competition the celebrated Hackney stallion, "Leader the Scotchman." Also winner of the champion prize for "best horse in harness" at the show. "Leader, the Scotchman" being second in this competition also. "Sundown" is the property of Mr. O. H. P. Belmont. In the illustration Lawrence Fitzpatrick is driving. (Reproduced from *Rider and Driver*.)

fanciers put a price on. He is said to be truly a wonder: "He places his hocks under him and springs away at every stride as though shot off a spring. He flexes his hocks with superlative suppleness, and his knee action is as high as any we have seen. His speed is phenomenal."

#### Speed in Hackneys.

The Philadelphia Horse Show showed clearly that the popular Hackney must be one that can "go." The American peo-

ple above all things, but now the demand is for style *and* speed. Mr. Cochrane, of Hillhurst, at Philadelphia, when interviewed on the matter, said that the Hackney could furnish the speed all right. He said that while in England he was impressed with the speed with which Englishmen drove their Hackneys while on the road. At the Philadelphia show, after the judging was over, the Hackneys in harness put up a three-minute gait over the heavy tan-bark, to the great delight of their many admirers.

### Chestnut Color in Hackneys.

Formerly the standard color in Hackneys was brown or black, but during the last six or seven years chestnut, once deemed an inferior color, has been steadily gaining ground, and now is to the front. In fact in the great English shows the chestnut horse is very much in evidence as the prize-winner. In a recent English exhibition the colors were as follows: Chestnuts nine firsts (three in stallions and six in mares); eleven seconds (six in stallions and five in mares); and six thirds (four in stallions and two in mares); besides five fourths and four fifths. Bays, two firsts, two seconds, two thirds, four fourths, and one fifth. Browns, one first, three thirds, and two fifths. Blacks, one first and one second. Roans, two thirds, and one fourth. The champion stallion and the reserve stallion were both chestnuts; also the champion mare and her reserve; the winner of the young stallion cup and his reserve; and the winner of the young mare cup, and the mare second to her.

### Corn Culture.

The cultivation of corn as a grain crop is not, as yet, much followed in Canada, although we are glad to know that the area given to corn for silage and forage purposes is extending every year, and already in many places, especially in districts where dairying is carried on, is very considerable. In the Western States, of course, it is different, and corn there is the great substantive crop of the farm. For that reason the greatest attention is given to its cultivation, and experiment stations are at work all the time to find out the very best methods of cultivation possible. The Ohio and the Indiana experiment stations have each recently published bulletins on the matter. A great deal of the information contained in these bulletins relates either to seeding, for which the season is now too far advanced, or to varieties as to which the results obtained would scarcely be applicable to Canada, since our climate here is very different. But some of the results published cannot but be of present interest to our corn-growers:—Shallow or surface cultivation is recommended by both stations. The Ohio station says the increase for surface cultivation is about 6 bushels

per acre; the Indiana station says that the best average yields have been obtained from cultivation about two inches deep. Cultivation four inches deep, in their case, considerably reduced the yield. Detasseling the corn results in a diminished yield. When the corn is sufficiently matured at cutting time, the difference in yield of grain per acre between that cut and shocked and that left standing will be very slight. But when the corn is not sufficiently matured at cutting time, the experiments indicate that unless the corn is very green, more sound corn will be secured from cutting and shocking than from allowing the corn to remain on the stalk. Not much difference in the yield of corn has been found in the use of various sorts of cultivating implements, no matter how different in construction or in their action upon the soil they may be. The spring-tooth cultivator, however, everything considered, is recommended as the best sort of cultural implement to use.

### The San Jose Scale.

Our American exchanges are full of accounts of the harmful effects of this new and much-to-be-dreaded pest, and unfortunately we are not free from it in Canada. Already it has got into some orchards in the Niagara district. The Ontario Fruitgrowers' Association are alive to the importance of combating it, and have urged our Ministers of Agriculture to take steps to investigate its present status in this country and to do everything possible to withstand its increase. We are glad to know that both the Dominion and the Ontario departments are already in action against the pest. The destruction of infested trees, root and branch, is the only safe preventive remedy. This must be effected, and the question of compensation must also be equitably worked out, and nursery stock should not be allowed to be imported from districts where the scale is known to have got lodgment. We would call the attention of our readers to Professor Forbes' article on the subject on another page.

### Our Summer Fruits in England.

We believe that our fruit trade with England is only in its infancy. There is no quarter of the world where fruits palatable to English tastes grow more luscious



ously than they do in Canada. One has only to be familiar with the strawberries, blackberries, raspberries, peaches, plums, and pears, that are produced in the States (although they are produced earlier there) to acknowledge the great superiority of our own samples of these fruits. Mr. E. Odum, a gentleman well known in Canada, now residing in England, has been writing to some of our Canadian papers, urging upon our fruitgrowers to try to capture the English market with these and other fruits. Now, we hold that where *trade experiments have to be made* it is the duty of our Dominion government to make the experiment, and thus either open up the way for the individual producer, or show it to be impossible. This is a true function of a Dominion Department of Agriculture and a principal reason for its existence. If by cold storage and rapid transportation our summer fruits can be got upon the English market in good condition, their delicacy of flavor will soon win for them a great demand from the well-paid and high-living artisan classes of England. The experiments ought to be made with energy and care, that no step may be taken which might militate against success. Two sorts of small fruits Mr. Odum particularly instances as likely to prove very desirable in England: cranberries and blueberries. These grow in vast quantities in many parts of Canada. In northern Ontario millions upon millions of blueberries go to waste every year unplucked. If any means could be devised of marketing these delicious berries it would mean a great gain to the settlers in those new districts of our country, to whom some ready cash in summer time would be a very great boon.

#### Canned and Dried Fruits

Other articles which Mr. Odum recommends our Canadian growers to try to get into the English market, are jams, dried fruits, canned fruits, and canned vegetables. He points out that the English population is growing very fast. It is now 40,000,000, and it is encroaching with great rapidity upon the remaining available tillable land of the country. Already market garden and fruit land is worth from £10 to £12 an acre per annum. As towns and cities grow and encroach upon it, this land will get still

more valuable. The supplies of fruits and vegetables must eventually all come from foreign countries. Of jams, of which the British palate is very fond, we *ought* to furnish a large proportion of their supply; for our fruits make into jams deliciously. Our wild cranberries and blueberries ought to be used for this purpose too. As Mr. Odum points out our blueberries grow in abundance on millions of acres, and that source of revenue ought not to be wasted. Our evaporated fruits ought to be a large export to England. So ought our canned fruits and vegetables: plums, peaches, cherries, tomatoes, raspberries, blackberries, strawberries, beans, peas, corn, etc. Our government should enquire into all these matters, find out the exact market requirements, the best methods of preparation and package, the best and most economical methods of transportation, the best means of placing the goods on the market, and so on, making trial shipments if necessary, and then publish the requisite information when obtained where it will do good. A market 3000 miles away, even though it is a suitable one, is not like one near at hand. It is too far off and the process is too expensive for the private individual to experiment with it. The government must do this for us. What avails it that we have the climate, and the varieties, and the methods of growth, if we do not know how to market our goods profitably. And while we are waiting to find out how to do this, more enterprising governments, Denmark for example, or Holland, or France, will be in with their goods and have got possession of this great market for their producers ahead of us.

#### The Scale: Action of Fruit Growers.

A meeting of the fruit growers of the Niagara District was held in the latter end of June in reference to the San José scale. Professor Pantou, of the O.A.C., and Mr. W. M. Orr, official fruit-tree sprayer, reported that they had found the scale at work in an orchard in the district. These gentlemen were appointed a committee to wait upon the Provincial Minister of Agriculture, and lay before him the means they considered best to exterminate the pest. Superintendent Sharp, of the Dominion Experimental Farm, Agassiz, British Columbia, who was present,

explained the Inspection Act of that province in regard to infected nursery stock. Messrs. E. D. Smith, of Winona, M. Burrell, of St. Catharines, A. M. Smith, of St. Catharines, and Murray Pettit, of Winona, urged that action should be taken by the Dominion Government to prevent, for the time being, the importation of fruit nursery stock from the United States. It was stated that by no other means than entire destruction of trees and shrubs infested, and by absolute prohibition of importation, not only of stock but also of fruit, could our Canadian fruit interests be preserved from the threatened destruction. The scale is as active in obtaining lodgment on ripe fruit as it is in attacking the bark and stems of fruit trees. The peelings of the fruit form one of the commonest means of distribution of the pest. For example, these are eaten by the birds, and the larvæ of the scale mites are thus conveyed to orchards previously free from the pest. Finally a resolution was passed, embodying the opinion of the meeting, and asking for the prompt action of the Government in prohibitory and protective measures. The resolution is as follows :

Resolved, that the importation of nursery stock and such fruits as are affected by the San José scale be entirely prohibited from the United States or any other country where the San José scale is known to exist; that a thorough inspection of all nurseries in which the scale has been found to exist be at once entered upon, and that trees so infected shall be uprooted and burned, and that the growers who may have trees affected by the scale, and thereby subjected to serious monetary loss, be in a measure compensated for the destruction; and we most respectfully request the Hon. Minister of Agriculture to at once take such steps as will effectively destroy this enemy to the horticultural interests of our country, and prevent the importation of trees and fruit in which may be concealed germs for future development.

FARMING has only this to add : The San José scale is the most pernicious pest that has ever arisen to menace the property of the fruit grower. It destroys not merely his revenue—it destroys his capital, and beggars him utterly. It is the worst scourge known in the history of agriculture. Neither inspection, nor spraying, nor any other of the ordinary methods of defence or attack is of any use against it. There is no resource but (1) absolute prohibition of importation, and (2) absolute destruction. It would be a tremendous crime if now, when our

fruit industry has just come to a position when it begins to be a source of revenue to those engaged in it, it should for the lack of proper government protective measures, be jeopardized and perhaps destroyed. We trust the action of the Dominion Government will be both prompt and effective.

### New Railway Regulations.

The following information has been issued by Mr. F. W. Hodson, secretary of the Dominion Cattle, Sheep, and Swine Breeders' Associations :

In regard to unloading and the final distribution of purebred stock shipped from Ontario to points in the Northwest, the following arrangements have been made with the C.P.R. The car containing stock shall be way-billed through to the farthest point of destination, and may be stopped off at intermediate points on the direct line to unload animals. \$2 will be charged for each time the car is stopped. That is, a car may leave Toronto containing animals bought by persons residing in or near Winnipeg, Portage la Prairie, Brandon, Regina, Prince Albert, and Calgary. This car may be billed through to Calgary, and the car stopped at Winnipeg and animals unloaded. It may again stop at Portage la Prairie and animals again dropped off, so also at Brandon and Regina. The animals intended for Prince Albert would require to be trans-shipped at local freight rates from Regina to Prince Albert; the car would then proceed to Calgary. \$2 will be charged for each of these stops, excepting the one at Calgary, which is the destination of the car. All animals trans-shipped from a central point over branch lines will be charged local freight rates.

The following circular dealing with local freight rates has been issued by the Canadian Pacific Railway as a notice to agents, shippers, and consignees in regard to reduced rates for shipment of thoroughbred cattle, sheep, and swine :

In order to encourage the introduction and exchange of thoroughbred cattle, sheep, and swine, in the agricultural districts in Manitoba, Assiniboia, Alberta, Saskatchewan, and British Columbia, shipments will be accepted for carriage, in less than carload lots, at a reduction of 50 per cent. from published tariff rates between stations on all lines west of Lake Superior.

To entitle shipments of aged (full grown) cattle, sheep, and swine to this concession in rate, the owner or agent must produce to the shipping agent a properly attested, descriptive certificate that the animal is purebred, and admitted to full registry in a book of record established for that breed.

Unregistered young stock will be accepted for shipment at the same discount when accompanied by the breeders' statutory declaration, descriptive of the animal and its pure breeding, showing that it is eligible for registration and that written application for a certificate has been made to the secretary of the book of record for that breed.

## SEASONABLE DAIRY NOTES.

By J. W. WHEATON.

During July and August particular attention should be given by the patrons of cheese factories and creameries to the care of the milk. Flavor is an important factor in determining the market price of either butter or cheese. A box of cheese or a package of butter may have a fine texture or grain and be firm in body and color, yet if the flavor is not clean, pure, and without any foul taints or odors, the selling value of the product will be lessened by from one-fourth to one-third at least.

### Flavor Important.

The flavor depends, in a very large degree, upon the condition the milk is in when it arrives at the cheese factory or creamery. More especially is this the case with cheese. True, the cheesemaker may, by carelessness or lack of skill injure the flavor of cheese even if a good quality of milk is received. But in the large majority of cases, where a maker thoroughly understands his business (and no maker should be engaged who does not) the flavor of the cheese is very largely determined by the amount of care and attention the patron gives to the milk sent to the factory.

From a financial point of view, therefore, it is in the interest of everyone who supplies milk for butter or cheese making to give it the very best care and attention; and it is also the duty of every patron to do this because the cheese factory system is essentially co-operative.

### Cleanliness and Aeration.

Cleanliness should be observed in every particular, and as soon as the milking is done the milk should be thoroughly aerated so as to eliminate the animal odors and other bad flavors that may be in the milk. During the hot, dry weather good water in many dairy sections is very scarce, and dairymen allow their cows sometimes to drink from stagnant pools of water or from what is left in dried-up creeks and streams. A great many bad flavors in cheese are caused by this practice. Such a flavor is hard to get rid of; in fact, where it has developed to any great extent it is impossible to eliminate it altogether. Dairymen should, therefore, provide their cows with a liberal supply of pure water as well as good,

succulent food. If this is done and the best of care is given the milk, as good cheese and butter can be made during the hot months as during other months of the season.

### Selling Cheese.

We are glad to note that there is more of a tendency this year to sell cheese as soon as it is ready for shipment than has been manifested for several years. To hold cheese in many of the curing rooms as they are found to-day, during the hot season, is very risky. Not only do the cheese depreciate in value owing to the unfavorable conditions which surround them, but the supply in the curing-room increases so quickly when the make is large that the older stuff very often has to be sold at a sacrifice when the newer goods are put on the market.

### The Cheese Outlook.

The prices for cheese have been well maintained so far this season. The make of cheese has been exceptionally large, and that the market has ruled at prices ranging from eight to nine cents for May and June goods is somewhat of a marvel, considering the experiences of the past two years. Dairymen should be encouraged by these facts and feel hopeful regarding the future of this our greatest industry.

### The Creamery Outlook.

The make of creamery butter so far this season has not been as large as last year. This has been largely due to the fact that at the beginning of the season cheese was selling at a high price and many dairymen who formerly made butter turned their attention to cheesemaking. The supply of butter is increasing more rapidly this month and at prices for fine creamery ranging around the seven to ten cent basis, the dairyman should be able to realize a good profit if he has had the forethought to provide himself with a selected herd of first-class dairy cows. The main thing in both the cheese and butter industry is to be sure that the quality of the product turned out is perfect. If the quality of our dairy products is maintained at the highest point of excellence, Canada will have little to fear as to the outlook for its butter and cheese.

# BUTTERMAKING ON THE FARM.\*

By C. P. GOODRICH, Dairy Instructor, Farmers' Institute Department, University of Wisconsin.

## PART I.

### Introduction.

As a matter of course, everyone who keeps cows for the purpose of making butter is desirous of making an article that will bring the best price possible, and of making the greatest amount of butter possible out of the milk produced. When the milk is delivered to a creamery it is usually manufactured by those who have been well instructed in the art of buttermaking, and the result is that, as a rule, a fairly good article is made. Beside this, the creamery is equipped with appliances which enable its buttermaker to obtain very nearly all the butter contained in the milk; and by his knowledge of what the general butter market demands, he is able to produce an article which is readily sold.

But the case is different with those who make butter on farms, where by far the greater part of the butter in this country is made. While on some farms excellent work is done and a choice article is made, which brings a fancy price, yet through ignorance of correct methods of manufacture and of the demands of the market and, in many instances, through careless and slovenly habits, the great bulk of farm-made butter fails to bring the price it should, entailing a loss on the farmers of the country which is enormous in the aggregate. It is for the benefit of the latter class that this article is written, with the hope that some suggestions may be given, and some ideas advanced, which will serve to improve the methods of the dairyman and increase his profits.

### Good Milk.

To make good butter one must have good milk, and this comes only from healthy cows, fed on good, sweet pasture or on good, sweet grain and other forage, and which have pure water to drink and pure air to breathe. Certain obnoxious weeds—leeks, wild onions, rag-weed, and others—give the milk and the butter made from it a decidedly bad flavor; so also does damaged, rotten silage, moldy corn fodder or hay, and musty, damaged

grain. Impure water has its effect, both on the health of the animals and on the quality of the milk. In many pastures are seen small pools in which the cows stand during the heat of the day to rid themselves of flies. The water in these becomes filthy and is kept stirred up by the movements of the cattle, and where, as is often the case, it is the only water obtainable, the cows are compelled to drink it. This can usually be avoided by fencing the pond and keeping the cattle out. If this water is needed for the cattle it can be drawn out by a pipe laid on the lower side into a trough from which the cows can drink.

In a close, crowded, and ill-ventilated stable, where there is too little air space for each animal, the air becomes foul from the exhalations; and this affects the milk as well as the health of the animals. The remedy in this case is to provide more room for the stock and better ventilation.

The stable should be kept as clean as possible and the cows well bedded and clean. The utmost cleanliness should be observed in milking. All dirt should be brushed from the cow before beginning to milk, and it is best to dampen the udder and flank of the cow, so as to prevent the dust and fine dirt from falling into the milk. The milk should be strained immediately after milking and not allowed to stand in the cow stable any longer than is absolutely necessary.

### Care of Utensils.

A good strainer is indispensable, and one of cloth is much better than one of wire gauze. Milk pails should always be made of tin, and the seams should be soldered smooth, so that there will be no places for the dirt to lodge where it will be difficult to remove. They, as well as all other dairy utensils, should be thoroughly cleaned every time after using. Tin articles should be washed first in cool then in hot water, and after that thoroughly scalded with boiling water or steam. They should then be dried in fresh air and, if possible, in the sunlight.

\* From a bulletin recently issued by the United States Department of Agriculture.

They will not need wiping after the scalding, as the heat from the boiling water will cause them to dry quickly. In washing them, if hot water is used first, it will cook the milk onto the tin and make it difficult to remove.

In cleaning the butter-bowl, ladle, worker, churn, and any other wooden utensil, they should be first washed with hot water, then scalded with boiling water or steam. They should be aired, but it will not do to have them much exposed to the sun, as that will cause warping and cracking.

entire herd of twenty-five or thirty cows. Under these pans were water channels, through which in warm weather cold water was run, and in cold weather warm water, to regulate the temperature of the milk. Then the deep cold-setting was used in both "shot-gun" cans and Cooley cans, and finally, for the past five years, the farm separator has been used.

It is undoubtedly true that by the old method of shallow setting as good a quality of butter was made and can yet be made as is produced by any other method, but it has ; ; drawbacks. Uniformly



Dairy Barns and Stables.

The property of Robert Reford, Esq., Tredonock Farm, Ste. Anne de Bellevue, near Montreal, Quebec. A group of Mr. Reford's fine herd of purebred Ayrshires is seen in the foreground. To the right is the residence of Mr. James Boden, the manager of Tredonock Farm, himself a well-known breeder and experienced importer.

#### Creaming the Milk.

When good, clean milk has been secured, the next operation is to separate the cream from the body of the milk. The old way, practised by our mothers and our grandmothers, was to set the milk in shallow pans with the milk not more than two or three inches deep. The writer of this article has been through all the successive stages of dairy methods. First, we used to set our milk in common 10-quart tin pans on shelves; then we had it arranged so that in hot weather cold water flowed around the pans to keep the milk cool. After that, large shallow pans were used, each one large enough to hold a single milking of the

good results cannot be obtained, for the reason that the milk being spread out in a thin sheet, is exposed to the air, so that it is readily affected by atmospheric changes. Whatever may be the reason, very bad effects often follow an electric storm or thunder shower. The shallow pans make more work than other methods; the creaming is not so thorough as with the separator, and, therefore, the quantity of butter is less.

#### Shallow Pan Setting.

As there are many persons who think they are so situated as to make any other method impracticable, or who have such a deep-seated prejudice in favor of the

old way that they can not be induced to change, it is thought advisable to give directions as to the best manner of proceeding, as determined by the result of long years of practical experience, although the method itself is not recommended.

Milk should be set as soon as possible after being drawn from the cow, whether shallow or deep setting is used. With open setting it must be in a room where the air is pure. A pantry with a door opening into the kitchen is a bad place. The odor from cooking vegetables and meat will surely injure the butter. Many make butter in a cellar because it is cool, but it is apt to impart a musty, moldy smell to the butter. A cellar may be good and cool, and yet be so ventilated as to have pure air; then it is all right for butter making. To get the best results with shallow setting, the temperature of the milk should not go much above 60° F. At that temperature it can usually stand about thirty-six hours. The time to skim is when the milk has soured just enough to be a little thick at the bottom of the pans and to thicken the cream. The cream can not be skimmed off when it is thin and sweet without loss. No milk should be taken with the cream. Cream with milk in it sours much more rapidly than cream with no milk in it. This cream will be very rich and thick, and, although partially ripened when taken off, if kept at a temperature of 60° or below, it will be all right if held two or three days before churning. Whenever a new skimming is put into the cream jar or can, the whole should be thoroughly stirred and mixed.

In the winter effective creaming may be had when the room in which the milk is set is very cool, even down near the freezing point. This is accomplished by heating the milk to above 100° F. before setting. The cream will rise very rapidly while the temperature is falling. The warming can be repeated after twelve hours, if the milk is in small pans, by setting over a kettle of boiling water. If large pans are used, such as have been described, the heating is done by running hot water through the water channels beneath the milk. This practice of repeated heating and cooling makes very effective creaming, leaving little butter-fat in the skim-milk, and the cream is rich and thick.

#### Deep Cold-Setting.

With this method, the milk is set in cans about twenty inches deep by eight inches in diameter. It should be set in a tank of ice water as soon as possible after milking while the milk is yet warm. The most effective creaming is done when the temperature of the water is maintained at about 40° F., though fairly good work is done when the water is even up to 50° F., if it is allowed to get no higher. When there is a fountain or flowing well or running stream of water continually flowing into and out of the tank, so that the water is constantly being changed around the cans, the warm milk will be more rapidly cooled and the cream will rise more rapidly than if the water is at rest. For this reason cool springs, spring pools, and spring houses are very satisfactory, even if the water is up to 53° or 54° F.; and deep stone jars or milk crocks may be used as well as deep tin cans. It is claimed that with this mode of setting all the cream that can be obtained will be up in ten or twelve hours. This may be so, though it is doubtful. It is better to let it stand twenty-four hours, for the reason that the cream will be thicker and richer at the end of that time, though it may not measure any more, or even as much, in depth as it would when only set twelve hours.

Setting the cans in cold air will not prove nearly as effective in raising the cream as setting them in cold water, even though the temperature of the surrounding air is near the freezing point.

#### Skimming.

With the jars, crocks, and the common "shot-gun" cans, as they are called, the skimming is done by dipping the cream from the top, but with the Cooley cans and many other creamers it is done by drawing the milk off from the bottom and leaving the cream. There is a strip of glass inserted in the side of most of these cans, so that the depth of the cream can be seen. With deep cold-setting the cream is always sweet and thin, and where the skimming is done from the top it requires a great deal of skill to dip the cream off without getting some of it mixed with the milk and lost. Much more cream and, consequently, butter, is lost in this way than is ever dreamed of by those who practise it. A conical or pointed

dipper is the best kind of skimmer for this work. In using it insert the point of the skimmer in the middle of the can and press it down very gently till the cream slowly runs over into it. When it is filled carefully lift it out and empty it; then put it into the can in the same place it was before—that is, in the middle—and repeat the operation till the cream is all off. This work should be done very carefully, so as not to create any commotion in the milk; and even with the best of care some of the cream will get mixed with the milk and be lost. Much the best way is to skim by means of a faucet, drawing off the milk rather slowly at the bottom, so as not to create currents in the milk, and leave about one-half an inch of milk under the cream.

#### The Farm Separator.

By the use of the cream separator a much more perfect separation of the cream from the milk may be had than by any system of setting milk. This is shown by the increased amount of butter made when the separator is used, and also by the amount of butter-fat left in the milk after skimming, as shown by the Babcock milk test. It has been found that by no system of gravity creaming can all the butter-fat be recovered; and usually, under ordinary conditions, a large per cent. is lost; while with the separator very nearly all is recovered.

The writer has been engaged in the Farmers' Institute work in the State of Wisconsin, during each winter, for several years. At each meeting milk was tested with a Babcock tester, which was carried along for the purpose. Farmers were invited to bring in samples of milk to be tested in order to show them the variation in value of different milks, and for the purpose of illustrating and explaining the working of the machine. They were especially urged to bring in samples of skim-milk—that which they thought had been thoroughly creamed—so that the audience might see what the loss was. For two years the writer preserved the report of these tests and the average of all was eight-tenths of 1 per cent. for the skim-milk creamed by any gravity method. It varied from one fourth of 1 per cent. to  $1\frac{6}{10}$  per cent. This was in the winter, when there was no difficulty in having the milk cold enough. There is no doubt that in summer, during hot weather, the

average loss is still greater. If the separating is done on the farm immediately after the milking, the skim-milk from the separator seldom tests more than one-tenth of 1 per cent., and frequently less than that.

Cream as Ordinarily Skimmed Sustains a Loss of 20 per cent.

From the result of these tests it seems impossible to escape the conclusion that the average loss, where the milk is set in pans, cans, and crocks, is three-fourths of a pound of butter more to each 100 pounds of milk than where the separator is used. This means, with milk of average richness (3.5 per cent. butter-fat), a loss of about 20 per cent. of the total product of butter. A herd of cows ought to average, per cow, 5,000 pounds of milk per year, and would do so if made up of good animals and well managed; but even if they only averaged 3,000, the loss on one cow would be  $22\frac{1}{2}$  pounds of butter, and on ten cows 225 pounds, which, at 20 cents a pound, would be \$45 a year. It will be seen by this that the loss to the farmers, who cream their own milk by a gravity process, is enormous in the aggregate. How can any business man succeed and suffer such a percentage of loss? What would be thought of the man who would go on from year to year with a hole in his pocket through which 20 cents would drop out and be lost every time he put a dollar into his pocket. Some men try to console themselves by saying, "It is not all lost; the calves and pigs get the butter." But this is poor consolation, for butter is dear feed, even when the price is the lowest. One cent's worth of oil-meal will do the calves and pigs as much good as a pound of butter. Besides this, the skim-milk from the separator, when it is run through and fed to them immediately after milking, while it is warm and new and sweet, is better feed for calves than skim-milk that is old and partially sour, even though it does contain one-quarter of the butter-fat originally in it. This can be attested by hundreds who are using farm separators.

#### The Cost and Use of a Farm Separator.

The cost of hand separators is from \$65 to \$125 each, according to size and capacity. They will skim from 160 to 400 pounds an hour. Larger sizes with greater capacity are used in large dairies and run with some kind of a power. It would

seem that no dairyman, who manufactures his own milk into butter, having ten cows or more, could afford to be without a separator. One, if properly cared for, will last for years. If they are turned by hand, it is true that takes time, but not as much time as would be taken in setting and skimming the milk and warming it for calves. All except the smallest size hand separators are so constructed that they can be attached to a power. Some use a small gasoline engine, or some other kind. A light tread-power run by a large dog or some other animal of like size is very economical. A goat has been found to do remarkably well.

On the farm of the writer a separator has been run for the past five years, making an average of nearly 9,000 pounds of butter a year. The cost of repairs in

that time has been \$3, and the separator, to all appearance, will last for several years to come. It has a capacity of 300 pounds of milk an hour. It is run by a 2-horse tread-power, which was purchased before the separator was, and which is used for cutting feed, filling silo, etc. The power is run by a Jersey bull, and works very nicely. He needs the exercise; it keeps him docile and gentle, vigorous and healthy, and he seems to enjoy the walking and work. The separating is done while the milking is going on, and ten or fifteen minutes after the last cow is milked the calves and pigs have had the new, warm, sweet skim-milk. The saving by the use of the separator on this farm has been already a great many times more than the cost of the outfit.

*Part II. of "Buttermaking on the Farm" will appear next month.*

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## THE DAIRY COW.

By C. F. CURTISS, Director and Professor of Agriculture, State Agricultural College and Experiment Station, Ames, Iowa.

### PART I.—HISTORICAL ORIGIN AND VARIETIES.

The cow is necessarily the prime factor in the dairy problem. More advance has been made within the last decade in perfecting the work in the creamery than has been effected in the fundamental problem of improving the dairy herds. The creamery manager is generally in advance of the cow manager, yet no creamery can ever reach the full measure of success without a generous patronage of successful patrons. The patron's business is in need of the same exact business management and the application of some of the same scientific skill that have characterized the progress made in the creamery.

Every cow is a creature of her surroundings, and every breed of cows is just what the surroundings make it. The intelligent, practical, and scientific way to study a breed then is to look into the environment and conditions surrounding the breed in its place of origin. It is well to begin by studying geography, climate, soil, and products, and following these the treatment, care, and handling of the dairy cow under native influences. We must

study the agriculture of a country in all of its relations if we would fully understand its live stock. As a preliminary to the consideration of the several types and breeds, I can only call attention briefly to some of the factors that have entered into their formation.

The dairy cow, like all other domestic animals, attains the highest perfection in the hands of the most skillful breeders. The North American Indians, as a class, have a peculiar dislike for milk and all of its products. The inhabitants of China use but very little cow's milk even in the present day, while the Arabians rely principally on the mare for their supply. The Anglo-Saxon population of the British Isles and the United States, however, consume the products of the dairy in large quantities. The United States now has about 17,000,000 dairy cows.

Originally, cattle were kept principally for the purpose of labor and for milk. The ancients had superstitious views about eating the flesh of the ox. It is hardly more than a century since there were no special beef breeds of cattle in



England. All were developed for the dairy as well as for the block. The milk-giving qualities of the original Shorthorn were unsurpassed by any breed of England. Even the beefy Hereford, until affected by the blood of the Tompkins' fat cows in the latter part of the eighteenth century, was highly prized by the Herefordshire farmer as a dairy animal.

The principal dairy breeds have been developed in the Channel Islands, Ger-

#### The Jersey Dairy Cow.

The Channel Islands, of which the Jersey, Guernsey, and Alderney cattle are native, are located in the English Channel, near the coast of France. They are known as Jersey, Guernsey, Sark, Jethou, and Herm. Geographically these islands belong to France, and in habits and characteristics the people are essentially Norman, notwithstanding the fact that they are loyal subjects of the British



Maude of Glen Rouge. Purebred Jersey Cow.

The property of William Rolph, Markham, Ont. Calved April 1st, 1892. Sire, Canada's John Bull 5th; dam, Cheerful Pogis, lately sold to Miller & Sibley, Franklin, Penn. Maude has a record of 23 lbs. 4 oz. butter in 7 days; her granddam of 22 lbs. in 7 days; and her dam of 21 lbs. 5 oz. She was first in Toronto as a two-year old. She was just two months from calving when photo was taken.

many, Holland, and Switzerland. In studying these breeds in their native localities, this one significant fact is noticeable in every case, that wherever you find a good dairy cow, you find her systematically bred, carefully and skillfully and kindly handled, comfortably housed, and well fed. Good cows do not come by chance nor by haphazard methods. The husbandman of Jersey Island will neglect everything he has in order to take care of his cow. Nothing is too good for her.

These islands are intensely interesting, though but mere dots on the globe's surface, the entire six being hardly half the size of the smallest county in the State of Iowa, and not more than two-thirds of that subject to cultivation. Their rugged outline and granite peaks, rising sometimes 400 feet high and lashed by the beating waves and surgent tides until at times they appear to be almost submerged, present a landscape that at first appears almost barren and directly

the opposite of a quiet, pastoral scene. The southern slope of these ranges, however, is intersected with numerous ravines and streams, the valleys of which are exceedingly fertile, and the climate is so mild and equable that tropical flowers bloom there the year round, and snow and frost are practically unknown. The wintry blasts and summer's suns are equally tempered, for the highest temperature rarely exceeds eighty degrees. The average daily range of the thermometer in ten days is only about eight degrees. Rain falls about 150 days in the year, though the sun shines generously during the day.

Jersey Island has a population of about three persons per acre. Dairying, market gardening, and fruit raising are almost the sole occupations of the inhabitants of the island. Close proximity to the great markets of London and Paris render these occupations highly profitable. As high as \$300 is paid for the rent of a single acre of land in one season. The potato is the chief crop. It is not uncommon for the Jersey farmer to realize \$1,000 per acre from this crop, then manure heavily with barnyard and commercial manures, or sea weed, and take a second crop the same season averaging two-thirds as much. A large part of all their fruit and vegetables is grown under glass. The farms average only seven acres each, and most of them contain only one or two acres.

The Jersey herds likewise usually number not more than two to a half-dozen cows. The Jersey breeder grows for his herd a liberal supply of roots, clover, and beans, and in addition cider and spices are fed to a limited extent as tonics. The cow is so well cared for and so judiciously fed that she gives the highest possible returns. The intensive system of agriculture prevails in the highest degree. For over half a century it was a crime to import a single animal of the cattle kind from any foreign country, and even yet the importation of cattle is prohibited except under the most rigid regulation. This explains why Jersey cattle are so much alike, so purely bred, and so prepotent; the celebrated Jersey bull Stoke Pogis is said to trace forty times to the same ancestor.

#### The Dutch Dairy Cow.

In Holland, the home of the Holstein cow, we find essentially the same care

bestowed upon the dairy stock. There the soil is lower lying and moister and the vegetation very rank. Much of the tillable land has been reclaimed from the ocean by the erection of dikes and the operation of large pumps and windmills to carry off the surplus water. The farms still lie several feet below the level of the sea. This is an exceedingly rich and productive area. Sometimes as high as three and four crops are taken off in a year. Ten acres of good land supports twenty large cows the year round, and sometimes more. The historian Motley has written concerning the Netherlands in the seventeenth century, "On that scrap of solid ground rescued by human energy from the ocean, were the most fertile pastures in the world. On these pastures grazed the most famous cattle in the world. The cows produced two and three calves and the sheep four and five lambs at a time. In a single village 4,000 kine were counted. Holland alone, at one time, supplied nearly the whole of continental Europe with butter and cheese."

Here, as in the home of the Jersey, the cow is the object of special attention, and the dairy herds are largely under the management of women. The unparalleled development of the Holstein cow is due to the careful, painstaking, and industrious wife of the Hollander and German more than to any other influence. The vegetation grows ranker and more abundant in Holland than on the Channel Islands, and the cows are consequently larger. The feed is not so rich and is more watery, and the same is true of the milk. The cow is never exposed to inclement weather and the stables are kept, it is said, as clean as the dwelling, and both are under the same roof. The cows are even blanketed when turned out at certain seasons of the year, to protect them from the chilling winds from the sea.

#### English and Scotch Dairy Cows.

Across on the opposite side of the North Sea, in the north-eastern part of England, is a fertile valley that has become famous as the home of the Short-horn breed of cattle. This is along the River Tees in Durhamshire. These cattle were first known as the old Teeswater cattle, and later the Durham, and finally both names were superseded by the term Shorthorn. That this is a fertile region,

peopled by thrifty farmers and good feeders, is fully attested by the records of such specimens as the White heifer, the Durham ox, and great numbers of the early and modern representatives of the breed. These cattle are fed liberally and were originally developed for the dairy as well as for beef. They were for many years the leading dairy cattle of England, and while many of the modern Shorthorns have been bred exclusively for beef, the old dairy trait is yet a characteristic of the breed and capable of a good degree of development at any time by right methods.

The Red Polls are natives of Norfolk-shire, not far from Durham, and their surroundings and characteristics do not differ from the Shorthorn, except that the dairy qualities are perhaps a little more uniform, and hardly as much excellence has been attained in beef.

Over across the border in the county of Ayrshire, in south-western Scotland, we find the home of another breed, the Ayrshire. This locality has a thinner soil, a scantier vegetation, and a more rigorous climate. These factors have exerted an influence on the breed, and we have in the Ayrshire the so-called poor man's cow, created primarily for the production of the cheese that has become so widely known throughout Great Britain. This cow is adapted to furnishing the tenant farmer his milk, butter, and meat.

#### Other Breeds of Dairy Cows.

The rugged little country of Switzerland is also the home of several dairy breeds, the principal ones being the Brown Swiss and the Simmenthal. These are large cattle and they are rich and heavy milkers. There, as in Holland, the dairy herds are largely in the hands of the women, and the importance of comfort and protection is so fully realized that many of the best herds pass the entire winter in large stone barns into which frost never enters. The arrangements for lighting, ventilation, and cleanliness are so complete as to afford the most perfect conditions.

These are briefly the conditions under which the principal dairy breeds have been developed. The lesson from the history of the dairy cow is that whenever developed to any degree of excellence she has been well fed and highly cared for, and it is useless for us to expect good

results without a corresponding degree of good treatment.

#### The Original Breeds Improve in America.

The adaptation of these breeds to meet our requirements will depend primarily upon the conformity of our conditions to those that have given rise to these cattle, though all of the breeds are susceptible of more or less modification, and in a measure are capable of adjustment to new conditions. We have a greater abundance of rich feed than any of the localities we have been considering, and all of these breeds may be and are improved by liberal feeding and generous treatment. As an instance, it is generally known that the American Jersey is larger and hardier and a better producer than her foreign ancestors, and likewise the Holstein becomes a richer milker and consequently a better producer. Holstein milk averages nearly one per cent. richer to-day than when this breed of cattle was first introduced. A patron of the college creamery at Ames has a herd of Holsteins that averages four per cent. butter fat, and he tells me that several of them run up as high as five per cent. The Ayrshires in the hands of the best American breeders become better for the block than when developed on their native heath in Scotland.

#### The Selection of a Dairy Breed.

The selection of a dairy breed involves, not alone the qualities and characteristics of the breeds, but in large measure the individual consideration of the dairyman or farmer, the locality and character of the farm, and the purpose to which it is to be put. These can only be determined individually by each man and upon each farm. For special dairy farming it is unquestionably advisable to select a special dairy breed and exclude everything else. If, however, feed and pasture are abundant, and dairying without abandoning beef production is the object, then it is equally clear that a breed possessing both qualities must be selected. There is no longer any question about the advisability of this course. There may be localities where dairying, to be made profitable, must be done exclusively with special dairy breeds. For special dairying the Jersey, Holstein, and Guernseys are justly entitled to the prominent rank they occupy in the west; and for milk and

beef combined the Shorthorns and Red Polls are entitled to first consideration. One point I wish to impress here, and it is of vital importance, viz.: Profitable dairying and beef production combined cannot be accomplished with either an exclusive beef or dairy herd. Shorthorns and Red Polls used for this purpose must be selected for the dairy as well as for the block; and, on the other hand, no man ever succeeds in producing beef from a dairy breed.

#### Dairy Beef is Unprofitable.

A mistake is often made in supposing that because a breed is large and capable of making a rapid gain, it possesses beef merit. This is a fatal error. The Holsteins, for instance, are a special dairy breed, and as such they take high rank, but they are entitled to no consideration whatever as a beef breed. I am aware that this is contrary to the claims of some of the friends of this breed, and I will concede that it is possible to make, at a given age, practically, if not fully, as great weight and as rapid gains in the feed lot from Holsteins as from the beef breeds; but no man can afford to make a business of producing beef from dairy Holsteins in these days of close competition and narrow margins. I say a dairy Holstein, because a dairy Holstein is the only kind worth keeping. It will cost fully as much, and generally more, to make a pound of beef from the dairy than from the beef breeds, and the work of the Iowa experiment station clearly demonstrates that when produced under the same conditions, the dairy beef is worth on the market from twenty per cent. less—enough to more than wipe out all the profits. It would be easier to secure a profitable dairy herd in the beef breeds than to do a successful beef business with the dairy bred cattle, though it would be extreme folly to undertake either. The lesson, however, is that when beef-making and dairying are combined, only well-selected herds from combined breeds can be used with profit.

#### The Individual Cow is the Important Thing.

But after all, while it is a good thing to study dairy breed, it is even better to study dairy cows. Success with the cow is the fundamental problem in dairying. The dairy industry in a good many sections of the west has made about as much improvement as it can make under present conditions, until the cow and her

management is improved. It is universally recognized that our buttermakers rank among the foremost of the world, but our dairy herds, as a class, fall far behind. One of the first essentials is to be able to distinguish a good dairy cow from one that is not a dairy cow at all. It will be observed that there is a wider range of variation between the individual cows in any one breed than between the breeds themselves, so the selection of a breed is only the initial step in dairying. Generally there is a wider relative variation between the cows of a single dairy herd than between the several dairy breeds. I recently saw the record of an individual list of forty-one cows in a private herd in Denmark, that little competitor of ours over there, that leads every nation of the globe in the skill attained in the dairy and the superiority of its products. In this herd the cost of producing a pound of butter from the poorest six cows was just double what it cost to produce a pound from the best six, about seventeen and one-half cents from the latter and about thirty-five cents from the former; and what is more, the expense of producing a pound of butter from the poorer cows was about ten cents above the average price of butter on the Danish market. The chief difference between the foreign dairyman and the American is that the Dane takes steps to arrive at these bottom facts, and immediately puts his herd on a paying basis, while we are content to go on groping in the dark and be satisfied with the average results. We are too often content with securing cows of some of the approved dairy types or breeds, and leaving the results to take care of themselves. It is well to study dairy characteristics and to have an ideal type, but it is a better thing to study facts. Find out what a cow is producing and what it costs to produce it, and make that the basis of selection. Discard the cow of any breed, type, or ancestry that falls short of the line of reasonable profit. Not all of the good cows are in any one breed, nor all of the cows of any breed good ones. I believe in developing breeds, but not in following breeds blindly.

#### The Cow that Produces Most is not Always the Cheapest.

Cows differ greatly in their capacity to assimilate feed and convert it into dairy

products. In a recent test made at the Pennsylvania Experiment Station, it was found that a cow in their herd that produced 296 pounds of butter in a year only gave a profit of \$31, while another cow that produced only 279 pounds of butter gave a profit of \$60 a year; so we need to look at even more than the product of a cow to have an exact knowledge of what she is doing.

When one of the best practical dairymen of the west first applied the Babcock test to his herd, he reports that he not only had unprofitable cows, but that it was taking all of the profits of another cow that produced 265 pounds of butter in a year to compensate for the loss of one that fell below this. When these two cows were kept together they just paid expenses, and returned neither profit nor loss. When the poorer one was sold the other returned a profit of \$13.65. We have heard all about the man who made two blades of grass grow where one grew before being a public benefactor. In this case the man who makes two cows grow where one grows

better alone is neither a public nor a private benefactor.

*Specialization is What Tells These Days.*

Professor Haecker has admirably illustrated the difference in cost of producing a pound of butter from good cows and those that are not. He has shown that the cost in the Minnesota experiment station herd ranged from 10.8 cents to 18.2 cents. All of these figures go to show the necessity of close attention to the details in the management of a dairy herd. The author of a late humorous story has put it in this way. He says: "The old adage is put not all your eggs in one basket, but I say unto you put all of your eggs in one basket, and then watch that basket."

This is rapidly becoming an age of specialization and of intensive application; and whether we believe in special farming or not, there never was a time when the basket containing our invested capital required closer attention than now, and not only closer attention, but abler direction and more skillful management. That is where we are in dairying to-day, and we need to watch that basket.

*Part II. of "The Dairy Cow" will appear next month.*

## DAIRY FARMING METHODS AS FOLLOWED IN THE PROVINCE OF QUEBEC.

By J. C. CHAPAIS, LL.B., St. Denis, Kamouraska, Quebec, Assistant Dairy Commissioner for the Dominion of Canada.

### PART II.—GENERAL RULES TO FOLLOW TO OBTAIN SATISFACTORY RESULTS.

NOTE.—PART I. of Mr. Chapais' article, entitled "The Established System of Rotation of Crops," will be found in our June number. PART III., entitled "The Care and Handling of the Dairy Herd," and PART IV., entitled "Swine-raising in Connection with the Dairy," will appear in subsequent numbers.

#### *The Cleaning of the Land.*

The first thing to be done by a farmer who wishes to alter his method of farming, and to enter upon the true paths of progress, is to clean and to clear up his land. Heaps of stones, roots of brushwood, banks of ditches, broken bits of fences, such as ends of stakes, etc., all must be removed. The heaps of stones, if there are many, should be disposed symmetrically, as far as possible, in rows, instead of being heaped up in the middle

of the field. Instead of ten small piles let there be only one or two large ones. If the land is suitable, that is, if it does not lift with the frost, these stones can be piled into walls for fences. They may also be buried in deep trenches, made in rows, which will serve to drain the land. Any shrub or brushwood must also be removed. They occupy ground which they render useless, cast a shadow over the vegetation which surrounds them, and contribute as much as the heaps of stones to diminish the quantity of the harvest. Any piece of wood or any loose stone lying on the ground is in the way of the proper working of the farm implements, and very often a mowing machine, which cost fifty or sixty dollars, has been broken by an

end of a picket left carelessly in the field. Therefore, let there be a complete clearing up of the land.

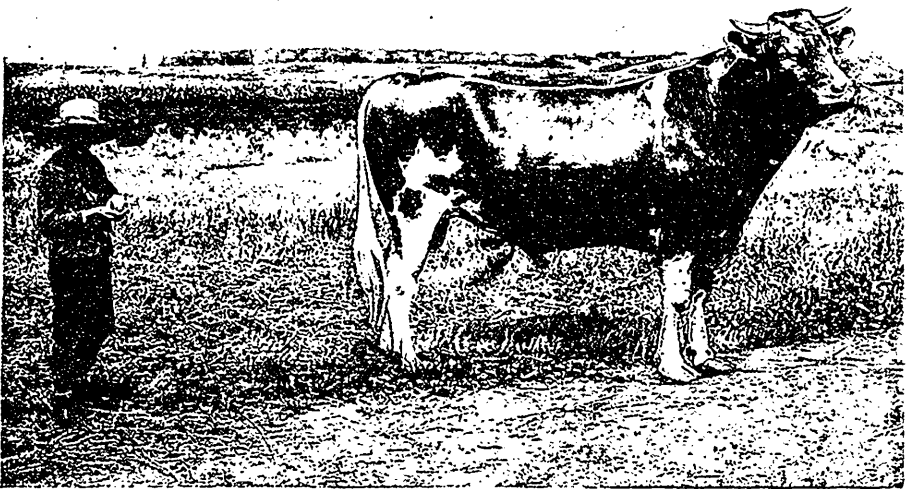
#### Drainage.

A badly drained land cannot give good profit. The crops are drowned in the pools of water. Water lies stagnant in the meadows and develops moss, the sorrel plants spread all over, and in winter the ice destroys the roots of the grass. What is required to drain it properly? Good ditches, with sloping edges, so as to prevent their giving way and being filled up by the frost; good wide ridges,

neglects his fences, on one or more occasions, seen a beautiful field of grain destroyed by his herd of cattle on some fatal night from the adjoining pasture? What if the damage is done in the neighbor's field? Quarrels, law-suits, loss of money, are the result of negligence in maintaining good fences in the land.

#### Weeds.

The curse of our agriculture! Nobody can deny this assertion. The plan of rotation which I have proposed (see last number of FARMING) has the great advantage of securing the easy destruction of



Ontario's Pride. Purebred Guernsey Bull.

The property of J. N. Greenshields, Esq., Isaleigh Grange Farm, Danville, Quebec. Dam, Joan, imported; sire, Presto of Peel, bred by the late Hon. Sir John Abbott. Ontario's Pride has always stood at the head of Mr. Greenshield's herd until within the last few years, when his sons have beaten him and he has had to take second place.

not less than sixteen feet, well rounded off; furrows well drawn; trenches well made, the edge of which is spread upon the ridges, instead of forming a rim near the trench wherever the water threatens to lie; embankments of ditches also spread over the middle of the ridges; a good drain ditch at every half arpent (about every five or six rods); water courses and gulleys always well cleaned, deep enough not to overflow in heavy rains.

#### Fences.

A bad fence is always more costly than a good one. Has not the farmer who

weeds. In fact, the manure put on the ground in the fall after the crops of peas and oats for next year's hoed crops, consists of manure which has fermented, and in which consequently the seeds of weeds are destroyed. Hoeing prevents the weeds natural to the soil, or those which have come from elsewhere from spreading. The manure put in midsummer on the meadow is also fermented and contains no bad seed.

If care has been taken to sow only fodder and grain seeds well cleaned and containing no foreign seeds; if, moreover,

people observe scrupulously, and see that others do the same, the law about weeds along the roads and elsewhere; if care be also taken to destroy, as soon as they appear, the weeds which grow generally in heaps of stone, and those which always find their way, notwithstanding the greatest attention, here and there on the meadows, it is certain that the land will never be infested by weeds.

#### Selection of Seeds.

The success of the harvest depends, in a great measure, on the judicious selection of the seed.

The first rule to observe is to sow only fodder seeds or others *scrupulously cleaned*. To my knowledge many parishes have been invaded by the daisy, the chicory or the thistle for having taken part in a distribution of seeds sold by an unscrupulous dealer, who sold uncleaned seed.

The second rule is to sow only such grains as suit our climate. A certain kind of grain may succeed well in Ontario and come to nothing here in Quebec.

The third rule consists in avoiding the bastardizing, the degeneration of the seeds. This is done by renewing them. By force of circumstances a variety of wheat which, when first imported, gave great crops, now gives only slender ones. People wonder at this, and yet it is not strange. A bad year has come, the grain has ripened badly, has perhaps been touched by the frost, been gathered in a bad state, perhaps damp. The result is that the seed is weakened, and will in turn give but a poor crop. This is a cause of degeneracy, which will be more and more felt from year to year, if the weakened seed is not changed for another in good order, whose value is unimpaired.

#### Care of Manure.

If we take for our motto "No manure, no crop," we shall easily convince ourselves that the question of the preservation of manure is one of the most important which claims our attention. The greatest fault with the farmers of Quebec,

and this they share with many of the farmers of the other provinces, is that they allow one-half, and even three-fourths, of the manure produced on the farm to go to waste. What do we see, in fact, with many farmers? A heap of manure put directly under the edge of the roof, so as to receive all the rain that falls from it. This heap, exposed to the winter's snow, to the rain, etc., is composed in the springtime of alternate layers of snow, manure, ice, which from the first thaw commence to melt, to become diluted, and to allow the continuous escape under a liquid form of all the fertilizing elements of the manure. At intervals the heap is frozen into a solid mass, at others it becomes so heated that the air is saturated with the ammonia which it allows to escape.

How can these evils be remedied? The thing is quite easy. First of all, the manure must be put under shelter, in such a way as to receive neither rain nor snow, and not be exposed to the drying rays of the sun. Then it must be kept from becoming too much heated, and the best way to do this is to *tramp it down well and often*. A good way is to give access to it to several pigs in the cellar or building where it is kept. The bottom of this building or cellar should be so arranged as not to let any liquid escape. In this way the manure keeps all its value, and instead of carting on the fields loads of washed out and useless substances, the farmer will have a good manure, by which the plants will benefit in such way as to amply repay the care bestowed on the manure heap.

I conclude these remarks on manure by laying down as a principle that the farmer who has weeds in his fields, or who travels and has sometimes to feed his horses with some hay containing weed seeds, should avoid the use of green manure, not heated, on the field in the springtime. It is the worst way of producing weeds.

*Part III. of Mr Chapais' article will appear in our next number.*

JAMES H. SHAW, Simcoe, Ont., writes: "I must say words fail me to express my admiration of your "Special Swine Number," both as to matter and as to illustrations. In my estimation it could not be better."

A. F. DIMMA, Cedar Grove, Ont., writes: "I have always found FARMING an excellent advertising medium. I receive more orders from my advertisement in it than I can fill."

# DEHORNING DAIRY CATTLE.

[EDITORIAL.]

The question of dehorning dairy cattle is being discussed just now with a good deal of feeling. On one side it is stated that a bull loses his prepotency in being dehorned, and that a cow does less at the milk pail. On the other hand this is denied. *Hoard's Dairyman* recently made the following statement :

So serious a mutilation as dishorning, so near the brain, the great seat of the nerve power and force, cannot but result in lessening that finer prepotency which constitutes the greater value of any desirable bull.

Our enterprising contemporary, *The Rural New Yorker*, somewhat doubted this statement, and invited opinions on the matter from some of the most distinguished live stock men in the States. Their answers do not wholly agree, although there is a great preponderance of opinion as to the harmlessness of dehorning so far as prepotency is concerned. A well-known breeder of dairy stock in Wisconsin replied as follows :

I agree entirely with the article in *Hoard's Dairyman*. I have not dishorned any of my cattle, and do not intend to as long as I want to breed fine cattle. As for the bull, I would not buy a bull which was dishorned. We handle our bull as carefully as a stallion, for he is the head and foundation for the future of the herd.

Professor Hinebauch, veterinarian of the North Dakota Experiment Station, however, had a different opinion :

All cases I can now call to mind of dishorned bulls and cows are opposed to the theory that prepotency is lacking in such animals. If dishorning bulls affected them in that way, reasoning from a physiological point of view, it would have the same effect upon cows. I can recall, at present, one herd of Shorthorns in this State in which the animals have been dishorned for, at least, three generations, yet they are conceded to be the finest animals bred in this State. I can also recall to mind Jersey bulls that have been dishorned, and whose progeny, after dishorning, is the equal of the progeny previous to dishorning.

Dr. Kilborne, of New York, is even more emphatic in the same direction :

There are, as far as I know, no facts to warrant the assumption that dishorning lessens the prepotency of a bull. Neither can I see any physiological reason why dishorning should affect the prepotency of the animal. The fact that the writer of the article refers to dishorning as a "mutilation" plainly indicates that he is opposed to dishorning, and is, probably, looking for some

plausible theory or objection upon which to condemn the practice. The objections to dishorning have almost invariably been raised by persons who have never had an animal dishorned, and, in many instances, have never witnessed the operation. Dishorning is growing in favor every year in this State, and I have yet to meet a stockman who has had his herd dishorned who would have the horns replaced if he could.

Director C. S. Plumb, of the Indiana Experiment Station, is quite as emphatic as Dr. Kilborne :

I know of no information available in the way of facts which would show that dishorning in any way injures the prepotency of the male, or his ability to transmit his desirable qualities from his ancestors to his offspring. Furthermore, I take very little stock in this notion. I think the greatest advocates of the idea are those who have had little or no experience in the dishorning business. I do not consider that dishorning destroys the ambition of the male. Several years ago I had the horns of a Jersey bull sawed off, and I did not see afterwards that it in any way injured his aggressiveness. It destroyed his ability to gore, but if help had not come at one time, even after being dishorned, he certainly would have killed the man who had charge of him. Of course, the greatest per cent. of dishorning has been done on beef cattle in the west, and I see very few dairy herds in this country that are dishorned. I take no stock in the quotation which you give from *Hoard's Dairyman*. You might just as well say that the children of a man who has had his skull trepanned are of inferior prepotency to their father, as to say that the offspring of a bull are lacking in the finer qualities of that animal simply because he has had his horns sawed off.

The theory that dishorning lessens the bull's prepotency does, therefore, not seem to have many advocates, but it is generally admitted that dairymen prefer to see their bulls with horns, as when so adorned their "masculinity" is more evident than when they are despoiled of these old-time weapons of offence and defence. Mr. G. C. Hill, of Wisconsin, writes :

The claim made by some that dishorning a bull weakens his power of prepotency, I believe to be yet only a theory, which has not been proved or disproved by sufficient experience or observation. While we do not think horns are of much advantage, we prefer to breed them small and leave them on. Breeders of choice dairy stock in this section do not dishorn, fearing that the theory may be a fact, and knowing also when the stock is brought into the show ring, the horns are considered necessary in helping to form a correct estimate of the animal.

Professor J. A. Craig, of the University of Wisconsin, formerly editor of



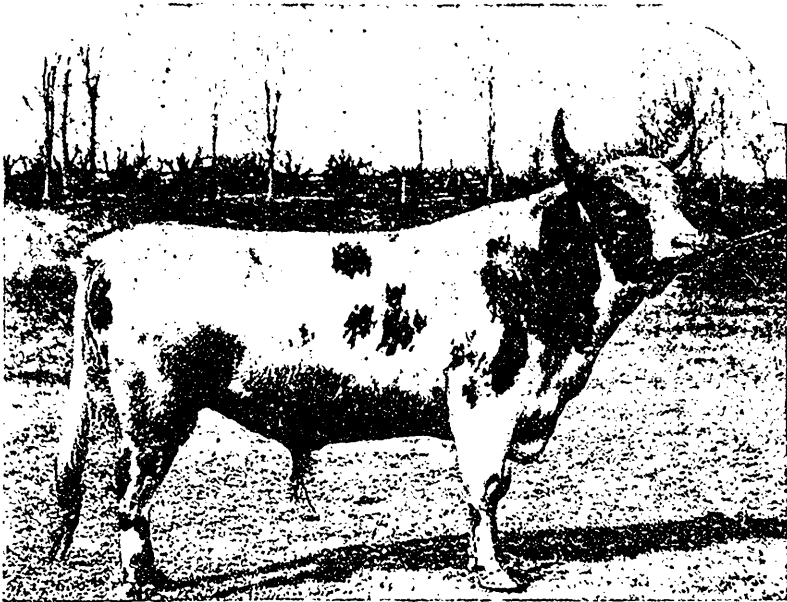
FARMING, thinks that dehorning cannot possibly affect prepotency, though it might possibly (although it has not been so in his experience) affect *vigor*, and the possession of *vigor* is in the long run essential to prepotency. He says :

As far as my observation goes in using dishorned bulls, I have not been able to notice any difference in reference to their prepotency. I have had the opportunity of noticing it if such an effect would result from this operation. It seemed to me that there might be something in the theory in so far as it would perhaps affect the *vigor* of a bull. I have grown by observation to be a thorough believer in the desirability of having

be somewhat affected by the operation. But in my experience, while dishorning has proven a safeguard against the bull doing any injury, it has not in those cases that have come under my observation affected the inherent *vigor* possessed before the operation was performed.

Dr. Leonard Pearson, veterinarian of the Pennsylvania Experiment Station, enters into the matter scientifically, and shows that there is no scientific ground for supposing that dehorning affects prepotency :

The thought of the writer, evidently, is that it is not the absence of horns, but the "mutila-



Jock Morton. Purebred Ayrshire Bull.

The property of James McCormack, Rockton, Ont. Bred by D. Morton & Son, Hamilton. Sire, Royal Chief (imp. dam, Beauty of Ayrshire (imp.)). Jock Morton was first in his class, both at Toronto and London, in 1895.

each of the sexes possess in the greatest degree those characteristics that are peculiar to each. All varieties of animals have certain peculiarities which are distinctly sex characteristics, and as an evidence of breeding qualities I do not know of any feature that will compare with these as evidence. In the dairy bull the possession of a strong horn, a high, thick crest and overflowing vigor, are the chief evidences of masculinity. As far as my observation goes, the bull that is thoroughly masculine is invariably prepotent, and the reverse has also been the result of such observations as I have been able to make, though I do not believe that the latter is so often observable as the former. If dishorning lessens that vigor which a bull should have to be impressive as a dairy sire, then I should expect his prepotency to

tion," probably meaning thereby the pain and wound that result from the operation. Of course, it is clear that bulls naturally without horns possess as much prepotency as bulls with horns, as shown by the histories of the polled breeds. So the problem is: Is the act of dishorning or the wound resulting therefrom in any way injurious to the animal? We should remember that the base of the horn is not in immediate contact with the bony covering of the brain, but is separated therefrom by the frontal sinus—an air-space which any one can see by opening the head of a slaughtered beef, which removes the seat of operation in dishorning from two to three inches from the brain itself. When the operation is properly performed, the disturbance is purely local, and in the rare cases in which complications

occur, they are usually confined to the air-spaces and passages of the head, and do not reach the brain. I have never known brain disturbance of any sort to follow the operation of dishorning, and if there be danger of such a disturbance, it is greatest immediately after the operation, and would, probably, be fatal. Dishorning does not seem to interfere with the memory or the intelligence of an animal in the least degree, showing that the activity of the brain is not interfered with, and I do not believe that the operation can have any influence whatever upon the prepotency of a bull. The operation has been performed upon such vast numbers of animals during the last few years, that its injurious effects could not fail to be very prominent at this time if they occurred at all.

Professor Davenport, of the Illinois Experiment Station, is equally emphatic in his belief in the harmlessness of dishorning, as based on scientific reasons :

The question is almost necessarily largely one of opinion, and the most that can be said of either side is mere assertion. It is practically impossible to prove by actual demonstration whether his prepotency is injured or not, because if he were first tested as a sire before removing the horns, there would not be time again to test his prepotency after dishorning before he would become aged and almost necessarily a different animal than before. The discussion will have to turn upon the reasons for or against, whichever assertion may be made. It is said that it is a serious mutilation of a part near the brain, which is the seat of nervous power and force. This seems to me more apparent than real. The horn is not intimately connected with the nerve centres, and its removal represents a far less invasion of the animal economy than does the amputation of a limb, or even the extraction of a tooth. Indeed, there is little evidence to lead me to suppose that the process of dishorning results in any disturbance of the nerve centres. There is some local pain, of course, for both the skin and the core are supplied with a local plexus of nerves, but they are all terminal. If it were possible to think of any physiological disturbance sufficient to alter the constitution of the animal, or if the practice of dishorning resulted in serious inconvenience to the individual, I might be led to consider it disadvantageous to the breeder; but there seems to be no evidence of either, hence it seems to me as one of the most humane and one of the safest operations that can be performed upon animals. It is a well-known fact that almost all feeders agree in saying that dishorned animals are not only more quiet, but are better feeders than before, and to the student of physiology, regular feeding habits are good evidence of normal conditions.

Director Frank E. Emery, of the North Carolina Experiment Station, is in favor of dehorning both for theoretical reasons and from practical experience :

The horns are grown from the skin much as the nails on our hands, or the toe nails and dew-claws of the animal. In time they become attached to the frontal bone, but should not be

considered an essential part of it. The horns are weapons originally intended for defense more than for offense, and since domestication has so completely removed the necessity for defending self or the common herd, they are useless except as ornaments and should be bred off. We do not particularly object to them if the wearer does not insist on using them on all, or any, occasions. We doubt its having very much, or any, effect on the vigor of a bull to remove the horns. We have yet to see the first evidence to support such a claim, while there is a considerable accumulation of evidence from those who have dishorned bulls, to show that they are just as good, more docile, and pleasanter to handle; while it may be that by dishorning and thus quieting a bull inclined to fight and waste energy that should be otherwise employed, the result is a decided gain in his ability to reproduce in his progeny those good qualities handed down to him but obscured by his vice of fighting. His prepotency would thus be intensified by removing these weapons, the possession of which leads to misuse of power and, thereby, loss of natural ability to stamp the best qualities on offspring. One instance of a dishorned bull is prominently before me. In March, 1895, I cut off the horns of our Jersey King No. 2. He was beginning to show a disposition to stand out against his keeper. The disposition to rule was curbed, but not destroyed. This bull is now, after two years, as active and alert as a yearling. No one could, for an instant, suppose him in the least injured by dishorning. But may we not suppose, with some show of correctness, that some of the energy which would, no doubt, have been worked off in fights with keeper, or gate posts, may have been concentrated in offspring, and that the later calves from this bull are better than they could have been had he been kept with horns?

*The Wisconsin Farmer*, in a very thoughtful article, discussing the question from a wider point of view, however, than the mere question of prepotency in bulls, has a decided preference for leaving the horns upon cattle intended for breeding, both male and female. *The Farmer* says :

The motive put forward is that of humanity. But in the case of breeding bulls we are impressed with the belief that dehorning should not be done, although it is not motives of humanity that creates this belief. Merely as a belief, however, without pretence that it is an ascertained fact, we think that breeding qualities are likely to be impaired by the sacrifice of the horns in the case of horned breeds. Neither would we dehorn pure-bred cattle grown as breeding stock. When horns are one of the characteristics of the breed, we would leave them there.

But *The Farmer* is very emphatic in its opinion as to the wisdom of dehorning cattle intended for beef. It puts the matter very clearly, and offers some good advice on the subject :

But when it comes to the question of animals that are to go to the feed lot, they should be dehorned every time. It is the profitable course,

and the humane course. A herd of animals crowded together, as is the case in the feed lot, will commit more cruelties, and suffer more from cruelty a dozen times over by reason of having horns than any that may be caused by the few moments of pain which results from the operation of dehorning. Indeed, from our observation of the operation and of the behavior of animals while undergoing it, we are of the opinion that the pain attending it is very much exaggerated in the popular mind. No evil consequences follow it, and even the milk function in cows, which is so easily disturbed, suffers no disturbance worth mentioning when cows in full milk are operated upon. Those who make these occasional protests pay no attention to the fact that castration, spaying, and the docking of lambs are operations at least as painful, and for centuries more common than dehorning. Perhaps this is just the point—that they are common. The protesters are used to these operations, but are horrified by one no more painful, though quite as necessary, to which they are not accustomed. All cattle should be dehorned before going into the feed lot. It makes them quieter and more thrifty, the stronger tyrannize less over the weak, and all the cattle have more room in the same space when the horns have been removed. In order to avoid the supposed pain attending the dehorning of mature animals, many advocate the use of caustic potash on the calf as soon as the buttons can be felt on the skull. This method is undoubtedly effective, and causes but little pain if the operation is done carefully and the caustic is not allowed to touch the skin.

*The Farmer*, however, raises a point that we think is well taken. It may be that dehorning can be easily performed

in calfhood. But cattle deprived of horns when young learn to use other weapons of offence; whereas if they are not deprived of their horns till they have learned to rely upon them, then when they are deprived of their horns they become quiet and remain so. On this point *The Farmer* says:

It has occurred to us to doubt, however, whether dehorning in calfhood by the means of caustic potash exerts the same quieting effect upon the animal when he reaches the feed lot as does the use of the clippers or saw on the mature animal. Cattle that have never known horns learn to rely upon other methods of attack and aggression. An animal belonging to one of the polled breeds is not necessarily a safe animal to those about him, or to his fellows in the herd. Never having learned to rely upon horns as weapons, he does learn to exert his strength offensively in other ways. Probably the same is true of the calf dehorned with caustic, whereas, in the case of the adult steer from which the horns have been removed, the quieting effect is probably largely due to the sense of loss of the aggressive weapons. The moral effect has perhaps quite as much to do with his subsequent good behavior as the material loss, and his situation probably corresponds to that of the ancient and infirm pugilist who keeps on his good behavior, not because he has undergone a change of heart, but because he feels that as a fighter he is not the man he once was. Whatever may be the fact in this regard, however, it is quite clear that animals should not be put into the feed lot until their horns have been removed.

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## MAKING SILAGE AND FEEDING IT TO BEEF CATTLE.

By T. S. WOODWARD, in *The Practical Farmer*.

When silos were first used everybody sowed the corn. Often as much as three and four bushels were sown per acre and the product was a mass of immature, woody fibre, filled with water. No wonder that some who first used this sour, stinking, worthless stuff got so disgusted that they have never ceased fighting silos. To make most profitable use of the silo we should know that all material put into it undergoes fermentation to a certain degree; that in this process starch is changed to sugar, so that while the corn we use may have much starch and be greatly benefited by the process, the sugar is changed to acid and much of its value lost; that both starch and sugar are nearly all digestible and available in animal nutrition; that but a

comparatively small proportion of woody fibre is digestible and the process of fermentation adds nothing to its digestibility or food value.

*When the Corn Should be Cut.*

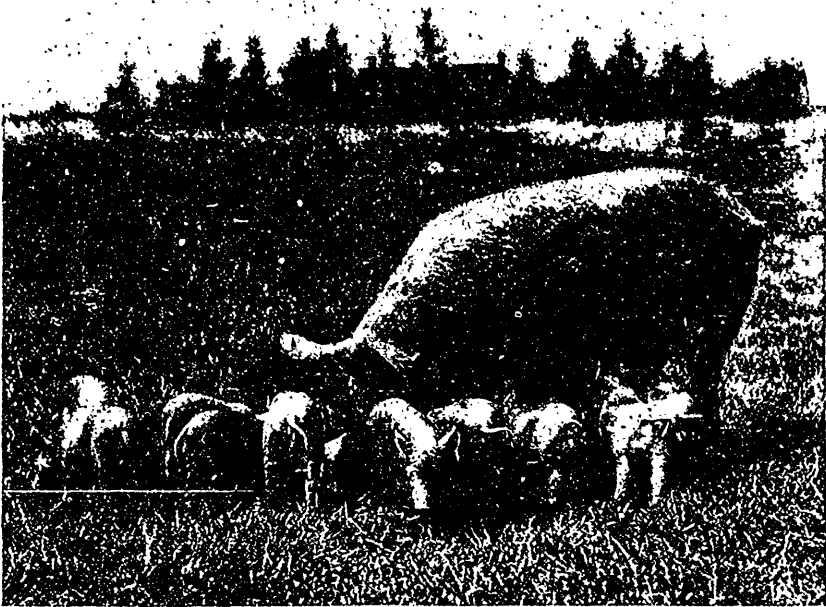
Growing the corn and filling the silo are important, and he who would use the silo most profitably must know something of nature's way of building up the corn plant. From the time the tiny point breaks through the soil until in blossom, the corn is taking from the soil water and a few mineral elements; and the nitrogen, but only a little carbon, from the air, only enough to help it form the woody structure. But from this point it takes carbon rapidly from the air, uniting this with other ele-

ments and building up the various compounds, and changing sugar to starch and starch to woody fibre. The last change is particularly rapid during the process of ripening. From this we shall see that the corn is at its best just at that point when it contains the most sugar and starch and the most woody fibre that is digestible. This will be found to be just when the corn is beginning to glaze.

**Filling the Silo.**

If, then, we could fill the silo in a single day it would be best to wait and

it, are all so great that I can't afford the luxury of whole silage. I can hire a man and engine for \$2.50 per day, furnish coal for fifty cents more, and the man who runs the engine will grind the knives of the cutter, and the \$3 will save the labor of at least four or five men, and my silage will be in much better shape to keep and be handiest to get out and feed. I have cut it all lengths, from three-eighths to one and one-half inches, and can see no difference in its keeping, but find that the shorter I cut it the better it will pack.



**Agincourt Queen. Purebred Tamworth Sow.**

The property of Mr. John Bell, Amber, Ont. Sire, Algernon; dam, Miss Kennedy. Sire of the litter, Dorchester Hero. Agincourt Queen was farrowed Feb. 9th, 1896. Photo was taken May 26th, 1897.

watch the corn for this period. But, as we can't do this, it is well to begin as soon as the very earliest ears show the glazing stage. If, however, the corn should be severely frosted, it is best to cut it into the silo as soon as possible. I am not disposed to quarrel with those who advocate putting corn into the silo uncut. There is no doubt but it will keep fairly well if great care is used in packing it tight, and weighting it well, and if I were obliged to put it in whole or not at all, I would put it in whole, but the labor of putting in and taking out and the care required in packing it properly, and the labor in weighting

In putting it in I have tried every device, almost, to distribute the silage without the use of a man in the silo. I don't say that it can't be done, but I have never been able to do it satisfactorily. I want the best man on the premises in the silo, and I want him busy all the time, not in tramping the silage, but in keeping corn, stalks, and leaves properly mixed together. The tendency is for the cut corn to gather in pockets and when so gathered, it will not pack close enough so as not to mould and rot, more or less, and when being fed it will not come out uniform. If the man in silo will keep contents evenly distri-

buted, corners full and well trodden down, and the silage a little higher at sides than in middle it will come out all right. If for any reason the corn gets dried or cured so as to have less moisture than when just in glazing stage, it should have enough water added when put into silo to make up the deficiency.

#### Covering the Silage.

It is not necessary to cover or weight the silo, but if not covered, a few inches on top will be spoiled. I have found it cheaper to put on a foot of straw or chaff, completely saturating the covering as put on; two days after, go on silo and thoroughly tread all the surface, and then wet again with all the water the straw will hold. It is also a tip-top plan to sow at this time a quart of oats to the square yard of surface. The top of straw will rot. The oats will grow and fall down, and roots of oats and rotten straw will form an air-tight covering and the silage will be perfect.

#### How to Get the Full Benefit of Silage.

To get most benefit from silage a few points must be kept in view. Silage is a succulent food. It is widely unbalanced and very carbonaceous in its nature. Being a succulent food, adapted to warm weather feeding, we must make the conditions favorable to the use of such food. It would hardly do to feed an animal that was compelled to live out of doors in a zero temperature on the finest of green pasture grass. When eating such food they are in summer weather, and this is necessary for their health and thrift; so if

we feed silage it is necessary that the animal be kept in warm quarters.

Being wide in its nutritive ratio, and very carbonaceous, if it were possible for the animal to eat enough silage for growth and production, it would become fat with a deficiency of muscle. As an animal on an exclusive corn diet would not make much growth aside from the development of fat, so it would do if it could eat enough silage for this purpose.

#### Feeding Silage to Beef Cattle.

It follows, therefore, that silage should only be made a part of the daily food, that from which the animal is to get its carbonaceous matter, and should be combined with an excess of albuminoids. Luckily these foods are plentiful and cheap, and at the same time they contain much of the plant food of which all our soils are greatly in need. It is also well to feed the animal some dry food daily in connection with silage. I have found that about forty pounds per 1,000 pounds live weight was as much as it was profitable to feed daily, and with this I gave four or five pounds of clover hay and of a provender made up of wheat bran, linseed meal, cottonseed meal or sugar meal, in varying proportions (as these were plenty and cheapest), as much as the animal could digest and pay for. I have never found anything which would enable me to keep a cow with so little expense daily and cause her to give such a large production. I have also found silage equally desirable for all other animals kept for meat production. In fact, I could not think of trying to make beef in New York without its use.

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## THE SAN JOSÉ SCALE.\*

By S. A. FORBES, Ph.D., Consulting Entomologist, Illinois Agricultural Experiment Station, Urbana, Ill.

#### Importance of the San Jose Scale.

"There is, perhaps, no insect capable of causing greater damage to fruit interests than the San José, or pernicious, scale. It is not striking in appearance, and might often remain unrecognized, or at least misunderstood, and yet so steadily and relentlessly does it spread over practically all deciduous fruit trees—

trunk, limbs, foliage, and fruit—that it is only a question of two or three years before the death of the plant attacked is brought about, and the possibility of injury, which, from the experience with other scale enemies of deciduous plants, might be easily ignored or thought insignificant, is soon startlingly demonstrated. Its importance from an economic stand-

\*Being extracts from a recent bulletin issued by the Agricultural Experiment Station at Urbana, Illinois.

point is vastly increased by the ease with which it is distributed over wide districts through the agency of nursery stock and the marketing of fruit, and the extreme difficulty of exterminating it where once introduced, presenting, as it does in the last regard, difficulties not found with any other scale insect. Its importance was early recognized by Professor Comstock, who, in first describing it in 1880, gave it the suggestive name of *perniciosus*, saying of it that it is the most pernicious scale insect known in this country. The Los Angeles Horticultural Commission reported in 1890 that if this pest be not speedily destroyed it will utterly ruin the deciduous fruit interests of the Pacific Coast. Its capacity for evil has been more than demonstrated since its appearance in the East, and it has been, if anything, more disastrous to the peach and pear orchards of Maryland, New Jersey, and other eastern and southern States than in California and the west.

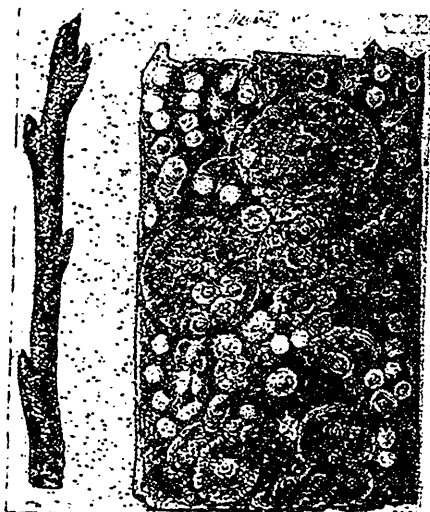
"We are therefore justified in the assertion that no more serious menace to the deciduous fruit interests of this country has ever been known. There is no intention here to arouse unnecessary alarm, but merely to emphasize the importance of taking the utmost precautions to prevent its introduction into new localities, and to point out the extreme necessity of earnest effort to stamp it out where it has already gained a foothold."

The foregoing sentences are from a bulletin on the San José scale published in 1896 by the United States Department of Agriculture. Its authors, Messrs. Howard and Marlatt, have been for a long time in the Division of Entomology, at Washington, Mr. Howard being now its chief, and they have thus for many years been made continuously acquainted with the history and spread of this scale, have personally studied it at many different localities, and have obtained information concerning it from all parts of the United States infested by it. No one else can speak with such authority on the subject of its injuries to horticulture, and few are less likely to make extreme or sensational statements concerning it.

**The Pest is Spreading Rapidly.**

My own brief experience with it fully bears out, as far as it goes, the statements above quoted. For example, a single

orchardist in this State (Illinois) has already lost a thousand trees, killed by this scale, notwithstanding very considerable efforts on his part to dislodge it, and his present orchard property of some seven hundred trees is all thoroughly infested. From this place, near Sparta, in Randolph county, the pest has overflowed into surrounding orchards, and has possibly been distributed elsewhere, no one knows how far nor in what amount. Furthermore, observations made within the last year in Delaware seem to show that this scale is much more difficult to eradicate, and that it tends to spread more rapidly than has heretofore been



Twig, Showing San Jose Scale.

The smaller picture shows the twig in natural size, with the scale almost covering it. The larger picture shows a small portion of twig magnified.

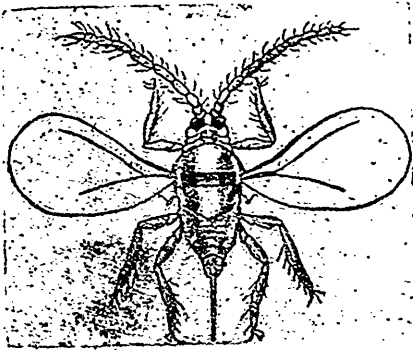
supposed. The Experiment Station Entomologist of that State reports that where he found but fifty infested trees last year he now finds a thousand, although energetic insecticide measures have been taken in the meantime; and he further concludes that the entire orchard must be thoroughly treated in every case where even so much as a single tree is found visibly infested.

When to this general report of injuries done by this scale insect elsewhere I add the ominous statement that we have found within the last seven months fifteen widely separated localities in Illinois upon which the San José scale has securely fastened itself, and from which it is certain to

spread in all directions if not checked or exterminated where it is, it will be clearly seen that we have to deal with a first-class emergency in the history of horticulture; one which calls for wisdom in counsel and energy in action as few other things have done since horticulture first began to assume prominence among us as an industrial pursuit.

#### Description.

The female of the San José scale—so named because it was first detected in the San José Valley of California—is a small nearly flat, circular scale, from a twelfth to a twenty-fifth of an inch in diameter, of a general gray color (light or dark), with a pale yellow or reddish yellow centre. The surface of the full-grown scale is usually smooth, but is sometimes



San Jose Scale, Adult Male, Greatly Enlarged.

slightly marked with concentric rings. The scale of the male is oblong when full grown, usually darker than that of the female, sometimes approaching black. It is marked by a nipple-like elevation near one end, surrounded by a little groove-like ring, which gives it a very characteristic appearance under a good hand lens.

The surface of the bark, when it is completely covered, has to the naked eye a minutely roughened, incrustated, and unhealthy look, and a dusky or dark grayish hue. If the surface be rubbed by the finger it will have a greasy feel, due to an oily fluid from the crushed insects. Examined under a good glass, the nipple-like centres of the young scales and the circular grooves surrounding these give a very characteristic appearance to the encrustated surface. From other common

fruit scales it is very readily distinguished, especially in the winter, by its circular form, by its smaller size, and by the absence of eggs beneath it. The other common apple scales are the oyster-shell bark-louse and the scurfy scale, both of which are oblong, varying in length from a tenth to a sixth of an inch. Under each scale of these species will be found at this season (April) a little collection of oval eggs, yellow or nearly white under the oyster-shell scale, and maroon-red under the scurfy scale. The San José scale, on the other hand, does not commonly lay eggs, but brings forth its young alive.

#### Life History.

This scale passes the winter, nearly grown, as a living insect on the bark. By the middle of May the young begin to appear—minute six-legged oval creatures, visible under a lens as crawling, yellowish specks. After creeping about for a few hours the young insect thrusts its long bristle-like sucking beak through the bark of the plant and there remains motionless during the remainder of its life. It gradually transforms by successive molts to the circular scale already described, all trace of legs and feelers disappearing in the process. This account of its transformations applies to the female only, the male going through a somewhat different process, and emerging as a minute two-winged fly. When a little more than a month old the female begins to bring forth young, at least four successive generations occurring in our latitude in a single season. The progeny of a single female may vary, according to actual count, from fifty to five hundred or more, with an apparent average of about two hundred female young for each female of the generation preceding. According to these figures the production of a single female insect surviving the winter on the bark would amount by fall to over a billion and a half of female scales. "It is not to be expected, of course," says Mr. Howard, "that all the individuals from a scale survive and perform their function in life, but under favorable conditions, or in the case of a tree newly infested or not heavily incrustated, the vast majority undoubtedly go through their existence without accident. Neither the rapidity with which trees become infested nor the fatal effect which so early follows the ap-

pearance of this scale insect is therefore to be wondered at."

#### Food Plants.

The San José scale attacks nearly every variety of deciduous fruit trees, and many other trees and various shrubs as well. It has been found upon the peach, apricot, plum, cherry, pear, quince, raspberry, rose, gooseberry, currant, persimmon, elm, osage orange, pecan, linden, and willow. The pear, peach, plum, apple, and cherry are almost equally liable to injury. Certain varieties of pear are, however, rarely attacked. Whatever tree it attacks it is likely to infest throughout, fastening itself indifferently upon trunk, limbs, leaves, and fruit. It sometimes kills the tree outright, although badly infested stock may maintain a feeble existence for some years. Young peach trees will ordinarily survive an attack of this scale two or three years at most. If left to itself it spreads quite slowly, killing, however, as it goes, everything particularly subject to its attack. It is possible that the young scale may be conveyed to considerable distances by flying or running insects or by birds; ordinarily, however, such scattering of the young scale will have no permanent effect, since females distributed here and there, one in a place, would be little likely to be fertilized, and in most cases would perish without reproduction.

#### Origin and Distribution.

The original home of the San José scale has not yet been certainly ascertained. It has been found in Australia, Japan, and Hawaii, but seems to have been first recorded from Chili in 1872, where it was found on pears which had been introduced from the United States. By 1873 it had become a serious pest in the San José Valley, California, on the premises of Mr. James Lick, the founder of the Lick Observatory. It was not scientifically described until 1880, by which time it had extended as far west as San Francisco. It has since spread, in the Pacific region, throughout California, Oregon, and Washington, and has reached British Columbia and Idaho on the north, and Nevada, Arizona, and New Mexico on the south. Its first appearance in the Atlantic States, so far as known, was on the plums imported to New Jersey from

San José in the spring of 1886 or 1887. It was not actually detected in these States, however, until August, 1893, at which time it was found in Charlottesville, Virginia, where it had been introduced from New Jersey nurseries. Besides the States above mentioned, it is now known to occur in Alabama, Delaware, Florida, Georgia, Indiana, Louisiana, Massachusetts, Maryland, New York, Ohio, Pennsylvania, West Virginia, Missouri, and Illinois.

The first publication of its occurrence in the east was made by Riley and Howard in February, 1894, and in April of that year twelve thousand copies of a circular of warning were issued by Mr. Howard, giving general notice of its occurrence in several eastern States.

#### Preventives and Remedies.

Methods of prevention applicable to the San José scale are limited to precautions against its introduction in to premises previously free. With the numerous possible sources of contamination now scattered throughout the country, no fruit-grower is really safe who does not first assure himself that the premises from which his young stock may be obtained are themselves free from this insect, and who does not critically inspect every portion of every tree and shrub liable to attack by this scale which comes to his premises. In any case in which the purchaser of young trees suspects the possibility of the presence of this scale, he should, at least, thoroughly disinfect his stock by dipping or washing it in a solution of whale-oil soap.\*

A great variety of remedial substances have been more or less generally used in different parts of the country, and have likewise been extensively treated experimentally by the United States Department of Agriculture in the vicinity of Washington. The results of these experiments indicate that conclusions reached and practices established on the Pacific slope cannot be depended upon in a widely different climate. From the summary of recommendations in the bulletin on the San José scale published in

\* NOTE.—The soap is to be applied in a hot solution of two pounds to the gallon of water. The soap is dissolved in an iron pot filled with water. The soap solution is taken from the pot boiling hot. If the solution is used for disinfecting trees it should be applied by a sprayer. Every branch and every twig should be thoroughly saturated.



1896 by the United States Department of Agriculture I take the following:

"For the east, experience justifies the following steps as of highest importance:

"(1) In all cases of recent or slight attack the affected stock should be promptly uprooted and burned. No measure is so sure as this, and the danger of spread is so great that this course seems fully warranted.

"(2) In case of long standing and wide extent the affected stock should be cut back severely and treated with winter soap wash. Stock badly incrustated with scale should be cut out at once and burned. The lessening of the vitality, together with the poisoning of the sapwood already affected by the scale in such cases, will usually prevent the plant from ever again becoming healthy, and generally it is beyond help. We wish particularly to impress upon the minds of fruit growers that as soon as this insect is found to occur in an orchard the most strenuous measures must be taken to stamp it out. No half-way steps will suffice. The individual must remember that not only are his own interests vitally at stake, but those of the entire community

in which he resides. He may think he cannot bear the loss, but the loss in consequence of the slightest neglect will be much greater. The fact, too, that there is a community of interests among fruit growers in this matter must not be lost sight of. Fruit growers must be mutually helpful in an emergency like this.

"(3) As precautionary measures to prevent the introduction of the scale into new districts, the following considerations are important: No orchardist should admit a single young fruit tree or a single cutting from a distance into his orchard without first carefully examining it and satisfying himself conclusively that it does not carry a single specimen of the San José scale; he should insist, also, on a guaranty from the nurseryman of such freedom. In addition, no fruit should be brought upon the premises without previous careful inspection. If this course be adopted by every one interested, without exception, the rate of spread of the species may be limited to the comparatively slight natural extension by crawling, by winds, and by the aid of other insects and birds."

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## THE DOMINION COLD STORAGE SYSTEM.

By J. W. ROBERTSON, Agricultural and Dairy Commissioner for Canada.

In treating of the arrangements which have been made by the Department of Agriculture to provide cold storage, it may be well to refer first to the uses of cold storage, that it may be seen that those arrangements are necessary, and that they are applicable to the conditions under which the producing of foods is carried on in this country now. I may make the remark that the ultimate object, as well as the primary purpose, of agriculture is to produce foods. The surplus of foods of various kinds forms the basis of commerce in Canada.

Values Depend upon Condition.

Every food commodity has two values, (1) an exchange value, according to which it can be exchanged at a certain rate for other things, and (2) an intrinsic or food value. These values are different and independent of each other. Cold storage has to do with regulating both to some

extent. I may illustrate by saying that a standard grade of wheat when in good condition has always the same intrinsic or food value. A given quantity of it will always make the same quantity of flour or the same number of loaves of bread, and it can nourish the same number of people. The intrinsic or food value of a bushel of wheat does not change except as its condition changes. The intrinsic or food value of a pound of butter does not change, except in so far as its condition changes; and when its condition changes to the lessening of its food value, its exchange or market value is greatly reduced. Within the limits of the current market prices, its condition rather than its composition determines its value. The actual exchange value, or range of market prices, is affected and settled by many causes and circumstances which need not be touched upon here. At one time a man can exchange a bushel of wheat for

so many more pounds of groceries than at another time. That part of the question is not touched by cold storage, except in so far as cold storage will preserve the quality and fine condition of a perishable food product, and thus give it a higher intrinsic value, with a consequent higher exchange value in the same market at the same time, than it would have had if it had not been so preserved. The value of food products depends chiefly upon their condition, and not upon their composition. We have been going on the assumption that the composition of a food was what regulated its value. We have a climate and a soil which give us a chance to make fine food products; but we have not been getting the best results owing to the fact that they are always being spoiled, from the day they are produced until they reach the consumers. This is especially true of such perishable food products as butter, meat, eggs, poultry, and fruits; but if we realize the expectations which have been formed, the system of cold storage arranged for will protect them from deterioration until they reach the ultimate consumers. The market value of nearly all these things is determined by the daintiness of their flavor and the niceness of their appearance. A pound of butter has as much fat in it, if it smells strong and looks mussy, as if it smells nice and looks neat. The composition does not determine the value; but the condition, the appearance, the flavor, and the color do determine almost entirely the value of all these fine food products. The production of these foods is not and never can be made profitable, unless followed by the use of means for their preservation; so that the consumers, no matter where they live, will get them in as nice a condition as when they left the hands of those who produced them.

#### The Uses of Cold Storage.

Many men look upon cold storage as some men look upon the silo—as having in itself some creative power whereby a farmer who used a silo would become rich without effort on his own part. Cold storage has no creative power; it does not create wealth. It merely preserves what is already wealth, and prevents it from becoming a loss. It has no regenerative magic; it cannot bring back to a good condition what is already spoiled.

It merely can keep what is put into it in a practically unchanged condition for a prolonged period of time. It has three chief uses in agricultural commerce. The first is to preserve commodities and thus avoid direct loss. The second is to prolong the marketing season or the period of consumption. For instance, in the case of butter the marketing period is not more than ten days, unless the butter be somehow preserved. The marketing period for strawberries is not more than five days after the berries are picked, unless they are somehow preserved. If the season for marketing and consumption can be prolonged, the producer has just so much better a chance to get rid of his goods at a high price. The third use is to enable the owner to choose his own time for selling. Anyone who knows anything of commercial or manufacturing affairs knows what a great advantage it is to a man to be able to choose his time of selling, and not to be compelled to sell whether he will or not at an unfavorable time. The whole of the cold storage plans are intended to provide conveniences for conveying perishable products from the producers to the consumers in their best condition. So far as they do that, they will prevent loss to the producers, will give the consumers better articles, make them consume more of them, and incline them to pay higher prices. When the producers get their share of those higher prices, they will produce more and have more profit.

In all profit-making in Canada, different interests are concerned; and in considering and planning a system of cold storage, all these interests have to be taken account of. (1) There are the interests of the producers—those who grow fruits, those who make butter, those who provide meats, those who rear poultry, those who market eggs. (2) There are the interests of the buyers or collectors of these products—not identical with those of the producers, but so bound up with them that the one cannot be seriously damaged without the other being hurt. (3) There are the interests of the carriers or the transportation companies—who carry these products from the place of production to the place where they are distributed from. (4) There are the interests of the distributors—provision merchants or fruit merchants. (5) And, fin-

ally, there are the interests of the consumers. Any plan that does not provide for helping all these interests to avoid loss is just so far incomplete; and in so far as it helps all of them to prevent losses or deteriorations, it gives every one a chance for more profit, and leaves more real wealth in the country. The middlemen are quite as essential to profitable agriculture in Canada as are the producers; and any carelessly worded remark to the effect that the middlemen should be brushed away is, to my mind, a threat to the wealth-producing capacity of the country.

The British Market for Foods.

How can cold storage be used? So far as the Department of Agriculture has been making arrangements, cold storage has been provided mainly and almost only for food products intended for export. Incidentally encouragement has been given to the establishment of cold storage warehouses in cities so that those who live in cities may get better products, and those who supply these products may get better prices. But the Department of Agriculture is mainly concerned in this regard in doing what it can to improve the export trade. I have here a table of figures to illustrate what a demand there is in Great Britain for food products which are susceptible of being improved and increased in value by cold storage methods.

The table shows the demand in Great Britain for the food products of Canada. The figures of the value of imports of these twelve classes of food products are eloquent of possible, and I think most probable, increase in prosperity for farmers in Canada. They indicate a market of six hundred millions of dollars, for exactly the commodities this country can produce in abundance and excellence.

I will call attention to two matters. In the very large items of \$114,109,534 in 1895 for dressed meats, the share of Canada was a comparatively small one. Nearly the whole of that supplied by Canada was in the form of hams and bacon, and not in the form of fresh dressed meats.

In the article of cheese out of an importation of \$22,752,299 worth in 1895, Canada supplied \$14,220,505 worth,

Table showing the Value of Food Products Imported by Great Britain, and the proportion thereof Imported from Canada, for the Years ended 1st December, 1895 and 1896, respectively.

ARTICLES.	IMPORTS FROM CANADA.	
	1895.	1896.
Wheat, barley, oats, flour, etc.	\$ 7,235,599	\$ 8,438,094
Animals (living)—for food	8,052,794	12,601,265
Dressed meats	4,668,904	1,653,421
Cheese	14,220,505	866,904
Butter	23,848,749	594,577
Eggs	74,674,537	2,974,850
Fish	20,364,892	1,711,769
Fruit (raw)	19,483,437	3,724,081
Lard	15,635,199	103,833
Milk, condensed or preserved	*15,429,249	† Full returns of British imports from Canada, for 1896, were not obtainable at date of compilation of this table.
Potatoes	14,317,446	556
Poultry and game	5,273,320	6,845
Totals.	2,045,112	4,076,559

\* Not including oranges and lemons.

whereas in 1895 out of an importation of butter by Great Britain of \$69,326,786 worth, Canada supplied only \$536,797 worth. To my mind the reason—not perhaps the sole reason but the chief reason—why we supplied so little butter and so much cheese, is because cheese does not get injured in being carried at an ordinary atmospheric temperature. It can be carried all the way without being spoiled, whereas butter has been spoiled. There is nothing in the climate, the grass, or the people that is more favourable to cheese than butter; and there is just as much skill in Canada to

make butter as there is to make cheese. But until 1895 there were no means whereby butter that was made in Canada could be sent safely to Great Britain. It arrived there in a deteriorated condition, and therefore got us a low grade of customers and a low grade of prices. We had a small chance on the market. These are the figures of 1896 as far as they are available. They are taken from the British Trade Returns for the year ending December 31st. We have gained a good deal in butter from the figures of 1895; and we will go on increasing in much larger quantities during the coming years.

#### Cold Storage on Steamships.

Perhaps the most important link, at least one of the very important links, in the chain of cold storage that may be provided, is the cold storage on the ocean steamships. In 1895 an effort was made to provide cold storage chambers to be cooled by the use of ice. That was in a measure satisfactory as far as it went. The same practice was continued last year and was in a measure satisfactory. It was a great improvement upon the methods that were followed before; but it was not entirely satisfactory and was not sufficient. By direction of the Minister of Agriculture arrangements have been made for mechanical refrigeration upon 17 steamships leaving Montreal this summer. They will provide safe and reasonably cheap carriage, for perishable food products during the season. They will be thoroughly fitted with mechanical refrigerating plant and insulated compartments. A little more cold storage space is provided on them than is likely to be used this year, but no more than will likely be fully occupied by cargoes next year.

Negotiations are in progress, but agreements are not yet signed, to provide fortnightly cold storage service from St. John and Halifax to London.

Negotiations are in progress for a monthly cold storage service from Prince Edward Island to Great Britain.

These will provide a safe outlet with cheap transportation for the perishable products of all the provinces; Ontario, Québec, and the western provinces having facilities through Montreal and the city of Québec; and the maritime pro-

vinces through St. John, Halifax, and Charlottetown.

The agreements call for insulated compartments, with mechanical refrigerators of the best kind, including duplex machines, so that in the event of a breakdown of one part, the other part can continue during the voyage. The agreements provide that the companies shall not charge more than 10 shillings per ton extra for the cold storage service. That is a very small charge, less than 10 cents per 100 pounds on the products carried.

The freight charged for all cold storage chambers is based upon the current rate for butter and cheese, that being a safe basis. Other products will be carried in the cold storage chambers at a rate of freight based upon what the space that they occupy would have earned at the freight rate on butter and cheese. The whole freight charges on the ocean on butter and cheese are a little less than half a cent per pound; and the rates on all other products are to be based upon the amount which the space occupied by them would have earned if filled by butter or cheese. Grapes, for example, would occupy about the same number of cubic feet per ton as cheese and butter.

The government has arranged with the steamship companies, and pays a considerable part of the initial cost of fitting the steamers with cold storage plant in order to get these favorable terms for the shippers. I am informed that the extra charge for cold storage on steamships from the Atlantic ports of the United States is often three or four times as much as the maximum which may be charged Canadian shippers as arranged for by the Department of Agriculture.

#### Inland Cold Storage.

It would not have been wise on the part of the government to provide cold storage chambers on the steamers unless such steps as could be taken were taken to ensure that the products, when they got to the steamships, were in an undeteriorated condition. It would be throwing money away to carry products to the cold storage chambers on the steamships in a partly spoiled condition. Bulletins giving as precise information as possible on the principles of construction for cold storage buildings have been prepared and distributed. These principles are little

understood, and a knowledge of them would be helpful to the people of Canada. By our correspondence I find that only a few of the persons in Canada who had cold storage buildings had an understanding of the principles underlying the construction or management of cold storage premises. With most people it was a rule of thumb all through. The insulation of a cold storage building is perhaps the most essential part. The cooling process is not difficult of application; but the great loss is from the penetration of heat from the outside into the interior. From experiments conducted to ascertain what proportion of ice would be consumed in cooling the contents of the building, and what proportion would be consumed by heat which came through a well-insulated building, it was found that seven-eighths of the ice was consumed in counteracting the heat influences from the outside, and only one-eighth was used to cool the contents of the building. A bulletin dated January 16th, 1897, was issued by the department giving directions for the insulation of buildings. This bulletin can be obtained at any time by application to the Department of Agriculture, Ottawa.

Cold Storage at Creameries.

I come next to special cold storage at creameries. It was found essential that the creameries should have conveniences for protecting their butter against injury by heat from the time it was made, otherwise the butter would start on its journey to any market in a rather bad condition. If advice or information only were given to creamery men probably one in ten would take it, and act upon it this year. Probably two in ten next year. That process of providing cold storage accommodation would be slow. Instead of that the Department of Agriculture arranged, after parliament had voted a certain sum last session, to offer a bonus of \$100 to the owner of any creamery who would provide a suitable cold storage building. The announcement made by the department will be found in full in FARMING for December last, page 264.

Increase in our Exports of Butter.

To show the very rapid gain in the export butter trade, with such imperfect cold storage on the steamships only as

could be obtained, I may say that from the port of Montreal, in 1894, there were sent out 32,055 packages of butter, 69,654 packages were shipped in 1895, and in 1896 the quantity was 157,321 packages. That was a fair rate of increase in the butter trade. Taking the quantities and values imported into Great Britain in the calendar years of 1894 and 1896 these are the facts.

Quantities and Values of Butter Imported into Great Britain during the Calendar Years 1894 and 1896.

(Taken from British Returns).

Countries.	1894.		1896.	
	Quantity.	Value.	Quantity.	Value.
Canada	Lbs. 2,339,344	\$ 438,589	Lbs. 9,895,984	\$ 1,653,421
Australia and South Australia	167,104	36,140	17,344,860	3,745,849
Victoria	21,324,576	4,565,425	871,024	183,431
New South Wales	3,873,072	807,258	6,313,776	1,352,437
New Zealand	7,350,112	1,550,308	15,853,936	3,005,288
Other British Possessions	182,112	21,666	36,268,848	8,101,467
United States	3,350,552	612,912	137,623,808	30,603,381
Russia	8,879,512	1,907,461	2,076,400	2,669,731
Sweden	20,826,272	6,880,391	25,260,548	5,619,449
Norway	1,757,056	374,723	52,371,312	12,350,092
Denmark	123,479,216	28,440,576	25,369,568	5,439,791
Germany	15,428,560	3,421,072	340,250,064	74,674,537
Holland	18,497,584	4,048,828		
Belgium	4,253,474	911,634		
France	47,560,240	11,445,753		
Other Countries	112,784	26,412		
Total	289,381,520	65,489,268		

\*Subject to revision. †Included in "Other Countries."

The imports of butter from Canada in 1894 were \$438,589, whereas the imports in 1896 were \$1,653,421, a gain of about one and a quarter millions of dollars in two years, with an appreciable advance in our relative place as to price in the British market. *Now is the time for Canadians to try to capture that market.* It has been seen by some of us for three or four years that there was bound to be a tremendous increase in the demand for butter in the British markets, and many countries are trying to so place their butter as to secure the preference there. In 1894, which is as yesterday, the British imports

of butter amounted to \$65,489,268, whereas in 1896, two years later, the value was \$74,674,537, or a gain of over \$9,000,000 in two years. Now it is for us to look out and get a share of the increase, if that only, of the imports of those markets. We should try to capture the whole of the increase annually; and with favorable conditions for shipping our butter, and the British preference for things Canadian, we have a good chance to more than double our exports annually for years to come. Our butter is making a good market for itself. In some cases the prices we get are over the Australian and next to the Danish.

There is a good deal said about the great increase in the exports of butter from Victoria, in Australia. That colony arranged to give a bonus for five years, beginning in 1889 and ending in 1894. In 1894 the British Trade Returns give the imports from Victoria at \$4,565,425. Since that time Canada has gained one and a quarter millions of dollars, and Victoria has lost over three-quarters of a million of dollars.

#### The Storage of Ice.

In assisting cold storage for the creameries, the government offered the bonus of \$100, payable in three years, provided certain conditions were complied with. In order to have creamery butter in a perfect state when it is delivered to the consumers in Great Britain, it should be protected in cold storage from one day after it is made. As the government had decided to arrange for what will be practically a chain of cold storage service from the producers in Canada to the consumers in Great Britain, it was necessary that the owners of the creameries, the manufacturers of butter, and the farmers who furnish the milk and cream should all co-operate to bring about the best results. Very few creameries were until this season equipped with sufficient or efficient cold storage accommodation. A bulletin was prepared giving information on the construction of ice houses, the storage of ice, etc., and the improvement by thorough insulation of existing storage rooms. That bulletin was very complete, and should be read by every one interested in using ice for dairy purposes. Copies of it may be had at any time by

application sent to the Department of Agriculture, Ottawa.

#### Packages for Butter.

Even when butter is preserved in cold storage, there are a few other matters which need to be emphasized to farmers and others. The Department has published full and detailed information on the art of making butter; but even with the butter made properly, comparative failure results when the packages are not suitable in shape, size, and appearance.

Butter for export should be put up in square boxes 56 lbs. nett.—the British half hundredweight. The square box is a neat cheap, package, gets the preference in the English market, is stronger, and takes up less space than the tub, and leaves the butter in convenient shape when it is taken off. The wood should be spruce. Basswood will do, but I do not like it as well as spruce. Pine wood should not be used at all. I found an instance of what injury the odor of pine may do, in visiting one of the cold storage buildings in Manitoba when I was up there in February. I found the building admirably arranged for keeping the butter cold, but it was lined throughout with pine; and every package I saw which came through that building last summer had the piney smell and taste. I could not understand it until I found the cause there. Butter seems to have a peculiar proclivity for absorbing the odor of pine. And it lasts a long time. The boards of the boxes should be five-eighths of an inch thick, with the corners of the box dove-tailed, all joints tongued and grooved, and the inside covered with parafine wax. Besides the butter-maker should line them with thick parafine or parchment paper. Last year more than double the value of the parafine paper used was lost by using thin paper, which stuck to the butter and gave it a very bad appearance. The butter-makers should guard against using thin flimsy paper. If the butter is two weeks on the way to England, the thin paper sticks to it, and when taken off leaves it with a dull appearance. The thick, heavy parchment paper comes off and leaves the surface with a sparkling lustre that pleases the buyer's eye. We buy these boxes for 20 cents apiece, and they are got up in the nicest form for that price. Every box should be put into a

bag. Shippers with years of experience use bags on their tubs; but they seem to think that boxes do not require bags. Butter in boxes that are in bags from the creameries to Montreal, would sell in Britain for higher prices than in similar boxes without the bags. Soiling of the box often happens between the creamery and the railway station, and between the railway station and the shipping port, therefore a bag is necessary. Bags of coarse canvas (jute) will cost about  $4\frac{1}{2}$  cents to  $4\frac{3}{4}$  cents each. The butter should be conveyed from the creamery to the station at night, when this can be done. If done in the day time it should be covered; a good method is to put some green grass on top of it.

#### Cold Storage for Cheese.

Provision has been made in the cold storage arrangements for other products besides butter. Accommodation is provided in the steamships for carrying cheese. Information has been given to the owners and those who operate cheese factories on how to apply "cold storage" to cheese rooms during the process of curing. I think in this matter there is room for great improvement and a large saving. The demand in Great Britain has been growing for years for a soft cheese—a cheese that is rich in body apart from having a large percentage of butter fat in it. It is quite impracticable to send soft cheese to England and have it arrive in good condition by the old carrying methods. If every cheese-curing room had a small ice-house at the end of it with openings for regulating the inflow of cool air, by which the temperature could be kept at  $65^{\circ}$  Fahr. continuously, a larger quantity of cheese could be made per 100 pounds of milk. Such cheese would fetch relatively a higher price in England, and also would cause a larger consumptive demand.

#### Cold Storage for Eggs.

Some provision has been made for the carriage of eggs. The demand in Great Britain for perishable food products is always a discriminating demand. In this country eggs are eggs; and you seldom hear a housekeeper speak of eggs being small or large. In England eggs are sold in different grades according to their weight by the long hundred of ten dozens.

In these matters, apart from the size of the eggs, the British people are very fastidious and discriminating in regard to appearance and condition. The Minister of Agriculture asked me to accompany him to a conference of the egg men in Western Ontario on this subject last winter. A few of the points that were brought to the attention of the Minister of Agriculture were these: It is expected that in July, 35 carloads of eggs will be going forward requiring cold storage on steamships, 50 carloads in August, and 60 carloads in September. They assumed that probably one-quarter more would be sent by other shippers from Western Ontario who were not represented at the meeting. Since then by reason of the prospect of an almost excluding tariff barrier erected by the United States, a very much larger proportion of the eggs from Canada must necessarily find another outlet; and that will increase the shipment of eggs to Great Britain very largely through these cold storage conveniences. The temperature on the steamships is desired to be from  $38^{\circ}$  to  $42^{\circ}$  Fahr. This is a little higher than for butter. We like it for butter down to  $32^{\circ}$  Fahr. or under. Some handlers of eggs complain that when the eggs are put in cold storage and taken out again, they acquire a mussy appearance. They say the eggs sweat. There is no exudation of moisture through the shells of the eggs; but when the eggs are taken from cold storage and exposed in a warmer room, there is a condensation of moisture from the air upon their surface. If the egg cases are left closed for two or three days after they are taken from cold storage, the contents will be warmed gradually, and the eggs will have as nice an appearance as when they were put in. I have seen eggs which did not look more than two days old which had been in cold storage for four months. If they had been exposed at once on being taken from the cold storage chamber, in an English atmosphere especially, they would have looked damp and black.

#### A Standard Weight for a Dozen Eggs.

The shippers desire that a standard of weight for a dozen of eggs be established at  $1\frac{1}{2}$  lbs. per dozen. Large eggs, they say, will keep longer, as a rule, than small eggs, because the albumen in large

eggs is thicker than it is in small eggs. The thinner the albumen the more quickly the yolk of the egg rises to the top, and gives the egg rather a stale and undesirable appearance. Eggs are sold in Great Britain at certain weights per long hundred of ten dozens. One grade is 15 lbs. per long hundred; another is 16½ lbs. per long hundred. The latter are a very large size. The 30-dozen case is the one that would be chiefly used for export shipments. They cost, complete with pasteboard frames, about 22 cents each. About 14 or 15 cases of that size can be carried in what is called a ship's ton of 40 cubic feet. The 30-dozen case is the one that will be generally used in sending eggs to Great Britain. It is called the quarter case, being one-quarter of 120 dozens, which makes a full case as received from European markets.

#### Improving the Egg Trade.

In the matter of improving our egg trade, I think these three points need frequent repetition until acted upon by all those engaged in carrying on this business. The first is that of frequent and regular collection from the farmers by somebody—the eggs being brought together and kept in a place where there will be no change or spoiling. The second is that all the eggs should be clean in appearance. Clean eggs bring from one cent to three cents a dozen more in Great Britain than eggs that look dauby and soiled. Three cents a dozen on eggs, when the farmers get only nine cents a dozen, means 33 per cent. Those who purchase the eggs at high prices are bound to have food looking nice on the exterior as well as of good quality inside. The third point is that every producer of eggs should leave out all the doubtful and small ones from those he sells for export. One of the dealers recommends that soiled eggs should be washed. That is Mr. David Moyer, of Almonte, who has made a success of this business. In the matter of pickling eggs, it is desirable that they should be pickled in cold storage rooms where the pickle itself will be cold. Pickling protects the eggs against bacteria and other active agents that cause decay by acting through the pores of the shells. Shipping eggs in pickle is done frequently by large shippers. In this country there is such a large supply

of eggs, and such low prices in Great Britain until the end of June, that the shippers cannot ship at a profit until after that time. This state of things requires that the eggs should be preserved somehow; and if to be preserved in pickle they should be pickled in cold storage. I have many applications from egg shippers for a recipe for making pickle. Almost every egg shipper seems to have his own particular recipe for the purpose. In my judgment one thing is all-essential for the making of a good egg pickle; it is that the pickle should be of precisely the same specific gravity as the albumen of the egg, so that there will be no exchange of the pickle into the egg, or of the egg into the pickle. A rule of thumb will not give good results. If the egg men would get some delicate densimeters and have a chemist make up a pickle of precisely the same gravity as the contents of the eggs it would, I am confident, give satisfaction.

#### Eggs Absorb Odors Quickly.

Eggs should not be stored near any odorous commodity, as they have almost the proclivity of butter for absorbing odors. Especial care should be taken in shipping. In one instance a shipment of eggs was placed near a large shipment of apples on the ship and became almost unsaleable, because it was complained that they had the odor of apples. Pickled eggs are not so apt to be affected by odors as other eggs. In the pickling there seems to be a deposit on the shells which tends to fill the pores; perhaps that is the reason why the shells of pickled eggs are almost always burst when boiled.

#### Cold Storage for Poultry.

A special bulletin is being prepared on the subject of the production, dressing, packing and shipping of poultry. A great deal of information has been furnished to the Department of Agriculture by the High Commissioner in London. He has sent letters from probably thirty or forty of the leading poultry dealers in Great Britain containing their suggestions and recommendations. The substance of these will be taken out for the guidance of our farmers and will be published shortly. In that matter Sir Donald Smith seems to have become more of a poultry and egg expert than some of us who are more



directly connected with the business. The file from his office is filled with apt information for our people in regard to these two products. Letters have been received from many firms in Great Britain who are desirous to develop the trade with Canadian exporters.

#### How Poultry Should be Killed.

The recommendations in these letters indicate that the killing should be done by cutting in the roof of the mouth, while the fowl is suspended by the legs, making it impossible for any mutilation to be seen on the outside, or for the feathers to be soiled by blood. This is held to be a painless method of killing. It also bleeds the fowl completely if the cuttings are made lengthwise, and across, and deep. In every case the bird should be fasted for twenty-four hours or longer before killing. Cases have come to my notice where poultry have arrived in England in a very damaged condition, caused by the fermentation of food in the crops and intestines, spoiling the whole of the birds, and making them unfit for human food. The English buyers prefer to receive the poultry in the feathers, and not drawn. Of course we have to meet their preference and send the birds in the condition in which they prefer to buy them. Special care should be taken to keep the feathers clean. The birds should be cooled before being packed into boxes. If they are started right, they can now be carried so as to arrive in good condition. I examined turkeys in feather in Liverpool in the winter of 1892, before cold storage was established, and they were selling then by the case at ninepence per pound. Chickens, ducks, and geese, are prepared differently. Details of the killing and dressing of these will be put into the bulletin. Much of the practical and apt information on the rearing, feeding, and dressing, has been supplied by Mr. Gilbert, manager of the Poultry Department of the Central Experimental Farm.

#### Packing Poultry for Export.

With regard to size a good deal of care should be taken by the shipper. One of the complaints of the merchants is that there has not been that care in Canada in the assortment of sizes that has been exercised in other countries exporting poultry to Great Britain. Turkeys should be

packed in cases, and graded to within two pounds each. For instance, if there are ten birds in a case they should weigh from ten to twelve pounds each; another case might contain birds weighing from fourteen to sixteen pounds each. Birds packed in that way will fetch a higher price per pound than where they run from ten to sixteen pounds each in the same case. There is no general demand yet in Great Britain for poultry plucked and drawn; but where that is done, for the local trade, the birds should be plucked while warm and dry. Never in any case should the birds be put into hot water. If the bird has a mutilated appearance its value is very much reduced. Special care should be taken in removing the gall so that it will not be burst when the birds are being drawn. Any one going to Canadian hotels will get the gall taste in the poultry. The Englishman will not buy poultry with that flavor. If the gall bursts the whole bird is impregnated with that odor and taste. I think three times out of six I get it in the hotels of Canada. That can be avoided. The heart, gizzard, and liver, should be put back into the bird.

#### Cold Storage for Dressed Meats.

Provision is to be made also for the carriage in cold storage of dressed meats, and negotiations are now in progress between the department and one of the large firms in Ontario looking towards the making of trial shipments of dressed meats this season.

#### Cold Storage for Fruits.

Special provision has been made for trial shipments of fruits, particularly those that have not hitherto been exported with any degree of success, such as grapes, pears, peaches, and tomatoes. In 1895 a trial shipment was practically entirely ruined on the railway car between the place it was sent from and Montreal. A cold storage chamber on the steamship had no regenerative magic to bring back what was spoiled to its primitive condition of excellence.

#### A Cold Storage Warehouse at Grimsby.

One of the essential conditions for the safe carriage of the tender and easily injured fruits, is that they should be thoroughly cooled before they are put into the railway car. If cooled to a tem-

perature of 35° or 36° Fahr., practically all fermentation will be stopped, and the boxes of fruit will not generate heat by their own ripening. When fruits are put into cases warm, and these are put directly into a car, the ripening of the fruit generates heat. In that way the fruit will become self-destructive. A cold storage building has been erected at Grimsby, Ont., at the expense of the Department, for these trial shipments. Several of the growers there have agreed to furnish at least one carload per week. The fruit will be thoroughly cooled before it is put aboard the refrigerator cars; refrigerator cars will carry it to Montreal; a special cold storage chamber will receive it on the steamship; and there will be some one in England to look after the reception and distribution of the fruit there. In this way two things will be determined: Firstly, the practicability of shipping this class of fruit to Great Britain. It may not be practicable. Pears may decay from the heart. Grapes may lose the bloom on their skins from some cause we do not understand. It may not be practicable. I think it wholly practicable; this will furnish proof. Secondly, we shall learn whether the trade can be made profitable. It might be practicable and not be profitable. These two propositions will be demonstrated; and the fruit-growers can carry on the business afterwards in the light of the knowledge obtained by these experiments. Grimsby was selected because that is the only place where the fruit-growers would guarantee to furnish a carload of such fruit per week. The information gained will be equally available and useful to all the fruit-growing districts in Canada. Grapes, pears, peaches, and tomatoes will be shipped this year, but not strawberries. After the first year no doubt all kinds of trial shipments will be made. The fruit-growers of the Niagara district have agreed to purchase the cold storage building after three years, if the trial shipments are a success. The Department in the meantime accepts the responsibility of meeting the initial cost of the building, guaranteeing the shippers against loss, and seeing after shipments.

#### Cold Storage on Railways.

Refrigerator cars fully iced will be run regularly on the main lines leading into

the shipping ports of Montreal, Quebec, St. John, Halifax, and Charlottetown.

Each car will take up lots of butter and other products requiring cold storage at stations between starting-point and destination.

Shippers making use of these refrigerator cars will be charged the regular "less than carload rate" from the shipping point to the destination. No extra charge will be made to them for the cold storage service or for the icing.

Exact particulars as to the time when the cars will leave the various stations can be obtained on inquiry from any local agent of a railway company. In nearly every case the service will be a weekly one.

The railway companies have agreed to provide refrigerator cars properly insulated for the protection of the perishable freight which they are intended to carry. In some instances in past years the refrigerator cars have been such in name only. The insulation has not been thorough; the doors have not been quite close; cars have not been properly cleaned; and the pipe through which the water drained from the melted ice opened direct into and out of the car without any trap. That permitted the cold air to flow out, and the cooling influence of the ice was left along 200 miles or less of railway track without benefiting the contents of the car. Drawings have been prepared to show how an ordinary box car can be insulated to give satisfactory service for the carriage of butter and other perishable products on short runs.

It is recommended that the refrigerator cars for the special service arranged for by the Department of Agriculture be painted white, (1) for the sake of increased coolness, as cars painted white radiate the heat of direct sunshine much more than those painted any other color; and (2) for the purpose of making them distinctive and calling the attention of shippers, farmers, and others who may observe them as they pass along the line, with the conspicuous inscription: "Government Cold Storage Line."

#### Cold Storage Inspectors.

The Department has engaged a cold storage inspector. His main duty is to see that the cold storage buildings and cars are in good condition and giving

satisfaction to those who use them. We will have another inspector stationed in Montreal to look after through shipments ; and in the case of a through shipment missing the steamer, as may happen through unavoidable delay on the road, he will see that the goods are stored in a proper cold storage building till the next steamer with cold storage chambers goes out. Heretofore, that has not been any one's business, and sometimes cars of butter and cheese have been left on the wharf or in the yard, and the contents have been damaged. If notice is given to the inspector by the shipper at the starting point, he will see that it is taken care of ; and only the actual outlay for cold storage will be charged forward on the bill of lading. It is not thought right that the Government should do more than this free ; no charge will be made for the services of the inspector.

#### Cold Storage Warehouses.

Cold storage buildings are now in existence at Montreal ; and a grant has been offered to those who will provide suitable and necessary cold storage buildings at Quebec, Halifax, St. John, and Charlottetown. The persons providing them are to comply with regulations, it being necessary to have cold storage buildings at the shipping ports. Assistance has been offered towards providing a cold storage building at Toronto. I mention that lest there might be misapprehension as to why scores of inland places which have applied for bonuses have not received assistance, while Toronto has obtained the promise. Toronto is a great railway centre, and instead of running all the cold storage cars, starting from places in Western Ontario through to Montreal, it seemed economical to consolidate the shipments into carload lots at Toronto for Montreal. That is the reason why assistance has been promised at Toronto. One other cold storage building has been provided by the Government. It is at Revelstoke, British Columbia. That is an exceptional case, exceptional in this way : there is a large demand for butter, eggs, poultry and meats throughout the whole mining region south of Revelstoke. Merchants can buy these perishable products at Spokane Falls, and other places in the United States, and have them delivered within 24 hours after they are

ordered, while they had to wait four or five days to get them from the Calgary District, in the North-West Territories. With cold storage at Revelstoke, car lots can be sent there, and the products distributed from there to the mining towns in less time and at as low rates of freight as from United States points. The residents of the mining regions will get these things fresh and cheap ; and the farmers of Alberta will get the market for these products. That is the other exception to the Government plan for aiding cold storage buildings necessary for promoting and improving the export trade, but not buildings which would be only local in their character and service.

#### Canvassers for Customers for Our Goods in British Markets.

The Minister of Agriculture authorizes me to state that he has decided to place at least two men in Great Britain to look after the distribution of perishable food products. The Government will not compete or conflict with the regular commercial agencies ; but the Government will do what it can, to aid in securing the best possible market in Great Britain for Canadian farm products. I am going over myself shortly for several objects : (1) To see the existing conditions of the markets there ; (2) to learn the newest preferences for packages, styles, and qualities of goods ; (3) to give information to Boards of Trade and Produce Exchanges about the arrangements made by the Government for getting Canadian products into the markets by these new cold storage channels, to try to get rid of the lingering remains of the old prejudice against Canadian butter, and to let them know that a new era has come, with the promise of the very best class of products from Canada in the future ; (4) to start one or two men as promoters of trade or canvassers for customers for Canadian products. Two men will be left in Great Britain to carry on the work. I may give an illustration of what their work will be. One of the men will go, say, to the largest and leading retail provision dealer in the city and say to him : "Canadian creamery butter is the best that now comes to Great Britain." The merchant knowing only the old reputation may say it is not. Then our agent will say : "Let me send you a trial lot of 5 or 10 packages of 56

pounds each at any reasonable price you name." That price need not be the highest market price. By that means he will take into his shop samples of butter from our Government Dairy Stations, see what it is like and induce his customers to try it. The agent would not offer these samples to repeat another sale from the Government but would say: "You can get Canadian butter of similar quality from these people," giving the names of the importers of Canadian creamery butter in Britain, and the exporters of butter in Canada, or the agents they may have in

Great Britain. He will do the same with fruits and other products as far as possible. He will be, in a sense, a national commercial traveller, not selling for any particular firm, but pointing out that many firms in Canada can furnish the same class of products as he now shows samples of.

#### Cold Storage in Great Britain.

The Government has taken no action in providing cold storage in Great Britain; but has ascertained that cold storage accommodation can be obtained there at reasonable rates.

## CORRESPONDENCE.

### The Holstein Men Do Explain.

A REPLY TO THE QUERY IN LAST MONTH'S FARMING IS MADE BY MR. CLEMONS, SECRETARY OF THE HOLSTEIN-FRIESIAN ASSOCIATION OF CANADA.

In the June issue of FARMING a correspondent asks a few questions under the caption: "Holstein Men Please Explain." As Mr. Gilroy will probably respond to the query concerning his article, I need say nothing on that subject, but I should like, with your permission, to add a little to your correspondent's stock of information regarding Holstein-Friesian and Jersey butter tests.

In FARMING for January, 1896, Mr. Gillett, of Wisconsin, gave a table of tests of 25 Holstein-Friesian cows, and in the March issue of the same year Mr. Reid, of Berlin, presented a rival table of the tests of 25 Jersey cows, compiled by Mr. W. S. Beck. Before proceeding to a comparison of these two tables I would ask your correspondent to satisfy himself that both are equally credible. Let me explain the difference. The Holstein-Friesian tests were made by an official of a State experiment station, or by some other equally capable State official; each milking was thoroughly mixed by pouring; two samples were taken each time and tested in duplicate with the Babcock tester, and the amount of butter estimated from the butter-fat on the basis of 100 lbs. butter to 80 lbs. fat, exactly as in the World's Fair test. Remember that these State officials were absolutely disinterested parties, and that each had to go before a notary and make an affidavit that the test was correct. I had the pleasure of witnessing more than one-half of these tests myself, so that I am in a pretty good position to judge of their accuracy.

But what about Mr. Beck's table? Were any of these tests conducted by a State official, or any other disinterested man? I trow not. Neither were they confirmed by the Babcock tester. The whole comparison, therefore, hinges on these two questions: (1) Is the Babcock tester a correct means of testing the butter capacity of a cow? (2) Are the phenomenal private records claimed for some Jersey cows worthy of credence?

To-day almost every one admits that the Babcock tester is the buttermaker's best friend, but it has not always been thus. In March, 1894, the

Holstein-Friesian Association of America adopted the little machine as the official arbiter in butter tests. In May, 1895, Mr. Valancey E. Fuller, probably the most experienced feeder and tester of cows in America to-day, made a strong fight at the annual meeting of the American Jersey Cattle Club to secure the official endorsement of that body for the Babcock, but without success. Only one breeder supported Mr. Fuller's motion, but the opposition to it was strong and vehement. Mr. F. E. Shaw, a prominent breeder of Dunkirk, N. Y., used the following language in decrying the tester: "In the Columbian test rules Jersey breeders made a fight for butter and won it against the other breeds which wanted the chemical test and staid out because they could not get it. Now Jersey breeders must either say they were wrong in that fight on the rules at Chicago or else adhere to the standard of actual butter in the test-book. He believed in the reliability of the Babcock test, but thought it was not good policy to make a public record of such tests, and thus acknowledge to the Holstein-Friesian breeders that they were right and Jersey breeders wrong in the fight over the Columbian rules."

What followed? The tester was recognized successively by the Ayrshire, the Guernsey, and the Shorthorn Associations, and then the Jersey men concluded that it was time to acknowledge that they were in the wrong. At the annual meeting of the A. J. C. C. held in May, 1897, it was decided to open the test-book to tests confirmed by the Babcock tester, and Mr. Fuller had the satisfaction of seeing official recognition accorded to the little machine for which he had fought such a good fight. As the *Breeders' Gazette* pithily remarked, "The stone that the builders rejected has become the head of the corner." The A. J. C. C. was just a trifle more than three years behind the H. F. A., but it has moved up abreast of the procession at last. Hereafter we shall see the Jersey breeders publishing records of estimated butter, which your correspondent endeavors to belittle.

Next let me notice a few of the private tests of Jersey cows as given in Mr. Beck's table, and see how they bear scrutiny. Taking the four highest cows and indulging in a little simple figuring, I find in round numbers the following results:

Cow.	Pounds of milk.	Pounds of butter.	Lbs. milk to 1 lb. butt.	Percent. fat required.
Oonan of Riverside	239	34	7.0	12
Massey Polo.....	354	30	11.8	7
Maquilla's Violet.	203	31	6.5	13
Marchande.....	175	27	6.5	13

Does any sane dairyman believe that any cow of any breed ever averaged 13 per cent. fat when in full flow as these cows were? It is simply absurd. At the 1895 meeting of the A. J. C. C. Mr. Fuller is reported as follows: "He declared that reported churn tests which require that the milk must have shown from 10 to 15 per cent. of fat in order to make the yield claimed will make the public suspicious and put people on their guard against them."

As most of your readers are no doubt aware, Mr. Fuller had entire charge of the Jerseys in the Columbian test, and when he found that not one of these phenomenal cows averaged even six per cent. fat, and that not one of them reached 21 lbs. of butter in a week, he can readily be pardoned for thinking that the public would be suspicious. These are the days of officially authenticated records, and until your correspondent can show to the satisfaction of fair-minded people that a Jersey cow has actually produced at least 21 lbs. of butter, not less than 80 per cent. fat, in a week, we can afford to smile at his elaborate comparison.

By the way, the H. F. A., ever in the lead, has this year offered prizes for cows producing butter-fat most economically, and the first two records to come to hand are: (1) Aaggie 3rd's Wayne, aged 9 years, making in one week 18.466 lbs. butter, at a cost of \$1.17, which is an average of 8.35 cents per pound; and (2) America 2nd's Pauline DeKol, aged two years, making in one week 12.553 lbs. butter at a cost of 97 cents, which is an average of 7.73 cents per pound.

These tests are made by the Babcock test, and the food was weighed by Mr. Troy, of Cornell Experiment Station, who made the butter tests. Are not these profitable cows to keep?

G. W. CLEMONS.

### An Ayrshire Man Takes a Hand.

MR. YUILL WOULD LIKE THE JERSEY, HOLSTEIN, AND DURHAM MEN TO EXPLAIN.

I see in FARMING for May Mr. G. A. Gilroy would like to get your readers to believe that the Holsteins will give a better return for the amount of food consumed than any of the other dairy breeds of cattle in Canada. And in the June number a correspondent, and, as you remark, evidently a Jersey man, shows that the Jerseys give a better return for the food consumed than the Holsteins.

Now, Mr. Editor, I think I can show that the modest, unassuming Ayrshire has been known to give a better return for the amount of food consumed than either the Holstein or Jersey.

The managers of the Agricultural College of the State of New Hampshire were anxious to find out which were the most profitable breed of cattle for dairy purposes. So they wrote to all the different breeders' associations, and received four cows of the following breeds, namely, Ayrshire, Jersey, Holstein, and Durham. These

cows were fed on the same kind of food for twelve months, with the following result:

	Ayrshire.	Jersey.	Holstein.	Durham.
Average cost of milk per 100 lbs. . . .	7c 1/2	87c.	85 1/2 c.	80 1/2 c.
Butter per lb. . . .	11 1/2 c.	14 1/2 c.	18 1/2 c.	13 1/2 c.
Percent. fat . . .	4.28	5.12	3.13	3.86

At the close of the test it was ascertained that the Ayrshire had produced one hundred (100) lbs. of butter at \$3 less cost than the Jersey; at \$4.50 less cost than the Durham; and at \$5.50 less cost than the Holstein. In every case the feed was suitable without extra forcing.

Meadowside Farm, JOSEPH YUILL.  
Carleton Place P. O.

NOTE.—We do not see how the statement in Mr. Yuill's last paragraph agrees with the table that he gives.—EDITOR FARMING.

### Holsteins vs. Jerseys.

MR. GILROY ADDS HIS EXPLANATION.

Evidently it is a fact that your correspondent who referred to the article written by myself is a lover of the Jersey breed. He wishes to draw the comparison between Holstein official tests, and so far as I know "unofficial" Jersey tests. An article appeared in the Holstein-Friesian Register which was written by Earnest Hitchcock of Pittsford, Vt., which I forward to you, asking for its publication to benefit the enquirer.\* The Breeders' Gazette of March 3rd publishes two tests of Jersey cows for a week's butter production. The amount of food consumed by each of these cows is also given. We will refer to the Jersey cow Oneida, 4210, who is closely related to Merry Maiden and Brown Bessie, World's Fair winners. This cow gave in seven day test 335 lbs. 3 oz. of milk, which made 16 lbs. 13 oz. of butter. Her daily ration during the test was 6 1/2 lbs. bran, 7 lbs. ground oats, 7 1/2 lbs. corn meal, 3 lbs. oil meal, 40 lbs. silage, 20 lbs. sugar beets, and hay ad libitum. Surely she distinguished herself as a consumer equal to that of a producer. We now refer to the Holstein cow, Aaggie 3rd's Wayne, that in her official butter test made 18.466 lbs. butter at a cost of \$1.17, or an average of 6.35cts. per lb. This cow ate during the seven days' test 82 lbs. grain, or nearly 12 lbs. daily, and 78 lbs. daily of silage, dry corn stalks and hay.

This test was made by Mr. Troy, of Cornell Experiment Station, who had charge of weighing food consumed by the cow. Surely this makes a creditable showing for the supposed heavy consuming Holstein cow compared with that of the dainty, delicate Jersey.

I wish here to say that I have never as yet fed any Holstein cow as much grain daily as was fed to the above referred to Jersey cow, and we have a fairly well-producing cow here at present, as most breeders will agree to when I produce her record, both for food consumed and milk given: Erie Bell 2nd has just finished a month's test, and has given a total of 2028 lbs. milk of 3.5% average fat. She consumed, daily, during the test, 6 lbs. bran, 4 lbs. pea meal, 1 lb. linseed meal, 20 lbs. silage, good pasture and plenty of water supplied. Her best seven day record was 480 lbs. milk of 3.5% fat, producing a total of 16.80 lbs. fat, equivalent to 21 lbs. butter 80% fat, or 19 1/2 lbs.

\*NOTE.—The gist of Mr. Hitchcock's article is given by Mr. Clemons in his letter herewith printed.—EDITOR FARMING.

butter 85% fat, which standard was recently adopted by the Jersey Breeders at their annual meeting. The cost of Erie Bell's food for seven days was 67 cts., and by adding 50 cts. to this for pasture makes a total of 1.17 cts., which would make 1 lb. of butter, 85 per cent. fat, cost 5.82 cts. per lb.

I trust that this will explain matters to the enquirer sufficiently.

Glen Buell, Ont.

G. A. GILROY.

### The Owen Sound Sugar Beet Manufacturing Company.

A LETTER FROM THE SECRETARY.

In your "Topics of Interest" for the month of June, you touch on the sugar beet industry. It may be of interest to the many readers of your ably conducted magazine to know that the "Owen Sound Sugar Beet Manufacturing Company, Limited," are meeting with great success in the establishing of a beet sugar factory in Owen Sound. We have a charter—capital \$150,000. We have 800 shareholders, all of them farmers of the most progressive class, who have taken \$20,000 worth of stock of the company, and they agree to grow 30,000 tons of sugar beets each year, and more if required. This will keep a factory with 300 tons per day for 100 days, the usual time taken to work off the season's growth of beets. The company has for two seasons past grown beets and had them tested by the chemists of the Ontario Agricultural College, Guelph, and some of the tests have been of great value, that of Campbell's, grown one and a half miles from the town hall of Owen Sound, in Derby Township, showing 17 $\frac{5}{100}$  lbs. sugar to 100 lbs. beets, and 98 $\frac{1}{2}$ % of purity. This test of purity is a world breaker. The company this spring imported 1,500 lbs. of sugar beet seed from Germany, and has had it distributed among 400 shareholders and others who are growing the beets for test and feed for stock till such time as the company can get the factory completed, which we hope to be able to do for the crop of 1898. The company are determined to have a thorough test as to "tons per acre grown," and "sugar per 100 lbs. of beets," and "purity of juices," in a large number of cases, so that we can rely on this section of Ontario being beyond doubt a suitable place to start the pioneer beet sugar factory of Ontario. The county council of Grey, at their late June session, appointed a committee of three of their members, Messrs. C. R. Sing, of Meaford, ex-warden, James Anderson, of Sullivan, ex-warden, and Captain John McDonald, banker of Chatsworth, and voted \$75 to pay expenses; these three to act with three directors of the company in measuring the quantity of beets per acre and selecting numerous samples all over the beet-growing sections for chemical tests as to sugar per 100 lbs. of beets, and as to purity. Should these tests realize the expectations which the company have every reason to expect from former tests they will do, the company have an offer from a large German manufacturing company to put a (\$150,000) one hundred and fifty thousand dollar sugar plant complete, and take stock in the company for the amount, and in that case the industry is assured for 1898. It will take fifty factories as large as we propose to build, to supply the sixteen million dollars worth of sugar used each year in the

Dominion. We are exporting the produce in grain of (11) eleven acres to purchase the produce of one acre of beets manufactured into sugar. We should, and will within twenty years, grow and make all the sugar Canada will use and keep the \$12,000,000 within our own country now sent to other countries for sugar, thus giving labor to our own people, and enriching our lands for grain crops by growing roots.

JOHN MACKENZIE, Corresponding Director.  
Presqu' Isle, 26th June, 1897.

### A Reply to Mr. Rusnell.

THE USE OF GRADE BULLS CONDEMNED.

I was very much pleased to read the forepart of Mr. D. H. Rusnell's article on "Selecting a Male" in the June number of FARMING, to see how strongly he advocates the use of a good sire. I think that there is nothing more important in stock raising than the use of a good sire. There are too many scrub bulls in the country, and too many farmers ready to patronize them. They are a ruination to the stock industry, and will be as long as they are allowed to exist. The best of our pedigreed bulls are none too good, and therefore we should strive to secure the services of the best, and nothing but the best, and leave the scrub out of the question altogether. A man cannot expect to improve his stock if he will persist in using a grade bull, often a very inferior animal at that. There are men who will keep on using the grade bull for the sake of saving fifty cents; often, as Mr. Rusnell says, saving one dollar and losing five.

I think that a tax of not less than five dollars per season should be levied on every bull over six months old not eligible to registration in some breed or other. I cannot agree with Mr. Rusnell in having a license put on every bull that is kept for hire. If such was done it ought to be high enough to prevent anybody from obtaining one for anything but a pedigreed bull. If such was the case it would also prevent a great many men from purchasing a pure-bred bull. When a man pays \$100 for a bull with freight and other expenses, very few can afford to pay a license fee per season, or see any profit in a bull. A license fee, therefore, would prevent a number of farmers throughout Ontario from buying a bull, so that the neighboring farmers would have less choice in the matter of bulls. As long as one man in the neighborhood had a bull everybody would be content to use him, whether he was a superior bull or not. Just as many bulls as the farmers would otherwise have bought, just so many sales would be missed by the breeders of pure-bred stock. And this might prevent a few farmers from breeding pure-bred stock instead of grades.

A good pedigree should be sufficient license for any bull. Any bull that has a pedigree should be fit to serve grade cows; if he is not he should have an operation performed on him. There are, of course, among pedigreed bulls, the same as everything else, good and inferior ones. Now I hope that Mr. Rusnell won't think that I am writing this for to save myself from paying a bull license, for I don't own a bull and never did, but I intend to keep on procuring the services of the best that I can get.

HENRY M. DOUGLAS.

Vandeleur, July 3rd.

# CANADA'S GREAT AUTUMN EXHIBITIONS.

## Montreal's Industrial Exposition.

The sixth Provincial Exhibition of the Province of Quebec will be held on the grounds of the Montreal Exposition Company, Montreal, from the 19th to the 28th of August next. The grounds are beautifully situated near the base of the mountain, adjoining part of Mountain Park.

Owing to a disastrous fire in August, 1896, the management of the fair were considerably hampered last year in finding suitable accommodation for exhibitors, which detracted very much from the success of the show. This difficulty will not arise this year, and the effects of the fire have been fully overcome. In fact the grounds will be in a better condition than ever, and ample accommodation will be provided for all exhibitors.

The management will this year more than ever endeavor to make the exhibition itself the prominent feature of the show, and not allow the special attractions to dominate. Their efforts in this direction will be fully appreciated by visitors who go to see the show itself. Special attractions to a limited extent have become a necessity at many of our leading shows, as they serve to attract a certain class of visitors; but when they are of such a nature and are allowed to such an extent as to detract from the exhibition itself their value is very much lessened,

and the management of fairs will do well to leave them as much as possible off the bill of fare provided for the entertainment and education of their guests. We are pleased indeed to note that the management of the Montreal Fair are viewing this matter in its true light, and that the list of special attractions for the coming show will not be allowed to predominate over the main features of the exhibition.

The Montreal Fair offers a great many advantages to Ontario stock raisers. The French-Canadian farmers are improving their herds, and purchase very largely of new stock at the exhibitions for this purpose. This should be of distinct

advantage to exhibitors at the Montreal Fair, which is in easy reach of these prospective buyers. We have pleasure in giving herewith an excellent photograph of the energetic manager and secretary of the fair, Mr. S. C. Stevenson, who is ever ready and willing to give information to breeders and prospective exhibitors. The prize list this year will be larger than ever, and includes an unusually large number of special donations. These special prizes will be given largely in the horse, cattle, sheep, swine, poultry, and dairy classes, and should attract a large number of exhibitors of stock.

Montreal is to be favoured with the meeting of the British Medical Association this year, and there will be a large number of distinguished visitors from all parts of the world present. This event should be sufficient in itself to draw a large number of visitors, and the management of the fair recognizing this are making extra efforts to produce an exhibition that will be worthy of the occasion. The Jubilee year will not be lost sight of in connection with the show, and this worthy event will be given due regard in the attractions and leading features of the show.

The Montreal Fair will be the first of the season, and will be held about four weeks earlier

than last year. This new venture on the part of the management will be watched with interest, and whether it will detract from or increase the interest in the show remains to be seen. At any rate it will have this advantage, that if held at a time when there are no other exhibitions going on there will be no temptation to stockmen to divide their interests and send part of their exhibit to one fair and part to another. They will be able to begin at Montreal, and from there make a tour of the succeeding fairs. In that case the stock shown at Montreal should be fresh, and the exhibitors themselves in prime condition for showing their exhibits to the best advantage.



Mr. S. C. Stevenson, Montreal,  
Manager and Secretary of the Montreal Exposition Company.

**Toronto's Victorian Era Exhibition.**

The decision of the Board of Management of the Toronto Industrial Exhibition, or rather as it is to be termed this year, Canada's Great Victorian Era Exposition and Industrial Fair, have done well in deciding to triple the number of medals to be awarded for this year only. There will be mementos not only of the excellence of the exhibits, but also of the most famous year to date in Imperial history. That the extra number of medals will be an extra inducement to exhibitors goes without saying. It happened that the decision to give them had not been arrived at when the prize list, which this year is, like everything else, of special design, was issued.

Always mindful of the interests of exhibitors, the Board has gone to great expense in improving the accommodation for various branches of live stock. Among other things, it has let tenders for the erection of new pig-pens, and for the construction of an entirely new horse-ring, which will enable the scenes of old times to be renewed. It has also licensed Mr. Walter Harland Smith, of Toronto, to hold an auction sale of live stock on the Friday of the second week, or practically the last day, the said stock to have been entered for exhibition. As Mr. Smith confines his attention to horses, Mr. Thomas Ingram, brother of the member for East Elgin, has been appointed auctioneer for cattle, pigs, and sheep. The entry fee for exhibited horses and cattle intended for sale will be one dollar per head, and the same for each pen of sheep or hogs, which will be returned on the sale being made, and a general charge of five per cent. only levied, which will cover all costs. It is not necessary to point out what a great boon this sale should prove to breeders. Not only will the charge be exceedingly light, but exhibitors will be able to serve a double purpose—to compete for prizes, and to make a sale at a time when there is likely to be five or six times as many buyers present as at any other time of the year.

Several of the buildings, such as Machinery Hall and the carriage structure, are being overhauled, and two capacious stables are being built to take the place of those destroyed by fire last year.

The premium list is pretty well the same as in previous years, except in one or two cases, where a change has been made in the direction of encouraging breeds that are coming more to the front. The conditions of entry are also the same, and, following the innovation made last year, live stock will be required to be on the grounds not later than noon on Thursday, September 2nd. Entries for all classes close with the secretary and manager, Mr. H. J. Hill, on Saturday, August 7th, and the Fair will extend from August 30th to September 11th.

Something stupendous in the way of attractions is promised in the shape of an exact reproduction of the Diamond Jubilee scenes in London, with soldiers, bands, banners, gorgeous costumes, flags, standards, and the exterior and interior of Buckingham Palace and St. Paul's Cathedral during the ceremonies. Thus, what with extra prizes, extensive improvements, and gorgeous spectacle, the great Victorian Era Exposition at Toronto promises to be worthy the time and the Empire. Early application is advisable to Secretary Hill, 82 King street east, for prize lists.

Entries for the different departments close as follows:

Saturday, August 7th.—Live stock (including horses, cattle, sheep, and pigs), dairy products, ladies' work, fine arts, honey, and all classes of manufactures.

Saturday, August 14th.—Grain, field roots, and horticultural products.

Saturday, August 21st.—Poultry.

Thursday, August 26th.—Dogs.

**Central Canada Fair, Ottawa.**

The interest in this popular exhibition continues to be maintained. It is only ten years since the first Central Fair was held, and to-day the capital of our fair Dominion may boast of having one of the leading exhibitions in Canada. No pains will be spared by the energetic management in making exhibitors and breeders of live stock welcome, and in providing adequate accommodation for the animals exhibited. Visitors other years speak highly of the accommodation provided, and of the attention shown them by the directors and others.

The special attractions this year will be of a high character, and will be in keeping with this the Jubilee year. The exhibition begins on September 17th and closes on September 25th, and will no doubt be largely attended by our stockmen, farmers and others.

**The Western Fair, London.**

This well-known fair, to be held this year from September 9th to the 18th, is commonly spoken of as Canada's Favorite Live Stock Exhibition, a title which is largely the fact, and due to the special interest taken in these departments by the management, who are anxious to do everything necessary for the comfort of both the exhibitors and their animals.

The large and commodious buildings erected last year for the cattle, sheep, and swine, and which were thought to be too large, were proven to be altogether too small to accommodate the increased entry. The directors, therefore, have decided to move the swine into new quarters this year, and are erecting a new building 156 feet long by 36 feet wide, for the purpose of providing all the accommodation necessary for a much larger entry than heretofore, which they feel sure they will have.

A new feature in the provisions for stockmen and their friends that will be much appreciated is the fitting up of a building, comfortably seated, for the meeting of the several associations during the Fair, and also a room with stoves to prepare food for themselves and their animals. There will also be a storehouse, from which will be sold all kinds of animal food at the lowest prices.

The premium list remains much the same as last year, with the exception of improving the Hackney horse class, adding a class for general purpose teams, and an extra class for half-breed fowls. A new class for domestic cookery has been opened in the dairy department. Many handsome special cash prizes have been donated.

All applications for prize lists, programmes, and their map of western Ontario will be fully appreciated by the secretary, Mr. Thomas A. Browne, who will be pleased to give every information regarding any department of the Fair.





## FARMING

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AN ILLUSTRATED MONTHLY MAGAZINE DEVOTED TO FARMING  
IN ALL ITS BRANCHES.

Succeeding *The Canadian Live Stock and Farm Journal*.

Published on the fifteenth of each month by

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risk.

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can be taken from our list.

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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.

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Cards in Breeders' Directory, \$1.50 per line, yearly contracts.  
No card of less than two lines nor for more than five lines taken;  
and no card taken for less than one year.

Ordinary Advertisements per line—Single Insertions, 12  
cents; Three month's contracts, 15 cents; Six months' con-  
tracts, 12½ cents; Yearly contracts, 10 cents.

One inch space contains 12 lines.  
Rates for Larger Advertisements on Yearly Contracts on  
application.

### 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, ENG.

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### Special Article on Fall Wheat Growing Next Issue.

In our August issue we purpose giving special  
attention to the growing, sowing, and the culti-  
vation of fall wheat, in the way of a special  
article compiled from reliable information secured  
from the most successful wheat growers in the prov-  
ince. As the bulk of the fall wheat is not sown till  
after the first of September, the time when the  
August issue is published will be quite opportune  
for giving this valuable information to our readers.

### Cold Storage in the Maritime Provinces.

It is announced that the Dominion Department of  
Agriculture has arranged a cold storage service in  
connection with the Intercolonial, which will provide  
for a weekly car between Rimouski and Quebec,  
Moncton and Halifax, and Moncton and St. John.  
The arrangement is to go into operation at once,  
and a time will be fixed for starting the cars on the  
different routes. There is already in operation a  
weekly refrigerator car service from Hamilton, To-  
ronto, etc., via Montreal to Halifax.

Publisher's Desk—Continued.

**Illinois Fat Stock Show.**—The annual Fat Stock and Horse Show of the State Board of Agriculture for Illinois will be held in the Chicago Coliseum, Nov. 8-20. The amount to be spent in money prizes will be \$15,000.

**Ontario Veterinary College.**—In calling attention to the advertisement of the Ontario Veterinary College which appears in our columns we have much pleasure in noticing that this excellent institution is now in affiliation with the University of Toronto. We trust that the new arrangement will conduce to the well being of the college itself, as well as beneficial to its students.

**Windsor Salt.**—We have pleasure in calling the attention of our readers to the advertisement of the Windsor salt in this issue. The proprietors of this reliable brand of salt, after trying FARMING as an advertising medium for some time, find it so good that they have decided to more than double their space, and begin this issue with a one-half page advertisement, seen on another page.

**Home Seekers' Excursions.**—The Canadian Pacific Railway advertise in this issue their Home Seekers' excursions to Manitoba and the Canadian Northwest. The next one leaves on July 20th, and is good to return until Sept. 18th. This gives tourists time to visit our great West, and to see for themselves the splendid opportunities that country affords for prospective settlers, and those desiring to secure a home for themselves.

**North Muskoka Farmers' Institute.**—The annual meeting of this flourishing institute was held on June 1st at Huntsville, Ont., and a report of the meeting has been received from the energetic secretary, Mr. Wm. Goldthrop, Ravenscliffe, Ont. Space will not permit us to give a full list of the officers elected for the ensuing year. Regular meetings will be held next year at Hillsdale, Ravenscliffe, and Novar, and supplementary meetings at Cardwell, Stisted, Chaffey, and Burnel.

**Southdown Flock Book.**—We are in receipt of a nicely bound volume of the Southdown Flock Book, published by the Southdown Sheep Society of London, Eng. The secretary of the society is Mr. W. W. Chapman, the British correspondent for FARMING. This volume, which is No. IV., contains flock histories and annual flock returns for 1896, and is valuable as a reference work for those who are interested in and desire to obtain knowledge of reliable and selected herds of Southdowns.

**Dairy Appliances.**—We have pleasure in drawing the attention of our readers to the advertisement of Nelson Buzzell & Co., Cowansville, Que. This firm is known for the superior quality of the goods it turns out. They make a speciality of all kinds of creamery and cheese factory apparatus, special attention being given to estimates, plans, and information regarding creamery and cheese factory outfits. One of their latest novelties is the "Key City" churn, with half trunk cover. Others of special mention are their noiseless cheese and tempering vats. This enterprising firm is prepared to do business in the dairy outfitting business in all parts of Canada, and deserve a liberal patronage. See their advertisement in another column.

**Peach Cultivation.**—A bulletin on the peach industry has just been issued by the Pennsylvania Experiment Station. It consists of thirty pages of readable text, interspersed with several good illustrations. It is full of sound practical advice for the peach orchardist, and free from pages of tabulated figures that distress the reader whose time for study is limited. The following subjects are briefly dis-

Horse Owners Should Try

## COMBAULT'S Caustic Balsam

THE GREAT FRENCH VETERINARY REMEDY

A Safe, Speedy and  
POSITIVE CURE.



Prepared exclusively by J. E. Combault ex-Veterinary Surgeon to the French Government Stud.

SUPERSEDES ALL CAUTERY OR FIRING

Impossible to produce any scar or blisters. The Safest best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Branches or Blemishes from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sores, Abscess, Etc., it is invaluable.

WE GUARANTEE 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.

cussed: The Peach Districts, Selections of Soils and Locations. Cultivation and Fertilization of Soils, Pruning and Thinning, Marketing, Insect Enemies, and Diseases of the Peach. The bulletin can be obtained free by applying to the Experiment Station, State College, Penn.

**The San Jose Scale.**—Just as we are going to press we are in receipt of the bulletin issued by the Ontario Department of Agriculture on this all-interesting subject. This bulletin is edited by Professor Pantou, of the Ontario Agricultural College, and contains valuable information as to the nature, mode of life, and means of getting rid of this injurious pest. Every fruit-grower in the province should write to the Department of Agriculture for a copy of this bulletin and then make an examination of his orchard and find out if his trees are affected. Our readers are directed to the special article on this subject given in this issue of FARMING. They will find it full of helpful hints as to how to overcome this pest.

**The English Live Stock Journal.**—Canadians who take an interest in English live stock cannot help but be pleased with the summer number of "The English Live Stock Journal." It is got up entirely in holiday style—heavy plate paper, fine enamelled cover, colored illustrations, numerous engravings, and so on. The colored illustrations are (1) The Hackney stallion "Royal Danegelt," the winner of the first prize and reserve champion prize at the London show both in 1896 and '97, and (2) the Shire stallion "Markeaton Royal Harold," winner of the challenge cup as best Shire stallion at the London show, 1897. The engravings are very numerous and comprise portraits of some of the best prize winning animals in every breed of live stock.

**Publisher's Desk.—Continued.**

The whole number is in every way worthy of the well-established reputation of our contemporary.

**Pickering College.**—Pickering College, whose advertisement appears in this issue, is an educational institution that we can heartily recommend to our readers. It is supported and managed by the Society of Friends, and this of itself ought to be a guarantee of its thoroughness and solidity. It aims to furnish a first-class practical education, at a cost quite within the reach of farmers and others who want to secure educational advantages for their children at a moderate outlay. The expense of sending a boy or girl to Pickering College is not more than any well-to-do farmer can afford. The courses are laid out with special reference to the needs of those who afterwards will have to earn their own living; while at the same time excellent opportunities are afforded for the study of music, drawing, and painting at little extra expense. Be sure and read the advertisement.

**The Death of Mr. Thomas Guy.**—Since our last issue death has called away one of our most prominent and successful stock breeders, in the person of Mr. Thomas Guy, of Sydenham Farm, Oshawa, Ont. Mr. Guy's well-known herd of Ayrshires has been prominently before our readers for many years, in the prizes they have won at the leading exhibitions both in Canada and the United States. The herd conferred national honor upon Canadians in the awards won at the World's Columbian Exposition. Not only was Mr. Guy renowned as a breeder of Ayrshire cattle, but he had also acquired an enviable reputation for the excellence of his Shorthorn cattle, Leicester sheep, and

Berkshire pigs. Together with the many friends of the deceased, we extend to the bereaved wife and family our sincere sympathy in the severe loss they have sustained.

**Some Facts About Western Canada.**—We are indebted to Mr. F. W. Henbach, of Winnipeg, for a copy of a beautifully illustrated pamphlet containing "a few facts" about Western Canada. No end of pains have been taken in securing reliable information from settlers, and a list of names is given of those from whom information was received. Included in the pamphlet are a number of letters written by parties who have had from three to twelve years' experience in farming in various parts of Western Canada, and know whereof they speak; and also copies of the circulars received from settlers and filled in by them. The selection of illustrations is very apt, and demonstrates that each section from Lake Superior to the Pacific has its own advantages, and, taken together, clearly show that Western Canada is a country of great promise. Copies of this pamphlet may be obtained by applying to the Western Canada Emigration Board, Winnipeg.

**Salt as an Insecticide.**—The use of salt as an insecticide or vermin destroyer is not sufficiently known amongst the farming community. Many a farmer has lost dollars and dollars simply because he did not know what virtue there is in salt. How many times has a farmer ploughed up acres of crop attacked by some worm or caterpillar, re-sown the land, and all because he did not know that salt would have killed the worm and improved his crop. Last year a case was reported through the press and vouched for as correct. A farmer had a ten-acre field of oats attacked by the army worm. The

**PUREST AND BEST.**

**Table Salt. Butter Salt. Cheese Salt.**  
**Ordinary Fine Salt.**

Packages of the Best Quality.

Prompt Shipment Guaranteed.

**The Windsor Salt Co. Limited, = Windsor, Ont.**

**Publisher's Desk.—Continued.**

whole ten acres was in such condition he decided to plough them all up and re-sow. As an experiment he left an acre, to which he gave a dressing of 300 pounds of refuse salt. Three days afterwards he gave the same acre another 300 pounds of refuse salt. The result was that on that acre he had a good yield of oats, and had he only known he might have saved the whole ten acres. Salt for such purposes is simply invaluable.

**The Shot-Borer or Pear-blight Beetle.—**

The Maine Experimental Station has recently received specimens of this insect and accounts of damage wrought in young orchards in different parts of the State. The pest was described by Professor Harvey, the station entomologist, in the report for 1893, pp. 176 and 177.

The eggs are very small, and are laid at the base of the buds. The young larvæ bore into the wood, making deep channels, which in small twigs interfere with the circulation of the sap, and the twigs wither, giving the appearance of blight, hence the name Pear-blight Beetle.

As these beetles work wholly under the bark, they cannot be reached by insecticides. The only way is to watch the trees during the latter part of June and July, and if blighted twigs or diseased limbs are noticed, examine the branches for small pin holes; if found, the presence of this or some related species may be suspected. The diseased limb should be cut *at once* below the injury far enough to include all the burrows, and *burned*, for the beetles will transform, emerge, and attack new trees. As these beetles live in forest trees, orchards near timber would be more likely to become infested.

**Should Farmers Advertise.**—This subject was discussed in a very forcible way recently by an Ohio farmer at an Institute meeting. The following contains some of the more salient points brought out in the address:

"Have you thoroughbred cattle, sheep, or hogs? Have you extra chickens, ducks, turkeys, or geese? Let people know that you have them. Has your boy got pet rabbits, pigeons, or ferrets? Let him do a little advertising on his own account.

Have you extra nice wheat, corn, rye, barley, buck-wheat, or flax, that is suitable for seed? Does anyone know about it? Did you ever tell your wife even?

Have you nice clean oats that you can guarantee free from smut? Fifty thousand farmers are hunting for it. Have you any of the grass seeds that you can guarantee free from weed seed? Don't be afraid you will break that market. There I always be a demand.

Now, the next important question is the medium. This must be determined by the person interested, and only general directions will apply. You know the class of people who ought to buy what you have. Place your advertisement in the paper that reaches the largest number of that class. Not two or three lines that you can't find yourself without your spectacles, but a good, big chunk out of a corner of a page where everybody can see it. Don't sponge your advertising. That disgusts the newspaper man and makes your competitors mad.

Don't be ashamed of your business. Let people know that you are a farmer and that you are proud of it. Advertise your business as other business men do, and compel others to respect you because of your enterprise."

Established  
1868

# The Western Fair

Incorporated  
1887

LONDON, ONT.



SEPT. 9th to 18th

Canada's Favorite Live Stock and Agricultural Exhibition

Most Successful Fair in Canada To-day

Farmers, Stockmen, Manufacturers, and Merchants all Patronize it

Our Buildings Most Convenient      The Best on the Continent

Railway Arrangements and Unloading Facilities Cannot be Surpassed



**Entries positively close Sept. 9th**



For prize lists, attractive programmes, and our map of Western Ontario, apply to

COL. F. B. LEYS, President

THOMAS A. BROWNE, Secretary

Publisher's Desk.—Continued.

**Crop and Live Stock Report.**—We have recently received from the Manitoba Department of Agriculture their report on the crops and live stock for that Province, based upon returns received from 350 regular correspondents made under date of June 1st. As compared with 1896, there is an increase in the acreage of wheat sown this year of over 290,000 acres; of oats over 24,000 acres; of barley over 26,000 acres, and of potatoes over 1,200 acres. This increase is very gratifying, and is the more satisfactory because it is not confined to any one district. While old settlers are slightly increasing the area cropped by them, new settlers are locating in all parts of the Province, and thereby adding to the area under cultivation. Conditions for seeding were favorable, and, when finished, farmers had the satisfaction of knowing that it was well done. The estimated number of beef cattle fed during the winter is 8,729, and the number of milch cows is estimated at 65,205. Stock has stood the winter fairly well. There was in most cases a sufficiency of fodder, and all kinds of stock are in good condition. The number of creameries in the Province is given as 28, and the number of cheese factories as 31.

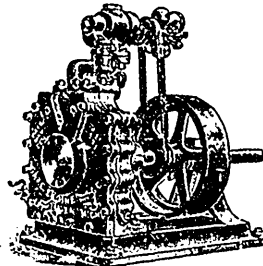
**Important to Purchasers of Road-making Machinery.**—We hear that there has been sold up to June 1st this year more than double the number of Steel Champions in the province of Ontario of any previous season since their introduction into Canada, and that the repeat orders that the manufacturers, the Good Roads Machinery Co., of Hamilton, have received from townships that had previously purchased is a most flattering testimony of the merit of these excellent machines, which are conceded by mechanical and practical men alike to be marvels of simplicity, strength, durability, and efficiency. The manager of The Good Roads Machinery Co. is the first Canadian that undertook to master the details of the road machinery manufacture, and was guided in his decision to construct the Champion by the points of advantage apparent to every unbiased mind of the great superiority of their construction and capacity for doing the work they are built for in the very best form, and with less liability to get out of repair. It has, therefore, been a source of great satisfaction that the action has been so fully and completely endorsed by all the purchasers and operators of Champion Road machines wherever sold. This company are the only firm that are making road machinery, their only specialty, and have adopted this line with a desire to provide a complete assortment of road making machines. For description and full catalogues send to The Good Roads Machinery Co., Hamilton, Ont. At the county council meeting on the 29th of January of the county of Dufferin, which met at Orangeville, it was resolved to test at their June session, road graders, with a view to the purchase of one or more machines for use in the county, provided they would work to the satisfaction of the council. In response to the invitation of the clerk, Mr. J. C. Reid, The Good Roads Machinery Co. were on hand with their Steel Champion, the Sawyer-Massey Co. with the Western, and the F. C. Austin Co. of Chicago, Ill., with their machines. After exhaustive tests the result has been that the council have passed a resolution to purchase seven Steel Champion machines for the county of Dufferin. This again proves that in a fair field with no favor the Champion machines always make a successful showing.

Very truly yours,  
Good Roads Machinery Co.,  
JOHN CHALLEN,  
Manager.

Hamilton, June 18th, 1897.

## THE Dake Engine

ESPECIALLY ADAPTED FOR



CREAMERIES AND FARM PURPOSES.

From 2 to 14 Horse Power.

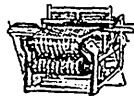
Write for prices and other information.

THE PHELPS MACHINE CO., - Eastman, Que.

MANUFACTURERS OF

Engines and Boilers, Machinery,  
Repairs, Etc.

Also: Band Saws, Drag Saws, Horse Powers, Ensilage Cutters, Threshers, Etc.



The Cheapest, Most Durable,  
and Easiest Running

FLY SHUTTLE RAG CARPET LOOM  
Made.

Send for Catalogue.

The PLUMMER LOOM CO., Box 63, Campbellford, Ont.

LEMIRE

## Stone & Stump Lifter

NOUVELLE PATENT.

Capacity of Lifting 18,000 lbs.

WITH NO EQUAL.

Lifting and carrying stones at will, so you can make with them fences from 4 to 5 feet high. When buying this strong and durable machine you can make your fence with big stones instead of buying spike wire for fences. You will clear your land for the mowers and reapers. To lift a stone you make the lever work, and the hooks will hold it when lifting. You can lower it in the same manner or make it fall by touching a ring fixed in the wheel. You can lift, remove and put into fence a stone in 10 minutes. Agricultural societies should buy it. Farmers, if they like, may join in club to buy it. Price moderate. For all particulars address to

A. LEMIRE,  
Proprietor,  
WOTTON, QUE.

Or at the Plessisville Foundry, Somerset, Que.

THE GREATEST EVENT OF THE JUBILEE YEAR



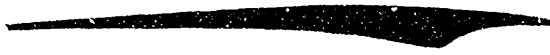
CANADA'S GREAT



# Victorian Era Exposition...



and Industrial Fair



TORONTO .: AUG. 30th to SEPT. 11th



**GRAND ATTRACTIONS**      **NEW FEATURES**  
**SPECIAL JUBILEE NOVELTIES**  
 The Latest Inventions in the Industrial and Amusement Field  
 Improvements and Advancement in all Depart-  
 ments, Excelling all Previous Years  
**Cheap Excursions on all Lines of Travel**

**ENTRIES FOR EXHIBITS CLOSE AUG. 7TH.**

For Prize Lists, Entry Forms, and all particulars address

**JOHN J. WITHROW, President.**

**H. J. HILL, Manager.**

## 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.*

GIBSON & WALKER, Denfield, have a nice crop of Leicester lambs and the older sheep are in fine condition. Mr. Gibson has a very fine young Shorthorn bull that would take some beating if fitted for the show ring.

H. & W. SMITH, Hay. The shorthorns belonging to this firm are in good shape. Abbotsford the roan bull, that was first in the three year old class at Toronto last fall, has gone on developing, and will make a hard one to beat. The young stock are developing nicely, and a succession of white steers are on the way to the block.

JAMES S. SMITH, Maple Lodge, has a nice bunch of yearlings and two-year olds, thick fleshed, deep, mossy coated ones. The cows are doing well. The three-year-old bull, Caithness, has done well, and is now a deep, thick-set fellow. The young calves are doing well, especially an eight months' old bull calf. The Leicesters are in fine shape.

MACKIE BROS., Eburne, B.C., write: "Our Ayrshire cows are doing fine. Jessie of Rockton has dropped a heifer calf. Polly 3rd has dropped a heifer calf sired by Sir Laughlin. Rose Campbell, the cow we bought lately from James McCormack & Son, has improved greatly. Sir Laughlin is holding his own. The young heifers are in extra good shape."

W. J. BIGGERS, Clinton, has at the head of his herd of shorthorns, Royal Dove, a grand good bull of Hon. J. Dryden's breeding. His stock are coming nicely, as may be judged from three fine bull calves nearly a year old, and a number of deep, lengthy heifer calves. The cows are doing well.

D. A. GRAHAM, Park Hill, reports his Berkshires as doing nicely. He has several fine October and September sows, and a good yearling sow with a nice litter. All the young stock were in good condition and doing well. His twelve breeds of poultry have done exceedingly well, the hatches have been large and the chicks are growing strong and healthy, and promise to make good ones by fall.

H. GEORGE & SONS, Crampton, have their herds of Chester Whites and Tamworths in good condition. The sows have done well with their litters and are in good condition themselves, while the young pigs are in great shape. Several young Tamworth sows under a year old and a young boar are particularly good. Four fine litters of Chester Whites and the same number of Tamworths show the breeding and superiority of these fine pigs.

Among our new stock advertisements this month is that of Mr. Robert Reford's celebrated Ayrshire herd at Ste. Anne de Bellevue, Que. The manager of this well-known stock farm, Mr. James Boden, has made a special study of the breeding and feeding of Ayrshire cattle, and has been successful in developing a type of cow combining a large type and a vigorous constitution with splendid milking qualities. Intending purchasers will not go amiss in making their selections from this herd.

JAMES COOPER & SON, Kippin. The imported rams Montford Exile and Rose Bush are doing well. The crop of lambs by these two rams are good, well woolled, well covered, have good forms, and altogether are a very superior lot of lambs. The lambs raised average more than one and a-half to the ewe. Sales have been good. 54 rams have been sold to J. McFee, of Iowa; 20 ewe lambs went to Maryland. A fine show lot to Hon. Thomas Greenway, Manitoba, and other sales to various parts of Canada and the United States.

NORMAN M. BLAIN, St. George, Ont., writes: "I am very well pleased with my young pigs sired by King George, and have not had enough to supply the demand. Some of my most recent sales were: Boar and two sows to H. Hayward, State College, Pa.; one pair to R. J. Wilde, Sugar Grove, Pa.; one sow to G. L. Duncan, Colborne; one boar to Chas. Conso, St. George; one boar to Robt. Geddie, Paris; one boar to J. W. Thompson, Orkney; one sow to C. W. Shearer, Bright. I blame FARMING for them all."

MR. C. R. DECKER, Chesterfield, reports Berkshires doing well and in good demand; young stock coming good and strong; two splendid show sows to farrow shortly by prize sires. My recent sales are: Mr. W. A. Phillips, Wyandotte, Ont., one boar; Mr. John Fiddin, Bookton, Ont., one boar; Mr. M. H. Parlee, Sussex, N.B., one sow in farrow; Mr. John McBain, Clyde, Ont., one sow in farrow; Mr. Robert Jamieson, Kirkwall, Ont., one sow; Mr. T. A. Smith, New Hamburg, Ont., one sow in farrow and three young sows; Mr. Daniel Hamilton, V.S., Harriston, Ont., one boar and one sow; Mr. W. A. Phillips, Wyandotte, one sow in farrow;

# LITTLE'S PATENT FLUID (NON-POISONOUS) SHEEP DIP AND CATTLE WASH.

## The Original Non-Poisonous Fluid Dip.

Still the Favorite Dip as proved by the testimony of our Minister of Agriculture and other large Breeders.

### FOR SHEEP

Kills Ticks, Maggots; Cures Scabs, Heals Old Sores, Wounds, etc., and greatly increases and improves growth of Wool.

### CATTLE, HORSES, PIGS, Etc.

Cleanses the skin from all Insects and makes the coat beautifully soft and glossy.

Prevents the attack of Warble Fly.

Heals Saddle Galls, Sore Shoulders, Ulcers, etc.  
Keeps Animals Free from Infection.

No Danger, Safe, Cheap, and Effective.

BEWARE OF IMITATIONS.

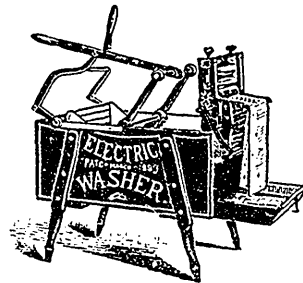
Sold in large tins at 75 Cents. Sufficient in each to make from 25 to 40 gallons of wash, according to strength required. Special terms to Breeders, Ranchmen, and others requiring large quantities.

Sold by all Druggists. Send for Pamphlet.

ROBERT WIGHTMAN, Druggist, Owen Sound,  
Sole Agent for the Dominion.

## THE ELECTRIC WASHER.

The Leading Machine. Excels all Others.



The most complete and scientific machine, operated by a double-action lever movement. Very light running. It has a uniform rubbing motion. It is provided with a sliding drawer to receive the clothes. The lifters for raising the rubber are malleable iron, so constructed that during the wringing the rubber can be thrown back out of the way.

Made from the best of material, and guaranteed not to leak. Nicely painted and finished. If no Agent in your locality, write us. N.B.—Agents wanted. Territory for sale.

SEMMENS & SON,  
174 York St., Hamilton.

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.

Stock Notes—Continued.

Mr. George Risk, Chesterfield, Ont., one sow in farrow; Mr. J. F. Dix, Little Britain, Ont., one boar.

A. C. HALLMAN, New Dundee, has at the head of his Holstein herd a fine bull of the Aggie strain, Flora's Sir Jacob. He is by Mavourney's Iris King and out of Flora Jane, both imported. Flora Jane has a record of 21 lbs. of butter in a week and a milk record of 75 lbs. in a day; while Mavourney has a butter record of 20 lbs. in a week and a milk record of 95 lbs. in one day. The young stock and cows are doing well. Mr. Hallman has placed at the head of his Tamworth herd an imported boar, Nimrod, bred by D. W. Philip, Whitacre, Coleshill, Eng. Nimrod is by Gun Hill Prince, and his dam is Young Duchess by Noah. He is a pig of good quality, well proportioned, and should have a lot of good stock. The young pigs and fall sows are doing well.

WM. BUTLER & SON, Dereham Centre, have now at the head of their Guernsey herd the famous bull, May Rosebery. Iona, the cow that won the sweepstakes prize at Toronto last fall, is doing exceptionally well, as also is Lady Luke, a typical dairy cow just in. The Guerneys of this herd possess true dairy form, and are good milkers. Several two and three-year olds are developing nicely and will make a good record. This herd should do much to bring the Guerneys to the front as first-class dairy animals. A big price has recently been refused for four superior animals in the herd. Their herd of Duroc-Jerseys are doing well, so also are the Chester Whites. Sales have been good and both these herds will give a good account of themselves when the proper time comes.

WESLEY W. FISHER, Benmiller, Ont., writes: "I am just sold out of Duroc-Jerseys; only have one sow left for sale. My Poland-Chinas are in splendid shape; sows are farrowing now right along. The stock I offer in this issue are descendants from imported stock and have been prize-winners. This chance will never be offered again, and if taken at once the stock will not be fitted for the show ring, and if not they will be. None can make a mistake at these prices, as the stock is there. The following are about the weights of the stock advertised which are given in the same rotation as in the advertisement: 400 lbs., 300 lbs., 450 lbs., 500 lbs., 300 lbs., 300 lbs., 600 lbs., and Duroc-Jersey sow 150 lbs. All the stock offered are first-class in all points." Mr. Fisher also advertises in this issue his thoroughbred stallion and race horse Zamor, either for sale

or exchange. This horse has a record of one mile in 1.42½, and Mr. Fisher's offer should meet with a ready response.

JOS. CAIRNS, Camlachie, has at the head of his herd of Chester White swine a fine imported hog, John A, bred by Mr. W. Whinery, Salem, Ohio, he is by Jack A, and his dam is Aunty. He is a long, deep, strong boned hog, and is throwing grand stock. The young litters by him more than realize expectations. Alma, an imported sow by Coco, and out of Junta, is a good typical sow, and has a very fine litter got by John A, they have great length and depth with good hams and shoulders. Four fine fall sows speak well for Mr. Cairns' breeding, which has always been for quality, first, last and all the time. Though this is not a show herd, yet it contains plenty of stock, that if fitted and shown would make a grand record for itself. His stock are gaining an enviable reputation wherever they go, they are so good. Miss Long, a splendid sow, had three litters inside of a year. Mr. Cairns has a number of Jerseys. His bull is Mighty John 35009. He is by Mighty Dollar, and his dam Luel a of Avondale. Several calves from Mighty John promise to make good ones.

WM. STEWART & SON, Lucasville, have their herd of Aberdeen Angus in good shape. Their bull McKenzie is doing well, so also is Oxford King a three year old. He is developing into a showy bull, is kind and quiet, and a clean cut straight smooth one. The older cows are doing well, some of them proving good milkers. Emlyn, a World's Fair cow, is doing well and has a fine calf, Emlyn's Pride, a straight smooth calf that will make a good one. Several heifer calves are going to make ringers, so also are a number of yearling heifers, and a few two year olds will take some beating. Hilda, of Willow Grove, a three year old, is a fine, straight, thick fleshed heifer that will be hard to get over. Messrs. Stewart have sold a bull to the Kincardine Agricultural Society, Victoria County, N.B. The Society were so well pleased with the animal sent that they also bought a cow and calf. Mr. Benjamin McKillican, of Sombra, got Topsy of Willow Grove, a four year old, her yearling heifer, Tibbie, and Farmer II of Willow Grove, a two year old bull. The half bred Angus cattle are proving themselves good milkers.

C. J. GILROY & SON, Glen Buell, Ont., report having recently sold the young bull Jenne E. 4th's Sir Prieritje, to Mr. Peter Hunter, Smiths Falls, Ont. This well-bred young bull captured the silver medal at Toronto last fall for best Holstein.

# A Perfect... Wood Furnace

...OUR...  
**"FAMOUS MAGNET"**



Made in 8 sizes, using 3, 4 and 5 feet wood. Will heat from 10,000 to 100,000 cubic feet. Heavy fire-box, with corrugations, increasing the heating surface. Extra large firing door and ash pit.

Heavy steel flues with cast heads that will expand without cracking. Bolts on outside away from action of the fire.

Instant direct or indirect draft. Firing, regulating and cleaning all done from the front.

Dampers can be operated from rooms above. Made for brick or galvanized casings.

**You Can keep your house warm from cellar to garret and Do it Cheaply.**

20  
HIGHEST TESTIMONIALS FROM ALL DEALERS AND USERS.

## The McClary Mfg. Co.,

LONDON, MONTREAL, TORONTO,  
WINNIPEG and VANCOUVER.

If your local dealer cannot supply, writes our nearest house.



## Stock Notes.—Continued.

bull any age, which honor was also conferred on him at Montreal. His dam has a record of 15,000 lbs. milk in one year. Their heifer, Inka Sylvia, 2 years old, daughter of Carmen Sylvia, has reached the extraordinary good record of 12,000 lbs. milk in ten months as a 2 year old. She is still giving 40 lbs. daily, and will not be 3 years old until August 22nd, 1897. I do not know of a 2 year old heifer under similar circumstances equalling this. Having calved on Toronto fair ground when only 2 years and 9 days old, and spending four weeks in show rings, and now being six months heavy in calf, surely goes to show that she belongs to the front rank of producers. Erie Bell 2nd, a fine cow, has just finished a month's milk record, and produced 2,028 lbs. milk, 3.5 per cent. fat. They have a bull calf from this cow, sired by a son of Carmen Sylvia, which they offer elsewhere for sale, as well as another calf by same sire out of a 4 year old cow, Mertie, now giving 60 to 64 lbs. daily. Either of these calves would be fit to head a herd very creditably another season.

WHITESIDE BROS., Innerkip, report a very good attendance at their sale on June 10th. Quite a number were in attendance from a distance. The stock was in good shape, and those of them that were milking showed that they were business cows. The bidding was good, and very fair prices were realized. Three good animals were knocked down to Professor Dean; of the Ontario Agricultural College—Elkie of the Glen, Merry Lass, and Lady Ethel 3rd. Mr. John Laurie, of Malvern, got Merry Maid and Maid of Athol 6th, two of the best animals sold. Mr. J. W. Justin, of Lisgar, got Maid of Athol 5th, while Myrtle, a daughter of hers, went to Mr. George Cumming. A good cow, Alert, went to Knox Bros., Thamesford, and another good one, Lady Ethel, to Mr. Hogarth, of Drumbo. Young heifers and calves sold well, while bulls went somewhat slow, though good prices were realized, one good yearling going to a very fair price. It is the intention of the Whiteside Bros. to go extensively into beefing cattle, and also to push the Clydesdales, of which they have some very good representatives. An extra good two-year-old filly by Self-Esteem and out of their brood mare Queen, has been sold to Absalom Graves, Hickson.

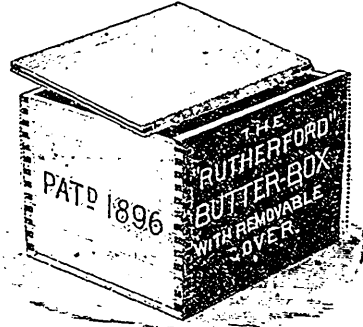
ALAN HUME & Co., Burnbrae, Ont., write: "We have sold all our bulls fit for service, so withdraw them. We have several choice bull calves, 2 years old and 1 year old heifers, several nice early spring sow pigs, a few early May boars, and

**FARMERS** Need it! need what? A good business education. Many students of the

**CENTRAL BUSINESS COLLEGE OF TORONTO**

are farmers' sons, who make much more successful farmers after enjoying a good practical business training. Think out this matter, and get particulars.

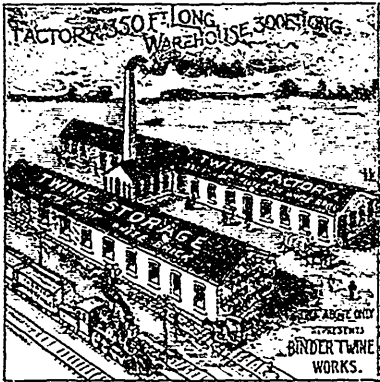
Address **W. H. SHAW, Principal,**  
Gerrard and Yonge Sts., Toronto.



Made of Kiln dried spruce. Smaller at Bottom. All boxes paraffined lined.

**FOR SALE BY**  
**Dairy Supply Furnishers and**  
**Produce Dealers.**

# Whisper



**There is only one**  
**Farmers' Binder Twine**  
**Company in Canada**

Headquarters, Brantford. Their **RED STAR** and **BLUE STAR** Binder Twine is said to be the best ever made for the Canadian market. Do your duty by your own Company, consisting of three thousand farmers in Ontario and Quebec, all stockholders. Order out Twine early and pay them promptly.

Agriculture's Implements of the most improved patterns will be furnished you through this same co-operative movement in the near future at about half present prices.

**HON. THOS. BALLANTYNE,**  
President.

**JOSEPH STRATFORD,**  
General Manager,  
**BRANTFORD, ONT.**

**Stock Notes.—Continued.**

a lot about a month old which we will sell at low prices. Expect a lot more in a few days. Our herds are doing well, pastures are good, consequently cows in this section are excelling themselves. Through abundance of feed and damp weather there have been several fatal cases of milk fever. We have just had a fine rain which was needed, and will insure splendid crops. We have now in our herds several 3 year old heifers, eight 2 year old heifers, seven yearlings, and several heifer calves, in which it is difficult to pick the best, some choosing one, some another, thus enabling us to give our customers a number to select from. The following is a partial list of sales: One bull, 15 months old, to J. McAlpine; one bull, 14 months old, to R. Scott, Campbellford; heifer calves to J. McCubbins, Castleton; D. Gunn, Belleville; boar pigs to W. J. Charlton, Lakefield; R. S. Crews, Trenton; J. Kelleher, Campbellford; J. Terry, Frankford; pair to E. E. Stephens, Campbellford.

Mr. N. Dymont, Clappison's Corners, writes: "I have been making the purchase of a first-class bull and four females, the remainder of the well-known herd of David Morton & Sons. Nellie Gray 2057, sire Royal Chief (imported), dam Maggie Brown of Barmoorhill (imp.). Maggie Brown gave 83 lbs. of milk in one day, and Nellie Gray will be a record breaker. Highland Mary, of Hickory Hill, sire Royal Chief (imp.), dam Primrose (imp.). She is a fine heifer now carrying her first calf, and has every appearance of the dairy type. Belle Flower of Hickory Hill, sire Monarch (imp. in dam), grandsire Royal Chief, dam Myrnie, grand-dam Sprightly 2nd (imp. in dam). Flo of Hickory Hill is putting up a very fine udder; sire Monarch (imp. in dam), grandsire Royal Chief, dam Dandy of Burnside, grand-dam Rosa D. Eرنic. Dandy (2223), the prize-winning cow at the Provincial Dairy Show, is milking well, although she has been milking over nine months. Briery Bank Susie (2847) is also milking fine. She has been over eleven months in milk. She is a grand breeder, as her stock will tell. Her first calf, Ruby of Hickory Hill, has been shown only five times in 1896 and took five first prizes. King of Hickory Hill, her second calf, is a credit to his dam. B. B. Susie, Peerless, out of Dandy, the first prize cow at the Dairy Show, is very fine, showing good dairy points. The bull I purchased from Mr. A. Terrill, Wooler, is a fine one. His name is Drummond 2036, sire Norman of Robertland 1901, sire Silver King (imp.) 1128, dam Brownie of Barcheskie, imp. 2829. Drummond was shown in Toronto last fall in a class of twenty and took third prize; he was six months younger than several of his competitors. He also took seven firsts last fall. Briery Bank Cora 2846, a half-sister of Susie, was also sired by Albion Chief, a calf from Maggie Brown. She promises to be a good milker. She is giving 20 lbs. per day, although she has been giving milk for fifteen months. I have been very fortunate so far as a breeder, as every one of my purebred cows are large performers at the pail. I keep them for that purpose, as my milk goes to the city every day."

A. W. Ross, Elm Grove Farm, Douglas, Ont., writes: "Our herd of swine usually consists of from sixty to eighty head of both Yorkshires and Berkshires. Graydon 2637, bred by J. G. Snell, sired by the famous Enterprise boar, heads our Berkshires, and is 4 years old, weighs nearly 700 lbs., strong, healthy, and has taken first prize at twelve different exhibitions and remains unbeaten. Another Berkshire boar, Bromley Hero 4107, bred by J. C. Snell, is 1 year old, and is a promising animal. Our Berkshire sows are a fine lot, both imported and home-bred. Lady Victoria 4480, bred by J. G. Snell, sired by Baron Lee 4th, is an excellent sow, and has a fine litter about two weeks old, sired by Bromley Hero. The rest of our Berkshire sows are equally worthy of notice. Our 2 year old Yorkshire boar, Isaleigh Champion 1886, bred by J. N. Greenshields, Quebec, sired by Holleywell Minor 612, dam Mitchell Beauty 723, has sired some very fine stock, and is very promising. A sow, also from Mr. Greenshields, has produced excellent stock. We have a few from Mr. J. E. Brethour's stock, which have turned out well. Some of our home-bred sows have proven very prolific, and have excelled anything imported; two of them having fifteen pigs each at a litter and a third seventeen. Our business as swine breeders has been very successful even in these hard times. We have found no stock as profitable. This spring we have sold eighty pigs, young and old, and have a few choice young Berkshires now ready for shipment. We enclose a few of our spring sales: One Berkshire sow to H. A. Brownlee, Shawville, Que.; one Berkshire boar to Thos. Cardiff, Renfrew; one Berkshire boar to Robt. McIntyre, Eganville; one Yorkshire boar and sow to Warren Switzer, Whitney; one Yorkshire sow to Chas. Scott, Renfrew; one Berkshire boar to Jno. Martin, Griersford; one Yorkshire sow (in pig) to D. Moonhead, Renfrew; one Berkshire boar to W. J. Burgess, Douglas; one Berkshire boar to Jos. Vuill, Carleton Place; one Berkshire boar and sow to S. Hamilton, Cobden; one Yorkshire sow to Max Stewart, Snake River; two Berkshire sows to Jas. Greaves, Eganville; one Yorkshire sow and boar to Fred Grieco, Northcote; one Berkshire boar to R. Byers, Douglas; one Berkshire sow to I. Byers, Douglas; one Yorkshire sow to Thos. Barr, Douglas.

# Live Stock Farm

## FOR SALE

IN TOWNSHIPS OF CALVIN AND LAUDER, DISTRICT OF NIPISSING, PROVINCE OF ONTARIO.

Lots 24 and 25, Con. 10, Township of Launder  
Lots 8 and 9, Con. 1, Township of Calvin

Which contains 387 acres, more or less, of which about 90 acres of loam and clay are under cultivation, and on which all kinds of machinery have been used.

The buildings erected are: Bank barn, 40x86 frame, 18 ft. wall, with 9 ft. stone wall underneath, with stall room for 64 head, and into which water is supplied in iron pipes taken from a chute in a creek, 1,600 feet distant; also a frame barn, 16 ft. wall 40x50; pig house 30x40; dwelling house, well finished and plastered 18x24; summer kitchen, 16-18; wood shed, 18x24 ft., and silo, 16x24 ft. wall. There is a fine water power and valuable mica mine on the property, and is well watered, the Potois Creek running through the property. For any one thinking of going into a stock farm this is a grand opening. Game and fish in abundance.

Post Offices: Calvin, distant 3 miles; Mattawa, 10 miles; Eaucalaire, 6 miles

For terms and further particulars apply or address

JOHN MACKAY  
RENFREW, ONT.

YOU CANNOT MAKE GOOD BUTTER OR CHEESE WITH-  
OUT PURE SALT

# Rice's Pure Salt

Fills the bill

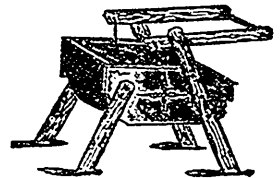
IF YOUR DEALER DOES NOT KEEP IT, WRITE US

NORTH AMERICAN CHEMICAL CO., LTD.

Sole Makers GODERICH, ONT.

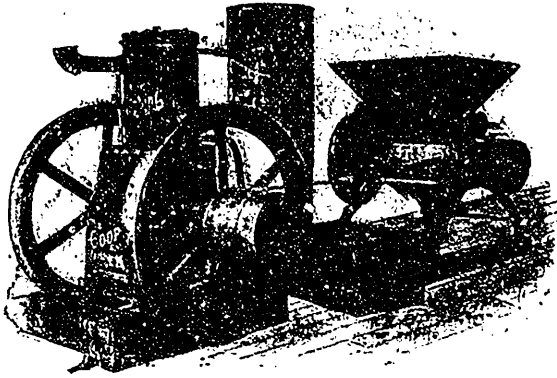
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# BEST AND CHEAPEST



## THE "Imperial" Gasoline Engine

A boon to farmers—a cheap, good, economical power on the farm. An engine that makes its own power. Runs without the aid of an engineer or a fireman. No boiler—no waiting for steam—always ready for use. A twentieth-century commodity. Can be going at full speed in less than a minute's time. It is

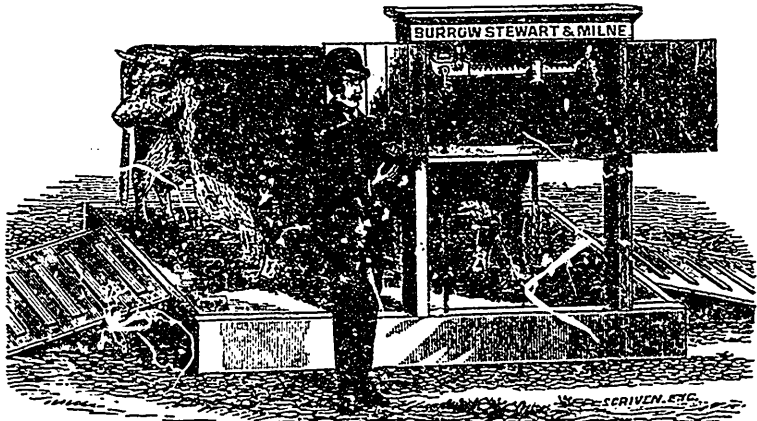
portable and convenient. Is being adopted by many of the best Canadian farmers.

A comprehensive booklet tells all about it in a way that everybody can understand it. Write for one.

**THE COOPER MACHINE CO., LIMITED**  
92 ADELAIDE STREET E., TORONTO

# Imperial Standard Scales

Counter Scales  
Hay Scales  
Dairy Scales  
Cattle Scales  
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We carry large stocks in Winnipeg and Montreal, and ship from these points.

Scales for all purposes, of every capacity, from 1 drachm to 100 tons.

Agents for Manitoba,  
Western Territories, and  
British Columbia.

Merrick, Anderson  
& Co.

WINNIPEG.

**BURROW, STEWART & MILNE,**

MANUFACTURERS,

**Hamilton, Ontario.**

Agents for the Provinces  
of Quebec, Nova Scotia,  
New Brunswick, and  
Prince Edward Island.

W. L. Haldimand  
& Son,

MONTREAL.

# The Provincial Winter Show

TO BE HELD IN THE  
CITY OF BRANTFORD  
December 7th, 8th and 9th, 1897:

## OFFICIAL PRIZE LIST

All Stock must be in the proper stalls or pens, not later than  
1 p.m., Tuesday, December 7th.

### CATTLE.

#### Class 1.--Shorthorns.

Sect.

1. Steer, 2 years and under 3. Prizes: 1st, \$20; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
2. Steer, 1 year and under 2. Prizes: 1st, \$20; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
3. Steer, under one year. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
4. Cow or Heifer, 3 years and over. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
5. Heifer, 2 years and under 3. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
6. Heifer, under 2 years. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
7. Prizes awarded in Sections 1, 2, and 3 will be duplicated by the Dominion Shorthorn Breeders' Association.

#### Class 2.—Herefords and Polled Angus.

Sect.

1. Steer or Heifer, 2 years and under 3. Prizes: 1st, \$20; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
2. Steer or Heifer, 1 year and under 2. Prizes: 1st, \$20; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
3. Steer or Heifer, under 1 year. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
4. Cow or Heifer, 3 years and over. Prizes: 1st, \$20; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.

#### Class 3.—Galloways and Devons.

Sections and Prizes same as in Class 2.

#### Class 4.—Grades or Crosses of any Breed.

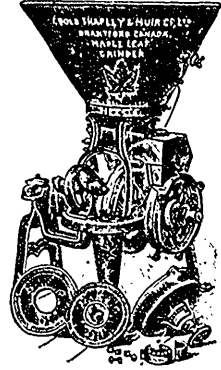
Sect.

1. Steer, 2 years and under 3. Prizes: 1st, \$25; 2nd, \$20; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
2. Steer, 1 year and under 2. Prizes: 1st, \$20; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
3. Steer, under 1 year. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
4. Cow or Heifer, 3 years and over. Prizes: 1st, \$20; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
5. Heifer, 2 years and under 3. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
6. Heifer under 2 years. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
7. Prizes in the first 6 Sections of Class 4, won by Grade Herefords, sired by a registered Hereford bull. (name and number of bull to accompany entry) will be increased 25 per cent. by H. D. Smith, of Compton, Que.
8. Special by the Dominion Shorthorn Breeders' Association for Best Grade Steer, sired by a pure-bred Shorthorn Bull, \$20.

### Class 5.—Championship Prize.

Sect.

1. For the best Animal shown in the Cattle Department. Prize: A "Maple Leaf" Grain Grinder (see cut), donated by Goold, Shapley & Muir Company, Brantford, Ontario, Manufacturers of Wind Mills, Grain Grinders, Fanning Mills, etc.
2. If the above prize is won by a pure-bred Hereford or Hereford Grade, \$25 additional will be donated by the Canadian Hereford Breeders' Association.
3. If this prize is won by a Hereford or Grade Hereford with at least two registered crosses, \$50 extra will be donated by H. D. Smith, of Compton, Que.



## SHEEP.

### Class 6.—Cotswolds.

Sect.

1. Ewe, 1 year and under 2. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
2. Ewe, under 1 year. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$6; 4th, Highly Commended; 5th, Commended.
3. Wether, 1 year and under 2. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
4. Wether, under 1 year. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$6; 4th, Highly Commended; 5th, Commended.
5. 3 Wethers, under 1 year. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.
6. 3 Ewes, under 1 year. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.

### Class 7.—Lincolns.

Sections and Prizes same as in Class 6.

### Class 8.—Leicesters.

Sections and Prizes same as in Class 6.

### Class 9.—Oxfords.

Sections and Prizes same as in Class 6.

### Class 10.—Shropshires.

Sections and Prizes same as in Class 6.

### Class 11.—Southdowns.

Sections and Prizes same as in Class 6.

### Class 12.—Dorset Horns and Merinos.

Sect.

1. Ewe, 1 year and under 2. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
2. Ewe, under 1 year. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
3. Wether, 1 year and under 2. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
4. Wether, under 1 year. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.

### Class 13.—Hampshires and Suffolks.

Sections and Prizes same as in Class 12.

### Class 14.—Sweepstake.

For the Best Sheep exhibited at the Show, a Plough donated by the Wilkinson Plough Co., Limited, Toronto, Manufacturers of Ploughs, Scrapers and Wheelbarrows. The winner to choose any walking Plough made by this Company.

### Class 10A.—Shropshire Specials.

Prizes offered by the American Shropshire Record Association.

Sect.

1. Grand Sweepstakes Premium of the Show, if won by registered Shropshire Sheep, \$50.
2. Best Registered Shropshire Wether, one year old and under two. First premium, \$10; 2nd, \$5.
3. Best Registered Shropshire Wether, under one year old. First premium, \$10; 2nd, \$5.
4. Best Three Registered Shropshire Wether Lambs. First premium, \$10; 2nd, \$5.
5. Extra Special Premiums for Best Wether, sired by Registered Shropshire Ram, out of Grade Ewes, one year old and under two. First premium, \$10; 2nd, \$5.

**6. Under one year old.** First premium, \$10; 2nd, \$5.

These prizes are offered subject to the following conditions: Sheep competing must be American bred, and owned at least ten days before showing by exhibitor.

Sheep and lambs, competing for these prizes, must be recorded in the American Shropshire Registry Association Record, and bear ear-tag of breeder in one ear and the Association tag with registered number in the other.

Any sheep or lamb, having won an Association Prize at a show, shall be ineligible to compete for the Association Prize at any other show except the Provincial Fat Stock Show, Madison Square Garden Show, and Chicago Fat Stock Show.

All prizes shall be paid by the Secretary of the American Shropshire Association to exhibitors ONLY upon presentation of certificates from the Secretaries of Fairs, giving names and association numbers of sheep that have won.

Judges are requested to make an entry in their books of the numbers of every winning sheep and lamb.

**Class 11A.—Southdown Specials.**

*Special Premiums offered by the American Southdown Breeders' Association.*

The first five volumes of the American Southdown Record for pen of "Four Lambs," two rams and two ewes, bred and owned by exhibitor.

1. This premium is offered conditioned: 1. That the animals competing for said premium shall be recorded in the American Southdown Record prior to date of making entry for exhibition, and that the party making the entry shall furnish the Secretary of the American Southdown Breeders' Association, at the time of entry, a copy of same.

2. That the premium will be paid on the presentation of certificate from the proper officer of the Fair.

**Class 15.—Grades and Crosses.**

Sect.

1. Ewe 1 year and under 2. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
2. Wether, 1 year and under 2. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
3. 3 Wethers, under 1 year. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
4. Wether, under 1 year. Prizes: 1st, \$8; 2nd, \$6; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
5. Ewe, under 1 year. Prizes: 1st, \$8; 2nd, \$6; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
6. Sheep, under 2 years. Prizes: 1st, \$10; 2nd, Highly Commended; 3rd Commended.

**SWINE.**

**Class 16.—Improved Berkshires.**

Sect.

1. Barrow, 9 months and under 15. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
2. Barrow, 6 months and under 9. Prizes: 1st, \$10; 2nd, \$6; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
3. Sow, 9 months and under 15. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
4. Sow, 6 months and under 9. Prizes: 1st, \$10; 2nd, \$6; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
5. Sow or Barrow, under 6 months. Prizes: 1st, \$8; 2nd, \$6; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
6. 3 Pigs, the offspring of 1 sow, bred by exhibitor. Prizes: 1st, \$15; 2nd, \$10; 3rd, Highly Commended; 4th, Commended.
7. 3 Bacon Pigs. Prizes: 1st, \$15; 2nd, \$10; 3rd, \$5; 4th, Highly Commended; 5th, Commended.

**Class 17.—Improved Yorkshires.**

Sections and prizes same as in Class 16.

**Class 18.—Chester Whites.**

Sections and prizes same as in Class 16.

**Class 19.—Poland-Chinas.**

Sections and prizes same as in Class 16.

**Class 20.—Suffolks and Essex.**

Sections and prizes same as in Class 16.

**Class 21.—Tamworths**

Sections and prizes same as in Class 16.

**Class 22.—Duroc-Jerseys.**

Sections and prizes same as in Class 16.

### Class 23.—Grades and Crosses.

Sect.

1. Barrow, 9 months and under 15. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
2. Barrow, under 9 months. Prizes: 1st \$12; 2nd \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.
3. Sow, 9 months, and under 15. Prizes: 1st, \$12; 2nd, \$8; 3rd \$4; 4th, Highly Commended; 5th, Commended.
4. Sow, under 9 months. Prizes: 1st, \$12; 2nd, \$8; 3rd, \$4; 4th, Highly Commended; 5th, Commended.

### Class 24.—Sweepstake.

For best animal exhibited in the Swine Department, a No. 1, Leader Corn and Root Cultivator, value \$10, donated by Thom's Implement Works, Watford, Manufacturers of High Class Farming Implements.

### Class 25.—Bacon Pigs.

\$25 has been donated towards the Prize List for bacon pigs, by the Wm. Davies Company, Limited, Toronto, Pork Packers and Export Provision Merchants.

Sect.

1. Special by the Ingersoll Packing Company, Ingersoll, Ont., Cheese Exporters and Pork Packers, for six best lean singers. Prizes: 1st, \$15; 2nd \$10.
2. Special by F. W. Fearman, Hamilton, Pork Packer and Provision Merchant, for 5 hogs that will meet the requirements of the packing industry as ideal singers, suitable for export trade. Prizes: 1st, \$15; 2nd \$10.

## DAIRY.

\$50 each has been donated towards the Prize List in the Dairy Department by the Cheese and Butter Associations of Eastern and Western Ontario.

### Class 26.—Shorthorns.

Sect.

1. Cow, 36 months and over. Prizes: 1st, \$25; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
2. Cow, under 36 months. Prizes: 1st, \$25; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
3. \$100 is donated by the Dominion Shorthorn Breeders' Association to duplicate above prizes.

### Class 27.—Ayrshires.

Sect.

1. Cow, 36 months and over. Prizes: 1st, \$25; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
2. Cow, under 36 months. Prizes: 1st, \$25; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
3. \$25 additional will be donated by the Ayrshire Breeders' Association for the Ayrshire Cow making the best record.

### Class 28.—Holsteins.

Sect.

1. Cow, 36 months and over. Prizes: 1st, \$25; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.
2. Cow, under 36 months. Prizes: 1st, \$25; 2nd, \$15; 3rd, \$10; 4th, Highly Commended; 5th, Commended.

### Class 29.—Jerseys.

Sections and prizes same as in Class 28.

### Class 30.—Guernseys.

Sections and prizes same as in Class 28.

### Class 31.—Grades.

Sections and prizes same as in Class 28.

### Class 32.—Sweepstakes and Specials.

Sect.

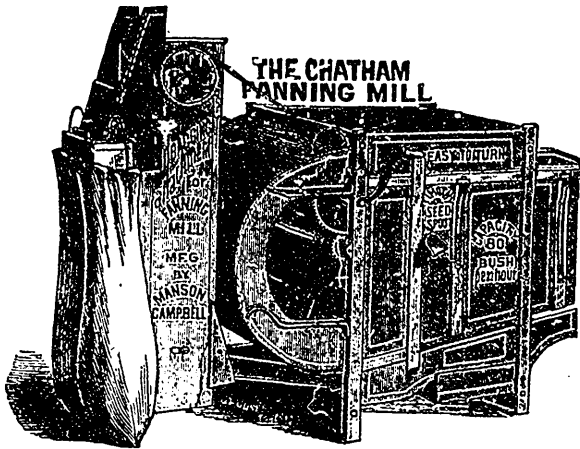
1. Sweepstake for Cow under 36 months, \$30.
2. Sweepstake for Cow 36 months or over, \$18. } Prince of Wales' Prize.
3. The following prizes are offered as specials in this class by the Canadian Holstein-Friesian Association: for the best pure-bred Dairy Cow, \$25; for the two next best Holstein-Friesian Dairy Cows, registered in the C.H.F.H.B., \$15 and \$10 respectively.
4. The Holstein-Friesian Association of America offers as specials in this class, \$25 for the first, and \$15 for the second, to be paid to any Holstein-Friesian Cows winning premiums in competition with cattle of other breeds, providing such animals are recorded in the herd book of the Association.
5. In case a pure-bred Ayrshire makes the best record, \$25 additional will be donated by the Ayrshire Breeders' Association.

For entry forms and all information, apply to

F. W. HODSON, Sec'y-Treas.,

Parliament Buildings, Toronto.

# THE FAMOUS Chatham Fanning Mill



Formerly, industry alone was held essential to good farming. Now, brains are admitted to the partnership with industry. The following is from "How To Make Dollars Out of Wind, or The Science of Good Farming."

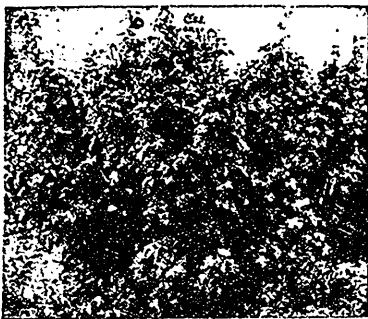
Very often a man can realize from five to ten cents extra on every bushel of his grain, by cleaning it in first-class style and selling it for seed grain. What you take out is not wasted, as it makes good feed. Besides, the time is fast approaching when it will be utterly impossible for a Quebec, New Brunswick, Nova Scotia, or Prince Edward Island farmer to sell mixed or poor grain. He formerly has had a market with the lumbermen in the woods, but now that he must export part, it must be clean.

I wish to draw your attention to the advantage in having one entirely your own, without any partner. If you have not at all times one in your barn, but, on the contrary, have to drive after one, then you will often neglect to clean grain that should be cleaned. All grain should be cleaned, not only the seed, but grain you feed should be in order to obtain as good a price for your grain

cleaned. It prevents the foul seed in it from going back on the ground, and as they do in other parts of the country, it must be well cleaned and graded.

Don't fail to read this book telling how to obtain good seed.  
It will be sent free on application to

## The M. Campbell Fanning Mill Co. of Chatham, Limited



### 400 HELDERLEIGH FRUIT FARMS AND NURSERIES Acres

Situated at the base of the Mountain in a warm and sheltered valley where trees arrive at full maturity, well rooted, with properly ripened wood. Having over 125 acres planted in fruit, I have unusual facilities for knowing the value of the different varieties and establishing their purity. Everything sent out is **GUARANTEED TRUE TO NAME** or purchase price refunded. I have for the fall of 1897, and the Spring of 1898, as complete a line of Trees, Shrubs, Vines, etc., both fruit and ornamental, as can be found anywhere in America.

**ANY PERSON** desiring to plant anything will do well to write for a Catalogue which is furnished **FREE**, and which contains, in addition to a complete description of the various Trees, Shrubs, Plants, etc., over ten pages of closely written matter about the various **PESTS** that trouble fruit growers and means of preventing their ravages.

**CANADIANS** will do well to buy **CANADIAN GROWN STOCK** only, and thus escape the dreaded San Jose Scale so prevalent in the States. There is no more reliable, healthier, hardier, or more complete assortment than mine.

Good reliable salesmen wanted in a number of fine townships, to start work at once. Complete outfit free.

Address **E. D. Smith, WINONA, Ont.**

## THE GURNEY SCALE CO.

ESTABLISHED 1856

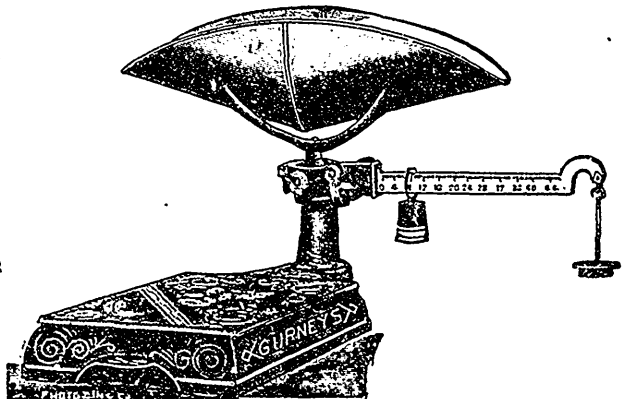
Manufacturers of

# STANDARD SCALES. . .

It has paid others to weigh their goods.

Will it not pay you?

**Hamilton, Ont.**





# Pickering College....

A Residence School for Young  
People of Both Sexes

Established and Maintained under  
the auspices of the Society of Friends

The object of Pickering College is to secure to its students a thorough grounding in all the essentials of a liberal education, and at the same time to surround them with all the moral influences and guarded care of a well-conducted home.

## The Departments of the College include

- I. **A Collegiate Department.** Embracing all the subjects taught in High Schools and Collegiate Institutes. Preparation for Departmental Examinations.
- II. **A Business Department.** Where all the subjects necessary to qualify a young man or young woman for taking a situation in a business office or counting-house are thoroughly well taught. The standing of the Commercial Department of Pickering College is assured from the fact that it is affiliated to the Institute of Chartered Accountants of Ontario.
- III. **A Preparatory Department.** For young boys and girls. Special facilities offered to students whose early education has been neglected.
- IV. **A Department of Painting and Drawing.** Including Crayons, Water Colors, China Painting and Oils.
- V. **A Department of Music.** Including Piano and Voice.
- VI. **A Department of Elocution and Physical Culture.**

**FALL TERM OPENS SEPTEMBER 7TH.**

**TERMS REASONABLE**

For announcements, etc., apply to

THE PRINCIPAL,  
Pickering College, Pickering, Ont.

# Montreal's Great Exposition and Industrial Fair.

**August 19th to 28th**

Splendid Display of Live Stock, Agricultural, Horticultural, and Dairy Products

MIDSUMMER NIGHT'S DREAM FANCY LAND BY DAY

Grand Attractions, New Features, Special Jubilee Novelties

**THE PEOPLE'S OUTING TO CANADA'S METROPOLIS**

Extensive Improvements in all departments excelling all previous years in excellence and equipment.

Brilliant Illuminations, Music, Fireworks. Special and High-Class Attractions.

**REDUCED RATES ON ALL RAILWAYS \* ENTRIES CLOSE ON AUGUST 16TH**

For prize lists, entry forms, and all particulars, address

**S. C. Stevenson,**  
Manager and Secretary

Premiums are given only to those SENDING IN NEW SUBSCRIBERS.

# Special Premium List... for July

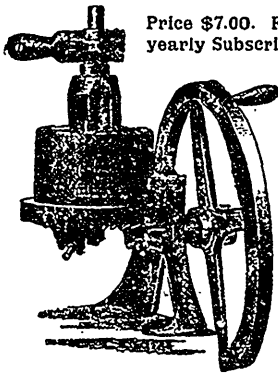
See Lists in January, February, and March Numbers

WE beg to draw the attention of our numerous subscribers and readers to this splendid List of Premiums. Every article is useful, and should be found on every farm. They have been especially selected from the stock of JNO. S. PEARCE & Co., London, Ont.

## Nothing Succeeds Like Success

Make an effort and we feel assured that you will be successful in securing some of these valuable premiums.

### "Excelsior" Green Bone Cutter



Price \$7.00. For only 12 new yearly Subscribers at \$1 each.

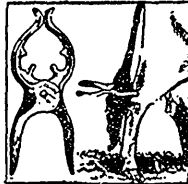
Everybody who keeps hens should have this valuable machine. It will successfully cut fresh bones suitable for poultry feed. Green bones when fed to hens will double the number of eggs.



### VICTOR COW CLIP Price 25c.

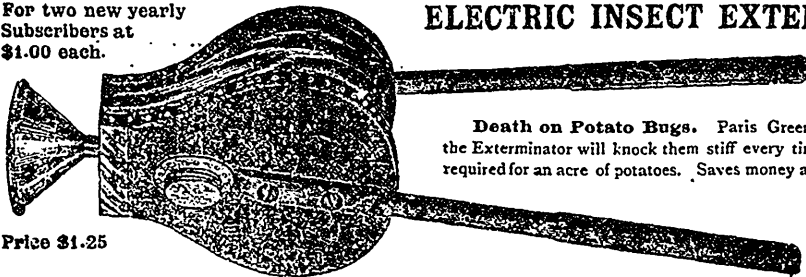
Every farmer should use this device. Prevents the tail of the cow from lashing the face when milking.

These two useful instruments for only one new subscriber at \$1.00.



For two new yearly Subscribers at \$1.00 each.

### ELECTRIC INSECT EXTERMINATOR



Death on Potato Bugs. Paris Green when applied with the Exterminator will knock them stiff every time. Only one pound required for an acre of potatoes. Saves money and kills every time.

Price \$1.25

### FARMERS' FAVORITE BABCOCK MILK TESTER

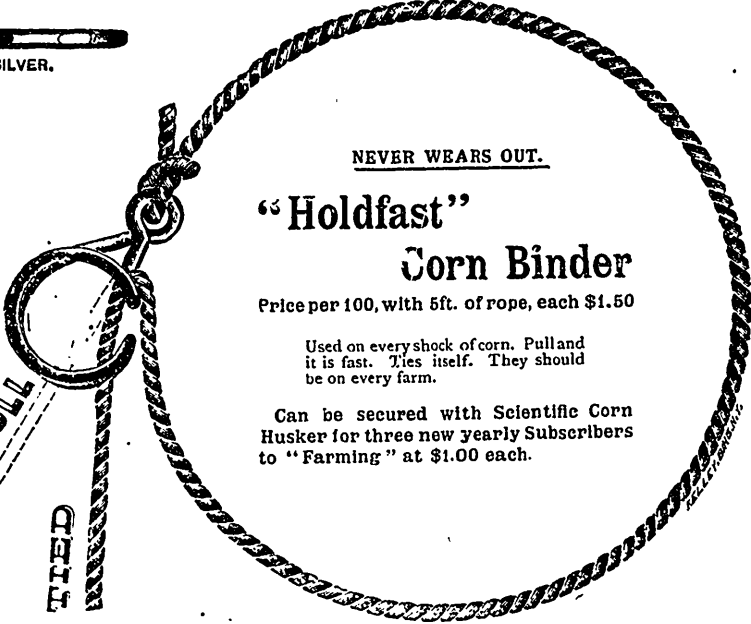
Four Bottle Machine, Price \$5, for seven new yearly Subscribers at \$1 each.

Six Bottle Machine, Price \$6, for eight new yearly Subscribers at \$1 each.

Every one who keeps cows should have a Babcock Milk Tester and find out what each cow is doing. Then discard the poor ones and keep only those which will return a profit for their keep. What easier way of securing one than by getting new subscribers to FARMING!

### MILKING TUBES

Price 25c. by mail. Useful for sore or torn teats, or hard milking cows. Every farmer should have one. Given free, along with a complete Butter Mould and Printer, for one new yearly subscriber to "Farming" at \$1.00.



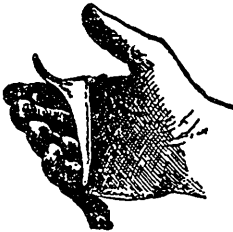
NEVER WEARS OUT.

### "Holdfast" Corn Binder

Price per 100, with 5ft. of rope, each \$1.50

Used on every shock of corn. Pull and it is fast. Ties itself. They should be on every farm.

Can be secured with Scientific Corn Husker for three new yearly Subscribers to "Farming" at \$1.00 each.



### SCIENTIFIC CORN HUSKER

PRICE 15 CENTS.

Greatest Little Tool on Earth.

Given with the Holdfast Corn Binder for three new yearly Subscribers to "Farming" at \$1.00 each.

### SHEEP LABELS

Very useful for owners of sheep.

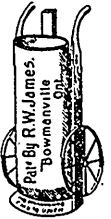
Sixteen of these Labels, with number and name on each, as in cut, sent free for one new yearly subscription at \$1.00.



### Combined Truck and Bag Holder

One of the most useful implements on a farm, and one of the most complete labor-saving devices ever invented.

Price \$5.50. Will be sent f.o.b., at Bowmanville, to anyone sending us ten new yearly Subscribers at \$1 each.



## Your Own Subscription Free

For one year for two new yearly subscriptions at \$1.00 each.

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All communications should be addressed to

## FARMING,

Agents Wanted.

20 Bay Street, Toronto, Can.

BRITISH ADVERTISEMENTS.

**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, *i.e.*, \$51 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: **Stalpingboro**, 3 miles distant, and **Great Grimsby** 7 miles.

Telegrams: "Dudding, Keelby, England."

**S. E. DEAN & SONS**

**DOWSBY HALL, FOLKINGHAM, LINCOLNSHIRE, ENGLAND.**

**H**AVE 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 Rippingale Station, on the Great Northern Railway. Bourne and Sleaford Branch.

TELEGRAMS:—**DEAN, RIPPINGALE.**

**REGISTERED KENT OR ROMNEY MARSH SHEEP.**

**M**R. 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.**

**JAMES FLOWER, . . .**

**. . . Chilmark, Salisbury, Wilts, England.**

Registered flock of nearly 1,000 Grand Hampshire Down ewes. Established more than 50 years ago by present owner's father. Prizes won at the Royal, Bath, and West, Royal Counties, and other shows, including the Challenge Cup at Salisbury Fair in 1894, 1895, and 1896. Won 51 prizes out of 53 classes, including champion prizes during last three years. Selections always for sale at home and at the Annual Sale, Bretford Fair, August 12th.

39

**J. E. Casswell,**

**Stock Book No. 46. LAUGHTON, FOLKINGHAM, LINCOLNSHIRE, ENGLAND.**

**T**HIS well-known flock has been established more than 100 years, and the pedigreed 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, Folkingham, England.

**JAMES LAWRENCE, Stall Pitts' Farm, Shrivvenham, 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."

Send a Cabinet Photo and 50c. to  
 S. J. Jarvis, Photographer, Ottawa, Ont.  
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**Get 10 Photos**  
**... For 50 Cents**

First-class Copies Guaranteed.  
 Cabinet Returned.  
 Studio Established 1882.

## BRITISH ADVERTISEMENTS.

**GREAT SALE**

—OF—

**Registered Leicester Sheep**

—AT—

**DRIFFIELD, YORKSHIRE, ENG.**

The Fourth Annual Sale of Rams, Ewes, Gimmer Shearlings (registered in the Leicester Flock Book), will be held at Driffield, on Thursday, the 16th day of September, 1897.

**JOSEPH CRUST,**

Auctioneer and Secretary.

Ivy House, Driffield, Yorkshire, Eng.

**J. D. Millington****SEMPRINGHAM HOUSE,**

near . . .

**FOLKINGHAM, LINCOLNSHIRE,**  
**ENGLAND.**

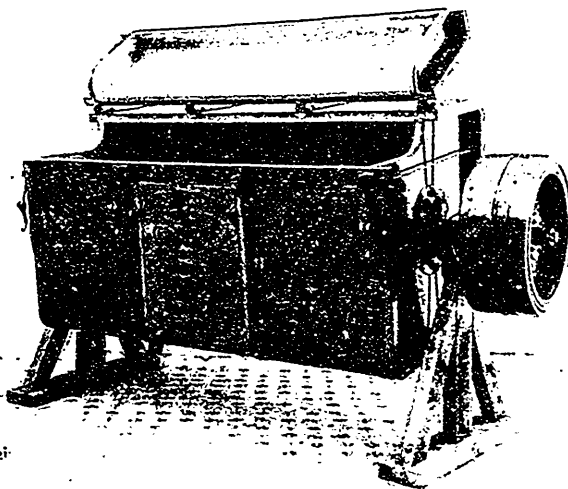
**HAS** for sale pure bred registered Lincoln Rams, Ewes and Ram Lambs and She Lambs, descended from the best blood in the country. Flock established over 100 years. The Lambs are this year principally sired by the 200 guinea ram Sempringham Ashley Rover (1295). (This sheep gained first prize at the Yorkshire Show in 1295, and last year clipped 3 lbs. of wool.) Also by Sempringham Pointon A 2241; Laughton Chief 1227 (hired from Mr. J. E. Casswell at a high figure, and one of his best woolled Rams); and Sempringham Duddings, 2240, half brother to the Royal Prize Shearling at Darlington.

Registered Stock Book No. 56.

Telegrams and Mail Station

**BILLINGBØRO, G.N.R., 1 MILE**

**CREAMERY AND CHEESE FACTORY**  
**APPARATUS**



All goods **superior** in quality and of the highest standard of excellence.

The latest and most improved kinds of

**Churns,**  
**Butter Workers,**  
**Cheese Presses,**  
**Milk Vats,**  
**Cream Vats,**

and a full list of Dairy Appliances manufactured and kept in stock. Prompt shipments. Every attention given to customers. Estimates regarding Creamery and Cheese Factory outfits cheerfully given.

Address, **NELSON BUZZELL & CO.**

.... **Cowansville, Quebec.**

# The Salt of the Earth.

## WHAT SALT WILL DO.

Salt renovates grass lands, sweetens urbage, and prevents mustiness in the stables. Salt moistens dry soil. Salt purifies the stables, benefits horses, improves their coats, and keeps them in good health. Salt improves the crops, makes the grain plumper, the straw stiffer and whiter, ripens the crop earlier. Salt prevents potato disease. Salt prevents rot in sheep. Salt increases the yield and improves the quality of milk. Salt will kill all insects. It is the best insecticide known. Invaluable for killing the army worm, wire worm, etc. Farmers cannot do without salt. Salt is a necessity for the farm as much as it is for human beings. The money spent on salt as a fertilizer is the best investment a farmer can make.

—FARMING, TORONTO.

# Coleman's Salt

For Table.  
For Dairy.

All kinds of Salt. Fine, Coarse, or Land Salt.

Prompt  
Shipment  
Guaranteed.

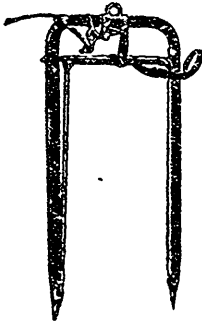
## Canada Salt Association

CAA 21

CLINTON, ONT.

PROVAN'S  
PATENT

## REVERSIBLE CARS, FORK AND SLINGS



Have now become a Standard of Excellence with the Farmers of Canada and the United States. At the World's Fair, Chicago, 1893, the only Medal and Diploma given on Hay Carriers, Forks and Slings, was awarded to us on these implements.

Following is a copy of the Judges' Award:

**AWARD** "For open trip hook to receive the sling; automatic clutch, adjustable for size of road desired; ingenious design of stop-block, which enables perfect control of carriage; no springs required for locking car which has motion in all directions; compact form of fork which can be tripped in any position; the car is reversible and of double action; for novelty, ingenuity, and usefulness. Excellence of material and construction."

Manufactured **JAMES W. PROVAN,**  
—by—

Correspondence Solicited.

OSHAWA, Ontario, Canada.

# Capital City Business College

A thoroughly up-to-date institution.

Write for particulars. Address

A. M. GRIMES, President,

OTTAWA, CANADA.

## Feels His Oats



This will not be the case with an animal whose blood is out of order. When a horse is all run down he needs a tonic the same as a man. Often he cannot have complete rest. Give him

### Dick's Blood Purifier

and note how quickly he will pick up. His whole system will be invigorated. His digestion will be strengthened so that all the nourishment will be drawn from the food and less of it will be required. **Dick's Blood Purifier** drives out Bots, Worms and all parasites.

For sale by druggists, at general stores or sent post paid on receipt of 50 cts.

Dick & Co., P. O. Box 482, Montreal.

# Havergal Ladies' College

JARVIS STREET, TORONTO

A Church of England Ladies' College.

LADY PRINCIPAL—MISS KNOX.

**H**AVERGAL LADIES' COLLEGE was opened in September, 1894. It was felt that there was a need for a first-class school for young ladies that should combine a thorough intellectual culture with the best religious influences. The College has been most successful; its attendance is larger than could reasonably have been expected; and, in addition to the main building originally occupied, two adjacent buildings have had to be secured to provide a sufficient accommodation for the pupils constantly seeking admittance. *The year just closed (1896-7) has been an exceedingly prosperous and satisfactory one.*

**The Aim of the College.** The promoters have not founded the College to make money, but to supply what they believe to be a great need. Parents are anxious to secure for their daughters a school that will furnish the elements of thorough culture and wholesome religious influences. The Board of Havergal Ladies' College will be satisfied only with a training equal to that of the best schools for young ladies.

**The Lady Principal.** In establishing the College, everything depended upon the choice of a Lady Principal; and, to be abreast of the vast improvements in ladies' education made of late years in England, the Board of Management determined to choose an experienced lady teacher. Miss Knox, the Lady Principal, comes to Canada with an experience as a teacher in the best ladies' college in England—the Cheltenham Ladies' College—and also with a knowledge of the best German methods of education. The Board, therefore, have been extremely fortunate in securing her services. She is fully qualified by her training at Oxford to be the leader in the intellectual life of the school, and she has also the even more important qualification of high Christian character.

**Resident Teachers.** The staff of teachers resident in the College will be found to be fully competent. The

Board, recognizing the importance of having upon the staff teachers of English training and experience, are making all their appointments with reference to that consideration.

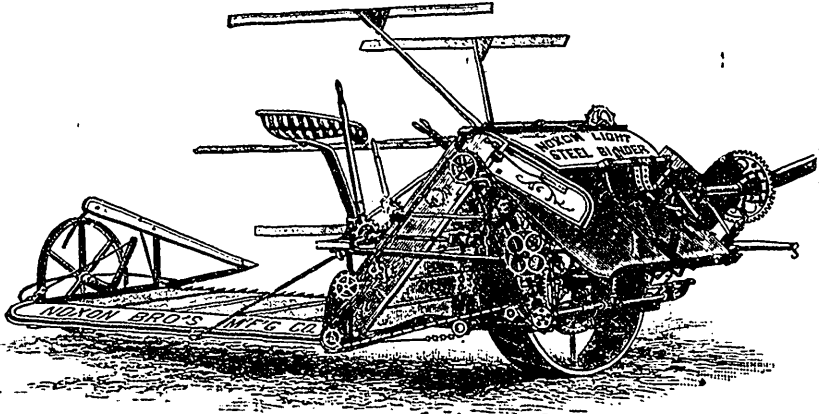
**Instruction in Special Subjects.** The facilities for instruction in Foreign Languages, the Ancient Classics, Mathematics and Physics, and in Instrumental Music, Singing, Painting, Drawing, Elocution, and Physical Culture, are excellent. German, French, Italian, Latin and Greek, Mathematics, the Sciences, Elocution, and Delsarte, are all taught by able specialists. Instrumental Music is under the charge of some of the most distinguished teachers in Toronto, including Mr. H. M. Field. Vocal Music is in charge of Mr. W. H. Robinson. Pupils in Painting and Drawing have the advantage of being under the personal instruction of the well-known artist, Mr. E. Wyly Grier.

**Terms and Fees.** Particulars as to Terms, Fees, etc., are detailed in the College Announcement, which may be had on application. Considering the superior advantages which the College offers to its patrons, the fees are moderate. For admission, and for all further information, address

J. E. BRYANT, M.A.,  
Bursar, 20 Bay St.

THE LADY PRINCIPAL,  
350 JARVIS ST., TORONTO

**.. Its work shows its worth ..**

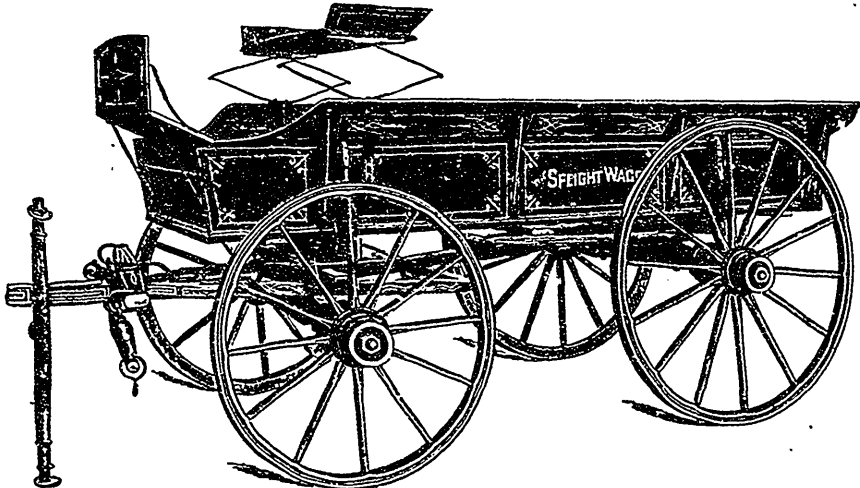


When your harvest is ready you should be ready for it. The purchase of a NOXON LIGHT STEEL BINDER will insure this. Order in ample time and secure a Binder which will please you.



**NOXON BROS. MANUFACTURING CO., LIMITED., INGERSOLL, ONT.**

**The Leading Wagon in Canada**



**The Speight Ontario Farm Wagon**

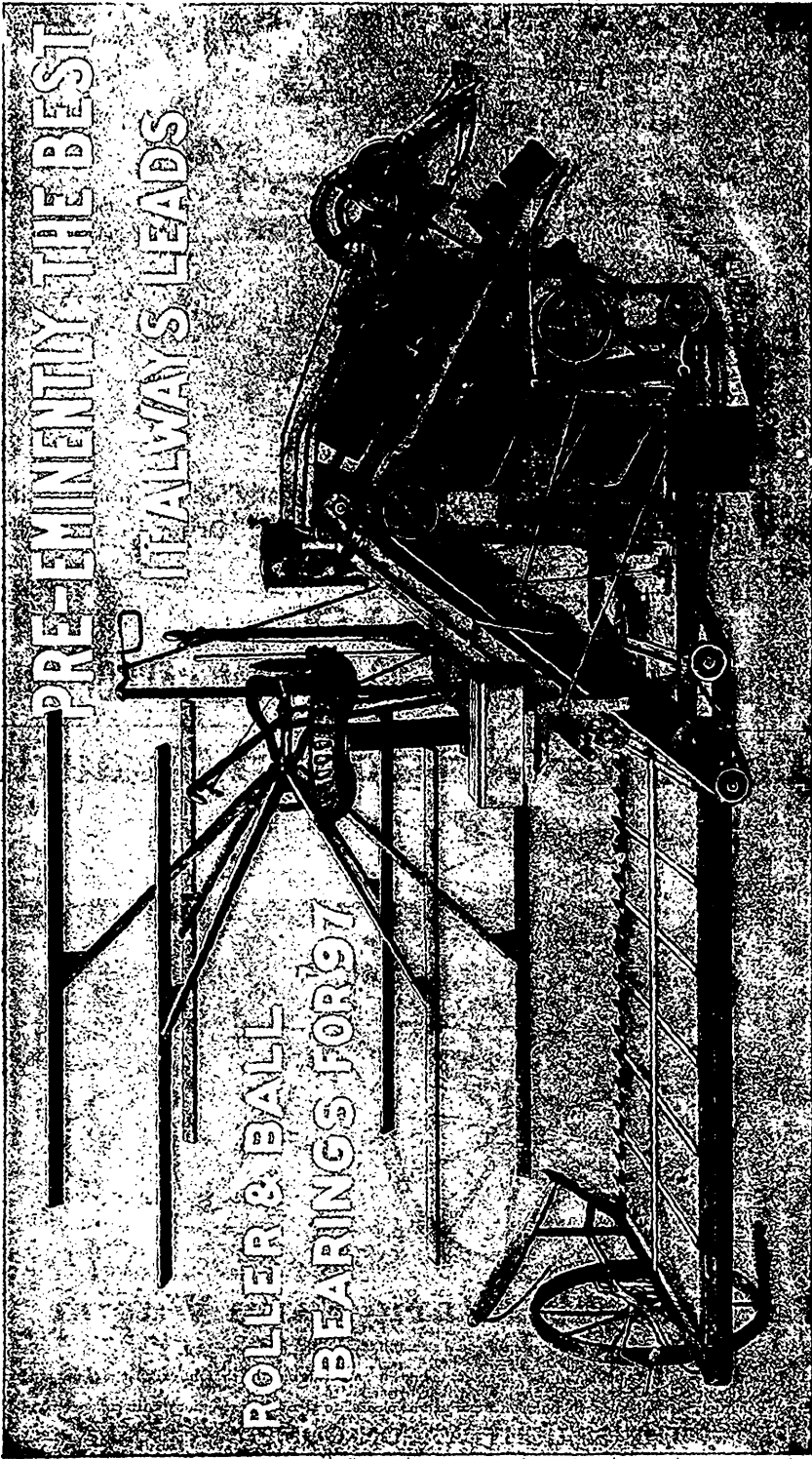
**LIGHTNESS** in weight compared to any other gear of equal strength,  
**AND** we have a reputation for excellence of workmanship,  
**DURABILITY**, and material not equalled in the Dominion in our line, and it is our aim that the excellence of our productions shall not only be maintained but advanced to a still higher standard.  
**WRITE US.** We invite correspondence and on application will be pleased to give full descriptions, with catalogue and prices.

**THE SPEIGHT WAGON COMPANY,**

T. H. SPEIGHT, Manager, 102 Front St. East, Toronto

Head Office and Factory, MARKHAM, ONT.





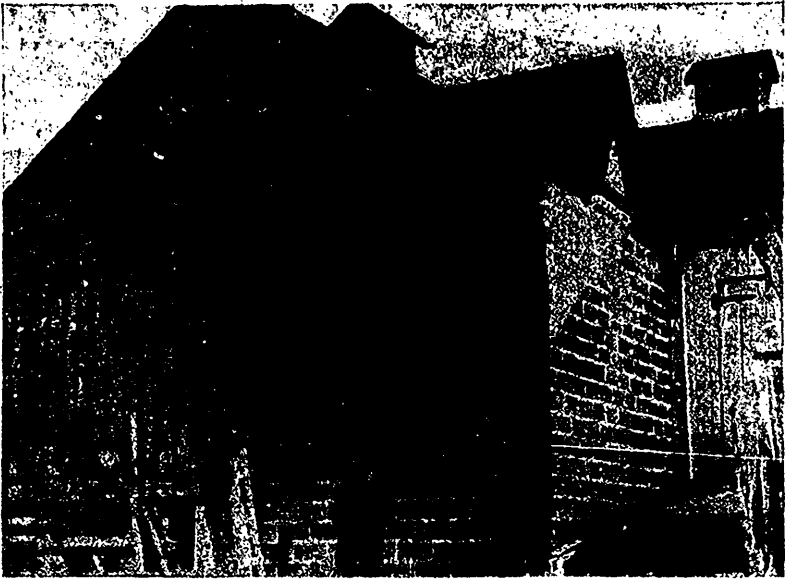
PRE-EMINENTLY THE BEST

IT ALWAYS LEADS

ROLLER & BALL BEARINGS FOR '97

A TRIUMPH OF MAN'S GENIUS. IT WILL DO ITS WORK WELL IN ANY KIND OF CROP, NO MATTER HOW TALL OR HOW SHORT; IN HEAVY OR JOE LIGHT, HIGH TANGLED OR FALLEN AND LODGED. IT BARES CROPS OF THE CROP THAT OTHER MACHINES LOSE.

Massey-Harris Wide-Open Binder



MR. DAVID McINTYRE'S TWIN SILO.

The walls of the silo, the foundation walls of the barn, and the floors of the stable are all built with **Queenston Cement Concrete**. Mr. McIntyre raised his feed alley and put in Mr. Usher's system of ventilation. It gave him perfect ventilation.

### Gives Complete Satisfaction.

ISAAC USHER & SON :

Gentlemen,—We like the concrete silos built of Queenston Cement. This is the second time we have had them filled; they keep ensilage perfectly, and do not cost more than our neighbors' silos, which are built of wood, and are propped in every direction to keep them from bursting. We intend building two more next year like the others we now have. Wishing you every success, we are,

Very truly yours,

BOTHWELL DAIRY CO.  
(Per Mason.)

I. USHER, ESQ.,  
Queenston :

FROME, Jan. 3rd, 1896.

Dear Sir,—Your letter was received some time ago, but I delayed answering in order to compare the keeping qualities of my ensilage with that kept in wooden silos. Some days ago I had an opportunity of doing so, and find that in the wooden silo the corn for about two inches is rotted, while in my silo it is keeping perfectly. I do not know, of course, if this is the case with all wooden silos. I remain,

Yours truly,

F. H. SHARON.

[Mr. Sharon's silo is 16x44 feet, 23 feet in height, with two partitions, making three silos. These silos were built three years ago, and have been filled three times, and prove to be absolutely perfect.]



## BRANTFORD

### Steel Wind Mills

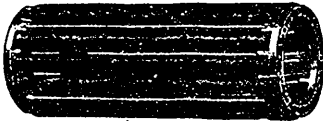
With Patent Roller Bearings

Galvanized Steel Towers and Wheels

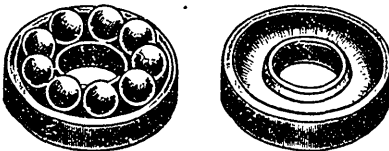
The Best in America

Ideal Spray Pumps, Iron Pumps, Water Tanks, Piping, etc. The Ideal Solid Power Mill, with Roller and Ball Bearings, is a wonder.

#### PATENT ROLLER BEARING



#### BALL BEARING



## IDEAL POWER WIND MILLS

Are under easy control, cannot break loose and run away in a storm. Are strongly built and durable. Have the heaviest gear and will safely give the most power in high winds. Are the most satisfactory farm power. Cheapest, easiest to operate, and most effective.

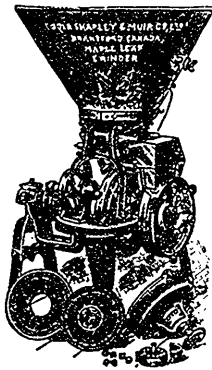
### The Celebrated "Maple Leaf" Grinder

10 inch Reversible Burrs. Fine and Coarse Burrs. Ball Bearings for Plate Relief Springs. For any Power or any Work. Always Guaranteed.



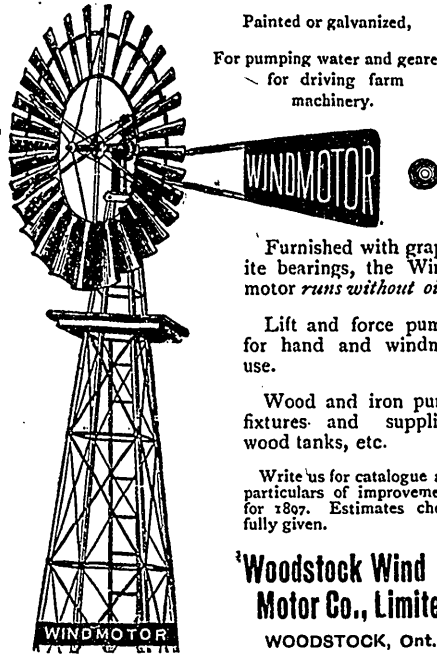
BRANTFORD CAN.

Send for Circulars and mention FARMING.



## THE WINDMOTOR

Painted or galvanized,  
For pumping water and geared  
for driving farm  
machinery.



Furnished with graphite bearings, the Windmotor runs without oil.

Lift and force pumps for hand and windmill use.

Wood and iron pump fixtures and supplies, wood tanks, etc.

Write us for catalogue and particulars of improvements for 1897. Estimates cheerfully given.

Woodstock Wind Motor Co., Limited,  
WOODSTOCK, Ont.

It has proved a "clinger" with thousands of skeptics to learn that

### Hon. John Dryden Endorses The Spramotor.

DEPARTMENT OF AGRICULTURE, ONTARIO,  
Toronto, Aug. 28th, 1897.

Dear Sir,—I have great pleasure in stating that the Spramotor, ordered from your Company this season, has given entire satisfaction. It works easily and is very effective in its operation. Your Company deserves much credit for placing so excellent a pump on the market. Yours very truly,

JOHN DRYDEN,  
Minister of Agriculture.

MR. W. H. HEARD,  
Manager of Spramotor Co., London, Ont.

#### CERTIFICATE OF OFFICIAL AWARD.

This is to certify that at the Contest of Spraying Apparatus, held at Grimsby on April 2nd and 3rd, 1896, 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. I. HUTT, } Judges.  
M. PETTIT, }

Send for Catalogue and Prices.

Address, **SPRAMOTOR CO.**,  
357 Richmond St., London, Ont.

# FARMERS

# B I N D E R T W I N E

By experience have learned that the undermentioned brands are the best and most economical to use.

Why are they the best ?

Because they are evenly spun, made on the most improved machinery and by skilled labor. Will run all day without stoppage, and is the only twine that will not stick in the knotter.

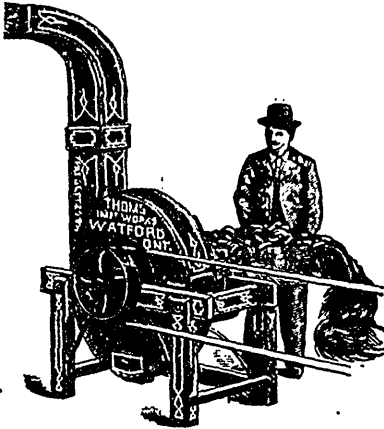
<b>Blue Ribbon</b>	<b>Red Cap</b>
<b>Blue Crown</b>	<b>Red Crown</b>
<b>Standard</b>	<b>White Sisal</b>

PURE MANILLA, 650 feet to lb.

See that this name is on the tag :

**CONSUMERS'  
CORDAGE  
COMPANY (LIMITED)**





OUR PATENT BLOWER ATTACHMENT as a Silo filler is all right. It has been thoroughly tested at 20, 25 and 30 feet, and will elevate green corn 40 feet if necessary. We are so satisfied that our Blower Elevator is the coming machine that we offer to forfeit the machine if we fail to elevate the desired height. In the language of one customer "the Blower has come to stay."

**WARNING!** One of the best evidences of the value of this invention is the attempts at imitation that are being made. We warn everyone against purchasing, selling or using Blower attachments that infringe on our patents.

The advantages of this machine over chain and slat carriers are too apparent to require any explanation.

We manufacture a full line of Cutting Boxes with all the latest improvements—concave or convex knives; also the "Ripper" Feed Cutter, the stock-feeders' favorite machine, and the latest improved Tread Powers for two or three horses.

## THOM'S IMPLEMENT WORKS, WATFORD, ONT.

Send for  
Testimonials

Established  
18 5.

# MICA ROOFING

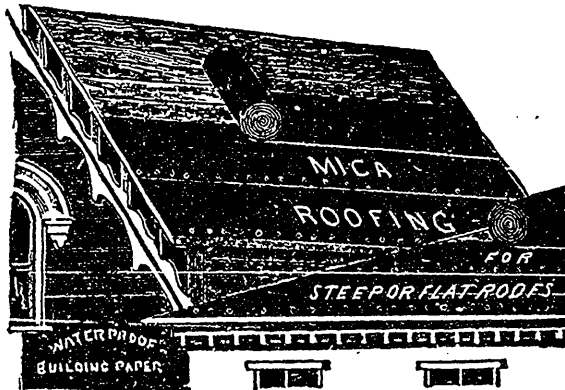
USE

## Mica Roofing

On all your build-  
ings.

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.

664

# THE VESSOT IMPROVED GRAIN GRINDER

PATENTED

Awarded Gold Medal and Diploma World's Fair, Chicago, 1893.

First Prizes at Canadian Exhibitions.

### SEE WHAT OUR CUSTOMERS SAY ABOUT IT

*J. KRUPP, Metcalf, Ont.*

"I have recommended your grinder to several parties, because I conscientiously believe it to be the King of plate grinders having taken note of many other kinds."

*ALBERT L. DAWES, Lachine, Ont.*

"Enclosed will find \$40.00 for Little Champion grinder, which, now that I understand it, think it the finest machine I ever saw or worked."

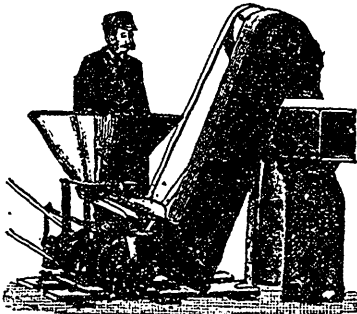
*W. A. BEGG, Queen Hill, Ont.*

"I am pleased with the chopper, it is the only one of the kind in this county yet, but expect it will not be the last, as all who see it think it is the best they ever saw."

Scores of other testimonials can be furnished on application.

We also furnish an improved Corn and Cob Crusher.

Send for circular. Information cheerfully given.



S. VESSOT & CO., Sole Manufacturers JOLIETTE, P.Q., CANADA

# All Eyes are on this Invention!

Patented 1893, '95, and '06.

## HARVESTING PEAS



The Genuine Tolton Pea Harvester with New Pat. Buncher at work harvesting in the most complete manner from eight to ten acres per day. Harvesters to suit all kinds of mowers.

### EVERY MACHINE WARRANTED.

Our Motto: "NOT HOW CHEAP BUT HOW GOOD."

No drilling holes in Mower Bar or Inside Shoe.

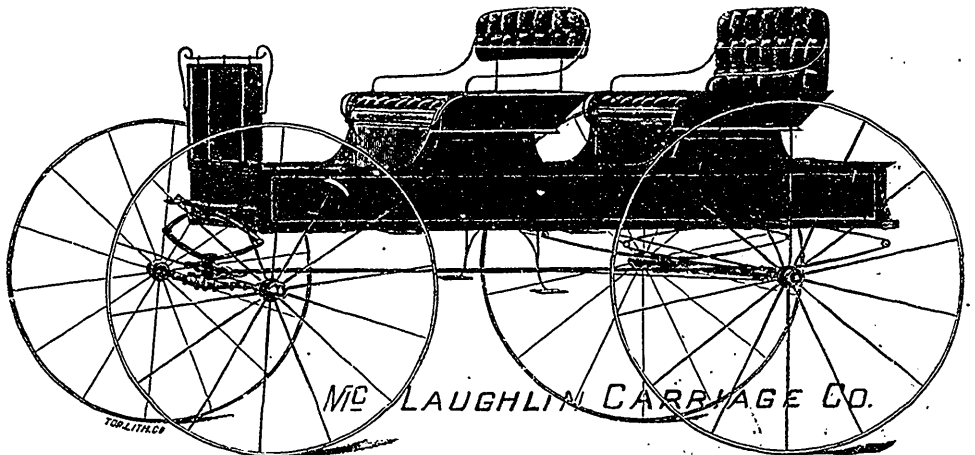
A wrench is all that is required to attach it to any Mower.

Give your order to any of our Local Agents, or send them direct to

**TOLTON BROS., - - - GUELPH, ONTARIO.**

## Buy a Carriage with a Pedigree

McLaughlin Carriages are Thoroughbreds! Their Name Plates are their Pedigrees!



**Tried! Trusted! Thoroughly Reliable! Strictly Up-to-Date!**

With 30 years' experience in Carriage making, every facility, the largest Carriage factory under the British flag, behind us, and a hard but well-earned reputation to uphold, we turn out annually more than 5,000 vehicles for quality, style and finish unexcelled.

**THE McLAUGHLIN CARRIAGE CO., - - OSHAWA, ONT.**