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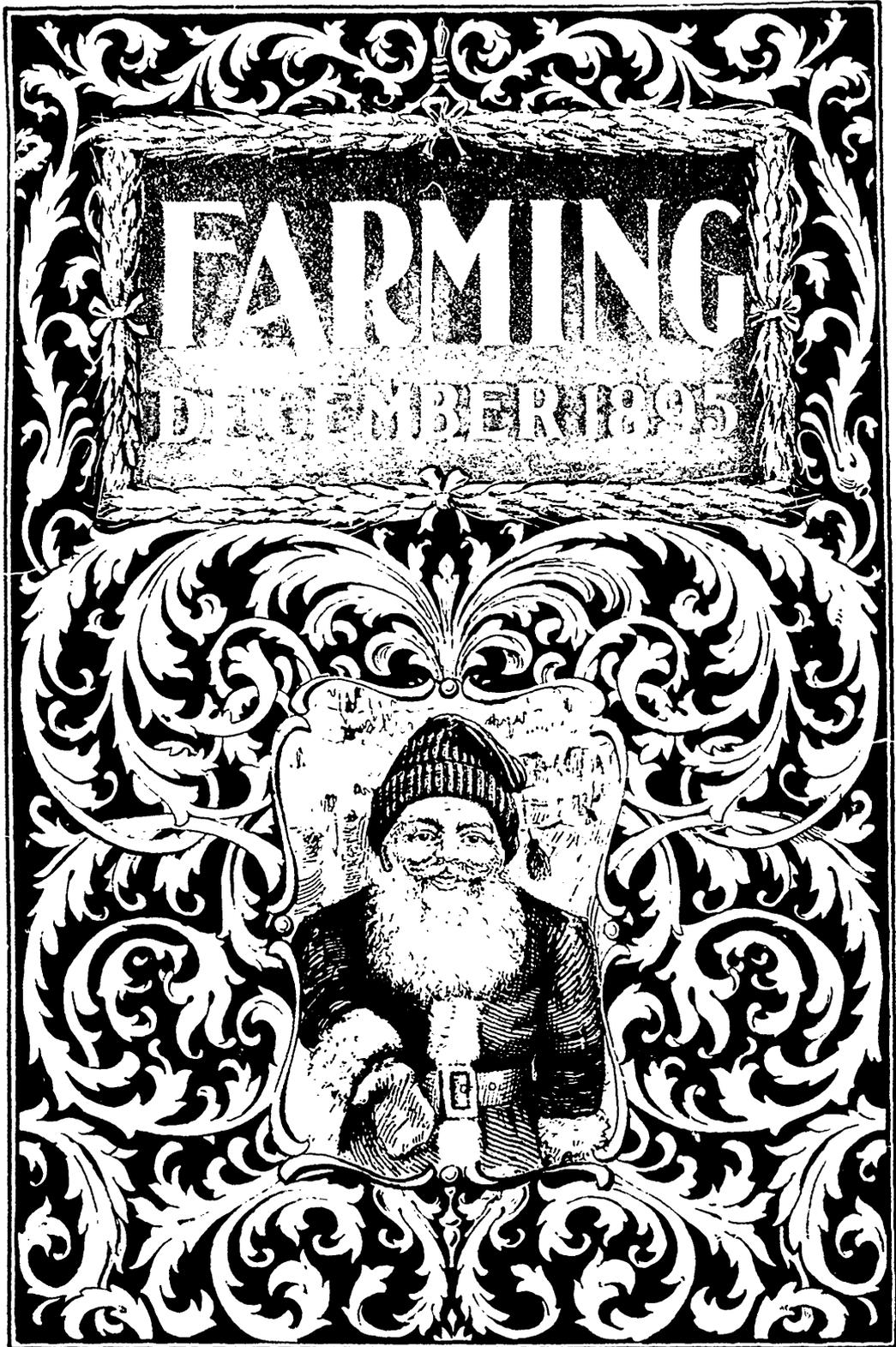
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can be laid out in the field or put in the manger and they always have it. It does not waste. Try a shipment.

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EXPORT TRADE TO SCOTLAND.

GLASGOW, as a centre for the disposal of American and Canadian horses, has proved by far the best market in Britain during the past season, and it is likely to continue so, as from its central position it commands buyers from all parts of Scotland and England.

MESSRS. MACDONALD, FRASER & CO., Ltd.
Livestock Salesmen, Glasgow,

have sold this season either by private bargain, or by public auction, several thousand American and Canadian horses, consigned by all the leading exporters of the States and Canada. From their wide connection among buyers, and the central position of their stables and sale-yard, they are in a position to make the best market value for all horses entrusted to their care.

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Macdonald, Fraser & Co., Limited, also handle carefully, and have done so for many years past, large numbers of Canadian and States cattle and sheep.

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Over 50,000 in use in Canada,
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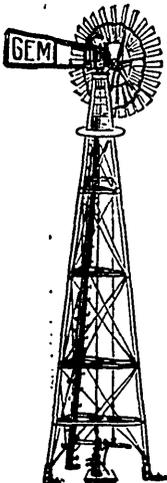
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It is said that the cooking apparatus is the most important article in any household. Then why not have the best? The **Happy Thought Range** combines perfection of operation with ease of management, it is always ready for work, and has more features of utility and convenience than were ever before combined. Other ranges may be sold for less money, not enough to make the Happy Thought extravagant, but sufficient to show its superiority. If you have any difficulty in getting particulars from your dealer, drop a card to the manufacturer.

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Gem Steel Towers
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We manufacture a full line of both Pumping and Geared Windmills and the greatest variety of Pumps of any firm in Canada. Our prices are made to suit the times. Send for full descriptive catalogue, or make known your wants and we will supply them.

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AND PUMP CO.**

367 Spadina Avenue
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Pills and Ointment

THE PILLS

Purify the Blood, correct all disorders of the
LIVER, STOMACH, KIDNEYS & BOWELS,
And are invaluable in all complaints incidental to
females of all ages.

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Is the only reliable remedy for Bad Legs,
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**FOR BRONCHITIS, SORE THROATS, COUGHS, COLDS,
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Glandular Swellings, and all Skin Diseases, it has
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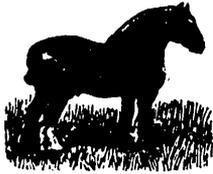
And sold by all Medicine Vendors throughout the World.

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HORSES AND SHORTHORNS.

THORNCLIFFE STOCK FARM.

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



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SHROPSHIRE.

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

SHORTHORNS.

Choice young Heifers and Bulls by the celebrated Cruickshank 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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ROBERT NESS

IMPORTER AND BREEDER OF

CLYDESDALES

From the best studs in Scotland. English and French Carriage Horses, Shetland Ponies, and Ayrshire Cattle.

WOODSIDE FARM,

484

HOWICK, Que.



IMPORTED CLYDESDALE STALLIONS.

BRED from the most popular lines.

GUARANTEED sound, sure and excellent getters.

FOR SALE at reasonable prices. 481

G. S. Stewart, Howick, Que.

Clydesdales For Sale

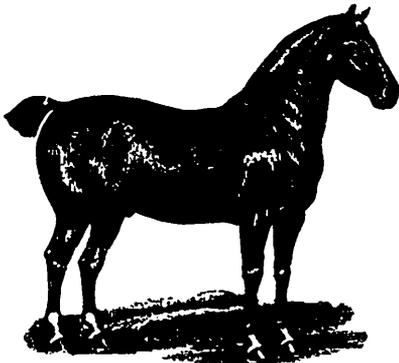
A grand pair of mares by Lord Rollo (imp.), dam Nellie (imp.), by the Monarch of the Glen. One a sweepstake mare at Montreal in 1893, and has a fine yearling filly. Also choice Ayrshires of all ages.

480

THOMAS CAIRNS,

Athelstan, Que.

SANDY - BAY - STOCK - FARM



The above stud, though only commenced in 1890, has achieved greater success than any of the same age and kind in Canada. During the five years of its existence it has taken over seventy prizes at first-class shows, including Halifax, London, and Doncaster in England; Chicago World's Fair and Philadelphia in the States; Canadian Horse Show, Montreal Exhibition, and Western Fair, London, in Canada. Shires and Hackneys always on hand for sale.

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HORACE N. CROSSLEY,

Sandy Bay Stock Farm **Rosseau, Muskoka, Ont.**

SHORTHORNS.

DAVID MILNE

ETHEL, ONT.

Breeder of Scotch Shorthorns

Stock of either sex for sale. Also a number of Berkshire pigs of different ages, at lowest prices. 389



249

"THE BRIARS"

SUTTON WEST, ONT.

100 Head of Registered Shorthorns

Including bulls of various ages.

Chance for breeders to buy colts to finish. Inspection invited.

F. C. SIBBALD.

J. CARSON, Agent, Yorkton, Assa.

H. I. ELLIOTT

Breeder of Scotch Shorthorns and Southdown Sheep

Imported King James at the head of herd.

335

River View Farm, Danville, Que.



246

SCOTCH SHORTHORN CATTLE

AND BERKSHIRE PIGS

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

Birchton, Quebec.

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

SHORTHORNS, SOUTHDOWNS, BERKSHIRES

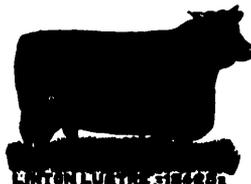
All stock is first-class, and registered. You will find our prices right, and all stock as represented. Always pleased to show stock, or to answer correspondence.

H. B. JEFFS,

Bond Head, Ont.

300

SHORTHORNS



LEWIS LUTY, 18428.

I have for sale two nice yearling heifers, red, and red and little white, good ones. Also two bull calves, well bred, and well grown. All are from first-class stock, and at reasonable prices.

D. ALEXANDER,

Brigden,

446 Lambton County, Ont.

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W. C. EDWARDS & CO., Breeders and Importers.

PINE GROVE STOCK FARM,
Rockland, Ont.

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.

JOS. W. BARNETT, Manager.



LAURENTIAN STOCK and DAIRY FARM,
North Nation Mills, Que.

Ayrshires, imported and homebred; herd headed by Imported Emperor of Dromore 5434 C. A. H. R. and 1868 S. A. H. B. Jerseys, all of the celebrated St. Lambert family; herd headed by Liggar Pigs 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.

A. E. SCHEYER, Manager.

- Arthur Johnston -
GREENWOOD, ONT.



ADVERTISES 17 EXCEEDINGLY GOOD

Young Shorthorn Bulls

and a grand lot of young cows and heifers

We are also breeding Registered Berkshires of the best English strains. Send for 1895 catalogue. "No Business, No Harm," is our motto.

CLAREMONT STATION, C.P.R., or

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Greenwood Telegraph and P.O.

Shorthorns For Sale



Choice young bulls and heifers, including the first-prize herd of calves at the last Industrial. All sired by the grand imported show bull, Aberdeen = 18949 =. Also a few registered Southdown rams. Write for prices, or come and see stock.

JOHN MILLER,

Markham, Ont.

227

Stations—Markham, G.T.R.; Locust Hill, C.P.R.

SHORTHORNS



GOOD YOUNG BULLS AND HEIFERS FOR SALE

Prices reasonable. First-class colors and pedigrees. Farm one mile south of Clinton Junction 489

W. J. BIGGINS

Elmhurst Farm - - CLINTON, ONTARIO

SHORTHORN BULL CALVES

By the same sire as SCOTTISH LEADER, who won first prize at Toronto, Montreal, and Ottawa fairs. If you want a really fine animal, good color, fit for service, see these.

JOHN DAVIDSON,

ASHBURN, ONTARIO

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SCOTCH SHORTHORNS FOR SALE.

Choice young bulls and heifers by Abbotsford 19446, sweepstakes winners at Western Fair. Drop a card for full particulars.

256

H. & W. D. SMITH,

Half mile from Exeter Station.

Hay, Ont.

GLENBURN STOCK FARM.

Shorthorns AND Berkshires.



For Sale at reduced prices, choice young Boars fit for service, and Sows ready to breed. Also a few good Bull Calves mostly red in color.

JOHN RACEY, Jr.,

Lennoxville, Que.

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- CARGILL HERD of SHORTHORNS -



This herd has now at its head the imported Nonpareil bull, Royal Member, and the Lancaster bull, Rautin' Robin, by Roan Robin. The cows consist of importations from the herds of Duthie, Marr, Crombie, Campbell, Main, and others, numbering eighteen. All are of choicest Scotch breeding, and good individuals. We also have a number of good Canadian bred cows, Strathallans, Isabellas, and others. We have a number of good young heifers for sale at reasonable prices, together with a few young bulls.

For particulars, address

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H. CARGILL & SON, Cargill, Ont.

HEREFORDS.

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WON IN PRIZES AT FALL FAIRS.

Ingleside Herefords

SPECIAL OFFERING OF PRIME YOUNG BULLS
... EXCELLING IN FEEDING QUALITIES.

ALSO

YORKSHIRE AND TAMWORTH

Fall Litters at Bargains.

Satisfaction
Guaranteed..

**H. D. SMITH, Ingleside Farm,
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JERSEYS.

**THE CANADIAN HOLYWELL HERD
JERSEYS, YORKSHIRES, and BRONZE TURKEYS**

My Yorkshire herd was founded on stock purchased from Jos. Brethour, and Ormsby & Chapman, and is rich in Spencer blood. I ship none but A1 stock. Also some grand young Gobblers and Heus. Prices right. Give me a trial

543 **LEVI BOWLES, Springville, Ont.**

**THE MANOR FIELD FARM
OF JERSEYS**

Combines blue blood with vigorous constitutions, and undeniable dairy qualities. The St. Lambert bull, Kaiser Fritz 2173, bred by D. S. Dodge, Connecticut, U.S., heads the herd. Write for prices on young stock.

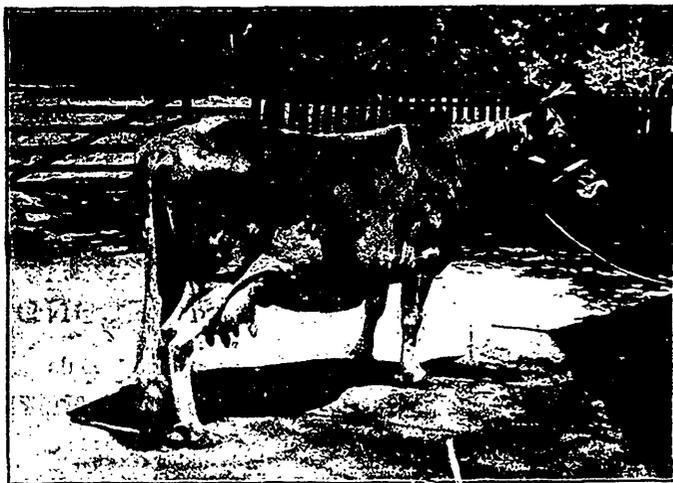
548 **WILLIAM BACON, Prop.,
Orillia, Ont.**

THE BRAMPTON HERD

OF JERSEYS won the First Prize at Toronto Exhibition for the best four calves, against the crack herds of Canada. All four were sired by Sir Ollie. A few of his get for sale.

544 **B. H. BULL & SON, Props.,
Brampton, Ont.**

Have you read "Dairying for Profit," by Mrs. E.M. Jones, Judge of Butter at World's Fair, Chicago? If not, you miss a treat, which would save you hundreds of dollars. **Only 50c. by mail. ROBT. BROWN, Agent, Box 324, Brockville, Ont., Can.**



Jersey Cow, Massena

The property of Mrs. E. M. JONES, Brockville, Ont. Can.

8,000 lbs. Milk, which made 654 lbs. Splendid Butter, all within her sixteenth year.

My herd has won thirty medals—gold, silver, and bronze; over 400 cash prizes, besides diplomas, etc. Solid Silver Cup, value \$340, given at the Kellogg sale in New York for highest price on animals sold there; also Silver Tea Set at London, Ont. for three best Dairy Cows of any kind.

Grandsons and granddaughters of this great cow for sale; also from Canada's Sir George, whose dam made 26½ lbs. butter a week, and gave 57 lbs. milk a day; also from my Signal bull, whose dam made 20 lbs. 6 oz. butter a week on second calf. Chicago tests have proved the Jersey to be the farmer's best paying cow

**MRS. E. M. JONES,
351 Brockville, Ont., Can.**

JERSEY COWS AND HEIFERS.

The highest testing strains.
Rich breeding and good colors.
ALSO TAMWORTH FIGS.

454 **JOHN PULFER, - Brampton, Ont.**

For Sale.—THE JERSEY BULL, SATELLITE

No. 41684

Dropped August, 1893, a first-prize winner; great-great-grandson of Mary Ann of St. Lambert. His sire is Heir of St. Lambert, and his dam Matina of St. Lambert 87304. Also some

FINE REGISTERED BERKSHIRE PIGS

234 **WM. CLARK, Meyersburgh, Ontario**

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GUERNSEYS

THE GRANDEST OF ALL DAIRY BREEDS.

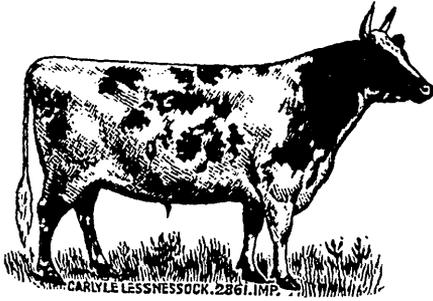
FOR SALE—Two choice bull calves; also some grand **IMPROVED YORKSHIRE BOAR PIGS**

Fit for service, showing stock pedigrees. Prices are right. Come and see, or write.

W. H. & C. H. McNish

Elm Grove Farm, 511 - **LYN, ONT.**

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MAPLE GROVE AYRSHIRE STOCK FARM

R. G. STEACY - Importer and Breeder - LYN, ONT.

Largest importer in United States and Canada of the most noted Milk, Butter, and Prize Record Ayrshires procurable in Scotland. Head of herd is Carlyle Lessnessock, whose grand dam was never defeated in a milking contest in England and Scotland, competing against all other dairy herds for years in succession, and awarded more prizes in gold medals, cups, and money, than any Ayrshire ever exhibited with the imported females of noted individual records. I am in a position to offer none but performers at reasonable price.

Registered rough-coated Scotch Collies from imported stock.

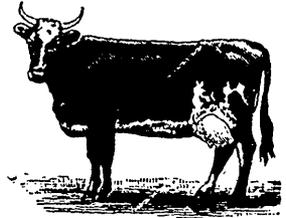
JOHN NEWMAN & SONS

LACHINE, QUE.

Breeders of High-Class Ayrshires

We have a number of choice imported prize-winning cows in the herd, together with the best milking strains obtainable. A number of choice young bulls by our prize-winning bull, Glencoe, which we will sell at reasonable prices. Call and see our extensive herd. Immense choice. First-class quality.

560



ALEX. HUME & CO.

Importers and Breeders of

Ayrshire Cattle and Yorkshire Pigs

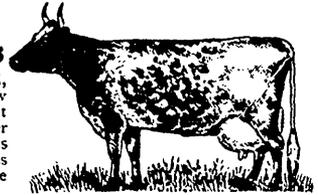


Have for sale a few large cows, yearling heifers (just served by imp. bull, Prince of Barcheskie, 1st-prize yearling bull at Industrial, Toronto, a few prize-winning heifer calves, a beautiful prize bull calf, Dominion Lad at Industrial, Toronto, that would mate with any above females; also other bull calves. As we intend to reduce our number of dairy cows of various crosses, we will sell any of different ages. A few prize-winning Yorkshires of all ages for sale. Now that the shows are over, we will sell any of the above line of stock at reduced prices.

Telephone: Heard's Station, G.T.R.

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Burnbrae P.O., Ontario



Ayrshires and Shorthorns



Of the finest breeding. A number of bull calves sired by Dominion Chief; dams, Amy, Ella, etc. A beautiful light colored yearling bull from Amy, and several Short-horn heifer calves sired by Gibson Duke. Send for particulars and prices.

JOHN H. DOUGLAS,

Breeder and Importer, 232 Warkworth, Ont.

DOMINION PRIZE HERD

PUREBRED

AYRSHIRE CATTLE

RECORD FOR 1893

54 Prizes 54

37 FIRST II SECOND

WITH

Gold, Silver and Bronze Medals

MONTREAL, TORONTO, LONDON AND OTTAWA

This herd has always taken the lead; they are of large size, and of good milking strains.

JAMES DRUMMOND & SON,

Petite Cote, Que.

292

Isaleigh Grange Stock Farm

OUR STOCK OF PUREBRED

AYRSHIRE AND GUERNSEY CATTLE, SHROPSHIRE SHEEP, AND IMPROVED YORKSHIRE SWINE

are now in the pink of condition, and having at our recent annual auction sale disposed of a lot of our surplus stock, we are better prepared to attend to our correspondents. Our list of prizes, medals, and diplomas, together with the Gilt Edged Stock which have merited the honors granted them at all the leading exhibitions, places Isaleigh Grange Stock Farm at the head of all competitors. Our farm is 1,000 acres in extent. Visitors will be welcomed at all times. Correspondence invited.

J. N. GREENSHIELDS, Proprietor.

T. D. McCALLUM, Manager.

DANVILLE, - - QUEBEC.

AYRSHIRES.

AYRSHIRES

A few fine young stock bulls for sale.
One by the same dam as the Columbian winner (Tom Brown).

Also some good young females
197 Come and inspect our stock. Prices to suit the times.
ROBERTSON & NESS - Howick, Que.

NEIDPATH STOCK FARM

THOS. BALLANTYNE, Stratford, Ont.

Breeder of **Purebred Ayrshire Cattle**. Herd consists of the imported bull, Beauty Style of Auchenbrain, and ten imported cows of the highest milking strains and their progeny, by imported bulls. 355

GREENHOUSE STOCK FARM

W. B. COCKBURN, Nassagaweya, Ontario
Breeder of Ayrshire Cattle, Oxford Sheep and Berkshire Pigs.

I have several choice bull calves from imported cows for sale, at prices to suit the times; also a nice lot of shearing Oxford ewes, and some very promising Berkshire pigs. Write for prices and particulars. 521

Choice Ayrshires.

My stock bull is Imported **SILVER KING**; the dam of Silver King is **Nellie Osborne** (imported), who took 1st as milk cow and champion medal at World's Fair, and his sire is **Traveller**, the champion Ayrshire bull of Scotland. Young stock of both sexes for sale, sired by this famous young bull.

Please address **D. McLACHLAN,**
Petite Cote, P.Q.

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AYRSHIRES :

Eight choice bull calves by several of the most noted Ayrshire sires of the day, together with my two-year-old bull, **Earl of Percy**; also a few choice cows and heifers. Prices reasonable.



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

AYRSHIRES

Purebred, of different ages and both sexes. No inferior animals. Write for particulars.

A. MCCALLUM & SON,
Spruce Hill Dairy Farm. 566 DANVILLE, QUE.

JAMES COTTINGHAM, Riverside Farm,
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Breeder of **AYRSHIRE CATTLE**. My herd is headed by the prize-winning bull, **Str James** (5057); sire, **Rob Roy** (3971). Stock of both sexes for sale at all times, including some choice young bulls and heifers. 337



AYRSHIRES

Always for sale. Some choice young bulls and heifers bred from the Glenhurst herd.

John Sandilands, Williamstown, Ont.

FOR SALE

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

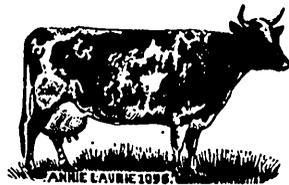
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Glengarry Stock Yards

My **AYRSHIRE HERD** comprises the best business strains. Bull and heifer calves descended from the importations of the late Thomas Brown. One very fine bull calf by **Saladin** and **Glenrose** suitable for fall exhibitions. Drop a card for particulars.
JOHN A. McDONALD, Jr. - Williamstown, Ont.

Menie Stock Yard



Ayrshire Cattle and Berkshire Pigs. First-class pedigree stock always on hand and for sale. *First-class milking stock a specialty.*

Wm. Stewart, Jr.
Menie, Ont.
Hoard's Station, G.T.R. 534

AYRSHIRE BULLS FOR SALE.

One yearling bull, one two-year-old bull, heifer and bull calves. All from choice milking stock. Prices reasonable. 287
Address, **WM. KIDD, Petite Cote, Que.**

AYRSHIRES FOR SALE

Four cows, grand milkers, and a heifer; all are in calf to Grand Duke, a son of last year's Toronto sweepstakes bull and cow, also two bull calves.

549

R. E. WHITE, Perth, Ont.

CORNWALL STOCK FARM

AYRSHIRE CATTLE
BERKSHIRE PIGS

Traveller of Parkhill at the head of herd, while my herd is descended from cows purchased of Mr. David Benning, are modern in type, and are of the choicest milking strains. Write for prices of young bulls and heifers.

DAVID LEITCH,

CORNWALL, G.T.R.

Grant's Corners, Ontario.

AYRSHIRE CATTLE.

The bull **Tom Brown** and the heifer, **White Floss**, winners of sweepstakes at World's Fair, were bred from this herd. Young stock always for sale.

Also **Leicester Sheep** and **Berkshire Pigs**.



DAVID BENNING, Breeder,
WILLIAMSTOWN, ONT.

HOLSTEINS.

FOR PRICES ON HOLSTEINS

WRITE TO

F. A. FOLGER,
RIDEAU STOCK FARM

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KINGSTON, ONT.

HOLSTEINS.

**FAIRVIEW FARM****E. PANNABECKER**

Breeder of Grand Milking Registered Holstein Cattle. A speciality in females of all ages at present.

244 **HESPELER, ONT.****HOLSTEINS WIN IN THE PUBLIC TEST**

The winning kind are the sort we keep. We can sell you descendants of cows that have won in public tests, making large records. We own cows that have made the largest records of any in the country--public records, too. Young stock for sale, all ages, both sexes, and pairs not akin. State the age and sex you require, and we will give full description and records.

Poland Pigs for sale, 1 month and 6 months old. First quantity.

A. & G. RICE,

490

Brookbank Stock Farm,

Currie's Crossing, Ontario, Canada.**MAPLE HILL****Holstein-Friesians.**

Am offering the finest lot of heifers to be found in Canada. At the recent Industrial my herd won first in every section for heifers, and sweepstakes for both male and female. These heifers will be bred to Sir Pieterje Josephine Mechthilde, the richest bred bull in Canada, and Netherland Consul, the silver medal bull of 1895. Write, or, better still, come and see them.

550 **G. W. CLEMONS, St. George, Ont.****SPRING BROOK STOCK FARM**

Holstein-Friesian Cattle, Improved Yorkshire and Tamworth Swine. This herd is again to the front for prize winners. Will give bargains in prize-winning stock (males and females) from now till December. Stock excellent quality and breeding. Write at once for bargains. Over 50 head of choice Tamworths on hand.

A. C. HALLMAN,

Waterloo Co.

473

New Dundee, Ont.**A RARE BARGAIN IN HOLSTEINS.**

On account of failing health, I feel compelled to reduce my choice herd to at least one-half before winter. They must go at a sacrifice. Write for prices, and I will astonish you. Some very choice young cows due to calve in December, yearlings in calf, and calves, of the greatest individual merit and breeding, second to none in this country. Address,

339

H. BOLLERT, Cassel, Ont.**CHOICE HOLSTEIN-FRIESIANS.**

Bulls, heifers, and cows all ages of the best milking strains, which I will sell at reasonable prices. Drop a card for particulars.

S. K. BECK,**South Cayuga, Ont.****PUREBRED HOLSTEINS AND TAMWORTHS**

Carmen Sylvia, the Sweepstakes cow by milk points over all breeds at Toronto and Gananoque, was bred by me. **Pieterje Jewelstrains**. **Sir Henry** of Maplewood at the head of the herd. Tamworths from imported stock.

Brockville, on **THOS DAVIDSON,**
G. T. R. and C. P. R. 577 **Spring Valley, Ont.**

THE GROVE HILL HERD OF HOLSTEINS

Headed by a son of the famous silver-medal bull, Netherland Statesman's Cornelius. Our motto: "The best are none too good."

B. MALLORY, Prop.,**Frankford, Ont.**

554

GEM HOLSTEIN HERD.**6 MONTHS' CREDIT GIVEN . . .**

BULLS all registered Holsteins, quality the best, and fit to head any herd. We have them all ages. Write for particulars to

ELLIS BROS.,

306

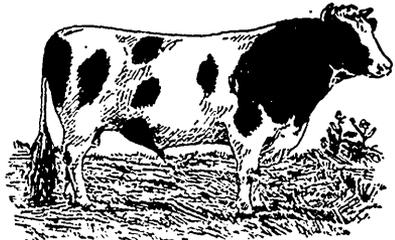
Bedford Park P.O., Ont.**HOLSTEIN-FRIESIANS**

Richly bred Netherland, Peel, Johanna, and Moore strains Stock of all ages, male and female, for sale at lowest prices.

519

JOHN MCGREGOR, Constance, Ont.

Meadow Brook Fruit and Stock Farm, St. David's, Niagara Township, Lincoln Co., Ont.

CHOICE**HOLSTEIN-FRIESIANS**

Count Mink Mercedes at the head of herd. He is choicest bred and a superb individual. The cows are from the highest producing families and directly descended stock imported from Holland. Choice young bulls from dams with large milk records now on hand.

SAMUEL & W. H. COLLINSON,

235

236 Sherbourne Street, TORONTO.

HELBON STOCK FARM

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

A few choice females of different ages and a yearling bull on hand at reasonable prices and easy terms. Also Improved Large Yorkshires of Sanders Spencer and Walker Jones' breeding. Also choice Oxford Down rams.

J. W. LEE, 430 Simcoe, Ont.

SHEEP.

LINCOLNS.

The Largest Flock in Canada!

Our breeding ewes, 150 in all, are from the best English flocks. Our last importation was made from the flock of Mr. Henry Dudding, and were all personally selected. If you want a ram or a few ewes, send along your order. If you want shearlings or lambs of either sex, we can supply you with the very best.

J. F. GIBSON, Denfield, Ont.
W. WALKER, Ilderton, Ont.

520



SHROPSHIRE

Our flock, the oldest Shropshire flock in Canada, was founded in 1881. Importations made from time to time, selected in person from best English flocks. This season's lambs, along with a number of shearing rams and ewes of this year's importation, for sale. Orders can now be taken for pick.

JAMES COOPER & SON,
492 **Kippen, Ont.**

FOR SALE.

OXFORDS (54 prizes in 1895)
Several choice ram lambs.

AYRSHIRES (38 prizes in 1895)
Hull and heifer calves by Norman of Robertland, a son of Silver King.

BERKSHIRES (44 prizes in 1895)
A grand lot of boars and sows by Knowlton, a son of (imp.) Enterprise and (imp.) Hilderse.

226 **A. TERRILL, Wooler, Ont.**

OXFORDS.

Fine rams, shearing and 2 shears, and ram lambs. Yorkshire sows due to farrow in a few weeks. Also Plymouth Rocks. We can suit you. Send card for particulars and prices.

John Cousins & Sons,
Harriston, Ont.

290



WHITESIDE BROS.

The Glen, Innerkip,
Oxford Co., Ont.

Shropshires—Yearlings and lambs. Berkshires—Breeding stock, both sexes. Also Ayrshires

In writing mention this journal

37



Hillhurst Farm

Oldest Stud of Hackneys in America.

1864.



1895.

Shorthorn and Aberdeen-Angus Cattle.
Dorset Horn and Shropshire Sheep.
Shearling Rams and Ewes.
Ram and ewe lambs of the best blood and quality.

M. H. COCHRANE,
Hillhurst Station, Que.

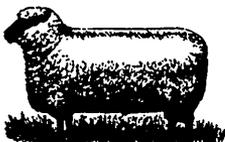
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OXFORD DOWNS

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

SMITH EVANS,
491 **GOUROCK, O NT.**

BREEDER AND IMPORTER



SHEEP.

BELVOIR STOCK FARM

FOR
SALE

Shropshire Sheep
—AND—
Yorkshire Swine

Of winning strains, and bred to the highest type. Prices as low as such breeding and quality will permit.

RICHARD GIBSON

DELAWARE, ONT.

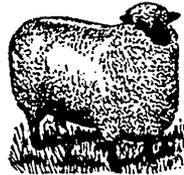
557

41 FIRST PRIZES 41

Won by our flocks, and 5 by our ponies at Toronto, Montreal, Ottawa, and Markham. Shropshire rams and ewes and ponies of finest quality for sale, at lowest prices. Write us

JOHN MILLER & SONS

Brougham, Ontario



Minnie Miles.

Twice Winner Over all Breeds.

200 OXFORD DOWN SHEEP

for sale, all ages and both sexes. Won many prize at World's Fair. Prices reasonable.

HENRY ARKELL, Arkell, Ont.

Guelph, Ont.—G.T.R. Arkell—C.P.R.
Telegraph—Guelph. 403 Telephone—Arkell.

Oxford Downs.

We can suit you. Drop us a card for prices and particulars.

TURNER - Brantford
&
JULL - Mt. Vernon



T. W. HECTOR

The Cottage.

Springfield-on-the-Credit, Ont.

Breeder and Importer of

DORSET HORN SHEEP

And dealer in

Saddle and Carriage HORSES.

533 Stations: Springfield, Ont., C.P.R. and Port Credit, Ont. G. T. R.

SWINE.

If you want Improved Chester White Swine or Dorset Horn Sheep of first-class quality at rock-bottom prices, write to

R. H. HARDING, Breeder and Importer,
MAPLEVIEW FARM, Thorndale, Ont.

423

SWINE.

POLAND-CHINAS FOR SALE CHEAP

Choice pigs, farrowed April and June, bred from imported stock. Registered pedigrees furnished. Only first-class pigs shipped.



R. B. McMULLEN, Goldsmith, Ont.

BERKSHIRES FOR SALE.

17 pigs, five weeks old, at farmers' prices, or will exchange for Poland-China pigs or Oxford Down sheep. My pigs are from prize-winning stock. Write for prices.



C. J. WRIGHT,
DINVILLE, Que.

385 P.O. Box 114

GOLD MEDAL HERD OF BERKSHIRES

Young boars and sows of spring litters, bred straight from imported stock. Sires weigh from 650 to 840 lbs. Size and quality combined. Orders booked for September and October pigs at eight weeks old, and for sows bred to imported boars.

426 J. C. SNELL - Snelgrove, Ont.

EXHIBITION 1895 STOCK.**PUREBRED TAMWORTHS SPECIAL BARGAINS.**

Offers will be accepted for my boars and sows farrowed last spring. In grand shape for immediate shipment.

229

LEVI MASTER, Haysville, Ont.

LARGE ENGLISH BERKSHIRES

The sweepstakes herd at the Western Fair, London, 1895. Headed by the famous boar, Bright Prince, assisted by two grand yearling boars. Twenty choice boars and thirty choice sows for sale. Write me for prices before you order. My motto, "A good pig at a fair price." Also choice Shropshire sheep and Silver-Laced Wyandottes for sale.

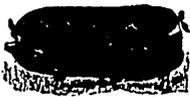


453

T. A. COX, Brantford, Ont.

BERKSHIRES

Our Berkshires made a clean sweep of all the first prizes at the late Toronto Industrial Exhibition, including first prize for boar and two sows; boar and four of his get; and sow and four of her produce. We have some fine young pigs for sale farrowed this fall; also boars and sows about five months old. Write for prices.



J. G. SNELL & BRO., Edmonton, Ont.
Brampton and Snelgrove Stations. 455

POLAND-CHINAS at Williscroft. ARE THE RIGHT KIND.

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



493

R. WILLIS, Jr., Glen Meyer, Ont.

LARGE ENGLISH BERKSHIRES

3 Extra fine Breeding Sows, 1 and 2 year old this fall, sired by Perry Lad, and Enterprise. 1 grand show Sow that has won 17 first prizes. 1 one-year-old Boar, winner of 5 first prizes. 1 two-year-old Yorkshire Boar, winner of 5 first prizes this fall. For sale by

433 Dennis Hawkins, - Woodville, Ont.

G. BENNETT & PARDO,

CHARING CROSS, ONT.

Breeders and Shippers of O.J.C. Chester Swine.

A choice lot of young stock from 2 to 6 months old. All are prize-winners, and registered stock.

Also a choice lot of White Leghorns, White, Golden, and Silver, Laced Wyandottes; Plymouth Rocks, Partridge Cochins, Brown, Red, and Indian Game; and Bronze and Wild Turkeys.

**H. J. DAVIS, WOODSTOCK, ONT.**

Improved Large Yorkshire Boars, very fine, fit for service. Also young pigs supplied not akin. Berkshire Boars of good breeding, fit for service, and young pigs ready to ship; also Shorthorn Bulls and Shropshire Rams from imported stock for sale at moderate prices.

195

KEEP YOUR EYE ON THIS SPACE

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

CHOICE COTSWOLDS—Our flock have won at the principal exhibitions, 2 diplomas, 17 first and 8 second prizes. Our rams, two shears won first and second at Toronto. Shearing ewes third, and ewe lambs third. We have some fine ram and ewe lambs fit for any flock, and stock rams and show ewes at very low prices. Also some fine young Berkshire boars. All stock guaranteed as described. Visitors welcome.

247

C. T. GARBUTT, Claremont, Ont.

TAMWORTHS POLAND-CHINAS

Some grand young pigs of each variety of the best prize-winning strains.

WM. ROW,

358 AVON, Ontario

LARGE ENGLISH BERKSHIRES FOR SALE.

Sows in pig, also young stock, both sexes. Address

R. J. DIXON

Gleneden, Ontario.

PLEASANT VIEW HERD

of REGISTERED TAMWORTHS



For sale, a few yearling sows, young sows ready to be served, two young boars fit for service, and one imported boar, Birmingham Hero. Very low prices. Write for particulars.

412

E. B. KOLB, Berlin, Ont.

NITHSIDE FARM HERD of BERKSHIRES

Choice young Boars and Sows of all ages, also pigs. I have aimed to breed strong bone, extra length, and quality in my pigs. I also have for sale a choice lot of Silver Grey Dorkings, Cock-erels. Satisfaction guaranteed.



E. E. MARTIN,

Paris Station, G.T.R. 464 Canning P.O., Ont.

SWINE.

Yorkshires

For Sale. One of the best herds in the province.

Also **CARRIAGE HORSES** from Standard-bred and Hackney stallions



J. M. HURLEY & SON, Belleville, Ont.
Box 442. Kingston Road Stock Farm. 332

TAMWORTHS



I have some extra fine boars and sows ready for mating. Also September, 1895, pigs. Will supply pairs not akin of the best quality at prices to suit the times. Satisfaction guaranteed.

JOHN C. NICHOL - Hubrey, Ontario.



E. D. GEORGE PUTNAM, ONT.

Importer and Breeder of **Ohio Improved Chester White Swine**

The largest and oldest established registered herd in Canada. I make this breed a speciality and furnish a good pig at a fair price. Write for prices. 293



Berkshire, Chester White, Jersey Red & Poland China Pigs. Jersey, Guernsey & Holstein Cattle. Thoroughbred Sheep, Fancy Poultry, Hunting and House Dogs. Catalogue. **S. W. SMITH, Cochranville, Chester Co., Pa.**

BERKSHIRES.

A CHOICE lot of sows for sale, bred to farrow in February and March, and some to breed yet. A few boars fit for service. Young pigs of various ages. Call and see stock, or write for prices and description.

J. H. SIEFFERT, NORTH BRUCE, ONT.

IMPROVED CHESTER WHITE and TAMWORTH SWINE

We have now ready for sale 60 choice young boars and sows, not akin—from four to six months old—from the choicest blood in Canada. Prices very low for the next 60 days. Pedigrees furnished. Reduced rates by express. Write for prices. 395



H. GEORGE & SONS, - Crampton, Ontario

362

MAPLE LEAF FARM: IMPROVED LARGE YORKSHIRES

Markham Baron, the sweepstakes barrow over all breeds at Fat Stock Show at Guelph in 1892, was bred by us. A choice lot of young sows old enough for mating. Also young boars. Pairs furnished not akin. Only first-class stock shipped. 202



JOHN PIKE & SON, Locust Hill, Ont., C.P.R. Markham, Ont., G.T.R.

MY POLAND-CHINAS WON OVER 50 PRIZES



This fall. They are in splendid shape. I will sell at a bargain a number of No. 1 Boars and Sows from 6 weeks to 7 months old. Also a few dandy sows in pig, and a number of A1 aged Boars and Sows. In Poultry I can supply Prize Birds in Black Minorcas, Dorkings, Langshans, and Brown Leghorns. Special prices quoted, as I need room. 221

WESLEY W. FISHER, BENMILLER, ONT.; Goderich Stn.

LARGE ENGLISH BERKSHIRES



My breeding stock has been selected from the best English herds. Two imported boars, and eight imported sows all breeding. Pigs of all ages to select from. 230 **ISRAEL CRESSMAN, New Dundee, Ont.**

MODEL BERKSHIRE HERD

D. A. GRAHAM - IMPORTER AND BREEDER

Offers some choice brood sows of all ages. Also some choice young boars fit for service, bred from imp. stock. Prices to suit the times.

Poultry.—W. and B. Plymouth Rocks, W. & S. L. Wyandottes and Bronze Turkeys, cheap. Write for prices.

Box 135 - - **PARKHILL, ONTARIO**



IMPROVED LARGE YORKSHIRES.

The winners of twenty first prizes at the World's Fair.

A number of young Boars and Sows for sale.

ALL CHOICE STOCK.

JOSEPH FEATHERSTON,

PINE GROVE FARM. 336

STREETSVILLE, P.O. and Telegraph, Ont.



Oak Lodge Herd

—OF—

Yorkshire Swine

Having again secured the first prize for the best herd at the Toronto Industrial Exhibition of 1895 for the fifth time, I am prepared to supply the very choicest stock at moderate prices. A number of choice-bred young boars on hand fit for immediate use. All stock guaranteed. Write for prices.

J. E. BRETHOUR, Burford, Ont.

214

For the best Strains

of **LONG**

ENGLISH BERKSHIRE PIGS

BOW PARK

Apply

Bow Park Co. (Ltd.)

BRANTFORD Canada.

SWINE.

SIMMONS & QUIRIE

Berkshires and Shorthorns.

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

The herd is headed by the Matchless bull, Royal Saxon = 10537 =, by Excelsior (imp.) = 2693 = (51232), with Barmpton M. = 18240 =, sired by Barmpton Hero = 324 =, as reserve. Among the females are representatives of the Strathallans, Minas, Golden Drops, Mysies, Elviras — all pure Scotch breeding, except the Elviras, which are Scotch crosses.

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

C. M. SIMMONS, Ivan, Ont., or
JAMES QUIRIE, Delaware, Ont.

449

CANADA WILKES

A first-class specimen of the most fashionable strain of Poland-Chinas in the world at head of herd.

Send for illustrated catalogue of



The Corwin herd, which now consists of over one hundred head of both sexes, and all ages. Pairs and trios furnished not akin, as low as from any herd in Canada, quality considered.

Correspondence solicited, and personal inspection invited. Address,

CAPT. A. W. YOUNG,
Tupperville, Ont.

509

**Pine Grove Herd
Duroc-Jersey Swine**

A grand lot of choice pigs ready to ship. Also three choice young boars fit for service. Very low prices. Write for particulars.

CHARLES ANSTICE
Springford, Ontario

Some of the Best

Yorkshires in the country are to be found at the Woodroffe Stock Farm.

I have them for sale, cheap, from three months to two years of age. Both sexes.

J. G. CLARK,
OTTAWA, ONT.

239

F. RUSNELL,
Cedarville, Ont.

Has 40 young Yorkshire pigs, from two to seven months old. Some of them prize winners. Prices from \$8.00 to \$15.00.

POLAND-CHINAS



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

OLIVER DRURY,
Fargo, Ont.

345

Chester Whites

To make room in winter quarters, I offer a fine lot of fall pigs at reduced prices. Also some fine spring pigs easy for breeding purposes.

JOS. CAIRNS,
Camlachie, Ont.

575

RED TAMWORTHS.



My breeding pen is almost all imported. The noted English herds are represented. Young stock of both sexes for sale at all times. Also some aged boars. Prices to suit the times. Parties wanting Tamworths should write.

ANDREW DUNN, - - Ingersoll Ont.
411

TAMWORTHS



Fifty young pigs of both sexes. Boars fit for service, and sows ready or mating. Also a few one-year-old sows. All stock guaranteed.

Drop a card for all information.

J. L. REVELL, - - Putnam, Ont
410

BERKSHIRES FOR SALE

My Berkshires secured a large number of the most important prizes at Toronto, Montreal, and London exhibitions; also several prizes at the Fat Stock Show in Guelph, including sweepstakes for best purebred sow of any age or breed.

A choice lot of all ages for sale.

Please mention FARMING.

GEO. GREEN, Fairview, Ont.
Stratford Station and Telegraph Office. 263

RIVER BOW STOCK FARM

Six Shorthorn bull calves by Chief Captain, a son of Indian Chief.



Poland China Pigs of all ages, of the best winning strains.



Duroc-Jersey Pigs from the best imported stock. Pairs furnished not akin, and nothing but the best stock shipped.

B. SNARY & SONS
Croton, Ontario.

MOUNT PLEASANT STOCK FARM

LARGE ENGLISH BERKSHIRES. Herd took 21 first, 10 second, and 4 third prizes in 1895. Choice boars and sows of all ages for sale. Registered pedigrees. Satisfaction guaranteed; write for prices.

J. H. SPENCER × Morpeth, Ontario

Large English Berkshires

I have a large number of pigs of good length and fine quality, bred from the best imported families. Send order for a pair not akin, or a single pig of this most profitable breeding sort.

GEO. THOMSON, P. O. and Station
BRIGHT, Ont.

LARGE ENGLISH BERKSHIRES

My herd beat the herd that won sweepstakes at London this fall. Stock by the famous boar, Major Graham, that beat the boar that never was beaten, and Star, extra large. A large stock on hand, both sexes, all ages. Sows to farrow. One fine sow one year old with litter at foot two weeks old.



C. R. DECKER,
Chesterfield, Ontario.
2 1/2 miles from Bright Station,
G.T.R. Please mention FARMING.
298

SWINE.

THE SWEEPSTAKES

HERD OF

TAMWORTHS



has won the highest honors for the last three years. Boar and sows of all ages by the Industrial and London first prize-winner, Glen sandy.

WALTER. T. ELLIOTT, Hamilton, Ont.

It is No Trouble

To make money in breeding Tamworths if you can get the best blood to start with. Let me hear from you if you want something good. I have them at all ages, both sexes, and lowest prices. Also a few Yorkshires.



J. F. Master, New Dundee, Ont. 461

OHIO IMPROVED CHESTER WHITES AND ENGLISH BERKSHIRES.

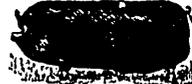
My stock of Ohio Improved Chester Whites are imported from the celebrated herd of L. B. Silver & Co., Cleveland, Ohio. I also have a choice stock of registered Berkshires.



594 GIDEON SNYDER, Jarvis, Ont.

MAPLE LEAF STOCK FARM

Improved Yorkshire Pigs of the best strains of breeding. Large English Berkshires



Large thrifty pigs are my type, that is the way I breed them. All ages now on hand.

505 THOMAS WATSON, Springvale, Ont.

PRIZE-WINNING HERD OF OHIO IMPROVED CHESTER WHITES

Ten choice sows, bred to our first-prize boars. Thirty choice pig- from imported sire and prize-winning dams. Write for catalogue and price list. Satisfaction guaranteed.

WM. BUTLER & SON, DEREHAM CENTRE, Ont.

MISCELLANEOUS.

TO HORSE BREEDERS

The ninth annual meeting of the DOMINION DRAUGHT HORSE BREEDERS' SOCIETY will be held in

CLINTON, on WEDNESDAY, DECEMBER 11TH

The time for receiving Entries for volume "C" will then close, and the standard of registration be raised to four crosses. Entries for registration under present standard must be sent to secretary at once. The meeting will also consider a proposal for bringing the Register under the supervision of the Government Inspector, in common with the other stock books of record in Ontario. Further information can be had from

JOHN McMILLAN, President, Constance, Ont. JAS. MITCHELL, Secretary, Gnderich, Ont.

Attention Special offer of REGISTERED JERSEYS

for the month of December. Car load of young cows in calf, and heifers; good calves and well bred. Also car load of choice Jersey grades. No room. Will sell cheap. Come and see our write. Address,

E. P. BALL, Lee Farm, Rock Island, Que.

MISCELLANEOUS.

4 Choice 4 HEREFORD BULLS.

Three yearlings (13 to 18 months). One three-year-old. The above are Extra good specimens, and of unsurpassed breeding, and are for sale at reasonable prices. Also

3 Yearling Sussex Heifers

Sire and Dams imported.

Stables on Waterloo Avenue, at the end of the Electric Railway. Five minutes from G.T.R. and C.P.R.

ALFRED STONE, 42 GORDON STREET, GUELPH, ONT.

P. O. Box 499.

POULTRY.

ARE YOUR HENS LAYING? READ THIS!

OVAMEAD MFG. CO.: Altona, Mo., Feb. 4, 1895.

Dear Sirs—You will find inclosed in this letter \$2.00 for some more Ovamead. I am well pleased with the Ovamead. After feeding it twice the hens began to lay. Out of the dollar's worth of Ovamead, I got three dollars' worth of eggs. I don't think I would have got any eggs if I had not given them Ovamead. Yours truly, CLAY TUCKER.

\$10 a month GIVEN AWAY to users of Ovamead. Send today for booklet and testimonials, also six months' egg record, FREE! OVAMEAD MFG. CO., Box 216, Detroit, Mich.

BRONZE TURKEYS, PEKIN DUCKS.

SEVERAL pairs Bronze Turkeys and Pekin Ducks (see illustration in Poultry Department) for sale cheap; winners at Toronto and eight other fairs this season.

BERKSHIRE SWINE.

I have also a few young Berkshire Boars (eligible for registration) at \$5 each; one Bear eight months old (registered), \$15—Snell's stock.

W. J. HAYCRAFT, ABINCOURT, ONT.

BLACK MINORGAS

All imported stock from such well-known English strains as the following: Pitts, Mogridge and Garlick, Butterfield, and Abbott. Winners wherever shown. Montreal exhibition, 1895, four 1sts, four 2nds, three 3rds. A few first-class cockerels and pullets for sale. Egg announcement later.

F. W. MOLSON,

283 St. Patrick St., Montreal, Que.

BRONZE TURKEYS. FOR SALE.

An extra fine lot of Bronze Turkeys from prize-winning stock at Toronto and other shows, at prices to suit the times if desired can furnish pairs or trios not akin.

JAS. TOLTON, Walkerton, Ont.

I Want to Work

On a poultry farm where I can get good experience, which is more an object with me than money. Age 21. References furnished.

IRVING J. S. JONES, Mt. Hope Fruit Farm, - - Lawton, Mich.

DUFF'S - - -

White and Black Minorcas

Barred Plymouth Rocks

My birds have won highest honors at the largest exhibitions in the United States and Canada. To farmers who desire to increase the laying qualities of their flock, I hereby offer to supply them with cockerels of any of the above varieties for \$1.50 each. These will not be exhibition birds, but will be of the same blood as my winners, and quite as serviceable for improving the laying qualities of your flock. See prizes won at last Industrial. 518

THOMAS A. DUFF, Toronto, Canada.

BARRED PLYMOUTH ROCKS

GOLDEN WYANDOTTES

LIGHT BRAHMAS

HOUDANS, ROSE COMB

BROWN LEGHORNS

All varieties of Games and Game Bantams.

See our record at the Industrial and other shows.
Write for Catalogue and prices.

545

KENT & OLDRIEVE, Kingston, Ont.

**BARRED PLYMOUTH ROCKS
INDIAN GAMES**

Winners at Toronto Industrial, 1895. Specially fine young birds for sale cheap. Write for prices.

546

W. T. GIBBARD, Napanee, Ont.

WHEN

IN WANT OF

Barred Plymouth Rocks, Silver Grey Dorkings, Black Spanish, and Pekin Ducks, of the HIGHEST quality, at the LOWEST figure, write

J. L. CORCORAN,

TORONTO, ONT.

N.B.—Postcards not noticed.

508

Mammoth Bronze Turkeys, R. C. White Leghorns, Light Brahmans, Silver Spangled Hamburgs, Houdans, Aylesbury Ducks. First and second premiums on Leghorns and Turkeys, Montreal and Ottawa.

WRITE FOR PRICES.

JAMES A. STEWART, Jr.

MENIE, Ontario.

FOR SALE

A choice lot of purebred Light Brahmans, Silver-Laced Wyandottes, and B. P. Rock fowls, prize-winners at the late St. John exhibition. Write for prices; satisfaction guaranteed.

**M. H. PARLEE,
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Jottings.

Ontario Fruit Growers' Association.—This excellent association will hold its annual meeting in Woodstock, on December 11th and 12th next when addresses of interest will be delivered. A large number of fruit growers and gardeners will be present.

Canadian Hereford Breeders' Association.—The annual meeting of this association, for the report of business done, the election of officers, and transaction of new business of importance, will be held in Guelph, on Wednesday, December 11th next, at 10.30 a.m., in the Skating Rink.

Guelph Fat Stock Show.—The Twelfth Provincial Fat Stock and Dairy Show will be held in Guelph, December 10th, 11th, and 12th, at which upwards of \$3,000 is offered in prizes. Price lists, entry blanks, etc., may be had from Mr. Henry Wade, Toronto. In the prize list of this show, class 13, for Poland Chinas, was accidentally left out by the printers. Prizes for these will be the same as for Berkshires.

Plowing Match.—At the third annual plowing match of the united associations of Elgin and Godmanchester, Que., held on the farm of Messrs. Stark, Trout River, the silver pitcher offered by Mr. G. W. Stephens, M.L.A., for the best pair of ridges, was won for the second year in succession by Mr. W. F. Stephen, Trout River, and thus becomes his absolute property. Mr. M. A. McNaughton made a very close second.

Pasteurization and Milk Preservation.—This is the title of a little work by J. H. Monrad, Winnetka, Ill., the price of which is fifty cents. A short history of the late Dr. Pasteur, of France, the discoverer of the process known as pasteurization, is given, and a description, with illustrations, follows of a large number of devices for pasteurizing and preserving milk. At the end of the pamphlet is an instructive chapter on selling milk.

Sheep and Swine Breeders' Associations.—The annual meeting of the Dominion Sheep Breeders' Association will convene in the City Hall, Guelph, at 2 p.m., December 10th. The annual meeting of the Dominion Swine Breeders' Association will convene in the City Hall, Guelph, December 11th, at 9 a.m. At 7.30 p.m., December 10th, an open meeting will be held under the auspices of the Sheep and Swine Breeders' Association, the Guelph Fat Stock Club, and the Dairymen's Association of Western Ontario, when Hon. John Dryden will take the chair.

American Guernsey Cattle Club.—The annual meeting of the American Guernsey Cattle Club will be held at Fifth Avenue Hotel, in New York city, on Wednesday, December 11th, 1895. The executive or business session will open promptly at

10.30 o'clock in the forenoon. The afternoon session will commence at 1 o'clock, at which time the president's address will be given. The presence of all members and breeders is earnestly solicited. The year just closing has been one of unusual prosperity to the club, and it is desired that the coming annual meeting shall be a largely attended and interesting gathering.

Ontario Experimental Union.—The annual meeting of the Ontario Experimental Union will be held at the Agricultural College, Guelph, on December 12th and 13th. Professor John A. Craig, Madison, Wis.; Professor John Craig, Ottawa; Miss J. Livingston, Superintendent, School of Cookery, Ottawa, and others will give addresses. As this meeting is to be held immediately after the close of the Guelph Fat Stock Show and after the meeting of the Dominion Sheep and Swine Breeders' Association, we hope for a largely increased attendance of all interested in the highly commendable work of experiment.

Creameries' Convention.—The eleventh annual convention of the Ontario Creameries' Association will be held at Cornwall on January 14th, 15th, and 16th, 1896. Some of the most eminent men in the United States and Canada have been secured, including Hon. John Dryden, Minister of Agriculture for Ontario; Prof. Robertson, Dominion Dairy Commissioner; Prof. Dean, Ontario Agricultural College, Guelph; Prof. Fletcher, Experimental Farm, Ottawa; Prof. W. P. Brooks, Dairy School, Amherst, Mass.; Mr. A. A. Wright, manager of the Renfrew Creamery, and others. The association expects to make this the most important meeting yet held. Every farmer and his wife are cordially invited to attend this convention.

Potato Growing.—The amount of attention given to the potato in literature has been very limited, and, therefore, a new work, entitled "The Potato, in Field and Garden," by W. J. Malden, late superintendent of the R.A.S.E. Experimental Farm, Woburn, England, and author of "The Rational Pig-Keeper," is to be welcomed. The ground covered in this book is very wide, and, though written principally for readers in Great Britain, yet there are no countries the farmers and gardeners of which would not be immensely benefited by a perusal of its pages. The work under notice is divided into ten sections, the first of which deals with the crop generally, including its introduction into Europe, new varieties, etc. Other sections deal with soils, planting, manuring, seed, varieties, treatment during growth, diseases of the crop, digging potatoes, and the cost and feeding value of the crop. The price of this book is \$1.05, post free, and it is published by W. A. May, *Mark Lane Express* office, Strand, London, England.

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FIRST PRIZE AND CHAMPION PEN OF SOUTHDOWN EWES
Owned by The Pagham Harbour Company, Selsey, Chichester, England

Sheep

FARMING

Vol. XIII.

DECEMBER, 1895.

No. 4.

Cattle Quarantine.

The British government are evidently determined to continue the line of policy laid down by their predecessors in regard to the importation of live cattle from Canada, viz., to have all cattle slaughtered at the port of entry, and everything points to the probability of the embargo being made a permanent one. Such being the case, is it worth while for Canada to continue the present quarantine on cattle coming from the States? This quarantine was imposed, in the first instance, in order to retain the advantages of the admission of our cattle alive into Great Britain, by showing that, on this side of the water, we were doing our best to keep our cattle free from disease, inasmuch as Great Britain had decided that there was pleuro-pneumonia among American cattle. Then the American government reciprocated and quarantined Canadian cattle, and the result was a big falling off, or rather almost a total cessation, of dealings in pure bred cattle between the two latter countries named.

Now that Canadian cattle are "in the same box" as American when landed at British ports, it is certainly worth while investigating this quarantine question, and seeing if any practical purpose is being served by its retention, especially as regards purebred stock.

As we said above, there has been almost a total cessation of dealings in purebred cattle across the lines since the quarantine was imposed on either side. This has injuriously affected breeders in both countries, but more especially those in Canada. In former years, many a bull was shipped to an American buyer at satisfactory prices; nowadays, such a thing is a rare event. To keep one or two animals in quarantine for ninety days is expensive work, seeing that there must be a man in charge, even for one animal (with a carload, of course, the expense per animal is less), and it is little to be wondered at that breeders hesitate to go to such expense. It would evidently, therefore, be to the advantage of Canadian breeders if the American government

would remove the quarantine on their side. This, we believe, they would do if the Canadian government did likewise. We should be glad to see some steps taken in the direction of approaching both governments in this matter.

There are other ways in which this country would be benefited by the abrogation of the quarantine. Among these is the chance of getting permission to ship our fat cattle from American ports in winter time, and also at other seasons if necessary, thus giving shippers the opportunity to take advantage of cheap freight rates, if such were offered, while cattle from the western states could be shipped from Montreal during the season of navigation if the shippers wished, both countries being again benefited.

If any steps are taken in the direction indicated, it would also be an opportune time for once more trying to get the United States Secretary of Agriculture to recognize the Canadian records, when animals are shipped from this side to that. We recognize the American records for all breeds, and therefore it is but fair for them to recognize ours. Let us have reciprocity here as well as in the quarantine question.

Motor Carriages.

The day of the horseless carriage may be coming, but it has not yet arrived. It is true that there are a few motor carriages in existence, but none of them have so far fulfilled, in a satisfactory manner, the conditions required, and, except as a fad for the moment, few persons who possess comfortable carriages and a good pair of horses would care to put them away in favor of the noisy, ill-smelling, gasoline-propelled carriages that seem to be the best of the motor carriages yet invented.

We do not mean to say that inventors will not be able to discover satisfactory methods of propelling carriages without horses. We fully expect that they will, but we fancy that electricity will be the motive power that will be in favor. At present, the storage batteries for

this take too much room and make the carriage cumbersome, but further discoveries may remedy this defect.

The contest for horseless carriages which was arranged for the early part of November by the *Times-Herald* of Chicago had to be postponed, as many of the inventors and manufacturers were not ready with their carriages. This contest will have been run off before this issue reaches our readers, and it will then be possible to see what improvements, if any, have been made towards solving the many difficulties in the way of a satisfactory motor carriage. On the 2nd of November, the day previously selected for the race, only two horseless carriages turned out. These ran for a purse of \$500 offered by the *Times-Herald*, in addition to the other money prizes offered by that paper. The course covered ninety-two miles, starting at Washington Park, Chicago, and going north to Waukegan by a common country road some ten or twelve miles back from Lake Michigan, but returning past the suburban towns along the bluffs of the lake. One of the carriages broke down on the road, and was brought back ignominiously on a freight train; the other, known as the Benz motorcycle, ran over the course in less than ten hours, averaging about ten miles an hour.

Instinct in Animals.

“There is no reasoning power in animals; whatsoever they do is done through instinct.” This is the verdict of mankind in general, and, as regards the majority of the dumb creation, the verdict is, no doubt, a correct one. Not infrequently, however, we come across instances where a solitary individual, or, it may be, a number of birds or animals, mostly domestic, but sometimes wild, show an intelligence that would almost lead us to suppose that they possessed reasoning powers. Is it instinct alone that prompts the thousands of wild fowl and other birds to seek homes further south on the approach of winter, and, again, when spring time is nigh at hand, to return to their northern haunts? No satisfactory explanation has yet been given how these birds, many of them small and fragile, travel thousands of miles in the spring and continue to return to the exact spots where they had the year before reared and brought up a family.

It is, however, as a rule, in animals more intimately associated with mankind, such as

horses and dogs, that we find instinct—or shall we call it a species of reasoning?—most developed. It may be that their association with mankind has served to develop latent faculties, and that these exceptions to the rule, being close observers, have become, like monkeys, imitators of their masters. Whatever may be the cause, we find instances of animals displaying rare intelligence. Take the case that has happened more than once of a horse that has been shod badly, a nail having penetrated to the quick. In such cases the animal has been known to return of his own accord to the blacksmith's shop, and, taking his stand, to hold up the foot affected, thus indicating the trouble. Or call to mind the wonderful intelligence of dogs that have been with their owners when the latter have been injured far from home, with no assistance near; how these have returned home, and, in various ways, signified that they wished some one to accompany them to the place where their injured masters lay. Again, how have dogs and cats, that have been taken hundreds of miles from their old homes, found their way back thither when the opportunity was presented of escaping? If it is only instinct that guides them, then it must be of a very high order.

We have been moved to write these few lines on the intelligence of the lower creation in the hope that they will be read and pondered on by our readers, especially by the younger ones. We are convinced that our domestic animals oftentimes undergo a good deal of ill-treatment at the hands of thoughtless owners and their employees, solely because those owners and their men consider them as being only brutes, with but little sense of pain. If these men could be convinced that these creatures are not insensible to pain, and, in many cases, have a high order of intelligence, which gratefully responds to kind treatment, then these few words will not have been in vain, and both the owners and the dumb animals will be the gainers.

Crops in Great Britain in 1895.

The statistics lately issued by the British Board of Agriculture give various interesting facts as to the condition of agriculture in that country as compared with last year.

In England, the area under wheat was less by nearly 500,000 acres as compared with the previous year's returns for this crop. Wales shows a reduction of over 12,000 acres, and Scotland slightly over 11,000. For all de-

scriptions of cereals grown in Great Britain the grand total shows a decrease of 454,747 acres as compared with that for 1894. Taking oats and barley, however, there is a slight increase in these two crops. There is also a reduction of 75,007 acres in green crops, turnips and swedes showing the greatest discrepancy as compared with last year's statistics, although, with the exception of potatoes, the other varieties under this heading each show a slight reduction. Potatoes, however, show an advance of 36,763 acres, England principally accounting for the increase. The figures for that country alone are 36,763 in excess of those quoted last year, while Scotland is entirely responsible for the remainder, as the Welsh crop is nearly 400 acres short this season.

Permanent pastures show an advance of 145,494 acres, and grasses under rotation for hay and otherwise have increased by 226,169, showing an advantage in favor of the latter of 80,675 acres. There is a remarkable increase in the acreage of bare fallow or uncropped arable land this year. Last year this was entered at 375,701. This year the figures are stated at 475,650, or, roughly speaking, an advance of 100,000 acres. In flax-growing, a slight increase is reported, chiefly in England.

Small fruit cultivation has also increased by slightly over 6,000 acres, but hops have gone back by about one-twelfth of that amount. Horses of all descriptions show a decided advance in numbers, and cattle have also increased slightly, but sheep show a heavy reduction since last year's returns were issued. This decrease is, however, far more than compensated for by the extraordinary increase in the number of hogs, these showing an advance of nearly 500,000 head this year. As regards the acreage being sown to fall wheat for next year, in all probability there will be a material increase.

Crops in Ontario.

Bulletin 56, issued by the Ontario Department of Agriculture, contains the final estimate of yields of crops in Ontario for 1895.

There was a deficiency of rainfall in the six growing months of three inches, or nearly 27 per cent., and the deficiency in the ten months was 4.94 inches, or 10 per cent.

Referring to crops in general, there was a dropping off of 1,700,000 tons of hay this year as compared with last. This is a loss greater than the value of the entire wheat crop of the

province. There is a shortage of straw also. The corn crop, however, has been extraordinarily large, and, in many cases, will help to make up for the loss of coarse fodder. The grain crops have turned out better than was anticipated, and are all well up to the average.

The average yield of fall wheat has been 19 bushels per acre, and the quality generally is very good. The total yield of spring wheat is 3,472,543 bushels, considerably less than half of what it was in 1890. This crop is on the decline in Ontario. There has been an increased area sown to fall wheat this autumn, and the plant generally is in good condition.

In consequence of the short pastures cattle are generally thin, and the feeding of corn and other feed began earlier than usual this fall. Many farmers will find it hard to carry their stock through the winter. No disease is reported among cattle.

Oats are the big crop of the year. The average yield per acre was 35 7 bushels, giving a total of 84,697,566 bushels for the province, or 14,525,050 bushels more than in 1894. The area of corn has more than doubled since 1890. This year it was 552,828 acres. In dry sections, its value as a supplement to pasture has been most marked. One hundred and twenty bushels of ears per acre have been reported from corn grown for husking. Peas have turned out fairly well. What rye was grown was a good crop. There has been a very poor crop of clover seed on the whole, but alsike is an exception to this. Potatoes are good, both as regards yield and quality. There is an average yield of turnips, though the roots are small in size. Mangels, too, are small, but above the average.

The number of horses in the province on July 1st was 647,696, a decrease of 27,081 as compared with 1894. Cattle totalled 2,150,103, an increase of 60,802; sheep, 2,022,735, an increase of 6,930; hogs, 1,299,072, an increase of 156,939; while poultry increased 200,178, reaching 7,752,840 head. The wool clip was 6,214,811 pounds, as compared with 6,235,036 pounds in 1894. Colonies of bees decreased from 200,094 in 1894 to 173,173.

Farming in Great Britain.

The condition of the British agriculturist at the present time is one of deep anxiety to himself and his friends. According to the *Mark Lane Express*, there is not only depression but positive distress. It says:

"The black cloud which has so long darkened the horizon still hangs over the British farmer, and the prospect is, if anything, more disheartening. The troubles he has to encounter at home by reason of weather adversities are bad, but they are made a hundred times worse by foreign competition, which is fast driving farming out from among the industries of this country."

Other papers confirm the above story. We notice in one a statement that an East Kent landlord has received notice to quit from the whole of his farm tenants, the reason given in every case being that it is absolutely impossible, with present prices, to farm the land at a profit, even if they had it rent free. On another Kentish estate, the owner has received notice to quit from fourteen of his tenants. In the Isle of Thanet a large number of farms have just been vacated, and several thousand acres are likely to go out of cultivation altogether unless new tenants can be obtained. On the whole, the British farmer seems to be in a bad way, and there seems no likelihood of matters taking a favorable turn. In fact, every day the competition from all over the world seems to grow more aggressive. Agricultural products can now be laid down in Great Britain from far distant points so cheaply that many of the farmers there in despair see no alternative but to give up the fight and acknowledge themselves beaten.

It is true that the effects of this competition are not felt so severely in all parts of the "tight little island," but still they are widespread enough. Among those who seem to have weathered the storm better than others are breeders of improved and well-bred stock. Great Britain is, *par excellence*, a country where such can be raised to the best advantage, and breeders from all parts of the world are wont to resort to her when they wish to recruit their studs, herds, and flocks with fresh blood. It is probable that such will always be the case. The climate, the luxuriant pastures, the comparatively mild winters, and the careful attention given to live stock in Great Britain are all in favor of its being an ideal breeding ground, and no other land across the seas that we know of can equal it in all these respects. All British farmers, however, cannot be breeders, and therefore the problem is, what can the rest do to make a living? No satisfactory solution of the difficulty is yet proposed, and now Parliament is being besought to come to their assistance. What the outcome will be, no one can foresee.

Death of Prof. Lawson.

We have to record the death from paralysis of Prof. George Lawson, Halifax, N.S., one of the most noted scientific agriculturists in Eastern Canada. Deceased was born in Fifeshire, Scotland, and was sixty years of age. He studied in Edinburgh, and in 1858 became professor of chemistry and natural history in Queen's College, Kingston, Ont. This post he resigned five years later to accept the chair of chemistry and mineralogy in Dalhousie University, Halifax, which position he filled with great distinction for a third of a century. He took a deep interest in agriculture, was for thirty years secretary of the Provincial Agricultural Society, and introduced scientific agriculture into Nova Scotia. Among other posts, he held that of vice-president for Nova Scotia of the Dominion Shorthorn Breeders' Association.

FOR FARMING.

Inferences from the Life of the First Shepherd.

Modern history has been much too sparing in its prose pictures of pastoral life. A great general or statesman has never lacked the love of a biographer; but the thoughts and labors of men who lived 'remote from cities,' and silently built up an improved race of sheep or cattle, whose influence was to be felt in every market, have had no adequate record. One slight sketch in the *Gentleman's Magazine* is nearly all that remains to us. We can go back, through its guidance, to the days when Bakewell was a living name, and Dishley the headquarters to which all the best breeders of farm stock made resort. The scene rises up through the dim vista of more than a hundred years. There are the willow clumps, which were cut on a seven years' rotation; the water meadows, which grew four grass crops in the season; the mimic Dutch canal, which supplied the sluices and carried boats laden with produce and manure between different parts of the farm, and on whose sluggish stream turnips were floated down to the stock and washed in the course of their sail!

The Druid, who has been said to be the common sun whereat modern sporting writers have lighted their little torches, gives me also a reason and a text for this article in the paragraph taken from *Saddle and Sirloin*. The small measure of praise that has been accorded to the man who has labored long and effect-

ively to improve our domestic animals is one of the most glaring discrepancies of our biographical literature. The peculiar nature of many of the men who have been leading lights in this work is largely accountable for the fact being so observable; they were never so strong in their characters and opinions that they were completely independent of the need of drawing their inspiration from the flattery of others. It has been considered to be a common quality of all genius to see with its own eyes rather than derive its impressions and satisfaction through the eyes of others, and this characteristic seems to be strongly attached to the genius peculiar to breeders.

Bakewell's character and work are suggestive of inferences that are helpful in modern sheep farming, even though his life ran its course between 1726 and 1795, fully one hundred years ago. His character was an exceptionally strong one for that day, and so peculiarly adapted to his vocation that its analysis reveals the elements that must enter into the mentality of successful shepherds and breeders for all time, and his work was so effective and so much in advance of his time that its essential features are yet to be recommended.

The better the breeding of the breeder himself, the greater are his chances of success. To be well bred means an appreciation of good breeding, and that produces an equal effect in either man or beast. Bakewell's lineage could be traced, we are informed by Mr. Housman, through 600 years, extending over nineteen generations. His family was old, and, what is better, it had ever been respectable. Such breeding is a good backing for brain power, and that this was a characteristic of the family is attested to by the continued prominence of it and the offices it filled during that long span of years.

The source of success in the direct management of sheep or other stock is a kindly heart whose impulses are always towards humane and gentle treatment. Bakewell's kindness to man and beast has been said to be proverbial. Servants had remained in the service of the family for nearly forty years, which of itself betokens a considerate employer. The horses, cattle, sheep, and swine that were his always made it apparent in their quiet and sociable dispositions that they had never been abused. Though some of the tales that described the handling of bulls with switches and pack threads are devoid of instructive inference, and are probably visionary, yet they show that Bakewell's kindness to his stock was a

matter of general comment at that time, as it was the one ingredient which he always added to every ration that was fed.

The breeder who makes a success of his work is at all times a student. The Miltonian injunction, "Be lowly wise," finds expression in his attitude to his work. Poor Richard put it well when, in answer to his own query as to who was wise, he made answer, "He that learns from every one" and, it might be added, everything. There is abundant evidence to show that Bakewell was, at every stage of his life, a close student. He experimented with breeds and with his own animals, weighing them and their feed to obtain reliable results. He even studied the carcasses to determine the relation of form to growth and meat production. He had a museum stored with cuts of carcasses in pickle, so that he could make comparisons at any time. As Mr. Housman says, Bakewell was one of those who would learn as long as he lived, and he announces this as the secret of Bakewell's ability. Certain it is that the man who would succeed as a breeder must know something of the interior of an animal as well as the qualities of the form without. Another characteristic of Bakewell's, which stands out clearly from among those of his cotemporaries, was that he obtained most of his technical knowledge through direct experiment and not by rough guessing, and it is also said of him, and this is fully more noteworthy, that he did not make facts square with his opinions, but squared his opinions with the facts.

To give a flock or herd the uniformity of a type in and in-breeding is a successful resort. This is the most important inference that may be drawn from Bakewell's work. It is Culley who tells us, in his introduction to "Observations on Live Stock," that Bakewell was about the first to upset the notion that a sire used on his gets produces tender, diminutive stock, liable to disorders. For twenty years, he says, Bakewell made no outcross in his flock, and the best stock was bred from the closest affinities. Collings, Booth, Bates, Cruickshank, Watson, and all other leading improvers, known as the makers of a type, have used this principle, though, like all effective measures, the more effective it is the more skilful must be the guiding hand.

To merit the title of a breeder in its fullest sense, a prevailing and distinctive type must be observable in the flock or herd. When a man finds, as the result of his breeding operations, that the youngest generations of his

flock or herd are of a type which enables one to tell them from those in any other flock or herd, then he begins his career as a breeder in its widest sense. This means that a type must be first formed in the mind, the materials gathered to make it with sound judgment and then after selection followed in conformity with the chosen type. Bakewell's type embodied in the Leicester a barrel shape, or, as an observer put it, a back like the back of a turtle. Small bone, light offal, and early maturity were the characteristics most needed to improve the common sheep in Bakewell's time. He secured these characteristics by the course of breeding which he followed, and through them he made the Leicester especially valuable for crossing purposes.

A breeder cannot depend on his own exertions to perpetuate a breed, no matter how great his genius may be. Bakewell was a frequent visitor to other breeders, and enlisted their interest, and also founded the Dishley Society, all of which helped to extend the influence of the Leicester breed of sheep, but this thing he failed to do in trying to establish his breed of cattle—the Longhorns. The Shorthorns did not have as favorable a start as the Longhorn, yet, what a triumphant record is theirs compared to that of the practically extinct Longhorn! The exceptional coterie of men of affairs that are involved in the history of the Shorthorn have done more to maintain and extend the prestige of the breed than all other influences combined. No breed can be perpetuated without having behind it public-spirited and progressive breeders, and the one striking failure of Bakewell's life points this moral, which is as instructive as any of those that are noteworthy.

JOHN A. CRAIG.

Wisconsin Experiment Station.

Notes from Great Britain.

(By our own Correspondent.)

Some time since I wrote (some said too strongly) on the question of the live sheep trade between America and elsewhere and England, and I warned your readers then that, unless these sheep were sent over here free from contagious diseases, particularly scab, there would be such a demand for their exclusion that in all probability this trade would be stopped. The result has been as I anticipated it would be. Scabby sheep have been sent, not once, but many times, and now the various agricultural societies have taken

action, and we shall no doubt shortly see some restrictive measures adopted; and, as any one who knows anything about the trade will agree with me, I am sure, not before it was time. Only last week a cargo of Canadian sheep was found to be infected at London, whilst quite recently some cases have come to notice at Liverpool. The National Sheep Breeders' Association asked in June last that similar measures to those in force with regard to cattle should be put into working order, viz., that from any country where scab existed no sheep should be allowed to go into this country alive from the port of debarkation. This same body have now joined hands with the Central Chamber of Agriculture, and are going to ask the government to lay down once and for all the only sound and safe principle, viz., that all cattle, sheep, pigs, and goats sent to this country shall, except under very special conditions, be slaughtered either before shipment or at the port of debarkation. Whether this be adopted in its entirety or not we shall see, but, if it is, it will simply be because your country and other ones have persisted in sending sheep here in such a state as to constitute so grave a danger that no one will for one moment contend that we are not justified in insisting that they shall not be allowed to be scattered broadcast over our country and bring trouble to hundreds of sheepbreeders who have devoted their whole life to bringing up valuable flocks. Although your sheep men may possibly object, it surely is just as lawful and right for us to make what rules and regulations are deemed necessary to protect our flocks from infection as it is for your government to ordain, as it does at the present time, that all sheep coming from here shall stop so long in quarantine. The difference between us is that you import to improve and keep up your breeding flocks, hence you require live sheep; we import mutton for food, and hence we can get it dead just as well as alive.

I have before contended, and do still contend, that it would be greatly for the benefit of your country if all your meat sent us was sent chilled, for then you would vastly increase your trade in hides, etc., as well as keep up, and, perhaps, improve, your own land, instead of depleting it, as the case stands now.

The annual Dairy Show held in London was again a complete success. There is some cause of complaint as regards the paucity of entries in the cow classes, especially those

where they are judged for appearance alone, and there has been a good deal of talk about what ought to be done to make the live stock portion better and more representative. The display of butter and cheese was very fine indeed, as was also a very large and valuable display of poultry.

The milking trials secured an entry of 126 cows this year, as against last year's 87, and the result was that the challenge cup for the show and first in her section was won by a Shorthorn Ayrshire cow with 139.8 points, made up as follows:

For time since calving.....	1.2
For weight of milk	68.2
For weight of fat.....	46.2
For weight of solids other than fat.....	24.2
	139.8

A Shorthorn cow came next with 136.64 points.

As the sale of Shorthorns and Aberdeen Angus in England are now over for the year, a quotation of the results may be of interest to your readers, many of whom hail from that land:

SHORTHORNS.

	1895. Average.	1894. Average.
715 bulls.....	\$115 25	\$107 50
188 cows.....	105 00	125 00
52 two-year-old heifers.....	112 00	106 90
111 yearling heifers.....	102 95	87 10
74 heifer calves.....	74 36	77 68
1,140	\$110 00	\$106 34

ABERDEEN ANGUS.

	1895. Average.	1894. Average.
507 bulls.....	\$101 77	\$103 18
168 cows.....	102 00	116 00
105 two-year-old heifers.....	122 80	131 50
117 yearling heifers.....	84 00	82 50
65 heifer calves.....	57 50	61 50
1,052	\$ 99 20	\$106 25

Thus Shorthorns have fully maintained an average price, and even a little increase on last year, whilst Aberdeen Angus cattle have sold lower than any year since 1887.

Mr. Charles Howard, of Biddenham, Bedford, a Shorthorn breeder of some repute, as well as one of the leading Oxford Down sheep breeders, died October 11th. He was one of whom it can be truly said that he was an honest, upright man, and faithful friend.

At St. Martin's Lane Repository, London, England, there was offered for sale a consignment of Canadian horses, twenty-five in number. They sold readily at from \$170 downwards, making an average that ought to pay the importer well, as well as the breeder in Canada.

The trade in Shires and Hackneys is good, as also is the case with Clydesdales. The demand for the heavy dray horse appears to be such as to exceed the demand, for it is no uncommon thing to hear of some of our large London brewers, and others who require these kind of horses, paying as much as \$500 to even \$600 and \$700 for the best specimens.

The sheep export trade for breeding purposes is over for another year as far as your country is concerned. Just recently the Southdown Sheep Breeders' Association has issued some eighty certificates for sheep exported to the United States, France, etc. Lincoln sheep still go in large numbers to America. At least 1,500 rams and ewes have been sent during the last six or seven months, chiefly to Buenos Ayres. Kent or Romney Marsh sheep have been in demand for export. During last month 90 odd were sent with export certificates, which means they were registered, to Buenos Ayres, Argentine, New Zealand, Falkland Islands, Montevideo, etc.

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Canadian Horse-Breeders' Association.

The above is the name of the new association that was finally organized on November 21st, at the Albion Hotel, Toronto. A preliminary meeting was, as will be remembered, held last September, when two provisional directors were appointed from the various horse-breeding associations of Canada, as it was felt that such an association was necessary in the interests of horse-breeding in the country.

The chair was occupied by Mr. Robert Davies, and the following members were present; Messrs. H. N. Crossley, Dr. A. Smith, Toronto; D. McCrae, Guelph; A. Wilson, Paris Station; H. Cargill, M.P., Cargill; J. Chisholm, Milton; R. Beith, M.P., W. Beith, Bowmanville; J. Holderness, J. D. Graham, W. Wilkie, Toronto; A. G. Bowker, Woodstock; J. Vipond, Brooklin; J. Gardhouse, Highfield; N. Awrey, M.P.P., Hamilton; James Cochrane, Hillhurst, Que.; H. Wade, Toronto; Dr. Carr, Stoney Creek; J. C. Boyd, Sault Ste. Marie; A. G. Ramsay, Hamilton; W. Hendrie, Hamilton; H. Smith, Claude; C. V. Geary, St. Thomas; W. A. Lawrence, Milton.

The new constitution and by-laws were presented by Mr. Henry Wade, the provisional secretary. They provide that the officers of the society shall consist of a president

and vice-president, to be elected for one year; a board of ten directors to be elected annually, representing the different horse-breeding associations, and a secretary-treasurer.

The annual meeting is to be held at a date to be decided by the directors, fifteen days' notice to be given to members.

Persons desiring to join the association will pay one dollar entrance fee, and must not withdraw without giving three months' notice. The annual fee to be one dollar. The members will receive full reports of all meetings.

When new horse-breeding associations are formed for pure breeds of horses they may be admitted, if approved by the directors, and the constitution amended to allow of their representation on the board.

On motion of Mr. David McCrae, seconded by Mr. R. Beith, M.P., the constitution was adopted, and Mr. McCrae, seconded by Mr. Bowker, moved that the directors take immediate steps to obtain incorporation. The election of directors was the next order of business, and resulted as follows: From the Clydesdale Horse Association, Robert Davies, Toronto; David McCrae, Guelph. From Hackney Horse Society, R. Beith, M.P., Bowmanville; N. Awrey, M.P.P., Hamilton. From Shire Horse Association, John Gardhouse, Highfield; H. N. Crossley, Rosseau. From Thoroughbred Horse Association, Dr. A. Smith, Toronto; W. Hendrie, jun., Hamilton. From Standard Bred Trotters' Association, H. Cargill, M.P., Cargill; Dr. Leeming Carr, Stoney Creek.

An informal discussion then took place with regard to some of the rules governing the exhibition of stock, and the following recommendations were made: That at the Industrial Exhibition a herd prize should be given for the best stallion and four of his produce not two years old, it having been pointed out that a wider age limit made it very much more difficult to allow such encouragement as should be given to the exhibition of more young stock at the coming spring show. It was decided to request the Industrial Exhibition Board to allow two members of the association to represent it on the committee, and Messrs. Cargill and Beith were selected as representatives.

At a subsequent meeting of the directors the following officers were elected: President, Robert Davies; Vice-President, Dr. A. Smith; Secretary-Treasurer, Henry Wade. Executive Committee—Robt. Davies, Dr. A.

Smith, H. N. Crossley, D. McCrae, R. Beith, and H. Cargill.

New York Horse Show.

The eleventh annual exhibition of the National Horse Show Association of America, held at the Madison Square Gardens, New York, during the week commencing November 11th, has been a wonderfully successful one. Previous shows have been successful, but this one has surpassed them all. Society has set its mark of approval on the show, and, consequently, everybody tried to be there, the crowds on the later days being so large that hundreds failed to secure admission. For this the presence of the Duke and Duchess of Marlborough was largely responsible; in fact, the horses were largely neglected by the audience, who spent the greater portion of their time trying to see who were present in the boxes, and to get a view of the Duke. It was not through any lack of merit in the horses present that these were only looked upon as an inferior attraction by the crowd; far from it. The show of horses was a grand one nearly all through, and those who cared for horseflesh could feast their eyes on some of the most magnificent specimens of the equine race to be found anywhere.

In the catalogue, thoroughbred horses come first. There were eight entries. First place was given to Mr. F. Gebhard's aged bay St. Saviour, a big, strong horse, Mr. Howland's Judge Morrow coming next and Mr. Kelly's Devotee third.

Trotting stallions were not very well represented. In the class for stallions four years old and over, judged by pedigree, age, color, conformation, gait, and produce, Quartermaster won after a close fight with Silvery Chimes and Leonatus, which won second and third respectively. The classes for mares and fillies were better filled, and some good ones were shown by the Hamlins and others. Leonatus won first in class 13 for trotting stallions shown to harness. The Roadster classes for horses shown in harness were good. Lawrence Kip's Emoleta was a popular winner in class 22.

Hackneys, as usual, formed an excellent and attractive feature of the show. The judges were R. Beith, Bowmanville, R. P. Stericker, Springfield, and Arthur Fewson, England. In class twenty-eight for stallions four years old and four of their get, any age, the veteran Matchless of Londesborough (imp.) once more beat

his old time competitor Cadet (imp.) for first place; Berseker (imp.) coming in third and Dr. Parke (imp.) fourth. The next class was for horses of the same age, only that the get must be full registered, bred in America and not to exceed two years old. Here Berseker came first, followed by Cadet, with Dr. Parke third.

In class 30, Matchless of Londesborough was barred by the rules. First went to Geo. Green's Rufus jr., and second to J. D. Cameron's Royalty, while the well-known Typhoon, the son of Mr. A. G. Ramsay's Courier, won third honors, and Mr. Crossley's Fireworks was highly commended. For conformation the latter is hard to beat, but his action was what put him down so low. Some of the decisions in class 31 were not popular. Here Ottawa, sold by Mr. Beith to Mr. F. C. Stevens, was shown, and so the former gentleman retired from the ring till the class was judged. Enthorpe Performer was put first, Berseker second, while third was sent to Dr. Parke, whom few expected to see in that place. Two entries faced the judges in class 32. J. J. Astor's Confident Shot was placed first and G. H. Hastings' Black Nobleman second.

The class for three-year-old stallions, fifteen hands and over, was headed by that wonderful horse lately imported by F. C. Stevens, Langton Performer, by Garton Duke of Connaught. W. Seward Webb's entry, Wildfire, a son of Matchless, and a nice mover, was chosen for first place in the two-year-old class; Messrs. Cheney's Manchester, a son of Dr. Parke, for second; the Chesterbrook Farm's Syntax, for third, and James A. Cochrane's imported Barthorpe Performer for 4th. The class for yearlings was an interesting one. After considerable work H. McK. Twombly's Evolution II. was rightly placed 1st, and a son of Rufus jr., Rufus Beau, next. Stallions under fourteen hands had only one entry, Count, a son of Little Wonder, that won 1st.

Aged mares 15.2 hands and over, were mostly a fine lot, nine in number. Two of Mr. Twombly's entries were selected for 1st and 2nd place, Nora B. and Bury Romance, the old time winner, Princess Dagmar, shown by Mr. Cochrane, having to be content with 3rd place. Mr. Twombly's entries, Pepita and Nelly 3rd, also headed classes 39 and 40, Mr. Widener's Dorothea winning 2nd in the first named class. There were some grand young mares shown in the younger classes, many of them displaying fine action. Among them we noticed Mr. Stevens' beautiful yearling im-

ported filly, Lady Sutton, and the 2nd prize yearling, Lady Lynnewood, a daughter of Lord Bardolph. The former is a most perfect Hackney in type, conformation and action. The Hackney produce classes and those for half-bred Hackneys contained many most promising animals. Among them may be mentioned Lady Lynnewood and Mr. Lawrence's Frills, by Fashion.

The American Hackney Horse Society's challenge cup was won by Rufus, jr., the junior champion prize for stallions by Langton Performer, the championship for mares by Nelly 3rd, and the junior championship by Lady Sutton.

Heavy draught stallions were only three in number. Had Mr. Crossley's Bravo II. been in the ring, he would have been an easy first. As it was, Walter Law's imported Rescue got the coveted ribbon. Coach stallions were also rather limited. There were three Morgan bred stallions forward to compete for the prizes offered. The array of harness and carriage horses was very good and the entries large. There were also a number of saddle horses. General Castleman won 1st on his well-known gaited saddle mare, Dorothy. L. Meredith, London, got 1st for Marchioness, in the class for saddlers, between 14.1 and 15 hands. Adam Beck, London, won a 1st and a 2nd for high jumping, with Hurricane; and also 1st and 4th with him in other classes. W. J. Price, Montreal, had the best pony stallion, three years or over, not exceeding 12.1 hands. The jumping at the show was not up to the standard. There was the usual turn out of delivery and police horses.

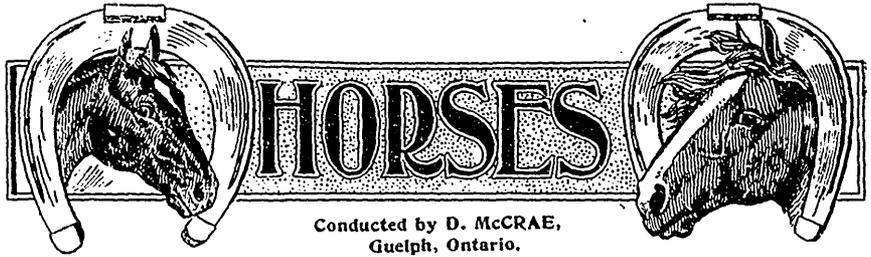
After the show there was held the annual sale. A fair number of buyers were present. Some of the plums fetched high prices, but the great majority sold cheaply. Mr. Widener's champion gelding, Dash, brought \$1900 from Mr. C. Yerkes, Chicago, and several teams sold for about \$1000 and upwards.



Works on Geology and Entomology.

Subscriber, Kinloss: Where can I procure copies of two books written by Prof. J. H. Panton, of the Ontario Agricultural College, on Entomology and Geology? I understand that they were written for use in public schools.

Ans.—Write direct to Prof. Panton for them.



BINGEN, a two-year-old, lately trotted an exhibition race at Portland, Maine, in 2.12½, the best record for a two-year-old made this year. He is by Electioneer, out of May King.

NIGHTINGALE made a very good record when she went the third mile of a heavy race in 2.08. She was bred and is owned by Mr. Hamlin, and is a little chestnut by Mambrino King.

THE pacing stallion, Star Pointer, is well to the front now, and may soon be at the top of the tree. His three heats in 2.04½, 2.04¾, and 2.06½, were well done, and show that he is capable of making a race with the best of them.

JUDGING races is not always well done. Recently, at a race meeting down in Maine, General Turner went into the stand and said: "Gentlemen, I do not usually come into the stand to find any fault and I am not going to do so now. I only want to make a suggestion. It is this, I think you are all nice men, but I am sure there is many a thing you can do better than judging a horse race."

MR. E. MUYBRIDGE, the distinguished photographer, is in England. He is to give a series of lectures and demonstrations on "The Motions of the Horse in Nature and in Art." He will give the result of careful investigations made in horse motions for the University of Pennsylvania, some of which have already been published and have attracted a great deal of attention both in Europe and America.

SOME Shetland ponies are very good goers, and also good stayers. The London *Live Stock Journal* recently gave an illustration of the Shetland brood mare, Hoplemuronion, foaled 1883, the property of the Ladies Hope, Longcross House, Chertsey, Surrey. She is a very chunky, red roan, standing under thirty-six inches, very deep in the rib and broad in the back, considering her height.

She has won several first prizes, among others that at the London Hackney Show last year, and at Birmingham previously. For her size she has a good staying record for trotting in harness, drawing one person 4 miles in 16 minutes, 7 miles in 29 minutes, and 9 miles in 43 minutes.

SUFFOLKS had no more ardent admirer than the late Manford Biddell, of Playford, near Ipswich. His stock was lately sold by auction, and the prices realized were low. Thirty-six animals averaged \$186; \$355 was the highest price in the sale, given for a nine-year-old mare; \$320 was the highest among the stallions. The farm, which has been in the hands of the Biddell family for a very long time, passes to Mr. S. R. Sherwood, a breeder of Suffolk sheep.

HORSE PARADES have done a great deal in England to make a demand for high class powerful geldings of good show form and those that have the style to make a good display at these parades. They have made the owner take more interest in his team, and the owners, and more especially the great brewing firms, are now keen rivals in the matter of making a good showing at the annual parade. They are also fine advertisements. Something of this kind might be tried in connection with the Spring Horse Show in Toronto.

THE prices for Clydes, at the Marquis of Londonderry's sale at Seaham Harbor, were not large, but, as prices go, were fair and the bidding was brisk. Forty Clydes were catalogued. Of these, eight were young geldings, most of them two years old. They averaged \$240; ten brood mares, \$280, and three three-year-old fillies, \$555. One of these, Lupine, a local prize winner, went for \$1000. The younger things averaged from \$200 to \$280. There were sold at the same time a fine lot of Shetland ponies, sixty-eight in all. These averaged a little less than \$100. Pedigreed Shetland stallions averaged \$125. The whole sale brought nearly \$20,000.

THE eighth volume of the Clydesdale Stud Book of Canada has just been mailed by the secretary, Henry Wade, of Toronto, to the members. The book is rather smaller than the former volumes, which is to be accounted for by the dullness of trade during the past years. This eighth volume contains the pedigrees of 495 animals and the portraits of two stallions, Energy [1432], and Esquire of Park [2178]. The book should be in the hands of every breeder of Clydes in Canada.

A CLYDESDALE association has been formed by some of the most enterprising horse breeders in Sweden. They have sent over three delegates to Scotland to select a stallion, and these gentlemen have purchased Mac-kerrall [9304] from Messrs. A. & W. Montgomery. This horse is a four-year-old of good quality, and for the past year he was the premium horse for the Kelso district. It is to be hoped that the Swedish Clydesdale Association may do well with their purchase.

It does not pay a farmer to train his own trotters. If a farmer has a colt that shows a good deal of speed and he undertakes to train it himself, in nineteen cases out of twenty he will make a mistake. Training is a profession only to be learned by careful study and by much experience. To be a successful trainer requires very special knowledge of handling and caring for horses. The farmer who is green at the business is almost sure to spoil the colt. A very small per cent. of horses trained ever sell for what they cost. The farmer will be better off if he sells the animal whenever a fair price is offered for it.

THERE have been several large sales of Shires recently in England, but prices were rather disappointing to the sellers. Near Sheffield, at Cockshutt's farm, Mr. Fred Kelly sold out his entire lot of thirty animals. Prices ranged for mares from \$125 to \$900. There were several well-known prize animals in the lot, three of which brought over \$500 each. Blagdon Beauty, sire Bonny Lad, a fine bay, eight years old, brought \$625. She had fine flat bone, silky hair, and fine feet and pasterns. She won first at the London Shire Show, four years ago. Lottie Collins, winner of first at Saltfleet for three successive years, brought \$650. She had very good action. Her foal, by Golden King, brought \$310.

Winter Feeding.

The heavy frost in Ontario last May after the very warm spring weather ruined the hay crop on high land, and the dry weather afterwards prevented any good second growth. The consequence is that the hay crop has been very light except on late, wet meadows, which were specially favored this season. Most farmers are, therefore, very short of hay, and are looking for other coarse food to help the horses through the winter. Good timothy hay cut on the green side and well cured is the best fodder. For colts and all growing animals good clover hay cut green and cured free from dust is excellent food. Many horse-owners object to clover hay for horses on account of the dust irritating the wind passages, and tending to bring on bronchial troubles; but good clover hay can be made with very little dust, and is more nutritious than over-ripe timothy.

Good oat straw cut or uncut may be given to help to save the hay. It is really good enough food, not to be despised, but it should not be given as the only coarse fodder. Variety is good for the horse as well as for other animals, and, once a day, oat straw may be used. Rye cut on the green side and made into hay will also do for a change. These two are the best straw fodders. Cured corn fodder run through the straw cutter has been used to good advantage, and is improved by the addition of a little bran sprinkled on the cut food. Horses relish this if the corn has been well cured, and, when there are a number of colts in the corn, it is really excellent food, especially for the evening meal. It is safer not to feed chaff to horses; they like oat chaff, but it often causes trouble.

Silage has not been much used yet for horse food, but some have tried a small quantity once a day, and the reports so far are quite favorable to its limited use. It is a bulky food, and should be fed with some more highly concentrated food, and then only in very moderate quantities. A horse has a very small stomach compared with that of an ox, and cannot live on light, bulky food, which may do well for the ox. Silage mixed with crushed oats, with a little peameal or with ground oil cake, may be tried with every prospect of good results. Perhaps some of our readers who have tried feeding ensilage to horses will give us the benefit of their experience along this line.

Roots are good food for horses. Carrots have long been a favorite food for the horse, but many good horsemen now favor Swede turnips quite as much as carrots, and feed them regularly all through the winter. They may be either fed whole or sliced, but the former is preferred by many. Potatoes are cheap, very cheap, this year, and in small quantities may be fed to horses. They are best fed raw and usually whole, but may also be given boiled, with steamed food or well mixed with cut food. A feed of potatoes now and then will be relished by most horses. All the roots have a slight laxative tendency when fed to the horse, and carrots also act upon the kidneys, slightly increasing their action. They also possess certain alterative properties and tend to improve the appetite, and give a smooth and flossy appearance to the coat. They are a valuable addition to the regular food of the horse, and, if fed in small quantities, are highly beneficial.

Oats stand first of all the grains as a food for horses. They have all the ingredients necessary for the complete nutrition of the body. Oats are fed either whole or crushed. If in the latter way, they should be freshly ground, as they get mouldy or musty very readily if kept any length of time. They should be well cleaned, and free from dust and dirt. Old horses, and those having defective teeth, need oats crushed, but in the majority of instances whole oats are best. The best oats are those cut about a week before being fully ripe. The grain is richer and better food when cut at this time. The best oats are those about a year old, thin-skinned, short, plump, clean, hard, and bright, and having a sweet smell. Other kinds of grain are sometimes used either in whole or in part instead of oats; but as already said, they cannot, under any circumstances, be considered equal to them. A feed of bran is good once or twice a week—given as a warm bran mash in the evening, and with the addition of a cup of boiled linseed on Saturday night.

When changing a horse's food, it should be done gradually. Sudden changes of diet are always dangerous. The horse appears to be easily affected by any abrupt change in the nature or quantity of his food. He is also naturally delicate in his taste, and does not become at once reconciled to change, being often very fastidious. Some will take a change at once and relish it, others only after many

weeks seem to get used to the new food, and others, again, may never take to it kindly. As one horse will do more work than another, so one will require more food than another, and the careful feeder must regulate his ration accordingly. No fixed diet can be made to satisfy all purposes, so quantity and quality must be supplied according to circumstances. No large bulk of food will make up for want of quality, and no highly concentrated food will make up for lack of quantity.

It is a mistake to think that horses at light work can be well kept entirely on hay. Colts also require some grain, and, if left to grow up on straw or hay alone, never make as good horses as those which are better cared for and allowed a grain ration as well as the more bulky food.

A Good Brood Mare.

The illustration on the opposite page is one of the fine Clydesdale brood mare, Edith Plantagenet (6040) and her foal, the property of Lords A. & L. Cecil, Orchardmains, Tunbridge, Kent, England. Edith Plantagenet was foaled in 1883, her sire being Belted Knight (1395), and her dam Lily of Whiteley (2352), by Topman (806). She is a particularly good brood mare, being roomy, and having good feet and legs. One of her owners, Lord A. Cecil, is represented holding the halter shank.

Walking.

There is no more important pace for the farm horse than the walk. It has not received the attention by judges at our leading fairs that it deserves. It is a most important pace in any horse, and it should receive a great deal of attention, more especially in the heavy draught classes. In the Clyde classes a horse may receive a prize that has not been made to go a dozen paces at a square walk. The groom may know very well that the horse is a poor walker, and when he is sent out at a walk he goes through a caper or two and then trots. Such a sire will get poor walkers just as surely as he will pass to his progeny his good points. For the draught horse the walk is the most important pace, and it should be carefully considered by the judge. Some Hackneys that have good front action are poor walkers, but this is not so common.



The Clydesdale mare, Edith Plantagenet,
The property of Lords A. & L. Cecil, Orchardmains, Kent, England.

Some of the standard-bred trotters are miserable walkers. For racing records, of course, walking is not needed; but for the thousands of standard-bred horses that have to be used on the road, walking is a most important pace. Some Thoroughbreds are excellent walkers, and it has been remarked that a good walker, one that moves over the ground with a free, elastic stride, is invariably a good galloper. In fact, some of the buyers of fast yearlings always judge them by their appearance at the walk. All our horses should have more attention given to their walking in the show ring, and the animal that walks well should be given credit for it. Our shows are over for this year, but it is a point that should be always before our breeders in selecting sires.

American and Canadian Horses in England.

During the past few months several large consignments of American and Canadian horses have been sent to London, and these have, as a rule, met with a ready sale. Commenting on these horses a London paper says: "The animals which have been sent are not at all discreditable to a young and rising country. The sires which were so freely exported from our shores ten years ago have vastly improved the live-stock resources beyond the Atlantic, and the result of it all is that our horse markets to-day are crowded with a supply which much exceeds the demand. It is yet too early to pass a decided opinion on the future of this trade, as the horses have not had sufficient trial to be favorably spoken of or condemned. The 'bus companies have proved the foreigners' best customers, and they are reticent of expressing any definite opinion regarding the wearing qualities of the imported horses. The great difficulty which has to be encountered in patronizing animals of foreign extraction is their acclimatization. Generally speaking, the companies merely look on their purchases in the light of experiment; but, should they turn out well, the American will have no reason to regret the thousands of pounds he spent in procuring the flower of our studs."

Breeding Mares.

Selecting mares for breeding requires a good deal of care. A young farmer intending to breed light horses should select three or four

mares of the type he fancies. They should be strong-limbed, strong-backed, sound, and clean-legged, with good free action. Thick, roomy, short-legged animals are better than long-legged ones which are deficient in heart room and have flat ribs. Get them of one type, and as nearly as possible of one color, and, if closely related in breeding, so much the better. They should be strong enough to do the farm work, and, by arranging times of foaling, a working team will always be available; even when all the mares are breeding. Select a first-class stallion, and do not spare trouble or extra expense in getting the best available. Breed will be a matter of choice, but breed to a purebred of a good recognized breed. For a first cross on a good active mare the Thoroughbred gives good results. Your foals should come a good deal alike. Some may be big enough to make splendid carriage horses, others good saddlers. Some of the very best horses in Canada have been bred in this way, and when the mares are well selected, a succession of foals have been got much alike in color, form, and style. Some of the fillies will themselves make excellent brood-mares from which to get the valuable high-steppers, which now command big prices in the large cities.

Hunters.

"A head like a snake, and a skin like a mouse;
An eye like a woman, bright, gentle, and brown;
With loins and a back that would carry a house,
And quarters to lift him smack over a town."
—Whyte Melville.

Such was the description of a hunter drawn by a master-hand, the late lamented sporting novelist and gentleman, Major Whyte Melville. Hunters are all bred with a deal of good Thoroughbred blood. Pure Thoroughbreds are usually too light to carry much weight; about 160 to 170 pounds is their limit. For heavier weights half-breds are better. For level country, where the pace is usually fast and the jumps light, hunters three-quarters bred or even seven-eighths are useful; but where fences are high and jumps heavy, strong, half-bred animals are found to be most suitable. Where the pace is very fast and the jumps are over water, the speedy Thoroughbred does very well, and is the favorite animal for the work. For high jumping over stiff timber the half-bred is the best. In any case the hunter should have a good free use of his legs, and be able to go fast over rough ground without

making a stumble. Early training has, therefore, much to do with making a good hunter. The Thoroughbred is usually exercised over smooth, level ground, and is raced over courses perfectly kept and almost as smooth as a table. He is seldom as trusty in the hunting field as the half-bred, which, as a colt, has been accustomed to run over rough and broken ground, picking his way carefully and safely.

The hunter should be in height from fifteen to sixteen and a half hands. In fact, fifteen hands is rather near the pony size to look well in the hunting field, though some short-legged strong horses make excellent hunters. The bigger sizes able to carry weight are most desirable, and when they are otherwise right bring the best prices. Regarding the points of a hunter, he should have, first, a good oblique shoulder blade. This formation stands best the shock of jumping and landing over a high fence with a man on his back. The shoulder should be well covered with muscle, and the forearm strong and powerful. The next most important point is the hindquarters. Straight quarters are not the best. Strong, powerful quarters, with a droop at the croup and wide hips, are desirable. Large, muscular thighs are needed for the propelling power required in the hunter. The hocks should be well bent, and below the hocks and knees the bones should be wide, flat, and flinty, the tendons strong and clean. Pasterns should be nicely sloped and of moderate length, with good, large, well-shaped feet. The heart-girth should be good, breast wide, back and loins strong, and the barrel well ribbed home to the hips. He should have a good thick middle and a deep rib. In the field the hunter has often to go long distances without feeding, and needs a good middle to stand it.

Here in America there are but few hunt clubs, and the saddle is not as much used as it should be by the average American. This type of horse, bred from a Thoroughbred sire and a good type of mare, is one that sells well to dealers. Bred on these lines an animal is produced that is able, while young, to assist in the light work of the farm, and then bring a good price to the farmer. Some of the best and most useful horses in Canada are half-bred, and this type often makes an excellent carriage horse. Breeding good ones on these lines is still a paying venture for the farmer.



Skin Disease.

C. S.: I have a stallion that bites his sides as close to his hind legs as he possibly can; has been doing so for about a month. He is in fairly good order, eats and drinks well; is fed on hay and bran twice a week.

Ans.—The trouble probably arises from some skin disease irritating the parts. Thoroughly scrub the part with strong soap-suds, and then apply a solution of bichloride (1 part to 2,000 of water). The low diet ought to be all right for him. On his bran twice a week give him a two-ounce dose of powdered solution of arsenic.

Trotting Harness.

A. B.: What is the best trotting harness?

Ans.—Great improvements have been made in trotting harness. Breast collars and breeching have been discarded by some, and a harness has been arranged to give the horse the greatest amount of freedom. The veteran driver, John Splan, one of the foremost and most expert drivers, introduced many improvements in this direction.

Quarter Crack.

R. G., Goderich: Please inform me if it is possible to thoroughly cure a young horse five years old of quarter crack? Is there any better treatment than firing, keeping the feet well oiled, and turning out to pasture for five or six months?

Ans.—It is possible to thoroughly cure quarter crack. The treatment named will do, but you must make some provision by which the crack is kept so firmly closed that it will not open and shut with each step. Clamps that can be tightened with a strong set screw are good, or sometimes a good bar shoe will do this. Different parts of the hoof require different treatment.



Conducted by "STOCKMAN."

THE steamer *Scotsman* carried another record cargo from Montreal last month, to Liverpool, consisting of 798 cattle, 5,346 sheep, and 10 horses.

THE well-known Arthington herd of Herefords was sold recently near Leeds, Yorkshire. Nineteen head brought an average of \$106. They were good animals, well brought out.

BUSHY BETTY, a red polled cow six years old, the property of Mr. Alfred J. Smith, Rendlesham, Ipswich, Suffolk, England, has a milking record for the season of 10,574 lbs., or over a thousand gallons per year.

THE sale of the Shorthorn herd of Mr. George Inglis, Invergordon, brought out a good many buyers, but prices were low. The two-year-old heifer, Lady Underley 1st, brought \$300. Forty-eight head averaged \$87.

THE Stapleton Castle Herefords were recently sold by auction: There was a large and representative gathering, but the prices realized were low. The highest priced cow brought \$155. The average for forty-nine head was \$70.

THERE is a demand for purebred stock even from the West Indies. The steamship *Spheroid* sailed from London, England, last month, with a Shorthorn bull bred by Lord Sherborne, a Southdown ram lamb from Mr. George Hampton's flock, and an Oxford Down lamb bred by Mr. George Adams. They are all for Dominica.

NEW ZEALAND is now trying to join other countries in the business of shipping live cattle to Great Britain. Referring to this the English *Live Stock Journal* says: "If New Zealand cattle are free from pleuro-pneumonia, as they are represented to be, they would doubtless have a claim to be admitted to our inland markets as stores. But they could only be sent here as such in a ship which had

not called at an Australian port, and which subsequently had not called at any other port, whether in South America, Africa, Asia, or Europe. In other words, they would have to be sent direct to a British port without touching anywhere for coal or water." With these restrictions on shipping, it is not likely that any such shipments will be made.

AN important sale of Galloway cattle took place lately at the Castlemilk Home Farm, when fifty head, the property of Sir Robert Jardine, were sold. The highest price of the sale was paid by Mr. Parkin Moore for the yearling heifer, Lady Isabella Douglas, \$250. Another yearling, Dainty 2nd, brought \$240. The two-year-old heifer, Victoria 2nd, was bought by Col. Townley Parker for \$220. Twenty cows averaged \$98. Two-year-old heifers averaged \$149. The prices were considered quite satisfactory.

THERE have been a number of sales of Jerseys in Great Britain lately. A draft from an old established herd of the stock of the Duke of Richmond and the late Col. Cavendish was sold. Fifty head out of a herd of 250 were put under the hammer; the highest price paid was by Hon. G. Lascelles, \$125. The average of the sale was rather under \$90. They were all young animals in milk, or promising milkers. Another sale at Plumpton of seventeen head, owned by Mr. Pope, brought an average of \$104 for cows, and rather over that for bulls, two going for \$200 each.

MESSRS. GORDON & IRONSIDES, Winnipeg, have shipped over 30,000 head of cattle from Manitoba and the Northwest provinces to Great Britain this season. The cattle are said to have arrived in good condition on the other side. The Canadian Pacific Railway officials report that, in all, 40,000 head of cattle have passed over their road from the Northwest this season, up to the beginning of last month, and they expect to increase this number by 10,000 before the close of the season.

THE *London Live Stock Journal* reports that Mr. H. Theodore Cookson, Sturford Mead, near Warminster, Eng., has just purchased the fine Shorthorn bull, Count William, from his breeder, Mr. J. Deane Willis, Bapton Manor. This bull is about thirteen months old, and is almost a full brother to Miranda, the champion female of 1895. In his color and shape he very much resembles his sire, Count Lavender, although he promises to be of a somewhat larger type. The correspondent of the *Live Stock Journal* says that Mr. Cookson has a beautiful lot of heifers by Scottish Canadian, a rich red Cruickshank bull that Mr. Cookson imported from Canada a few years ago through Mr. Robert Bruce. Scottish Canadian was bred by the Hon. John Dryden, Minister of Agriculture for Ontario, and was sired by his noted stock bull, Sussex (imp.), and out of a Cruickshank Clipper cow bred at Maple Shade, whose sire was Vensgarth (imp.). It is gratifying to see a Canadian-bred bull receiving such honorable mention in the home of Shorthorns.

A GOOD CROSS.—The winner of the champion milking prize in the late London, Eng., Dairy Show was a crossbred cow, Nelly, by a Shorthorn sire out of an Ayrshire dam, a very popular cross in some parts of Scotland. In color she is dark brown and gray, and she was bred and exhibited by Mr. John Holm, Waterend, Ongar, Essex. She won first for conformation, and also first in the milking trials for crossbreds. She was credited with 139.8 points, and, this being more than any other cow made, she was awarded the championship for the show over all breeds and crosses. The milk yielded by her in the two mornings' milkings weighed 70.5 lb., and 66.1 lb. for the two evenings' milkings. She is now seven years old.

THE MOBERLEY SHORTHORN SALE.—Fair prices were realized for the best lots of cattle at this sale. The champion Young Abbotsburn was bought by Mr. Wallace, Bunceton, Mo., for \$475. The Corker went to T. R. Westrope & Son, Harlan, Iowa, at \$500. E. B. Mitchell & Son, Danvers, Ill., bought Princess Alice at \$300, and the Cupbearer cow, Gwendoline 2nd, at \$400. Mr. Westrope was the buyer of 7th Linwood Golden Drop at \$355, and Mr. Wallace, Bunceton, secured 34th Duchess of Gloster and Rose Chief for \$350 apiece. Messrs. Robbins, Horace, Ind., paid \$185 for Marie Bell.

SIR GEORGE MACPHERSON GRANT, Ballindalloch, Scotland, has had the misfortune to lose his celebrated Aberdeen-Angus bull, Prince Inca 7844, through an attack of liver complaint. This well-known bull, a son of the renowned Iliad, out of the Pride cow, Pride of Invereskie 7059, has had a brilliant career, which included the championships at the Highland Society's shows of 1892 and 1895. Among his progeny are Colonel Smith-Grant's champion bull, Equestrian; Her Majesty the Queen's champion heifer of 1894, Gentian of Ballindalloch; and the beautiful yearling, Mantlet, successfully exhibited by Sir George Macpherson Grant at this season's shows.

THE O.A.C. ANNUAL SALE.—The seventh annual sale of purebred stock from the Ontario Agricultural College was held on October 30th. There was a good attendance of buyers from the surrounding localities, but prices ruled low for everything except poultry, which sold well. Among the stock sold were a Shorthorn and a Hereford bull calf, two Galloway, two Ayrshire, and three Sussex heifer calves, a number of Yorkshire, Berkshire, Tamworth, and Chester White swine, and Cotswold, Lincoln, Leicester, Southdown, Suffolk, Dorset Horn, and Oxford Down sheep.

Some Don'ts.

Don't forget to nail the loose boards on your stables. Your cattle will appreciate your attentions.

Don't retire to bed without seeing that your cattle are comfortable for the night. They cannot thank you in words, but they will in other ways.

Don't expect your cattle to get fat and give plenty of milk on straw alone. Feed them as you would yourself, when you have plenty of work to do.

Don't turn your cattle out to roam over the meadows in order to save a feed in the barn. What little grass is there will help to protect the tender roots through the winter's cold, and the poaching by the cattle's feet will do more damage to the field than what you will save in feed by turning them out to roam.

Don't forget to use the curry comb and brush on the cattle at least once a week, and oftener, if possible. The cattle enjoy it, and thrive better when it is done, and lice have less opportunity of flourishing on them.

When milch cows are groomed regularly, there will be less hairs and dirt to fall into the milk pail, and, consequently, fewer bacteria to injure the milk.

Don't put off for a day attending to such cattle as have lice on them. A day's delay often means a large increase in the number of eggs laid, or of young lice hatched out. Dress the cattle promptly with whatever wash or treatment you prefer, and don't let the lice get the start of you.

Don't stint the cattle in bedding, if you can possibly avoid it. A well-bedded stall or box gives comfort to an animal, and keeps it clean. When an animal is comfortable, then it will thrive, and make the best use of its food.

Don't let the cattle stand out in the yard on cold days till they shiver. A little exercise will not hurt them, but on very cold days they should not be left out long.

Don't force your cattle to go a quarter of a mile to a creek to get water in the winter time solely in order to save yourself the trouble of pumping water for them. If you watch them, you will see that on cold days very few of them will trouble to go to the creek for water, preferring to do without sooner than face the cold blasts. If you have many cattle, and pumping is laborious work, it will pay you to get a windmill to do this for you.

Don't forget to put a lump of rock or some common salt in the mangers of your cattle. The former is best, as there is no waste with it, and it is always there for the cattle to lick it when they wish.

Controlling the Sex.

For many years breeders have been experimenting to see if it were possible to so regulate matters as to cause mares, cows, and ewes to bring forth young of the sex that their owners desired. From time to time we hear statements that such a one has been successful and is able to control the sex of his young animals, but investigation proves the hollowness of his claims. Sometimes, indeed, a man who has been thus experimenting seems to have obtained his desire. We will suppose that he has been desirous of getting mostly heifer calves, and that during one year most of his cows have presented him with heifer calves. He will, of course, claim that this has taken place through his agency, and he probably means what he says. Next year,

however, his cows all present him with bull calves, although he may be just as anxious as ever for heifers. In this instance we are not informed of the failure of his calculations.

Occasionally we hear of cows that seem to devote themselves to bringing forth calves of one or the other sex to the exclusion of the other, but even in such cases, when we have set the animals down as not likely to change from their apparently set method of breeding, we are often confounded by their turning a new leaf and, from that time on, reproducing themselves in the opposite sex. Sometimes this seems to be caused by a change of bulls, but not infrequently it happens when they have been bred to the same animal as the time before. It has been noticed, too, that a bull which has had the reputation of siring mostly bull calves will during certain years sire chiefly heifers.

This breeding problem is full of uncertainties, and it is certain that breeders do not understand it, however much certain of them may claim that they can regulate it to suit their own wishes. It seems likely that it will ever remain a mystery.

Old Bulls vs. Young.

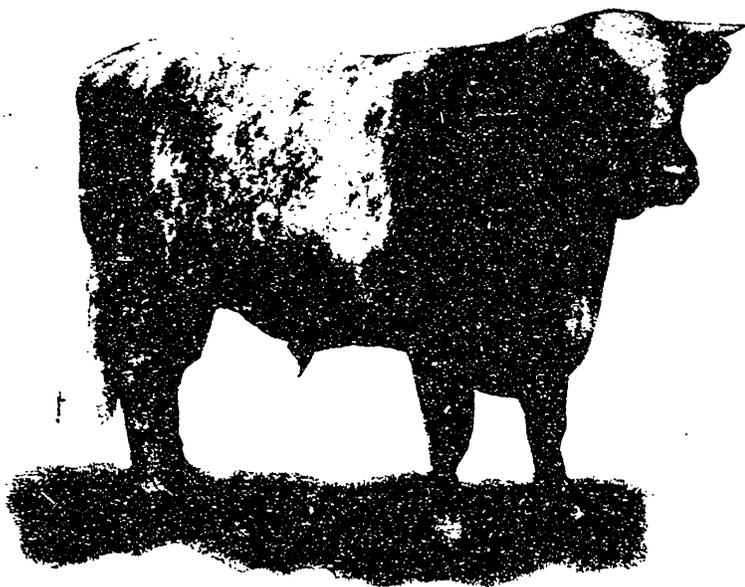
Fully ninety-five per cent. of breeders in this country, when looking for bulls wherewith to head their herds, confine their attention solely to those ranging from ten to eighteen months old. It is very hard, indeed, to get the majority of breeders in quest of sires to look at old bulls for sale. They say that they do not want them; that they must have young bulls, or they will go elsewhere to buy.

In many cases, if asked the reason for this preference for young bulls, they cannot give a satisfactory one, but they excuse themselves by saying that they are following the methods employed by other breeders. The reasons given by some, however, are that "they have so many young heifers to breed that they fear to use a heavy male on them"; that "an old bull is lazy, and will not serve as many cows as a young one"; that "many of these old bulls have been pampered in their youth, and are, consequently, unreliable and unsatisfactory when tried"; and that "a younger bull retains his usefulness for a greater length of time."

These and other reasons can often be truthfully urged against the purchase of a more matured sire to head the herd. They do not

hold good, however, in every case. We not infrequently hear of bulls, which have worthily headed herds for some time, that have had to be sold to the butcher for want of breeders with sufficient "go" in them to come forward and purchase them for use in their herds; although their owners would never have thought of disposing of them had it not been that the large number of their offspring in the herd had necessitated the step, so as to secure change of blood and to prevent inbreeding, while the small size of the herd, for economical reasons, debarred the owner from keeping more than one sire in his stables at the same time. There are many occasions when such sacrifices have to be made, and the country is

the following: The buyer has the advantage of being able to see the calves by him out of cows varying, probably, considerably in type, and can thus see whether the bull is likely to nick well with the cows of his own herd. He can also see these young stock for three or more years back, and is thus in a better position to judge how the stock matures, as some bulls throw good-looking calves that, later on, do not develop as they promised to do when young. These two points are very important ones, and fully justify a buyer in pausing before he refuses to buy an aged bull in preference to a yearling. There are other advantages that could be named, such as the capabilities of the bull for service, and his sureness.



The Shorthorn Bull, Pride of Morning.

The property of Mr. Wm. Duthie, Collynie, Scotland.

thus deprived of the services of a valuable sire while he is, so to speak, in his prime. There is certainly room for a change in this respect in many instances. In Great Britain age is no bar to a bull's merit. In some cases they are used up to fourteen years of age or more, and some of the best calves sired by them have been dropped when the sires were well on in years. Some notable instances were given in the paper last month in this department by an English Shorthorn breeder, Mr. C. Morgan Richardson, and, nearer home, we have Messrs. Watts' Barmpton Hero, Mr. A. Johnston's Indian Chief, and several others.

Among the many advantages which attend the purchase of an old and well-tried sire are

In this latter respect, especially, a well-tried bull is surely preferable to a young one that has yet to show whether he turns out to be a getter of stock or not.

The Shorthorn Bull, Pride of Morning.

The herd of Shorthorns owned by Mr. Wm. Duthie, Collynie, Aberdeenshire, Scotland, is, without doubt, the leading herd in Scotland, if not in the whole of Great Britain. The recent sale of bull calves from this herd, reported in our last issue, has tended to further increase, if possible, the fame which it

enjoys among breeders all over the world, owing to the high prices obtained, including, as they did, the record price of 235 guineas, the highest ever paid for a Shorthorn bull calf eight months old.

In our August issue, we furnished our readers with an illustration of William of Orange, one of the stock bulls kept at Collynie, and, in this issue, we are enabled to give them one of another celebrated sire bred by Mr. Duthie. This is Pride of the Morning 64546, by Star of Morning 58189, from Patience, by Dr. A. Duff 46167. The photograph of this bull was taken over a year ago, when he was two years old, and, therefore, does not show him to the best advantage as fully developed. At the Aberdeen Show of the Highland and Agricultural Society of Scotland he was not only first in his class, but also won the Duke of York's medal as the best specimen of the breed exhibited. He had previously won the Shorthorn Society's special prize at the Jubilee Show of the Royal Northern Agricultural Society at Aberdeen, in 1893. Pride of Morning is a particularly well-shaped bull, having good shoulders, well-filled front, an admirable loin and deep quarters, and he is all over thickly covered with flesh of fine quality. At the recent sale, referred to above, two of his calves, Staff Officer and Morning's Pride, sold for 165 and 150 guineas respectively, thus proving that he can transmit many of his excellent points to his offspring.

Ergotism.

Almost every spring we hear accounts of cattle dying of a strange disease in some parts of the country, and investigation reveals the fact that they are the victims of ergotism, through feeding on meadow hay covered with ergot. The disease is not a common one, but, in one or two instances, cattle on neighboring farms have been affected by it, which has caused their owners, who were ignorant of the cause, to think that the disease was an infectious one.

The Iowa Experiment Station devoted some attention to the study of ergotism in 1892. It would seem to be more prevalent in that State than in others, and also more deadly in its course. On one farm, out of fifty head of cattle, nineteen died, and thirteen more were affected, while the whole herd

was in a sorry condition. The crippled condition of the affected individuals showed itself in the loss of hoofs, toes, and, in several instances, of one or more feet entirely. In some of the cases the symptoms were more of a constitutional type, unaccompanied by any loss of the extremities.

Where loss of hoofs, feet, and toes does not occur, symptoms such as the following will be noticed: Emaciation, faulty digestion, nervousness, and, eventually, loss of voluntary motion. These are sure signs that ergotism is the cause of the trouble, and the patient should be treated accordingly.

Now, as to the cause of ergotism. In nearly every instance it can be traced to the feeding of wild or meadow hay cut off low bottom lands. This wild hay is generally cut late, after the upland hay crop is secured, and at a time when, as frequently happens, there is considerable ergot on the heads; where wild rye is growing, too, the amount of ergot in the grain is oftentimes very pronounced. This hay gets stored away in a back shed, or is covered over by straw at threshing time, and so is, on some farms, not used till near the end of the winter or the beginning of spring, when the good hay is pretty well fed out. This accounts for so many attacks of ergotism coming on in early spring.

As in other diseases, preventive measures are best for ergotism. When low meadows are cut for hay, they should be cut early. When thus cut, the fungus, as a rule, has not developed sufficiently to be a source of danger. Before cutting, however, an examination should be made of the grass to see if much ergot is present. There will be no difficulty in recognizing the black or dark brown mass that protrudes from the seed husk, and which is nearly always larger than the normal grain of the plant. If there is much on the grass heads, it will be safest to refrain from cutting the meadow, and, when fully ripe, it would be well to let fire run over it, to burn as much as possible of the grass heads.

The only remedy available for ergotism is to stop using the meadow hay, and to give, instead, good stimulating food. This will be more satisfactory than dosing. If there are any sores on the animals, they must be dressed with antiseptic lotions. In cases where the feet have dropped off, it will be better, both from a humane as well as a pecuniary point of view, to destroy the animal at once.

FOR FARMING.

Warts.

I noticed in the last number of FARMING that sulphuric acid was recommended for removing warts. It is good, but I prefer sulphur. Two years ago last spring a fine Ayrshire heifer of mine had three or four little warts round her eye. When she came into the barn in the fall the warts had grown very big, and they had increased in number right on the eyelid, some of them affecting the heifer's sight. I did not like to use sulphuric acid, so took a piece of rag, wet it and dipped it in dry sulphur, and rubbed the warts with it once a day. In a month's time they were gone, and the heifer is now one of my best cows, and has not a trace of a wart on her. My son also had a big wart on his wrist that was treated with sulphur, and it, too, disappeared.

DENIS D. LEGER.

FOX CREEK, MONCTON, N.B.

FOR FARMING.

Overfeeding of Show Stock.

I was pleased to see Mr. Sibbald's letter in your last issue on the overfeeding of show stock, and hope that some steps may be taken to remedy what I consider a great mistake on the part of the breeders of purebred stock of the beef breeds. The question is also receiving attention in Great Britain, as the following clipping from the London *Morning Post* will show:

"The overfeeding of pedigree stock for the showyard is roundly condemned on all hands, but up till the present little has been done to stem the tide of this evil. It is satisfactory to find that breeders have at last had the courage to openly speak their minds on the question. Too long has it been a reproach to our common sense and reputed level-headedness that in a showyard professedly organized with the object of encouraging pure breeding we were openly doing our best to counteract the good influences of healthy rivalry by encouraging overfeeding. The evil complained of has been freely discussed, and at last we are within measurable distance of securing its overthrow. The Yorkshire Agricultural Society have remitted the matter to a committee with a view to steps being taken to check this growing habit. There is no lack of testimony, if it were necessary, to prove the disastrous effects which follow overfeeding in the breeding herd. Many of the finest animals of the day

have been irrevocably impaired for stud purposes by the folly which led their owners to feed them as if for the fat market. The fat stock shows and the summer shows exist for different purposes. The one may lead up to the other, but in the matter of feeding they have nothing whatever in common. It is sincerely hoped that the excellent lead given by the Yorkshire Society will be followed by other leading societies throughout the kingdom."

I hope that this question will be taken up and dealt with in the manner that will best tend to the interests of those concerned.

SUBSCRIBER.

**Quarantine on Stock.**

A. & C. D. W. Starks, Me. : Has breeding stock brought from Canada to Maine to be quarantined, and is there any duty on such?

ANS.—Cattle are subject to ninety days' quarantine, but sheep do not have to undergo it. There is no duty on purebred stock brought into the United States from Canada for breeding purposes, but they must first be registered in American records.

Foul in the Foot.

R. C., St. Thomas : A two-year-old heifer is very lame, and there seems to be much soreness between the claws. She first seemed to be lame after she had walked through a muddy place in our river flats. What is the best method of treating her?

ANS.—She is suffering from what is known as "foul in the foot," caused, probably, by a dried lump of mud having lodged between the claws and created inflammation. Bathe the foot in warm water, especially between the claws, and see if any matter has formed. If there is much dirt between the claws, take a strip of rag or thin rope and draw through backwards and forwards till all dirt is removed. If the inflammation has not advanced far, three or four applications of butter of antimony, or of a solution of carbolic acid, will probably be all that is required. If pus has formed, it is sometimes necessary to remove some of the horn of the hoof to permit of its escape. The feet should be dressed every day, and, in bad cases, poultices should be applied to draw out the pus.



Conducted by "JASON."

It is stated by an authority on sheep that sheep weighing fifteen or sixteen pounds to the quarter when fat will give the best returns to their feeders. At that weight they bring good figures and eat less than bigger sheep. Sir J. B. Lawes says that three sheep weighing 100 pounds each will consume the same quantity of food as two sheep of 150 pounds each.

AUSTRALIA reports 119,000,000 sheep in 1894, a considerable decrease from 1892, for which year the official reports gave 124,983,100. The first sheep went to New South Wales in 1787, and all died but one animal. In 1801 there were 6,757, of which the greater part were poor specimens of Cape and Indian breeds, but that year there came 100 Spanish merinos, and from these the great bulk of the present stock are descended.

THERE have been some very large sales of wool recently held in England. There is a brisk demand, and sales have been at an advance on summer prices. Oxford Down sold for 21c. to 21½c. The top price for Shropshire down was 22½c. Two lots of Sussex (Southdown) sold for 22c., while Cotswold brought 22½c., and was in brisk demand. Unwashed sold for 15c. to 17½c. These prices show that the long wools are in active demand again.

IN Canada the prospects for the sheep trade are good. The demand this fall for rams for the Western States has been fairly active, and although prices have not been large, there has been a good demand. For the next year the prospects are that shearing long-woolled rams will be in very active demand, and that they will be scarce. As regards Cotswolds, especially, the country has been well cleared of all surplus rams, and a large number of ram lambs have also been bought for America demands.

THERE has been a wonderful increase in the shipments of sheep and mutton into Britain in 1895. This increase has been

greatest from the United States and the Argentine. In 1893, from January to September, there were no sheep sent from the United States. During the same time in 1895, 321,892 were sent, and very good sheep some of them were. From the Argentine Republic in 1893 came 20,192 sheep and 256,365 head in 1895. The trade in mutton has also increased quite 50 per cent. during the past year, and, in spite of the great increase, the price of sheep has been quite high the past few months. If the trade increased in the same proportion for next year, 1896 will find six and a quarter millions of sheep live and dead sent to Britain.

Carrying Over Ram Lambs.

Breeders of purebreds usually aim to sell their ram lambs in the fall. This they can do, as a rule, providing the lambs have sufficient development. But, even under the best of management, some of the lambs will lack full development; that is to say, they are not likely to be so far developed as to readily catch the eye of a buyer. Even so, such animals should not be sacrificed. It may be that some were twins; others may not have been nursed in the best form by the dams, and yet others may have been dropped late. Many of these may yet develop into fine rams, and they should be given the chance. They should be carried over and sold as shearlings whenever they have the promise of fair possibilities of development. Of course, when they are not of this character, they should be castrated without any hesitation. It would be in the interests of sheep husbandry if there were not so many lambs used as sires. They should be allowed to get nearer maturity before introducing them into flocks for service. There can be no question of the fact that rams in the meridian of vigor should prove better sires than those which are immature. As soon as breeders understand this question properly, there will be fewer ram lambs bought for breeding uses. Stock rams will come to be purchased more and more in the shearling form.

Western Competition.

We have now a brisk trade with Britain in sheep. We should try to keep it, and in order to do so every care will have to be given to our methods. The western farmer is entering this race, and, notwithstanding his greater distance from the market, some things count strongly in his favor. He has cheaper lands, and more room on them for the multiplication of his flocks. He has richer lands without any doubt, and this enables him to grow food cheaply and in great abundance. And he can buy foods at a very low rate. He can also buy range stock very cheaply, and these answer fairly well for feeders. But range stock are not equal to those which our farmers can grow. In this we have an advantage. But the western farmer with the increase of knowledge will also grow better grades, and in proportion as he does he will hamper us in this branch of live-stock husbandry. He can send his finished product to the same market as that which takes so many animals from us at the present time. The reference is to the British market. And he certainly finds a better market in his own country. The growers of sheep will do well, therefore, to look well to their methods. Good stock, careful breeding, wise management, and careful attention to all details should be observed by every one engaged in the business. If these things receive close attention, we can still lead in the race with the westerner, as he is sadly handicapped as yet by want of quality in the sheep which he must needs handle. The best has always a great advantage in any market.

A Champion Pen of Southdown Ewes.

Our main plate illustration this month is a very life-like one of a pen of flock ewes belonging to The Pagham Harbor Company, Selsey, Chichester, England, which won first prize and the championship for pen of ewes at the East Sussex Lean Stock Show. These sheep were taken direct from the flock without any showyard preparation, and competed against all the leading Sussex flocks. They are a grand pen, full of true and typical Southdown character, and were greatly admired. The Pagham Harbor Company has had a tremendous demand for all kinds of rams and ewes of late, and it is rapidly becoming one of the leading flocks in Great Britain. Sheep from

this flock shown at several of the state fairs this year in the United States by Messrs. McKerrow and G. Allen have been very successful.

Sheep Raising in Minnesota.

The low price paid for wool during recent years has affected the sheep industry adversely in Minnesota, as in all the states of the Union. As a result, not a few of those who at one time carried on their business on what may be termed the extensive system have gone out of it altogether. It is at least questionable if as many sheep are now raised in the state as in former years.

The country is, however, most admirably adapted to sheep husbandry. It has an exceedingly fertile soil, except in some few counties north of the centre of the state, where the jack pine flourishes. The jack pine and light sandy land are closely wedded in our state. The rich soil will grow summer pastures to any extent that may be desired when these are sown. And it will grow winter fodder crops that are simply immense. But the native grasses do not equal those of Ontario for sheep.

The contour of the land is admirably suitable for sheep husbandry. The bluffs in the Mississippi counties, and, indeed, along nearly all the rivers, furnish excellent grazing grounds in summer, and the wide prairies which everywhere abound grow food so abundantly for winter use that it is never dear. Those farms which are located on or near the rivers make most excellent sheep farms. The land on these is dry, and of varied conformation. Deep valleys intersect the hills. They extend backward from the rivers for long distances in many places. These valleys are not usually of great width; hence they furnish fine grazing grounds for sheep in winter, when the snow fails to hide the cured grass. The sketch on page 217 shows a flock of Shropshire sheep grazing on one of those farms. It is known as the Zumbro Stock Farm, and was so named from the river which runs along through the valley toward the Mississippi. It is located in Olmsted county, in southeastern Minnesota, and is owned by J. W. Boynton, of Rochester. This is one of the largest flocks of purebreds in the state, the normal average in it being fully 300 the year round.

The climate of the state is, in a sense, the sheepman's paradise. The winters are cold, but they are delightfully clear and bracing.

There is bright sunshine nearly every day. The temperatures are low, but sheep do not mind low temperatures when they are protected from the winds of the prairie. There may be blizzards, but they are infrequent. I have not yet witnessed a real blizzard since coming to Minnesota, although there have been some cold storms. There are some cold rains in the spring. From these the sheep need protection, and sometimes the same holds true of autumn weather, but not always. The summer heat is sometimes greater than in Ontario, but the hot spells are not usually of long duration, and the nights are cool—so cool as to unduly prolong, in some seasons, the ripening of the corn. Except in very exceptional years, sheep can be pastured until the Christmas season, and in the southern part of the state they can leave the yards in the latter part of March, at least during the day.

Water is usually plentiful, although during recent years some inconvenience has been felt in limited sections. But, generally speaking, water is plentiful and pure. The seven thousand lakes of Minnesota have water beautifully pure, notwithstanding that many of them have no visible outlet.

Sheep are but little liable to disease, as would naturally be inferred from what has been said about the bright nature of the climate and the purity of the water. Sometimes, but not often, sheep scab is brought in with sheep from the ranges. Now and then grub in the head puts in its deadly work. But, on the whole, sheep are remarkably healthy in all parts of the state.

There are some hindrances to sheep husbandry. These include the presence of wolves and dogs. Fences and shelter are wanting on the prairies. And market relations between buyer and seller are not yet well adjusted. But the greatest hindrance to sheep husbandry at the present time is the extent to which an overwhelming majority of the farmers are engaged in growing grain.

The coyote will, in time, be driven from his hiding places. The useless dog will not prevail to so great an extent when nature's hunting grounds in the north are turned into fruitful farms. Some day many of the farms of the prairie will be fenced, and shelter will be furnished where it does not now exist. This is a young country, and as soon as sheep of a good quality are reared in any considerable numbers in a neighborhood, markets will adjust themselves, as they invariably do.

But the genius of the farmers may not be so

quickly turned in the direction of sheep husbandry. Many of them have had no experience in growing sheep, and men are not easily impressed with the claims made on behalf of any industry of which they have had little or no previous knowledge. However, the educational influences now at work within the state will, no doubt, have an influence in turning the attention of the farmers to the study of the question of sheep husbandry.

Minnesota is happily situated for breeding certain lines of purebred sheep. The great ranges to the west, as, for instance, those of North and South Dakota and Montana, want purebred sires, and the ranchmen come eastward for them. If they could get them in Minnesota they would not go further eastward for them, but they are not to be had in large numbers in our state. Here there is a widely open door.

The fattening of sheep should prove remunerative in Minnesota. Last winter those fed at our experiment station brought 6 cents per pound, live weight, in the Chicago market, but it was said of them that they were a well-finished lot. If even 5 cents can be got next spring, sheep-feeding should pay well the coming winter. Oats can now be had in some parts of the state at 15 cents a bushel, barley at 20 cents, and corn at 25 cents, and native hay is not dear. With a good quality of lambs, feeding sheep should pay very well when foods are so very cheap. But lambs of first quality are not very plentiful. Herein lies a difficulty that time only can remove.

Sheep husbandry is gaining ground in the state at the present time. There is a stiffening of values, and it is material. Little flocks are being introduced, and this is as it ought to be. When a large percentage of the farmers set to work to raise sheep, the aggregate of these will be very large in the state.

THOS. SHAW.

University State Farm,
St. Anthony Park, Minn.

Suffolk Sheep Sales.

FOR FARMING :

Allow me to point out that in "Notes from England," in your October number, your correspondent fails to do justice to the sales of Suffolk sheep, which have been fully reported in the English journals.

With your permission I will supply fuller particulars, as the prices realized for ewes and ram lambs compare favorably with the records



A Flock of Shropshire Sheep
Owned by the Zumbro Stock Farm, Minnesota.

of any other breeds. It must be borne in mind that 85 per cent. of the sires used by our breeders are ram lambs, and that fully nine-tenths of the rams offered at the public sales are lambs of five to seven months of age.

The season commenced with a breeders' sale, confined to the produce of registered flocks only, at Ipswich, on Aug. 9th, when 1,000 shearing ewes averaged \$15 per head, the top price for a pen of 20 being \$21.25. Ram lambs sold up to \$181.25 each, breeders' averages ranging from \$67 (Mr. Joseph Smith), and \$60.25 (Mr. J. W. Eagle) downwards, with many between \$50 and \$30, the average for upwards of 300 ram lambs being \$37.

At the Earl of Ellesmere's annual sale on Aug. 12th, 112 shearing ewes made an average price of \$17, and 55 ram lambs averaged \$56.50 per head with a top price of \$220.50.

At the Newmarket annual sale on Aug. 16th, 1,000 shearing ewes averaged \$15.30, the highest for a pen of 20 being \$20 per head, and ram lambs made up to \$84.

In September some hundreds of ram lambs fetched from \$85 to \$20 a piece, and shearing ewes ran to \$18.

These black-faced, hornless sheep are bound to make their home freely in the Dominion as soon as your breeders realize that the highest quality of mutton must be the chief aim of the sheepbreeder for the future. The Canadian sheep now imported into this country would be worth dollars per head more if their features were only darkened by a strong dash of Suffolk blood. Well-grazed young Suffolk wethers, eight to nine months old, are now being marketed at from \$13 to \$18 per head, and will range at \$15 throughout the winter.

The prolific character of the breed is evidenced by the returns made annually by the members of the Suffolk Sheep Society, showing an eight years' average of 132.06 lambs, per 100 ewes, as reared to June 1st. Suffolk sheep are exceptionally hardy, large numbers being bred in the counties of Norfolk and Suffolk on the vast tracts of sand and heath, exposed during winter and spring to the cold blasts sweeping in from the North Sea, and compelled to travel far for a scanty bite when every green thing is scorched and dried by summer heat and drought.

Only Suffolk sheep, and rabbits, can eke out an existence in these districts, but here are found the flocks noted for rearing the largest crop of lambs—usually a lamb and a half to the ewe. The lambs are weaned and

sold off in June, and when transferred to richer lands they make astonishing growth and pay handsomely, lambs bought at \$5 in June selling out at \$15 to \$17 after six or eight months' grazing.

ERNEST PRENTICE,
Secretary Suffolk Sheep Society.
Stowmarket, England.

Kent or Romney Marsh Sheep.

The accompanying illustration is from a photo taken from life of the celebrated and typical pen which, in 1894, won first prizes at the following English shows: the Royal Show, Cambridge, Bath and West of England Show, Guildford, and Royal Counties Show at Canterbury, where they were placed at the head of one of the largest classes of ewes of this breed that has been seen out for some years. They were bred and owned by Mr. G. W. Finn, of Westwood Court, Faversham, whose flock traces back at least one hundred years, and has been handed down in direct descent from father to son. This is a most excellent flock, composed of sheep with grand wool and well-covered heads, which are most typical representatives of this excellent breed, which is daily becoming more and more popular with the breeders in the Argentine, Patagonia, and New Zealand, chiefly because of its extreme hardiness, excellent wool and mutton, and for its capability to fatten easily, and to produce an excellent carcass of first-class saleable mutton.



Fattening Ram Lambs.

Subscriber, Woodstock, Ont.: Would you advise carrying ram lambs that are being fattened far into the winter in the hope of getting a better price, or would it be more profitable to sell them at the holiday season for what they would bring?

ANS.—The latter course will generally be found the most profitable. Ram lambs do not fatten as easily as wethers, for the reason that they are restless and uneasy. Much of the food is also consumed in the sustenance of the powers of procreation, and certain parts of the body which are of but little account for food, such as the head, the neck, the crest, and the bones, continue to grow strong and coarse.

Ram lambs that are intended for feeding should certainly be castrated when they are young. Uncastrated lambs never fetch so high a price relatively in well-established markets after the weaning season, and uncastrated lambs will not grow as well at any time as those which have been castrated early in life.

Potatoes for Sheep.

W. Lancaster, Charlottetown, P.E.I. : I notice in your October issue that, as regards potatoes as a food for sheep, you recommend

that purpose in comparison with field roots.¹ But it is different when the only alternative is to feed them or to let them go to waste. Under those conditions they should assuredly be fed.

Feeding Winter Lambs.

S. P., Port Hope: How would you recommend feeding lambs dropped in the fall or early winter, so as to procure quick and large development?

ANS.—No food can be given to a young animal that will equal its mother's milk;



Romney Marsh Sheep

The property of Mr. G. W. Finn, Faversham, England.

selling them and buying and feeding turnips. But how can one manage where potatoes are plentiful on the farm and turnips are not to be had?

ANS.—Where turnips are not to be had in exchange, and potatoes are cheap, it is, of course, wise to feed the potatoes. To a breeding flock as much as four pounds a day may be fed, and a larger quantity to sheep that are being fattened. Potatoes should not, as a rule, be fed to live stock, except that portion of the crop rejected as unfit for table use, as it costs too much to grow them for

hence, to promote rapid growth in the lambs, the mothers should be so fed that they will produce a large amount of milk. For the production of the latter, no food is better than good, well-cured clover hay of fine growth, a liberal supply of turnips or mangolds after lambing, and on through the suckling period, and about all the bran and oats that the ewes will eat. A few peas added will still further improve the grain ration. The lambs also should be given of the same grain ration all that they will take.

SWINE

Conducted by "BRISTLES."

Now is the time to see that the pens are in ship-shape for winter. A board here and a strip of tar-paper there will save many a pound of feed later on. Feeding warmth into a pig is a costly process.

At the recent Syracuse Fair, Messrs. Metcalfe's noted sow, Elphick's Matchless, bred by Mr. E. Buss, Horsmonden, Kent, Eng., won the championship in the Berkshire class. This is the sow whose cut appeared in our September number.

A correspondent in one of our exchanges declares that, although he himself prefers the Large Whites; or, as we call them, the Improved Large Yorkshires, yet the best pork he has ever grown was from the cross of a Tamworth boar upon a Berkshire sow. We would call attention to the fact that the sweepstakes pair of packers' pigs at the Guelph Fat Stock Show last December were bred similarly, and a capital pair they were.

The Tamworth may not be a taking pig in appearance, but he can do a heap of good in many sections of the country, in improving the quality of the pork.

EARTH FOR PIGS IN WINTER.—A few cartloads of sods cut this fall and stocked away where they will not freeze will be found very useful, more especially when the early sows begin farrowing in the spring. Besides the salt and ashes which every careful breeder will keep his hogs supplied with in the winter time, a sod of turf with the earth that is clinging to the roots will be highly appreciated by both the sow and her family, and will be found very conducive toward good health. We first saw this plan practised at the Experimental Farm, Ottawa, where Prof. J. W. Robertson humorously styled the pile of sods the pigs' tooth brushes, and we afterwards introduced it into our own herd with the best results.

SWINE FEVER.—During the first week of October the number of pigs that died in Great Britain of swine fever was 296, and the num-

ber slaughtered on account of this disease was 1,694; in the corresponding week last year the numbers were 90 and 443 respectively. To the total of 296 deaths Essex contributed 68, Suffolk 50, the West Riding of York 33, and Monmouth 24, whilst the most numerous slaughterings were 357 in Essex, 332 in Suffolk, 118 in Stafford, 116 in Somerset, 99 in the West Riding, and 80 in Kent. The returns give the following information regarding swine fever in Scotland: Number of swine that died of swine fever, none; number of swine slaughtered as diseased or as having been exposed to infection—Forfarshire, 2; number of swine slaughtered as suspected, but found free of swine fever—Argyllshire, 1; Dumbartonshire, 1; Wigtownshire, 1.

POINTERS FOR BUYERS.—When you send a breeder \$10 for a pig, do not expect to get a \$20 one.

When you buy a purebred pig, give him a chance and feed him well; do not starve him or turn him out on the roadside to hunt a living and then declare that you "don't take any stock in fancy pigs."

When you take a pig off the train after he has travelled a couple of hundred miles in a crate, do not expect him to look as if he had just come out of a show ring.

When you get a pig that is not up to what you expected, do not immediately write to the breeder and call him every name you can think of. Give the pig a couple of days in which to recuperate after his journey, and, if he is not what you expected, then write a temperate letter, asking for an explanation.

When you get a pig that pleases you, write and say so.

POINTERS FOR SELLERS.—When you have not got what a customer wants, write and tell him so; do not try to palm off something else on him. When your \$10 pigs are all sold, do not try to fill \$10 orders with \$5 pigs; it will not hold your trade for you.

When asked your opinion of your neighbor's pigs, do not run them down; it never pays.

When you have a cull, do not sell him for half-price to be bred from. Castrate and feed him. When asked a price do not quote double what you intend to take; it won't inspire confidence in a new customer.

When a customer is not satisfied, try to meet him at least half way, if you want to build up a paying trade.

Too Much Corn.

For many years it has been customary throughout the western part of this continent, and to a certain extent in the centre and eastern portions, to consider corn the proper food for a pig, and to such an extent has this feeling prevailed that, in many cases, corn is relied upon as almost the only food for not only fattening, but also for growing hogs. This has been especially true in the great hog-producing states of the Union, and, in view of the enormous crop of corn with which our western cousins have been blessed this year, a few words on the unsuitableness of corn alone as a food for pigs may not be amiss, more especially to our American subscribers.

First as regards growing pigs. Here we find corn alone to be a very wasteful, as well as a very unwholesome food. Young pigs require a food containing a large proportion of albuminoids, or flesh formers, the very point in which corn is deficient, containing as it does a much larger proportion of carbohydrates and fats, or heat and fat producers, than is needed, the result being that a very large amount of the carbohydrates and fat in a given amount of corn, when fed alone to young or growing pigs is wasted. For example, corn contains the following proportions of digestible nutrients: albuminoids (or flesh and muscle formers) 8.4 per cent; carbohydrates (or heat producers) 60.6 per cent., and fat 4.8 per cent. This gives a nutritive ratio of 1:8.5. A young growing animal needs a nutritive ratio of about 1:5. What, therefore, becomes of the excess of carbohydrates and fat which amounts to almost one half? It is, owing to the animal being unable to digest and assimilate it, voided and so simply wasted.

Again, young animals need a large amount of phosphate of lime and other mineral elements that go to build up the animal frame, and here again we find corn is very deficient.

Both these objections to the use of corn for young hogs apply in a lesser degree to its use as a sole food for fattening hogs, and, in their case, in addition to the waste that is caused,

the carcase of a pig fed on corn alone will be found to contain a very small amount of lean meat, and it is a well-known fact that, in the present day, bacon, to command a top price, must show a very large proportion of lean meat evenly distributed. A good example of this may be found in the fact that of late years Canadian bacon, which is largely fed on peas, a grain that contains a very high percentage of albuminoids, has for some time been ranked much higher in the English markets than the American corn-fed.

Now, how can these difficulties be overcome? It will be easily seen that, where corn is to form a part of the daily ration, it must be combined with some food, or foods, containing a large percentage of albuminoids, and, in the case of young pigs, a sufficient supply of phosphate of lime and other mineral matters with which to build up the frame.

In our own experience we have not found corn a desirable food for young animals, except when used in very moderate quantities indeed. Where there is a supply of skim-milk available, we think it may be safely used ground and cooked, but even then it is, we think, decidedly better to use it in conjunction with an equal quantity of middlings, rather than as the only grain food. For example, a ration composed of one gallon of skim-milk, with two pounds each of corn meal and wheat middlings scalded and stirred into it, will be found satisfactory for very young pigs, as this gives a nutritive ratio of about 3:4, or almost an equivalent for whole milk. As the pigs grow older the grain may be increased, and ground oats substituted for a portion of the middlings. Where skim-milk can not be obtained, the food should be cooked, and then fed as nearly as possible at the temperature of new milk. We have found the following ration answer very well under such circumstances: two parts corn meal, two parts peas and oats ground together, two parts bran, and one part oil meal.

In the case of fattening hogs, although corn can be fed much more safely in large quantities to them than it can to growing pigs, still, as we have pointed out, it is neither a wholesome nor an economical food alone. Where peas can be obtained their use is to be recommended, a mixture of peas and corn, half and half, making a quality of pork very much superior to that made from corn alone. Oil cake and decorticated cotton cake may also be fed to advantage with corn, but the cotton cake will require to be used in very small quantities. Green clover will also be found

an excellent adjunct to the corn crib in the summer, and in the winter we have found the best of results from feeding small quantities of nicely cured clover hay, cut fine and steamed, the hay, besides assisting to balance the ration, having a mechanical effect in improving the digestion by separating the particles of meal in the stomach and so allowing the gastric juices to perform their work better.

A Champion Yorkshire Sow.

Mr. Edwin Buss, Elphicks, Horsmonden, Kent, England, is a breeder of Berkshire and Yorkshire pigs who has, during the past few years, come into prominence through the large number of prizes won by his stock at the leading shows in England. During the year just coming to a close his success has been very pronounced, both with Berkshires and Yorkshires. He was the breeder and exhibitor of the grand sow, Elphicks' Matchless, winner of champion prizes at the Royal, Royal Counties, and elsewhere, a cut of which we gave in September last. In this number we give an illustration of another champion winner from the Elphicks herd, Elphicks' Daisy IV., winner of first at the Royal Counties and Oxford County shows, and of the champion prize at the latter. She is a grand sow, and bids fair to perpetuate the honors of her progenitor, Daisy I.

Always Room at the Top.

A writer in *Wallace's Farmer*, after pointing out the advantages of a herd of thoroughbred pigs, goes on to say:

"The question may arise, What would the breeder do if almost every farmer had a herd of thoroughbreds? The answer is that there is always a blue and a better blue. We have not realized by any means the highest ideal of breeding, nor shall we for many generations to come. The types of hogs will vary with varying conditions. Absolute perfection, whether in animal form or human character, is unattainable. There will always be something to be striven for, something yet to be realized, and the breeder really enters fully upon his largest field of operations when the contest is not between the scrub and the thoroughbred, but between the superior and inferior thoroughbred. The man who is raising hogs for the purpose of driving out the scrub is simply the

missionary or frontiersman who has to contend with ignorance and prejudice, and he gets comparatively little for his pains. The breeder who makes money and reputation and has satisfaction in his business is the man who is contending for the prize with the best."

These are words that we would most heartily endorse. Years ago, when we first began breeding purebred pigs, we were often asked, "What will you do when the country is full of these pigs? They will not be worth anything." Our answer invariably was, "There will always be sale for the best." We have since seen no reason to change our opinion. It is doubtless true that, just as the market for pork varies according to circumstances, so the demand for thoroughbred hogs fluctuates more or less; still the breeder who has steadily pursued his course, endeavoring to produce as nearly as he can what his judgment has pictured to him: as an ideal hog, has through it all found a steady sale for his surplus stock at remunerative figures, and will continue to do so.

We do not wish to discourage any young breeder, but we would point out that of all those who go into the business of breeding cattle, horses, sheep, or hogs, only a very small percentage indeed ever reach the top of the tree. Breeding is in every sense of the word an art, and, as in all arts, to be successful the student has to devote no small amount of both time and attention to the prosecution of his studies. How many of those who commence breeding purebred stock, we would ask, ever give either sufficient time or sufficient attention to their work to enable them to thoroughly master it, if it ever can be *thoroughly mastered*?

The painter and the sculptor are in very truth but accomplishing the same object, with plastic materials that they can mould as they wish, that the breeder is attempting to accomplish with living, breeding animals as materials, viz., the creation of his ideal of a perfect form; and when we consider how very few among the thousands who adopt the professions we speak of ever become famous, is it any wonder that so few of those who commence breeding animals ever approach anything like perfection? But just as fame and wealth await the successful painter or sculptor, so success in his endeavors will bring, if not fame, at least honor, and if not wealth, at least a fair remuneration to the stock breeder, for, in his business, as in all others, while the lower steps may be crowded, there is always room at the top.



The Yorkshire Sow Eiphicks' Daisy IV.
Bred and owned by Mr. Edwin Buss, Horsmorden, Kent, England.

Diseases of Swine.

PARAPLEGIA, OR PARALYSIS OF MUSCLES OF LOIN.

This is a very common trouble among hogs, and may be produced in two ways, either by a cold, or by an injury resulting in concussion of the spine. This latter is most common, and is usually produced by a blow across the loins, or by a sudden fall by slipping when walking. Our advice in most cases, when the trouble is caused by an injury, is to butcher as soon as possible; but, if it is advisable to treat the case, it will be necessary to open the animal's bowels freely by the administration of a dose of castor or linseed oil, while, if there is much constipation present, injections of warm water and soap will be found useful. In some cases, more especially if treated at once, cold applications to the loins will be found to be best, while in others it may be necessary to use a stimulating liniment, when the ordinary ammoniacal liniment, composed of equal parts of ammonia, turpentine, and olive or linseed oil, may be tried.

Great care must be taken of the patient's comfort, a warm, but well ventilated pen being essential; and the food, which must be sloppy and of a relaxing character, should be given in moderate quantities.

In severe and long-standing cases, it may be found necessary to turn the animal from side to side at intervals.

In our experience, we have found treatment very unsatisfactory in any severe cases, more especially of large heavy pigs; and, where the animals are fit for the knife, we would recommend prompt slaughtering as soon as the accident occurs.

RHEUMATISM.

This is not by any means an uncommon disease among pigs, and is usually produced by damp pens, or by exposure to storms and cold after being penned in warm, badly ventilated quarters, although we have also found it to be produced by feeding *hot* food during the winter, when there are sudden changes of temperature.

Pigs affected with rheumatism exhibit a very decided indisposition to move round, and, if compelled to do so, extreme lameness will be noticed in the limbs affected, as well as heat and tenderness in the joints and muscles of the limb, the tenderness sometimes shifting from one joint to another.

In the treatment of rheumatism good care is one of the first essentials; the pen must be warm and dry and well ventilated, yet per-

fectly free from any draught, and the food should be light and cooling. If the pig be fat, a dose of castor oil & Epsom salts should be given promptly. The food must not be given hot, but simply warm, and the liberal use of sour milk is strongly recommended by many writers. When the joints are swollen and painful, the use of a strong, stimulating liniment, such as ammoniacal liniment, freely rubbed in, is to be recommended.

In the case of valuable breeding animals we would advise the administration of one to two tablespoons full of cod-liver oil daily in the animal's feed. This treatment, besides relieving the trouble, will be found highly beneficial to the animal's general health and condition.

The Chester White.

This breed takes its name from Chester county, Pennsylvania, where it undoubtedly originated, records of attempts to improve the native swine of the county having existed as far back as 1815. In that year, it seems to be agreed by all writers on the subject, a pair of white pigs were imported from Bedfordshire, England, by a Capt. Jeffries, who kept them on his farm in Chester county, and who was instrumental in improving very much the native breeds in that neighborhood by judicious crosses of his imported stock. What these pigs were seems to be an unsettled question. Some writers claim that they were Suffolks, and some Large Whites; while others are of the opinion that they were of a special breed maintained on the Duke of Bedford's estate at Woburn and produced by a cross of Chinese upon the Large White of that day. However, be these pigs what they may, they were used with the greatest success, apparently by the farmers of Chester county, and about five years later another boar of the same variety was imported by a man named Kersey, and also used to good advantage.

As far as we can learn, there is no record of any other outcross being used in the formation of the breed, careful selection and judicious crossing of the pigs produced by the infusion of this English blood into the native pigs of Chester county having evolved the present breed known as Chester Whites, a breed that can undoubtedly claim to rank first among the white breeds of the United States.

Strange as it may appear, however, in some way the rapid rise into popularity of this breed did them rather more harm than good,

as, the demand being much greater than the supply, unscrupulous dealers soon began shipping anything that they could buy in the shape of a white hog as a pure Chester, and so in some, nay, many, cases the interests of the breed received a severe set-back owing to the rascality of unprincipled dealers.

Chester Whites are classed among large breeds of pigs, as they can easily be grown, if desired, to enormous weights, instances being on record of animals weighing as high as 1,100, 1,200, and even 1,300 lbs. They breed very true to color, and are generally very docile and easy to handle. We have not had any experience ourselves in breeding purebred Chesters, but they certainly seem to be prime favorites with those who handle them, and we can add our own testimony in favor of their usefulness for crossing with other breeds, a point in which we notice very many writers claim that they specially excel. We have fed and butchered quite a number of pigs from six to nine months old bred from a Chester White sow and an Improved Large Yorkshire boar, and we have found this a most excellent cross, the produce being both easy to feed and early to mature. We saw the carcass of one barrow pig killed at six months and one week old that dressed 278 lbs. of beautiful pork, and we have seen a number that weighed upwards of 240 lbs. at six months, with ordinary feeding.

The tendency of breeders of late years has been to somewhat reduce the size, and do away with the coarseness that was apparent in many of the specimens to be seen in the showyards of a few years ago, and we think this is a step in the right direction.

The Ohio Improved Chester White is an offshoot of the original breed, and owes its existence largely to the efforts of that well-known breeder, Mr. W. Todd, of Wakeman, Ohio. From what we have seen of both sorts we do not know that there is much difference in them.

The following is the scale of points for Chester Whites as adopted by the Chester White Record Association at their annual meeting January, 1885:

<i>Head.</i> Small, broad, and slightly dished.....	7
<i>Ear.</i> Thin, fine, and drooping.....	2
<i>Jowl.</i> Neat and full.....	4
<i>Neck.</i> Short, full, and well arched.....	3
<i>Brisket.</i> Full and deep.....	3
<i>Shoulder.</i> Broad and deep.....	6
<i>Girth around heart.</i>	9

<i>Back.</i> Straight and broad.....	6
<i>Sides.</i> Deep and full.....	7
<i>Ribs.</i> Well sprung.....	6
<i>Loin.</i> Broad and strong.....	7
<i>Belly.</i> Wide and straight.....	5
<i>Flank.</i> Well let down.....	3
<i>Ham.</i> Broad, full, and deep.....	10
<i>Limbs.</i> Straight, strong, and neat.....	6
<i>Tail.</i> Tapering, not coarse.....	2
<i>Coat.</i> Fine and thick.....	3
<i>Color.</i> White.....	3
<i>Symmetry.</i>	8
Total.....	100

FOR FARMING.

Price of Pork.

We hear of a feeling of disappointment among farmers at the low price they have to take for hogs. This is quite natural, but, if they will compare it with the prices current for all other kinds of live stock, they will see that hog raising and feeding compare very favorably with other branches of farming. Thousands of lambs have been sold on Toronto market lately at 2¾ cents per pound, and cattle from \$1.75 to \$3.30.

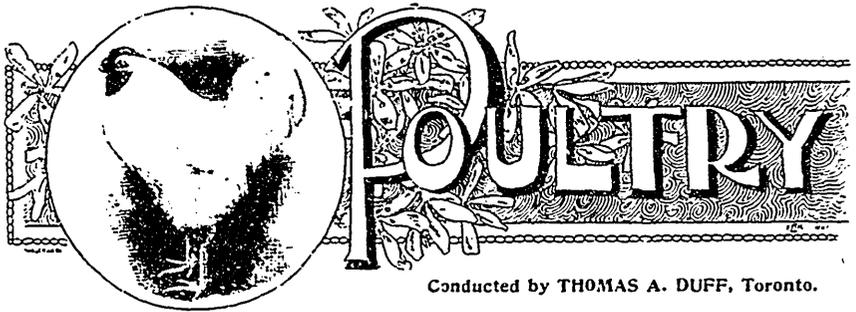
Moreover, farmers should consider the price of feeding stuffs. Potatoes, to begin with, have sold at outside points at 10 cents per bushel. If boiled and fed with some meal no better food can be given to hogs, especially if skim-milk and buttermilk be added.

Many farmers are selling off their sows. This, if these are good breeders, is great folly; in the first place, because it will be hard to replace them; and, secondly, because prices will probably remain as low as they now are but for a short time.

In December, 1878, we bought Canadian hogs as low as 2½ cents per pound, our average price for the season being \$3.41. The next year the average price was \$3.98, the following year \$5.02, the next \$6.49, and a year after \$6.70. A similar state of things will occur again, and those farmers who have embarked in this business and are prepared for it will act wisely in continuing at it, especially as, so far as we can see, it shows up favorably by comparison with everything else in which the agriculturist is engaged.

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Conducted by THOMAS A. DUFF, Toronto.

[NOTE.—The publishers of FARMING desire it to be an aid to all its readers, and, with that end in view, I cordially invite one and all to make themselves at home in these columns. I shall be happy to answer, to the best of my ability, any and all questions relating to the management, feeding, housing, or diseases of poultry, and invite all who experience any difficulty, or wish information, to write, stating what is desired, and giving all the facts in connection with the inquiry. The name of the writer will be withheld if desired. Let us not only profit by each other's successes, but also by each other's mistakes.—EDITOR.]

Poultry Illustrations.

We have again pleasure in presenting to our readers four more illustrations of winning birds at various exhibitions. On the opposite page we show a pen and ink sketch of the first-prize Silver Wyandotte cock, owned by Mr. Jacob Dorst, Toronto. This bird possesses the true Wyandotte shape, is well laced on saddle and hackle, and has a grand breast. Mr. Dorst has for many years been one of the foremost breeders of Silver Wyandottes in America, and his stock has won high honors both in Canada and the United States. In competition for the "Duff" Medal, he was only beaten by two points.

We also present a half-tone engraving of a White Wyandotte Cockerel, owned and bred by Mr. Charles Massie, Port Hope, Ont. This bird won first at the last Port Hope show, and scored 95½. He was one of the best birds exhibited in Canada last season, and gives great promise as a cock. No doubt he will be heard from this winter. Mr. Massie has long been associated with first-class White Wyandottes, and his stock is always of the best.

On another page we have the first prize La Fleche Cockerel at the last New York show, which was first as a cock at this year's Toronto exhibition. The bird was bred and is owned by Mr. Richard Oke, London, Ont. Mr. Oke is one of the foremost breeders of Canada, and his success all over America is well-known. It seems to me a pity that there are not more

breeders of La Fleche in America. They are an excellent fowl.

We also present a sketch of the second-prize Pekin Drake and second-prize Duck, 1895 hatch, at Toronto. These were owned and bred by Mr. W. J. Haycraft, Agincourt, Ont. Pekin ducks are the most profitable of all varieties, and are largely bred all over America. Mr. Haycraft's stock is of the very best. This gentleman has been exhibiting fowls and ducks at Toronto, Whitby, Uxbridge, Scarborough, Stouffville, Markham, Newmarket, and Woodbridge, and his success has been almost phenomenal. He is also a well-known breeder of Berkshire pigs.

Next month we hope to give two or three sketches of Barred Plymouth Rocks, as well as a view of the editor's poultry house, and a sectional view of one of the pens.

Poultry Lecturers at Farmers' Institute Meetings in Ontario.

A copy of a circular announcing the names of the different gentlemen who will officiate as lecturers at the various Farmers' Institute meetings throughout the Province of Ontario has been received, and, to say the least, causes me considerable surprise. The province is divided into eleven divisions; in each division, meetings are held at from fifteen to twenty different places; in every case, I think, afternoon and evening sessions are held, and in some cases, a morning session; the time occupied in each division being about three weeks. Someone in every division is billed to lecture on almost every conceivable subject relative to farming, with the single exception of poultry. In divisions Nos. 3, 5, 6, 7, 8, 9, 10, and 11 there is not a single subject relating to poultry, while in division No. 1 there is a gentleman billed to give one lecture on "Poultry on the Farm," as against five on other subjects. In division No. 2, the gentleman who officiates (a most capable man, too), gives only three lectures on poultry, and also gives three

on other subjects. In division No. 4, the lecturer has one subject entitled "Management of Poultry," as against fifteen on other branches of agriculture. It seems to me most astonishing, in view of the growing popularity of poultry in this province, and the desire of so many persons to obtain authentic information on the subject, that this important branch of agriculture should be so poorly represented, particularly as it can be made one of the best paying departments of farm life, and is one in which farmers all over the province are taking such a lively interest, and seeking reliable information from every source available. Certainly one lecturer who could speak on poultry should have been sent to each division. Last year, too, there was also a very poor representation of this important subject.

The superintendent of Farmers' Institutes wrote to the secretary of the Poultry Association of Ontario asking the association to name three suitable persons to address these meetings, and, at the meeting of the board held during the Toronto Exhibition, three gentlemen were named, but the superintendent has entirely ignored such recommendations. Not only is this done, but the representation from other sources is very meagre.

Lecturers on poultry are very badly needed throughout the province, and I trust that another year the government will see that one is appointed to each division. It seems to me, now that the price of grain is so low, that there are great possibilities in the poultry industry. People who have given it attention state that they have found it the best paying department on their farms. Thousands of farmers are turning their attention to the subject and seeking information, yet no one is sent to give it to them. It is certainly worth a trial, and I trust that next year the evil will be remedied. No doubt the Poultry Association of Ontario will take the matter up.

However, seeing that no appointments have been made, it behooves the officers of institutes to see that as much local talent as possible is secured to speak on poultry and give as much information as possible in the matter.

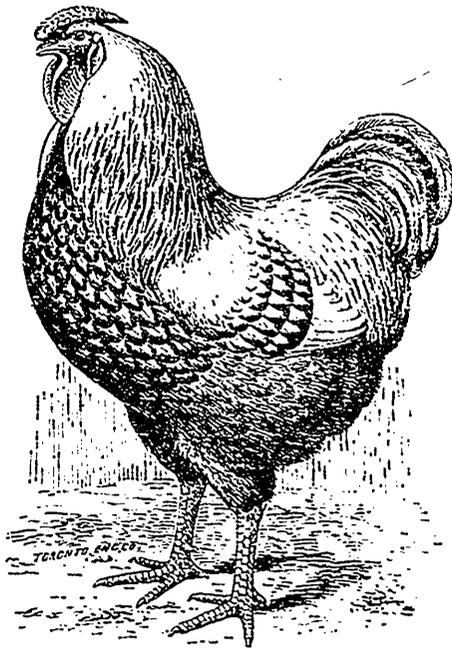
What Do You Think of This ?

Early in the last month a dealer in poultry in Toronto called my attention to a shipment of "chickens" (?) which he had received from a dealer, who had represented them as all this year's hatch. When the stock arrived it was found that they were all old roosters, and the

shipper, thinking to beguile the dealer, had cut off the spurs from the legs of each and every bird. Certainly it was the first time that I ever heard of old birds being converted into spring chickens by merely cutting of the spurs. It was a sharp trick, but it failed to work.

A few days after the above occurrence, the same gentleman showed me a shipment of young turkeys which had been sent in. They were accompanied by a letter asking that "as much as possible be allowed for them." They were sent in in a most miserable fashion; were very imperfectly picked, poorly put up, and

had been scalded to get the feathers off, with the result that a great portion of the skin was broken. They looked dark and miserable, and the dealer remarked, "Now, he could have got two cents a pound more for these had they been tastily dressed." So much for the dressing. To clap the climax, however, in the lot was a very large, old rooster which the shipper had dressed in precisely the same manner as the turkeys. It was trimmed in exactly the same way, even to leaving the flight feathers on the end of the wing. A fine turkey that was, you will say. The result would have been disastrous had a green salesman sold



Silver Wyandotte Cock

1st, Toronto Exhibition 1895. Owned by Jacob Dorst. Toronto.

that to someone as a fine young gobbler.

Now, my readers, it is just such fraudulent tricks as these which lower and degrade all dealers in poultry. Is it any worse than putting your hand into a man's pocket? I say not. Pray remember that the above, as well as the cases previously referred to, are authentic, and I can give both the name of the dealer who furnished me with the information and showed me the stock, and also the name of the shipper.

The great majority of shippers of poultry are honest, but the dishonest ones cause remarks to be passed about the others. Pray let us take warning and buy and sell honestly.

A Poultry House for the Farmer.

The editor has just constructed a poultry house, sixty-six feet long and ten feet wide. It has been built at a very low cost indeed, considering the manner in which it is erected.

Believing that it would be highly interesting to those who contemplate building and are afraid of the cost, it is my intention, in the January number of *FARMING*, to publish a half-tone engraving of the poultry building as it looks from the outside, and to show a sketch of a section of the interior. I will also fully describe the manner in which the building has been erected, and give an exact account of the quantities of the different materials used in its construction, together with the cost of same. I am certain that many will be surprised at what a low price a really first-class building can be erected. I am quite sure that I can set at rest the oft-repeated statement that "it costs too much to build." Be sure you get the January number.

Feeding Fowls and Chicks.

The days of haphazard feeding of poultry and the lazy method of throwing out a pailful of grain once or twice a week have, I am glad to say, now gone by. It is, indeed, a poor poultry-raiser who does not feed with some fixed purpose in his mind.

The large number of poultry plants, and the demand for fresh-laid eggs, together with the low price of grain, are opening the eyes of the farmer to the fact that in poultry there is wealth. I, of course, advocate the raising of poultry for eggs, as I believe it is in this branch of the business that there is the greater profit.

In the September issue of *FARMING* I gave, in reply to a query, my idea of feeding for eggs. The following appeared in the *Baltimore Sun*, and is, I presume, the method advocated by Mr. George O. Brown, who is considered an authority upon all poultry matters:

"A recent experiment proves that green cut bones so increase the production of eggs that it would pay to feed the bone if twenty cents per pound had to be paid for it. In the face of this there are plenty of people who doubt the advantage of feeding raw cut bone.

"In feeding fowls, the best success is attained, where eggs are the object, by feeding as varied a diet as possible. During spring and summer, and until the heavy frosts of fall come, where the flock has a good range, two light meals a day are all that is necessary to give fowls. The morning feed should be ground oats and one-third the quantity of wheat bran that is used of oats, mixed with scalding water. Alternate every other day with cornmeal and the ground oats, using the bran with each. This is best for fall and spring breakfasts. In the summer, during the hot season, the cornmeal should be omitted.

"All potato and turnip parings, or the small potatoes and the whole turnips, can be boiled until they are thoroughly done, and then mash them and mix with the meal, ground oats, and bran. These cooked vegetables may be used at all times. Table scraps are always in order to add to the rations of the poultry, old and young.

"During the late fall and winter, of course, the fowls will require more liberal feeding of grain. Wheat, buckwheat, and corn can all be used, remembering that, if eggs are wanted, more will be secured by liberal feeding of good sound wheat than corn. To get eggs in the winter, animal food of some kind must be provided. Nothing has been found more available, or that provides better results, than cut green raw bone. Green food of some kind will be also essential, and turnips, cabbage, and rutabagas all answer well for this purpose. Cut clover hay, steamed, has also been found to be an excellent substitute for the green food. A portion of the food, to insure perfect health, should be of a bulky nature, and the cut clover hay answers well the purpose."

The above, of course, applies to fowls, but for chicks when first hatched the best food is hard-boiled eggs and bread crumbs, rubbed up fine and moistened with a little milk. The

chicks should be fed often, but given little at a time. After a few days crushed wheat or cracked corn could be given. Milk is preferable to water, and food or drink must always be supplied in scrupulously clean vessels. Place the coop with the brood on fresh ground, in a place sheltered from wind, keeping the hen confined for about ten days before allowing her to wander off with her chicks. If she be allowed her liberty earlier, the strength of the chicks will be overtaxed, and they are likely to be exposed to wet, and the danger from hawks is increased. Keep on hand several coops for the use of the broods as you take them from the nest. A very generous quantity of food must be given from the time they leave the nest until the tail and wing feathers are grown, as feathering is a great drain upon the system, and it requires plenty of food to sustain it. After the chicks have got their feathers, see that they are well supplied with plenty of grain. A soft feed, composed of bran, shorts, oat chop, or wheat meal, should be given

once a day, and twice a day at the grain they will eat up clean. Change the diet often, however. When kept in confinement, give the fowls an abundance of green vegetable food of some kind; cabbage leaves are a first-class article, and relished by them.

Buckwheat is an excellent grain for laying hens, and those who take an interest in poultry would do well to lay in a quantity of it. Care must be taken, however, not to give too great a quantity at a time.

Wyandottes.

By JOHN J. LENTON, Biltmore, N.C.

This handsome and useful breed is receiving much praise from those who are breeding them, as they have intrinsic merits of high order, are a valuable acquisition to our standard fowls, and promise even better results in the future, both in utility and beauty. They have a plumage that is plastic, and will readily yield to improvement.



White Wyandotte Cockerel (Score 95½)
1st, Port Hope, 1894. Owned and bred by Chrs. Massie,
Port Hope, Ont.

About a score of years ago the breed was in a crude state, and known to a few under the name of American Sebrights, or Sebright-Cochins. Since then their improvement has been rapid and satisfactory. Many objectionable features have been bred out, suitable features bred in, the faults of the Cochin, the white lobe of the Hamburg, the pea-comb and feathered legs of the Dark Brahma eliminated, though, even now, the single comb comes as an occasional heirloom. But nearly all those objectionable features have been bred out, and,

if one or other does occasionally "crop out," it is accidental, and may be traced to atavic transmission, over which the breeder has no control.

In the make-up of the Wyandottes we see several elements combined. Short-sighted, indeed, must be the breeder or judge who cannot see its composite nature, and trace the leading features of both Dark Brahma and Hamburg in the breed. The head is Asiatic modified, particularly in formation and

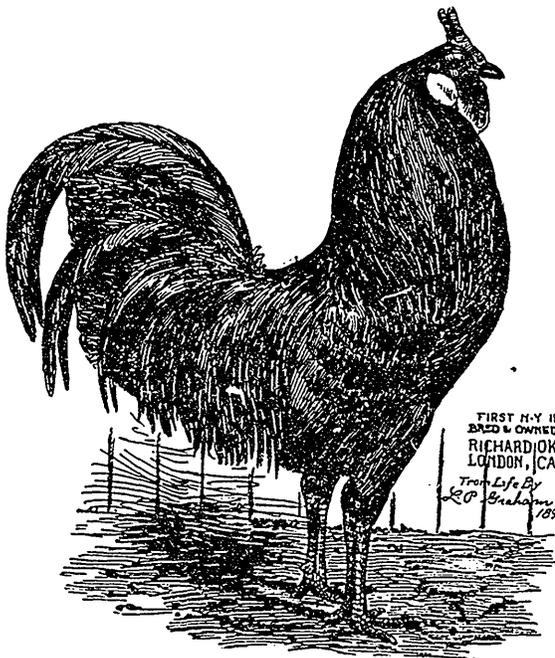
expression of face around the eyes. The shape of the ear-lobe, the loose skin of the throat, the coarse legs, the hackle and shoulders, even the crow of the cock, point to a large infusion of Dark Brahma blood. The Hamburg element is not quite so conspicuous, owing to previous modifications of the Sebright Bantams and Cochins, but the wing bars, comb, and the tendency to white or creamy-white in the ear-lobes, show features denoting Hamburg blood. Perhaps we should have given the Hamburg credit for lacing, too; but, before the Hamburg cross, the Sebright left its impress on the plumage, and comb also, the subsequent cross of the Dark Brahma neutralized both, and it was found that the Hamburg was an essential element in giving shape to comb, establishing the ground color, and in giving distinctiveness and purity to the lacing.

The Wyandottes have some excellent points. They are handsome in plumage, of good size, the comb is well suited to the northern climate; they are very hardy, good layers, attentive sitters and mothers, easily restrained, have prime flesh qualities, and are docile in disposition. They are creditable to the stock of the country; the hens, particularly, are very handsome when well bred, as they show pretty and well-defined lacing throughout. Both male and female have silver-colored hackles, striped through the centre with black to a point near the tips. Other parts of the plumage show white on each feather, with an even and distinct lacing of black on the hens. The breast of the cock is similar to that of the hen; the color on the

back resembles the hackle; wing bows white; wing coverlets nearly white, with a black tip, which produces a double spangled bar across the wing; tail black and legs yellow. In weight they are nearly as heavy as the Plymouth Rock.

Eggs and Cash.

The egg product on the farm is one that brings in returns daily, and this is a feature which should give it a leading position in the consideration of those matters which are connected with farming in general. A crop of



LaFleche Cock

1st, Toronto Exhibition, 1895. Bred and owned by Richard Oke, London, Ont.

corn, wheat, potatoes, or hay depends upon many conditions, and more capital is invested in them than is usually estimated; because a length of time must elapse from the period of planting of the seed to the time of harvesting. It is all outlay—from spring to fall—for seed, labor, and storage, and no money comes in until the crops are marketed, in the meantime many farmers

being compelled to borrow money to conduct their operations until the returns arrive.

It is well known that, after harvest is over, the only sums that come in as revenue are those from the cows and the hens. While returns from the hens may not be large, yet the daily receipts are of great assistance to those of limited means. The point to observe also is that the winter receipts from poultry are at a period of the year when the demands elsewhere on the farm are not very urgent, and more labor can be given than when the crops are growing. The failure of the part of farmers to attach greater importance to

poultry has deprived them of a source of revenue that is much more certain than any other.

What the farmers should do in the poultry department of the farm is to recognize it as a business, and not turn it over to the weaker members of the family. To secure more eggs, better laying stock should be used, and careful attention given. Work is required in every department, and why the farmers are so unwilling to do for the hens as they will do for the larger stock cannot be explained, unless an established custom has never been overturned, for they are depriving themselves



Preserving Eggs.

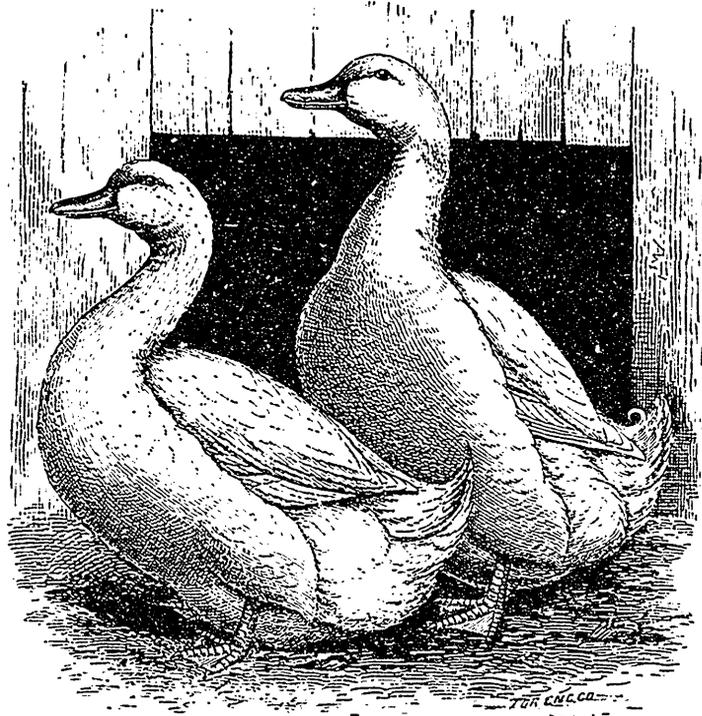
Editor Poultry Department, FARMING :

What do you consider the best and most satisfactory method of preserving eggs? I know full well that you advocate selling eggs when fresh laid, but, if not too much trouble, you might give me your advice.

London, Ont.

J. H.

ANS.—I consider the best and most satisfactory method to be as follows :



Pekin Duck and Drake (1895 Hatch)

Prize winners, Toronto Exhibition. Owned and bred by W. J. Haycraft, Agincourt, Ont.

of one of the best mediums for making the farm pay.—*Poultry Keeper.*

SHOULD your hens lay eggs with soft shells, it is an indication that your hens are too fat, or it is owing to the absence of food containing lime. If the hens are too fat, the food should be reduced to green food during the day and oats at night. Be sure, however, that they have to scratch for the grain. This will give them exercise.

(1) Use only eggs from hens that are not with males.

(2) Place the eggs on racks or trays, or in any manner so as to permit of turning them readily. If placed on trays, have an extra one which you can put right over the one containing the eggs. Turn the bottom tray completely over, so that the eggs will fill the empty one. This turns them over. Do this at least twice a week, so as to prevent the contents adhering to the shells.

(3) Keep them in a cool place.

The first rule, however, is the most important one.



Conducted by "AGRICOLA."

Improving the Winter Evenings.

"Agricola" wants a word with the boys about the winter evenings which are now upon us. Improve them, young men, improve them! They are very precious. They may seem long to us, but they will soon slip away. They should not seem long to us. If they do, we are not improving them rightly. Time is always too short to the man, and even to the boy, who improves it as he ought to. Get good books, boys, and read them. You can pile up great heaps of knowledge bearing upon farm work if you only set about it rightly. Read carefully the agricultural papers. Take out of them what is good. Read first-class agricultural books, and read them carefully. Think of it, boys! Think of the opportunity which the long winter evenings bring to you! Suppose you only use one hour in an evening in adding to your store of knowledge with reference to the farm, you will surely get something good during that hour. In the three months of January, February, and March, there are more than seventy-five week evenings; seventy-five important things learned about the farm. Think of it, boys! This is what each of you can do. How much are these seventy-five things worth? Who is prepared to put a value upon them?

Don't Fail to Attend the Institutes.

Farmers, don't fail to attend the farmers' institutes. You can get much good there. For "Agricola" thus to remind many farmers of their duty with reference to this question may seem altogether superfluous, but this reminder is not intended for them. It is intended for those who do not go to the institutes at all, or who allow a frivolous pretext to keep them away. Go to the institutes! It pays. A man is likely to find more money

there, if he improves his time, than he will find at the market. We may be busy, so busy that we feel we cannot spare the day, but we should spare it. Our work can usually be deferred for a day, while that of the institute cannot. The institutes have been great educators in the past. They will doubtless prove greater educators in the future. The more intelligence becomes diffused, the more will be the light that will be brought to bear upon the institute work. Old as agriculture is, it is yet, in a sense, in its infancy. The improvements on present practice can scarcely be conjectured. Let us be careful, then, to get all the help we can from every quarter, or we cannot keep in the van of agricultural progress.

Look Out for the Machinery.

Look out for the machinery, farmers. If machinery and men are to last long and render good service, both must be well cared for. A man must be in good tone to render the best service, and an implement must be in good shape and in good preservation to remedy the same. Carelessness in the handling of farm machinery and tools is improvident. It is short-sighted. It is money losing. First-class farmers take every care of their implements; second-class farmers only take middling care of them; and third-class farmers are careless with them. Reader, to which class do you belong? "Agricola" is curious to know. Is it an unpardonable curiosity? Look, when you read this, and, see if you haven't left a plow out in the field, or a harrow. See if you did not forget a spade one night last November when you were out cleaning a water-furrow. Don't you remember, the cattle broke a panel in the fence in the next field, and you hurried away to look after the cattle, and forgot the spade? Go and get it, please; you will find it in the fence corner where you left it, with rust on both sides of it.

Look into the implement house, farmers. If things are topsy-turvy there, go and put them in order. If the mud clings to the plowshare, clean it off. Tidy up things all round, and you will feel better. "Agricola" may be a troublesome fellow, but remember, farmers, he means well.

Supplies of Fuel.

The day once was, in nearly all parts of this country, when this consideration was not one of very great importance. The timber that lay strewn in every forest and around the borders of every clearing was more than ample to supply the needs of the settlers. But the day for these things is forever gone in the more advanced portions of the country, and the way in which the want shall be supplied is a matter of prime importance.

Of course, it may be thought best by many to use coal instead of wood. And, in many instances, that may be the proper thing to do, but coal is costly. If fuel can be obtained without buying, it will be wiser for the farmers, as a rule, to try to get it thus, for, when thus obtained, it means that so much money has been saved. Ours is a cold country in the winter season. The question of fuel, therefore, is one of great significance.

It is not a difficult matter for a farmer to grow his own supplies of fuel in nearly all parts of the country. The farmer who has, say, ten acres of forest can easily grow such supplies without any effort on his part. He has simply to keep his live stock out of the forest, and the fuel will grow of its own accord. The older trees simply require to be removed, and those which are blown down by the wind, and from these ample supplies may be obtained. In fact, in this way more growth will be obtained in a single year than will meet the needs of the farmer. And, where no forest is on hand, the case is not hopeless. Of course, under such conditions, no fuel may be obtainable for a time from a home source, but trees may be planted, and soon they will furnish fuel, and in an incidental rather than in a direct way. We mean that they will furnish fuel, even though that may not have been the prime object sought when they were planted. The trees may have been planted simply for windbreaks. In a few years they want thinning. The thinning process will be found helpful to the needs of the plantation, and it will furnish some wood at the same time to the owner. The

amount will be dependent, of course, on the size of the plantation, on the character of the wood grown, and on the thickness of the planting.

The farmers from Ontario eastward are thus most happily situated. They have only to plant a tree properly and protect it to have it grow well. And they have a choice between many varieties of trees. We have often urged the wisdom of planting windbreaks, not only for the dwellings, but also for the farm. And, when planted for this object mainly, they will in time furnish much wood for the farmer.

The farmers of the prairie are not so happily situated. In Manitoba the number of the varieties of trees grown is not very large, and more care is required to grow them than to grow forest trees in the natural forest provinces of the Dominion. But they grow very rapidly. Such trees as the box elder, cottonwood, and certain varieties of poplar and willow, grow very rapidly. They soon furnish not only windbreaks, but also fuel. There is also a species of white willow which may be used for the same purpose. This tree will grow up again quickly when it has been cut down. The amount of wood that this tree will make in a few years is simply astonishing.

The question of firewood may thus be solved by the farmer himself. He has simply to plant and to keep planting, and, in addition to the protection which his trees will furnish him, he is enabled to reap other advantages from their presence, such as humidity of climate and a lessened surface evaporation from the soil by winds passing over the surface of the earth.

Every farmer, therefore, should plant trees. They are advantageous in so many ways. The standing argument against planting them is the value of the ground on which they stand for cropping purposes. But is it not a fact that, with ten acres of trees judiciously planted on every farm, more crop would be raised every year than if all the land were devoted to crop production? It may not seem a heavy bill that is paid for coal annually, but considerable money could be saved by growing fuel. Our coal fire during the cold days of winter is indeed a luxury, particularly in the night season, but for other uses wood is pleasanter in many respects. Of course there is more labor in preparing the wood, but the labor can generally be done at seasons of the year when labor is not costly.

Implements that are Wanted.

Wonders have been wrought during recent years in the line of agricultural invention, but we have not yet got near the end of our necessities. We want several implements before we can feel that our list is complete. But probably it will never be complete.

We want another harrow. We will not take it upon ourselves to say all that that harrow should be. But we will mention some of the things that it should do. It should move on wheels. It should have many and fine teeth, so that weeds could be put in tribulation all over the surface covered by the harrow. The teeth should be readily adjustable. They should be so arranged that they could be raised or lowered at the will of the driver. The harrow should be capable of only stirring the surface of the ground to an inch in depth, and it should also be capable of going down three inches into the soil, as may be wanted. Such a harrow would manifestly answer for a great variety of uses. It would harrow over ground in fine form after corn had appeared above the surface of the ground, or even sooner. It would stir surfaces that had been sown to grain when there was occasion for it. It would harrow crops that had been eaten off by sheep and were of a character that would grow up again, and it would also do for ordinary harrowing.

A machine is wanted that will sow several drills of such seeds as mangels, turnips, carrots, and rape in rows on the level. It should sow several rows at a time. This want does not arise because of the fact that it is more convenient to cultivate those crops when thus grown, for it is not, but for the reason that in some soils we are more sure of a stand when they are sown on the level. The idea of sowing any larger area of them is simply absurd if they have to be put in by hand, or with a drill that will sow but one row at a time.

We want a machine that will sow all kinds of grain, and that will sow all kinds of grass seeds at the same time. We have machines that will sow the ordinary kinds of grain and also grass seeds, such as timothy, clover, and alfalfa, but these machines will not sow such large seeds as those of blue grass, orchard grass, or the fescues. If such machines are in existence, their introduction has been but recent. In the western country we shall want machines that will sow sorghum and rape in various combinations.

And we want a machine that will cut corn

and bind it any form in which it may be grown. Such a machine is coming, but it may be some time before it will do all kinds of corn reaping, and in a manner that will prove quite satisfactory. Such a machine will have to be strong, if it is to do its work well, and we must not expect it to be too light of draught. And, if it can elevate the corn into a wagon at the same time, the advantage will be so much the greater when the corn is to be put into the silo. The wagon, of course, would have to be driven alongside of the binder when at work.

These implements do not by any means exhaust the list. Others could be named, but those mentioned will suffice to illustrate our meaning. It is evident, therefore, that fresh laurels may be reaped by other inventors in the lines of tillage. Who will be foremost to occupy the ground? Who will be the first to win the honors?

To the Boys of the Farm.

We take it for granted, boys, that you are going to remain on the farm. No course can be wiser with the average young lad who begins life under conditions so favorable. It is a fact which cannot be gainsaid that for every ten men who go to the wall in merchandise, there is not one who goes to the wall in farming. The difference is even greater, but we desire to be moderate. Since it is so, think twice, then, boys, before you determine to leave the farm.

Taking it for granted that you are going to follow the calling of your fathers, we urge you to prepare yourselves for the work. Some persons think that the only preparation necessary is to do as father has done. That sounds very well, but it may not be enough. If father has been a very superior farmer, it may do very well; but if he has been only an average one, or even less than average, it does not sound so well. We do well to remember that this is an age of progress, and it is progress which applies to farming as well as to other things.

Be anxious, boys, to so fit yourselves for your work that you will lead in farming, rather than follow. It is a grand business, viewed in the light of the opportunity which it brings for discovery. We have not got nearly to the bottom of this great, grand science; hence, every one who engages in farming may become a discoverer. No oppor-

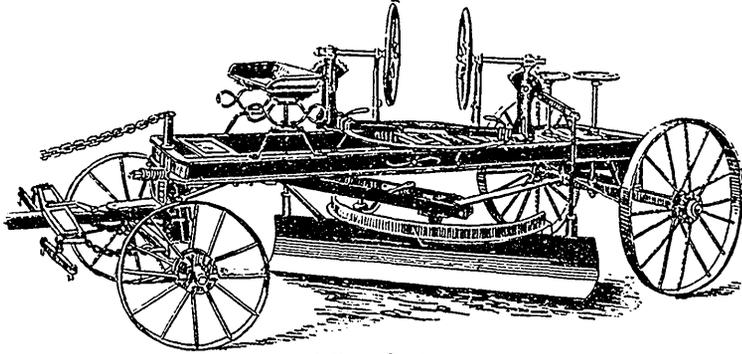
tunity, therefore, should be lost of gleaning information that will be helpful in the future.

The avenues through which the needed information may be obtained are numerous. They are more numerous now than they were years ago, when agricultural teaching through the colleges was rare. The channels through which such information may be obtained include the agricultural press, farm books, the agricultural college, and experience on the farm.

Feel assured, boys, that the agricultural papers are great educators. They are a great source of strength to the matured farmer who reads them carefully. How much more, then, will they prove a source of strength to the young lad of the farm who has yet to glean the greater portion of the knowledge which is to stand him in good stead when he takes up the great work of life in dead earnest. We say great work, for any work into which a

do go, don't be in too great a hurry to go while yet young. You will know better what you want when you get a little older. You will also have gained more experience on the farm, and such knowledge will prove helpful to you in enabling you to understand better the reasons for much of the scientific instruction which you will get at the college farm.

And give every diligence, boys, to gain knowledge from experience. Suppose you are feeding a family of young pigs, observe carefully how they feed; watch as to the growth which they make on different kinds of food; weigh them now and then, if you can, and notice at what ages they grow most rapidly for the food consumed. If they are not doing well, try to ascertain the reasons why. And give close attention to the study of all kinds of work that engage your attention. You may not be able to go to a college, but you can do these things, and, if you do, you



A Road Grader.

man puts the best part of his life should appear to him a great work, and so he should try to make it. Then read the agricultural papers carefully, boys, and store away what is good in them in the form of notes, or, what would be more readily available, in the mind, for future use.

And keep your eye on good books which treat of farm topics, so far as these can be obtained. But be sure that you read only good ones. We are moving so fast that what may have been good years ago may not be good now. Choose the best, therefore, when you take up the study of books, and, if you are in doubt as to which are the best, apply to some one who knows for further information. Time is too valuable to waste it in the study of old books, if they treat of obsolete methods.

And don't forget the agricultural college. Ontario has a good one. It can help you if you can only get time to attend. And, if you

will soon become much wiser than the average of those around you.

Road Graders.

Roadmaking has received very much attention during recent years in nearly all parts of the continent, but it has not received too much attention. Any one who has seen western roads made by the use of the road grader must be convinced of the great value of this machine for making roads, and more especially among farmers who live in a level country. These roads are, in many instances, beautifully rounded. The side ditches are straight and clean cut. The water runs from the centre to the side by a grade that is gradual, and in no case violent. In the streets of western towns these machines are also used in the summer to cut out rubbish that may be growing along the sides, and to level the road up for the season.

This system of roadmaking has received far too little attention in the past. The accompanying sketch gives a very good representation of such a machine. It is operated by six, eight, or ten levers, according to the size of the machine. As many of our readers know, these machines will build and repair roads very quickly in comparison with the old road scraper.

The Conservatism of Farmers.

The average farmer is a very conservative man. We say this not by way of reflecting, brother farmers. We rather say it to your credit. The men who are slow to move are very likely to move surely. The man who changes with a prudent caution is not quick to change back again. He is pretty certain to be thoroughly convinced before he thinks of changing. He has seen the reasons why, and he considers them good.

But it is possible at the same time to be too conservative. It is possible to perceive the advantages of another system without adopting it, because of prejudice or for some other reason. It has often seemed strange to us why a people so wise as our ancestors should have clung to the system of counting money through the medium of pounds, shillings, and pence, when the decimal system of currency is so very much easier. That is a type of conservatism which is assuredly extreme. But it is not more extreme than that conservatism which would prompt a farmer to cling to an old-time mode of doing a thing although convinced that there is a better way.

The evils of a lack of conservatism are many. The farmer who wants it is too apt to be taken up with novelties. He does not wait to consider. He is continually investing in new machinery. He rushes into new breeds before their adaptability to his conditions have been proved. And he tries new methods of doing work just because of their novelty. He is given to overmuch change, and, consequently, like the stone that keeps rolling, he gathers no moss.

The evils of undue conservatism are equally wasteful. But it is waste of a different kind. It may be termed a waste of time. And it is usually also a waste of muscle. He persists in hilling potatoes with the hoe when his neighbor does his work in the potato patch with the harr ow and cultivator after the crop has been planted. He puts all his hay crop up in coils because his fathers did, even though it should

be timothy that he is working with, and in the overripe stages. And he persists in putting all his manure upon a summerfallow and sowing wheat upon it, though wheat may not fetch more than 50 cents per bushel.

But there is one form of conservatism which is even more serious. It is that which prevents the farmer from subscribing for a farm paper because it was not taken in his father's day. He thus puts himself beyond the reach of one of the greatest of educators of which the farmer can avail himself. The amount of useful information given in a farm paper in one year is very great. But, of course, it cannot be conveyed to the man who will not take it, nor to him who takes it and will not read it, nor even to him who takes it and also reads it, but will not properly digest it in the crucible of thought.

And there is yet another form of it that is even more serious still. We refer to that conservatism which keeps a man away from the meetings of the Farmers' Institute, the Grange, or the Patrons of Industry, and which also keeps him indifferent to the work of agricultural colleges. Such a man does not know what he loses, nor will he probably ever know. But there is deprivation also to his family arising from this indifference. It may be that he injures his boy through the whole of his future by depriving him of information which would have helped to make him a better farmer and a better citizen.

And it is well to notice that the farmer who has travelled considerably is usually a more liberal farmer than he who has not. He is less set in his ideas. He has become convinced that many other farmers know quite as much, if not more, than he. The world becomes to him a wider and a nobler field. He feels that life is too short to hem it in with a wall of obstinacy, and to confine it within the gates of a blind prejudice.

The wiser course to adopt, therefore, is the middle one, just as the temperate zone is the happy one. The prayer, "Give me neither poverty nor riches," is a wise prayer doubtless for any man to utter. And the motto, "Give me neither extreme liberalism nor extreme conservatism," is a wise motto for the farmer. The man who shuns extremes is usually the happy man, and more commonly he is also the most prosperous man.

But the world is getting wiser in reference to these things, and we should rejoice that it is so. The world is also advancing in the average of its methods. And to this the

agricultural world is no exception. The only difference is that the agricultural world advances a little more slowly.

It is well, therefore, to give heed to new methods, even though we may not see fit to adopt them, otherwise we may be left behind. It may be wise to allow the experiment station first to experiment with new grains, but when this has been done, and they have been found to possess superior qualities, then it is not wise to refuse to grow them: without having tried them. The man who swings the old scythe to-day in a meadow that can be conveniently cut with a field mower will soon have to go out of the business of raising hay. And, likewise, the man who buys every kind of implement that comes along is soon likely to go out of farming for want of means to carry it on. While conservatism, therefore, is a good thing in farming, let it be tempered with progress.

Can Soil Fertility be Maintained ?

It can. But can soil fertility be maintained and the farm at the same time furnish a profit to him who tills it? The answer to this question will depend very largely upon conditions such as the amount of fertility in the soil, the location of the farm, the markets, and the farmer. We can imagine a farm so devoid of fertility as not to repay him who tills it, though it be favorably situated, and tilled ever so wisely. We can imagine farms of choice composition as to soil ingredients, and yet so awkwardly situated that it is scarcely worth while to try to farm them on any lines. We may readily imagine land well adapted to a certain line of culture, and yet it will not pay to do anything with it for a term of years other than to take out of it all we can get, and then abandon it, at least for a term of years. And we can easily imagine instances where everything is favorable, and yet the farmers do not succeed in maintaining soil fertility from sheer want of knowing how. And they may, at the same time, be honestly striving to till the soil so as to give it fair play.

Undoubtedly, soil fertility can be maintained, and without the purchasing of foods or commercial fertilizers. It has been done repeatedly, but it can only be done through the keeping of live stock. And when we say it can be done without the purchase of any foods, we would not have this idea pressed too far, as in nearly all instances where farming is suc-

cessfully conducted some foods are sold and some are purchased.

Fertility may be increased by keeping live stock and growing for them suitable kinds of food. Suitable kinds of food will include legumes, for, happily, legumes are among the most valuable foods for stock that we can grow. And, in addition to furnishing food for stock, they bring nitrogen to our soils, and nitrogen is the most costly and usually the most needed element of plant food. They bring it from the air, and some of them also from the subsoil.

Let us see how they do this. Take clover, for instance. Clover strikes its roots down into the soil and subsoil. In the subsoil it finds some nitrogen, some phosphoric acid, some potash, and other things. These are used in promoting growth. A part of these substances goes up into the portion of the root where the next crop sown upon the soil will find them and feed upon them, and a part goes up into the portion above ground where live stock can utilize them, and in such a way that the greater portion can be put back again upon the soil in the manure. And the clover, while it grows, draws nitrogen from the atmosphere, and puts it into the soil eventually. There is, therefore, a residuum of nitrogen put into the soil by the clover, and this will constantly increase if clover is grown quite frequently and fed upon the farm, along with all the other crops that are grown.

But the phosphoric acid and the potash are not obtained from the air. How shall a supply of these be maintained? In the first place, there is usually a goodly quantity in the soil. In the second place, that which is in the soil in inert forms is continually becoming liberated. This, of course, so far lessens the supply in the soil. But to replace that some is brought up from the subsoil, and when the food which it produces is fed it goes back to the surface soil to make up for the partial loss in the bones of live stock that may be sold. It would be legitimate, of course, to buy an equal amount of bone meal, etc., to supply this waste, but we can conceive it possible to keep the amounts of these in equilibrium without doing this. Phosphoric acid and potash do not waste in the soil as nitrogen does, more especially potash.

The legumes that we can grow in this happy country are various. They include clover, lucerne, peas, vetches, and beans, and the aim should be to grow these to the greatest possible extent.

In nitrogen, therefore, it is possible to secure an accumulation of fertility. As long as legumes grow, and as long as nitrogen is in the air, we need never be short of a supply if we follow a certain kind of rotation. And, if we keep live stock to consume all the food that we grow, and something more that our neighbors will sell, there will be an accumulation of phosphoric acid and potash also.

Let us, therefore, give more and more attention to the growth of live stock, and to the growth of legumes. Let us take care of the fertility of our soils and increase it, and we shall become more and more the envy of less fortunate countries.

But it is evident that our soils cannot be enriched without observing some kind of a well-ordered rotation. Unless we do, there is an excessive drain on some one or more of the ingredients in the soil, and there will not be much of a call for others. The proportions of the elements of growth in the soil would thus become ill-balanced, and this would, in some degree, at least, be equivalent to locked up and unused capital, if not, indeed, of positive waste.

Improvement of Pastures.

On this continent this question has not, as yet, received that attention which its importance demands. It may be that we cannot have permanent pastures just exactly upon the European plan, but we can have them, all the same, and immensely superior to the pastures of the prairie. There is no real difficulty in laying down a permanent pasture in Ontario, or in any of the provinces further to the east. The permanent pasture question rather becomes one of maintenance than one of laying down. And here we are a little at sea, for experience in this country, in renovating permanent pastures, is almost entirely wanting.

Of course, as regards permanency, much will depend upon the character of the grasses. Those of greatest permanency here are blue grass, orchard grass, and common white clover, but alsike clover has also considerable permanency. Of the fescues, meadow fescue comes first in value, and timothy has not a little of permanency.

But permanency alone is not enough in a pasture. Luxuriant production is also necessary. If pastures are eaten bare from year to year and no attention given by way of im-

proving them, they will deteriorate rather than improve. On the other hand, it is surely possible to so improve them that they will yield more and more from year to year. If this can be done in a land where labor is dear, without breaking them up, it is worth while asking how.

Where cattle are grazed in the summer season for meat-making, the pastures should improve. If meal is fed, there is just that much more added to the land by way of fertility, except it be the constituents of the meal that is used in making flesh and bone. In this way a very considerable amount of fertility is brought to the land in a single season, and, if green food is brought on the soiling plan, and fed on different parts of the field by the system known as "teathing," the pasture will be enriched just that much more. Such a system, followed for a number of years, would certainly result in very greatly improving the pastures.

Of course, there is another way of getting farmyard manure on the land. It can be drawn upon it, as on other parts of the farm; but that would mean that those parts which had given the material for the manure would be just that much the poorer. Where foods are purchased and fed in winter, it would be different. A part of the manure made could then be legitimately made and spared for the pastures. When applied freely, there will probably be more value obtained from it than if used in the reduced form, for it will act as a mulch when thus applied, as well as a fertilizer. And manure may be drawn and scattered upon pastures with much advantage in the winter season.

Our knowledge as to the way in which other grasses may be added to thicken the sward is meagre, indeed. Our experience in this line is limited. That they can be renovated by sowing certain kinds of grasses at certain seasons of the year and harrowing these in is quite probable; but the experience in such a mode or modes of renewing grasses seems to be entirely wanting in this country. This much, however, has been ascertained, that if pastures are not eaten too closely, and some of the plants are thus allowed to ripen, the seeds will fall down again, and many of them will grow, and in this way the sward will be thickened. But only some varieties seem able thus to fight their way in the contest for supremacy. In the struggle for the survival of the fittest, the most valuable varieties do not always survive.

Another way of encouraging the growth of pasture grasses is to use commercial fertilizers for the purpose of stimulating growth. Where land is cheap and pastures are plentiful, this will not pay; but there may be some instances when it will pay very well. The kind of fertilizer to use will depend upon conditions. It would be impossible to lay down rules that would be applicable in every instance, as conditions vary much; but some general principles may be mentioned which relate to the application of commercial fertilizers. Those of a potassic character—as, for instance, wood ashes—seem specially beneficial to the growth of clovers, whereas those of a nitrogenous character are more helpful to the growth of grasses. Nitrogenous fertilizers—as, for instance, nitrate of soda—should be applied about the commencement of the growing period, or while there is moisture enough to promote growth. If not applied until dry weather has arrived the benefits will not be forthcoming, as moisture is necessary to enable the plants to take up the fertilizer. It would not be well to apply such fertilizers in the autumn, for then the season for growth would be short, and before the spring came the fertilizers would have gone down into the drainage water. Potassic fertilizers may be applied at almost any time. Those phosphoric in character—as ground bone, for instance—had better be applied in the spring, although, if applied in the fall, the loss should be serious only in so far as it relates to the leaching out of the nitrogenous matter which the bone may contain.

fertilizing ingredients to the needs of the plant, and it requires more knowledge to do this properly than the average man possesses. Where we may wish to grow but one kind of crop on a piece of land we can probably succeed for a number of years, but that time is pretty certain to come when we shall not succeed so well.

Handling Manure in Winter.

J. Bradley, Ingersoll, Ont.: Do you think that there is much loss from leaching in manure drawn and spread over the ground in winter when it is frozen?

ANS.—Ordinarily, there is not much loss from the source named, but in some instances there may be considerable waste. When manure is thus drawn and spread upon a side-hill, there may be considerable loss of fertility in a country where thaws and heavy rains are frequent toward the approach of spring. But on level or gently rolling land there should not be very much loss any season. There is no better way of using manure, all things considered, than by drawing it and spreading it in winter. There are obstacles in the way of doing the work frequently, as, for instance, too much snow or too little. The manure is sometimes frozen too hard to handle well, and other difficulties crop out. But whenever it can be done without excessive labor, in the judgment of the writer, it is a good plan to draw manure and spread it on the land in winter.

Go to the College at Guelph.

J. W., Sarnia: How would you advise, Mr. Editor, with reference to the course a young man should take who has no means, and yet wants to live by farming?

ANS.—Most unhesitatingly I would answer, take a course at the Ontario Agricultural College. The wages of a summer will carry a careful young man through the first year's course. Then he can earn about enough the three summer months following to take him through the second year. It will then be necessary, if he is going to remain in Ontario, to engage in farm work on salary. If of the right material, he should get high wages and constant work, and after a while could buy a farm. Or, if he wants to get land cheaply, there is a great wide northwest as yet untilled.



Cropping Land without Rotating.

W. Dunn, Sarnia: Can land be cropped indefinitely with the same kind of crop if it is kept supplied with fertility?

ANS.—Yes, but it is seldom prudent to crop it thus. If but one kind of crop is grown, the diseases peculiar to that crop are likely to be more troublesome than when a rotation is practised. The soil is also liable to become impacted, unless it has an admixture of sand present in it in considerable quantities. Care must also be taken to adapt the manurial or



Conducted by "DAIRYMAN."

WHEN milk is hauled only every other day during the winter, or only three times per week, as is the practice of some creameries, it is well to remember that even when it seems perfectly sweet on reaching the creamery it will ripen much quicker than fresh milk of apparently equal sweetness. This must be considered in setting the cream for ripening. Whenever the supply of milk will justify it, it is better to haul every day.

EVERY now and then some butter-maker reports that his butter will not come unless he churns at a temperature of sixty-five or seventy; that some peculiar change seems to have taken place in his cream. In such cases it is much more likely that a change has taken place in his thermometer and the new one is "off" five to ten degrees. So many of the cheap floating thermometers are inaccurate that it is dangerous to use one that has not been compared with a standard.—*Farm and Dairy.*

Butter Market.

The butter market seems to be holding its own. The strong upward tendency of prices on the other side has, however, been somewhat checked. As prices advanced to a high limit, large quantities of butter were sent over from New York, Montreal, and elsewhere, and these large shipments, though not causing prices to recede, have stopped their advancement for a time.

The outlook for butter just now, however, is brighter than it has been for some time; $23\frac{1}{4}$ and $23\frac{1}{2}$ cents are being freely offered for October makes, many of the creamery men holding for 24. Prices have been so good during the past few weeks that there is not much old or stored butter on this side of the water, the bulk of it having gone forward. This will leave the markets here free and without any old stock to come in the way of the fresh goods that are now on hand and being made.

The prospect of good prices for some time to come should stimulate the winter dairy movement. Last winter there was so much old summer stock left over that some of the winter dairies had difficulty in disposing of their butter at anything near satisfactory prices. These conditions are not likely to obtain during the coming season, and patrons of cheese factories who are situated near creameries will be able to supplement the returns from their cows during the summer very largely by milking them during the winter and supplying the milk to the winter creameries. The low prices during the summer have, however, caused many dairymen to neglect their cows and not keep up the flow of milk; so they are not in a good position to engage profitably in the business.

Cheese Market.

Since writing for the November issue the price of cheese has advanced very materially. So unexpected was this advance that the majority of factorymen, not realizing that it was coming, sold their September makes for from 8 to $8\frac{1}{2}$ cents, about one cent less than they could have got had they waited another week. This advance may be considered a permanent one, as prices have not receded since the first rise. Nine to nine and a quarter cents are being offered for October and November makes, but factorymen who have these makes for sale are holding for higher figures. Whether their expectations of a still further advance will be realized is somewhat doubtful. The bulk of the fall makes are in the hands of the middlemen, and are being sent forward, together with cold storage goods. These are supplying the immediate wants of the dealers in Great Britain, and, there being very few lots in factorymen's hands, shippers here are somewhat inactive, and the markets here seem quiet.

There is no probability, however, that prices will fall, and factorymen will be quite

safe in holding for a while any lots that may remain unsold.

The exceedingly small shipments from New York, and the extreme drouth in Australia and New Zealand, which will lessen very materially the output of cheese from these countries, would seem to indicate that Britain will have to depend very largely upon America for her supply of cheese for several months to come. It is also intimated that the cheese exports from Canada this year will be at least 100,000 boxes short of last year's. These are somewhat encouraging features for dairymen in connection with the world's supply of cheese and indicate that the low prices of the present season are not likely to be repeated in 1896.

Disposal of the Whey at Cheese Factories.

One of the important questions that will come up for discussion at the annual meetings of many of our cheese factories during the winter will be the best method of disposing of the sour whey. To many who are not particularly interested it will seem immaterial whether the sour whey is returned to the patrons in the milk-cans or sold to the highest bidder. To those who have made a study of the question, however, there is a wide difference between the two plans. The practice of returning the sour whey to the patrons in the milk-cans has been a detriment to the making of fine cheese in many of our cheese factories. True, the large majority of the Ontario factories adopt this practice, and it is impossible to get any other plan adopted, as the patrons refuse to send unless they have the whey returned by the milk-hauler for feeding to their hogs. The factories, however, whose product is sought because of its superior quality are almost invariably those where the sour whey is not returned to the patrons in the milk-cans.

If the cans are not thoroughly scalded and aired after the whey is dumped out, this sour whey will communicate its peculiar flavor to the new milk and to the cheese made from that milk. If every patron would have the whey taken out of the milk-can as soon as the can is returned from the factory, and have it thoroughly scalded and cleansed and placed where it can get the direct sunlight, the evils resulting from this practice would not be so great. But the real difficulty is that every one won't do this, and the neglect of one or two

will injure the whole lot of cheese. It is, therefore, much better to have the whey sold or fed near the factory, and not to run the risk of having the quality of the cheese injured by the sour whey flavor.

This scur or rotten flavor in old whey is caused by little living micro-organisms working upon the milk-sugar and other solids which go off in the whey in the process of cheese-making. Therefore, if only a small percentage of these minute creatures adhere to the sides or are left in the seams of the milk-cans through the neglect of some patron, they will begin to grow and multiply as soon as the new, warm milk reaches them, and will eventually permeate through the whole lot or vat of milk; and the worst of it is that these little germs are very persistent in their ways, and will continue their onward march in the curd made from that milk and finally in the cheese while undergoing the curing process. Very often this sour whey flavor may not be detected in the milk, or even in the curd, while the cheese are being manufactured, but may be there all the same, and will show itself when the cheese are cured, injuring their sale and the reputation of the factory. Thus will be seen the *great danger that is incurred* if the milk is allowed to come in contact with any foreign flavor of this kind.

Patrons supply milk to the cheese factory for the money there is in it, and the reason they require the whey returned is because they believe there is more money in feeding the whey at home than in disposing of it at the factory. From our own practical experience of several years in the cheese business, we are led to believe that patrons in the long run will derive more benefit by not having the sour whey returned. The highest value put upon perfectly sweet whey is 8 cents per 100 lbs. As the whey sours, the quality of the food in it is not affected, but the quantity is; therefore more value can be had by feeding it in as sweet a condition as possible, and this sweet condition can only be secured by feeding it near the factory. The average price received for whey at the factories when sold is about \$4.50 per ton of cheese. If this amount can be secured, the patrons of factories will receive more actual value than in having the sour whey returned, and will not run the risk of having the quality of their cheese injured by the sour whey flavor. Besides, it will not cost so much to haul the milk if the whey is not returned. It has been carefully estimated that, on an average, it costs

about 30 per cent. more to haul the milk when the whey has to be returned, other conditions being equal. Consequently, it seems clear that returning the sour whey in the milk-cans is not only a hindrance to the making of the finest flavored cheese, but also not the most profitable system that cheese factories can adopt.

How Much Water Does a Cow Require?

The answer, "As much as she can drink," might be considered the proper reply to such a question. Many dairymen, however, fail to realize the importance of giving their cows all the water they require. In fact, some do not know how much water a cow needs. During the summer a cow is usually allowed to get all she wants, either from the spring creek in the pasture field or from a well-filled trough. Not so during the winter. Very often cows are only allowed out once a day to get a drink, or perhaps the water is carried to them in the stable. In this way it is impossible for the cow at one drinking to take in enough to do during the day. Sometimes, if the water has to be carried very far, the cow can only get one or two pails per day. This is not sufficient to allow the cow to assimilate and digest her food properly. Though roots form a large part of the cow's ration, she will require considerable water and that oftener than once a day.

Last winter Mr. George Rice, a prominent dairyman near Woodstock, made a test of the cows in his herd in this particular. He found that while a heifer not in milk drank only two or three pails daily, his cows drank as high as ten pails daily. Two cows, fresh in milk, drank from eight to ten pails daily, while some others longer in milk, and consequently not giving so much, only drank from four to six pails daily. He also found that one heifer when dry, in August, only drank from two to three pails daily, but, after she had calved in December, required from six to eight pails daily.

These figures will, no doubt, be surprising to many. It is hard to realize that one cow, in a day, can drink eight pails of water. If a milk cow requires that amount, one thing is certain, she cannot take it into her body at one drinking, and, therefore, should have access to water at least twice a day. We also learn from this experience of Mr. Rice that a

cow giving milk requires considerably more water than a dry cow. Water is very cheap in this country, and if a cow requires more of it in order to assimilate her food and convert it into milk, she should have it. If by giving the milk cow a pail or two more water, and at more frequent intervals than is done by many dairymen, she will increase five or six pounds in her flow of milk, it seems to be a profitable way of converting nothing into something, and of getting well paid for the labor attached to it.

Undoubtedly, the best way of watering cows during the winter is in the stables. Of course, if the water has to be carried very far, the cows are not likely to get all they want. There should be, however, in every well-regulated dairy stable, a trough running in front of the cows, filled with water, so that the cows can drink whenever they wish. It will not be very difficult to do this if there is a pump near the stable. A good plan is to pump the water up into some elevated tank in the stable and have pipes connecting this tank with the watering trough. By keeping this tank filled with water, the chill will be taken off before the water reaches the cows. A cow let out of the stable, on a cold, bleak day to get a drink will become chilled after drinking the cold water, and some of the food she gets after being put in the stable again will, instead of producing milk, go towards bringing the temperature of her body back to its normal condition. It is not, therefore, an economical way of caring for cows to allow them to become chilled unnecessarily.

This subject of the amount of water a cow needs requires more attention than we can give it just now. We would, therefore, like to have the experience of other dairymen in this particular. If you have no experience to give, make an experiment during the winter, and let us have it for publication in this department.

The experience of practical men upon this, or any other line of dairy practice, will be given due prominence in these columns.

More Co-operation Needed Among Cheese Factories.

The success of the cheese industry of Canada depends upon co-operation. It was because, in 1863, a number of farmers in Oxford County agreed to supply their milk and have it manufactured after one system that Harvey Farrington was able to start the first co opera-

tive cheese factory in Canada. It is because farmers and dairymen have co-operated and built factories all over this country that the cheese industry has been developed to its present large proportions. It is because, at the inception of co-operative cheese making in Ontario, the dairymen united and formed dairy associations, which looked after the educational part of the business, that the quality of our cheese has been gradually improved and raised to its present degree of excellence. It is because, in the earlier history of dairying, our dairymen co-operated and were united, that laws were enacted prohibiting the importation or the manufacturing of "filled cheese" or "bogus butter" in Canada, and that the statutes were so amended as to administer adequate punishment to all parties found tampering with milk supplied to the cheese and butter factories. Therefore the term "co-operation" has been almost synonymous with the term "success" as applied to the cheese industry of Canada.

In one particular, however, there has been and is at the present time a serious lack of co-operation on the part of our dairymen. The spirit of rivalry between factories has been carried too far in many of the older dairy districts, and has blinded somewhat the judgment of dairymen as to what is true economy in the management of cheese factories. Many of these factories, in order to gain patronage and secure more milk, cut into each other's territory, making the running expenses of each factory higher. Instead of co-operating in the arrangement of definite boundary lines between the territory of each factory, in many sections, such divisions are completely ignored and it is quite a common occurrence to see two or three different milk-wagons belonging to as many different factories going over the same concession line to get milk. We have in our mind one particular instance where a milk-wagon from one factory travels $2\frac{1}{2}$ miles past a neighboring factory to gather milk. Such encroachment upon each other's territory only serves to increase the running expenses of each factory concerned. If the territory belonging to each were so arranged that there would be no travelling over the same ground two or three times, the expense of hauling milk would be considerably reduced and the cost of manufacturing to the patrons very much lessened.

If there were more co-operation among factories in regard to the butter fat system of paying for milk, this improved method would

soon be more generally adopted by our factories. If the factories in the various districts would co-operate and arrange that no sour whey should be returned to the patrons in the milk-cans, the evil effects resulting from this practice would soon be overcome. If there were more co-operation among the different factories in reference to the selling of cheese, the product could be disposed of and handled to much better advantage than is now done in many factories.

These are some of the points that it would be in the interest of dairymen to consider. We have not space to develop each one fully, but trust that by drawing the attention of all those connected with our cheese factory system to them an improvement may be effected and more co-operation engendered among factories in these particulars.

The Boiling Point of Milk.

The *British Medical Journal* publishes a contribution from Dr. Edmunds in which he makes the following observations on the above subject: Referring to the temperature at which typhoid bacilli are killed, a correspondent assumes that milk boils at 180° to 190° F. This is a mistake which needs correction. Milk boils at a temperature higher than that of water, and it is well known that boiling milk inflicts a much more serious scald than boiling water. The point at which milk boils will vary half a degree or more according to the amount of saline and other non-aqueous constituents, but I find that a fair sample of milk, taken from my own kitchen, boils at 235° F. when tested with a standard chemical thermometer. I have always advised that milk boiled for one minute is made safe by the killing of any infective germs which it might have contained. The butter contained in the milk does not seem to raise its boiling point, but it is well enough known that butter and other fats and fixed oils boil at a very much higher temperature, and that boiling fixed oils destroy the skin as effectually as melted lead. In the manufacture of tin plate—that is, sheet iron plated with tin—the tin is kept melted under melted tallow, and the clean sheet iron is tinned by being passed through this bath of molten tin. Fixed oils may be heated to about 500° F. without undergoing material change, but at about 700° F. they begin to boil, owing to the evolution of gases, which are set free as a process of destructive distillation. It is generally held that the typhoid

infection of milk is due to contaminated water used for washing the milk vessels or for augmenting the bulk of the milk by fraudulent additions. My own opinion is that an escape of fœcal matter from the cow while being milked often falls into the milk pail, and that this is generally the real cause of typhoid infection in milk. I have actually seen this to occur when inspecting dairies and examining suspected cows, and I am perfectly sure that it often takes place. The polluted water idea seems to me to be far fetched and inadequate.

Balanced Ration for Dairy Cows.

A large share of success in dairy farming is due to systematic feeding. Unless some definite system is followed in providing a well-balanced ration for dairy cows, the best results cannot be obtained. A well-balanced ration for dairy cows, according to the American standard, should be composed as follows :

	Lbs:
Total organic matter	24.5
Digestible protein	2.2
“ carbohydrates	13.3
“ fat7
Total digestible nutrients	16.2
Nutritive ratio	1 : 6.9.

The following arrangement of foods, though a shade lower in total organic matter than the standard, may be considered as being approximately correct : Barley, 2 lbs.; bran, 8 lbs.; clover hay, 6 lbs., and corn ensilage 45 lbs. Other combinations of foods might be made that would give the same nutritive ratio and as good results if fed to dairy cows. Dairymen will have to be guided largely by the kinds of feed they have at their disposal, in forming the most economical ration for dairy cows.

F. W. Woll, of the Wisconsin Experiment Station, in Bulletin 38, gives a large number of rations used by successful dairymen in America and Canada. We give below a few of these rations, and though some of them will be found deficient if compared with the standard, yet they have been used with good results by progressive dairymen.

(1) 10 lbs. clover hay, 35 lbs. ensilage, 2 lbs. oat straw, 5 lbs. cornmeal, 5 lbs. beans, 5 lbs. oats.

(2) 40 lbs. corn ensilage, 10 lbs. timothy hay, 5 lbs. bran, 3 lbs. cornmeal, 2 lbs. oil meal.

(3) 30 lbs. corn ensilage, 12 lbs. clover hay, 8 lbs. wheat middlings, 1 lb. oil meal.

(4) 30 lbs. corn ensilage, 12 lbs. of hay, 10 lbs. ground oats.

(5) 50 lbs. corn ensilage, 10 lbs. clover hay, 3 lbs. straw, 5 lbs. peameal, 2 lbs. oats.

(6) 19 lbs. corn fodder, 9 lbs. clover hay, 1 lb. barley straw, 4 lbs. cornmeal, 3 lbs. barley meal, 3 lbs. bran.

(7) 45 lbs. corn ensilage, 12 lbs. clover hay, 8 lbs. shorts, 4 lbs. cornmeal.

(8) 12 lbs. timothy hay, 5½ lbs. corn fodder, 6 lbs. corn meal, 2 lbs. oats, 2 lbs. barley, 5 lbs. bran, 7½ lbs. potatoes.

(9) 25 lbs. clover hay, 34 lbs. mangolds, 3 lbs. corn and corn meal, 1½ lbs. oats, 2 lbs. wheat bran.

(10) 40 lbs. corn ensilage, 15 lbs. hay, 5 lbs. bran, 2 lbs. cotton-seed meal, 3 lbs. corn meal.

What Cheese Is.

Not long since an article appeared in a prominent journal, which set forth the claim that certain results could be obtained in cheese-making from milk of a certain test of fats, from the fact that the solids, not fat, amounted to so much, and the resulting cheese would reach such a corresponding weight. There was one fatal error in the statement, and that was in assuming that all the solids in milk could be retained in the cheese in the making. No process of coagulation of milk has yet held two of the solids captive, the albumen and the sugar. Sugar is the most abundant of all the milk solids, and cannot be fixed by the action of rennet. In most published analyses of milk casein and albumen are classed under the one head of casein, but the rennet action does not hold the albumen perfectly, only as small percentage, possibly 10, and the balance escapes in the whey with the sugar, so at last the full cream cheese has only about 2¼ pounds of casein to 3 pounds of fat, and the balance of the weight of the cheese, 32 per cent., is made up of water. The composition of a full cream World's Fair cheese was as follows: Fat, 36.18 per cent.; casein, 27.19 per cent.; water, 31.70 per cent.; ash, 2.97 per cent. To see how good cheese rates, as compared with best sirloin steak, the substance of the latter is given: Water, 60 per cent.; fat, 20 per cent.; albumen (equivalent of casein), 19, or 39 per cent. of food solids, against 63.37 per cent. solids in cheese, and the cheese is practically all digestible, which shows the great value of good cheese as an article of diet and economy.—*Practical Farmer.*

The Milk Cure is the Latest.

A doctor in South Africa claims to have discovered a new method of curing disease, which he terms "lacteopathy."

It struck him, he says, that, as milk absorbs poisonous germs from a bucket, it might also be used to absorb poisonous germs and gases from the body.

He put his idea to the test, and now claims to have cured people of smallpox, fevers, diphtheria, spinal disease, and many other maladies, by simply wrapping the patients in milk sheets.

He lays his patients on a mattress covered with blankets, takes a sheet just large enough to envelop the body, warms it, saturates it with about a pint and a half of warm milk, opens it without wringing it, and wraps his patient in it for an hour, subsequently sponging him over with warm water or putting him into a warm bath.

He declares that in one bad case of smallpox, where the eruption was well out, the milk sheet drew the poison so entirely from the skin that the next day the eruption disappeared and the man was convalescent.

Irish Co-operative Creamery Management.

An Irish creamery is worked as follows: The management is usually entrusted to a president or chairman, and a number of committeemen, generally from four to eight, elected by the members of the society. The working staff consists of a manager, a dairymaid and assistant, a man or boy to help in the dairy, and a man to look after the engines. Every shareholder has a voice and vote in the society. If the committee do not give satisfaction in the discharge of their duties, the shareholders can call a meeting, and, when necessary, replace them.

In the summer the farmers send their milk to the creamery twice a day; in the spring and autumn once a day, and in the winter every alternate day. The cream is extracted by centrifugal separators. The process of buttermaking is very similar to the Danish system. The cream stands from 24 to 36 hours to ripen after it is separated. In some dairies it is refrigerated as it comes from the separators. It is then placed in Schwartz cans and kept at a certain temperature until the lactic ferment is formed in the cream.

When the cream is ripe for churning, it is thoroughly mixed and put into the churn, and, as soon as the butter comes, a very small quantity of cold water is added to the churn, which is slowly revolved in order to free the butter from the buttermilk. The butter is then taken out, lightly sprinkled with very fine dry salt, and placed on a butter worker, through which it is passed two or three times. It is then allowed to stand for some time, and again passed through the worker, when it is finally packed in casks and boxes for the market. The butter is not washed. The milk is paid for according to its percentage of butter fat. In 1894 the average price was about $3\frac{1}{2}$ d. per gallon, the separated milk and buttermilk being returned free to the farmers.

The sale of the butter produced in the co-operative creameries is largely conducted through the Irish Co-operative Agency Society. The commission charged on sales effected in this way is $2\frac{1}{4}$ per cent. In 1894 the butter sold realized an average price of nearly $10\frac{1}{4}$ d. per lb., as compared with $11\frac{1}{4}$ d. in 1893.—*The Dairyman, London.*

Bacteriological Research.

The importance of bacteriology to dairymen is just beginning to be recognized. The application of the knowledge already acquired to the butter industry of Denmark has done much, within the last few years, to improve the quality and increase the uniformity of the product of Danish dairies. The result has been achieved largely by pasteurizing the milk and cream, and then introducing the desired kind of bacteria, known to scientific men as *pure cultures*. This method, so useful and satisfactory in Denmark, has found favor in the United States also. Over one hundred creameries on the other side of the line are introducing pure cultures. So it may now be stated, as a fact, that the science of bacteriology is furnishing information which enables the buttermaker to make butter of superior flavor, more uniform character, and better keeping quality; the milkman to have his milk sweet and free from disease-producing germs; and the cheesemaker to understand and control, to a large extent, the ripening and flavor of his cheese.

The organization of a Department of Bacteriology in connection with the Agricultural College at Guelph is, therefore, a wise and important step in advance. F. C. Harrison, B.S.A., the bacteriologist of the institution, is, we are

glad to know, thoroughly equipped for the difficult and responsible position to which he has been appointed. He devoted special attention to general microscopy and bacteriology in his own college course; after graduation he visited all the best bacteriological laboratories on this continent; and the summers of 1894 and '95 he spent at practical work in the botanical and bacteriological laboratories of Cornell and Michigan Universities. By the enterprise and foresight of the Hon. John Dryden and President Mills, the new bacteriological laboratory at Guelph is thoroughly equipped. Mr. Harrison is now at work, and we expect valuable results, directly to the students of the college and indirectly to the people of the province at large.

Feminine Dairy Wisdom.

Dorothy Tucker writes as follows to *Farm Journal*:

Never take any chances with a bull—handle him with such care that you can always feel yourself reasonably safe from harm, even if he should have an ugly streak.

Do not keep him in solitary confinement in some dark, dirty pen.

The better the feed, the better the product and the more profit.

Stingy feeding and shiftless management will soon run down the cows and dissipate all hopes of success or profit.

We have converted one farmer to our way of raising calves. Formerly his calves were poor, little, pinched, pot-bellied things at one year old, not as large as they ought to have been at three months. This year he has used flaxseed jelly and skimmed milk, fed regularly, and you ought to see them—great, round, rangy sleek calves that it is a comfort to look at. He thinks it pays now.



FOR FARMING.

Dairy Tests.

Can you tell me why, although Ayrshires and Holsteins are so popular, and each is claimed by its friends to be the best of all dairy breeds, neither of them took the opportunity of proving it afforded by the Chicago tests in 1893? Half of the \$100 prize for largest production of milk-solids at the Indus-

trial is given by the Canadian Holstein-Friesian Association, and one of the conditions under which the test for that prize is conducted is that "rations fed to competing cows will not be considered." Is this to be taken as an admission that their cattle would not show to advantage in a test in which, as at Chicago, not only quantity produced, but also cost of production, were taken account of? Can you tell me where I can find reliable milk, cheese, and butter records of Ayrshire cattle—records both of single cows and of herds, both here and in Scotland, and records not of a day or a week, but of a whole year, or, better still, of a series of years; also information as to the nature and amount of the food consumed in producing these results? Surely some of the many enthusiastic Ayrshire breeders of Canada could give much useful information on these points, and so enable those interested in ascertaining the relative merits of the various dairy breeds to compare the performances of the Ayrshires with those of the cows of other breeds.

About a year ago I picked up a copy of your paper, which I was not then receiving regularly—I think it was September or October, 1894. In it I read an article on "Guernseys as Butter-producers," in which were given a couple of tables showing the cost of production of a pound of butter from various dairy breeds. Would you kindly at some time republish these tables (they were very brief), and give some information as to how, where, and by whom the results given in them were obtained, and also tell if they have been verified by others?

AN ENQUIRING READER.

ANS.—We are not in a position to state why Ayrshires and Holsteins did not compete in the "Battle of the Breeds" at the World's Fair. It may be that the associations representing these breeds were not in a position to undergo the expense necessary for such an exhibit. Neither are we prepared to state definitely why the feed consumed was not taken into account at the recent competition at the Industrial. We do not think it is because the breeds named by "Reader" would not show up well if the quantity of feed consumed were taken into account.

It would be more satisfactory if in all competitive tests the quantity of feed consumed were taken into account. But at the fall fairs where such tests are made, the authorities do not care to go to the expense of hiring trustworthy persons to take charge of and be responsible for feeding the cows under test correctly. Besides, at such places the test of milk only covers two days at most, during which time it would be hardly worth while to take into account the quantity of feed consumed. Even at the Industrial this would apply, as the competitive test of breeds referred to only extended over two days.

Considering the number of experimental stations in the United States and Canada there have not been many comparative tests of the milking breeds made, or at least there have not been very many results published. There seems to be a certain amount of apathy on the part of experimentalists employed by governments in publishing any results that would reflect upon the qualities of any particular breed. Whether this is a right attitude to assume or not there will, no doubt, be a difference of opinion.

There are, however, a few stations that have published the results of tests of this kind, and we give below a partial summary of the results obtained by the New York Agricultural Experiment Station from an elaborate and extensive series of tests. If "Enquiring Reader" would write to the director of this station at Geneva, N. Y., he can secure a set of bulletins giving the complete results.

MILK PRODUCTION.

Partial summary of results for one period (10 months) of lactation :

	Cost of food.	Pounds of milk given.	Money value of milk at \$1.28 per 100 lbs.
Ayrshire.....	\$49.32	6,824	\$87.24
Guernsey....	46.15	5,385	68.93
Holstein.....	50.73	7,918	101.35
Jersey.....	45.49	5,045	64.58
Shorthorn.....	46.22	6,055	72.50

BUTTER PRODUCTION.

	Cost of 1 lb. of butter.	Money value of butter produced.	Profit from butter produced.
Ayrshire.....	17.92 cents.	\$68.80	\$19.43
Guernsey....	14.15 "	81.40	35.25
Holstein....	17.02 "	74.53	23.80
Jersey.....	14.11 "	80.60	35.11
Shorthorn....	15.15 "	76.28	30.06

CHEESE PRODUCTION.

	Cost of 1 lb. of cheese.	Money value of cheese produced.	Profit from cheese produced.
Ayrshire.....	7.24 cents.	\$65.84	\$ 7.00
Guernsey....	6.57 "	67.92	13.87
Holstein....	6.72 "	73.00	12.02
Jersey.....	6.62 "	66.44	13.42
Shorthorn....	6.35 "	70.39	15.06

In the above tests there were used the products of four cows each of the Ayrshire, Guernsey, Holstein, and Jersey breeds, and one Shorthorn.

The standards proposed for the respective breeds by the British Dairy Farmers' Association for entry in the "Dairy Cattle Register" are as under :

	Weight of milk in milking period (not exceeding 11 months).	Pure butter fat per day (determined by analysis).
	lbs.	lbs.
Ayrshire.....	7,500	1.00
Guernsey.....	6,000	1.25
Holstein.....	8,500	1.00
Jersey.....	6,000	1.25
Shorthorn.....	8,500	1.25

Averages of breed tests conducted at the annual dairy shows of the British Dairy Farmers' Association, 1879-'93, inclusive :

	Average yield of milk per day.	Total per cent. of solids.	Per cent. of fat.
	lbs.		
Ayrshire.....	37.82	13.45	4.22
Guernsey.....	29.36	14.26	4.83
Holstein.....	45.19	12.25	3.41
Jersey.....	27.58	14.02	4.96
Shorthorn....	44.03	12.85	3.78

This result, though not stating the cost of production, will give some idea of the relative standing of the five breeds in Great Britain.

In considering comparative tests of dairy breeds it must always be taken into account that there are good and bad cows in every breed, and while each breed has its peculiar characteristics, there may very often be as wide a difference in the cost of producing milk, butter, and cheese between cows of any one breed as between the cows of different breeds. We should be glad if any of our readers could give any further information on the subjects mentioned in the letter above through our columns.

The tables given in our issue of September, 1894, were those of results obtained at the New York and New Jersey Experiment Stations, and can be accepted as reliable.

Swollen Bag.

A cow on our farm has one side of her bag swollen to about twice its normal size; she was all right in the morning, but at night, when she came from the pasture, we found the bag in above condition. The day before she had a thorn bush caught in the switch of her tail; perhaps she scratched her bag with this thorn bush and poisoned it. Can anything be done? The cow came in about two months ago, but we cannot use milk since bag swelled.

West Troy, N. Y.

C. B. F.

Give 2 oz. spirits turpentine and 8 oz. linseed oil; repeat next day. Rub udder with some of the following liniment, three times a day: Tincture arnica, 4 oz.; tincture opium, 4 oz.; fluid extract phyto lacca decandra, 2 oz.; alcohol one pint; mix. Feed only bran mashes and hay for a week.—Country Gentleman.



Conducted by E. J. McINTYRE, St. Catharines, Ontario.

December Notes.

Winter brings rest and leisure to the fruit-grower. The last of the apples have been disposed of, or stowed away safely in cellar or pit. Some winter pears or late-keeping grapes remain with the apples, perhaps as long as Christmas; after that, the apples alone represent in their freshness the produce of the orchard. All the other fruits—the plum, cherry, peach, quince, and the berries—are no longer a matter of care, except in so far as the preserving jar is concerned. The insect enemies are sound in their long winter sleep. The ground of the orchard is covered with snow or frost-bound till spring.

Early in December, however, some by-products of the apple orchard may still claim attention. What remains of the apples, after the marketable ones have been selected, can, with profit, be converted into cider, which, in the course of time, will become vinegar of excellent quality, preferred by many to the white wine vinegar. The grocery bill a year or two later may be materially lightened by supplying the grocer with vinegar. The cider presses are now so constructed that very little apple juice escapes, though the old-timers say that the cider is not as good as that which used to be obtained from the wooden presses in which the apple-substance to be compressed lay on a bed of fresh straw. Attached to cider mills as part of their equipment there is in many places an apparatus for converting the apples into jelly. You take your apples to the mill, and you bring home either cider or jelly, as you wish. The jelly is made by steam process, and is an excellent, palatable article, though apt to be somewhat sour unless sweet apples are freely intermixed among those that are to be ground.

Then, again, no farmer should be without a winter supply of cider sauce. It is an article worthy of a place of honor in any storeroom, country or city. Cider sauce, or apple butter, was first brought into Canada, I believe, by the German settlers, who came from Pennsyl-

vania early in the century. Its use is now quite general. The cider is boiled until its volume is reduced by one-third. Then apples, carefully peeled, cored, and quartered are added until the mass is half as large again as the original quantity of cider. Then this is boiled until the apples are all dissolved, a rather tedious process, my memory assures me, especially as the mixture has to be stirred all the time. When the sauce has arrived at the stage that the mistress of ceremonies pronounces "done," it is taken off the fire and spices are stirred into it, and then it is stored away for future use.

Early in December, also, the farmer takes care to see that his trees are protected against the attack of rabbits and mice during the winter. These vermin will gnaw the bark from the base of the trunk of the trees, when other vegetation becomes scarce. Young trees, being more tender, are more liable to their attacks. Once a tree is girdled, it cannot live. I know a fruit-grower who lost over a hundred young trees last year through the ravages of mice. There should be no litter left in the orchard that the mice can take shelter under. It would be well also to hill up the trees a little before the snow comes, and, if the snow reaches up to the trunks, to trample it down occasionally. A strip of tarred paper fastened round the base of the tree will form an effective preventive of injury from mice and rabbits. But the best measure to take is to have no sod, or grass, or litter left in the orchard to attract the mice in the first instance, and the other preventive measures may then be applied only to the rows of trees that are near the fences.

If it is the intention to set out more trees in the spring, no time should be lost in giving the order now. Be sure that you are dealing with a reliable man, in buying your trees. You may be imposed upon in various ways. Other varieties than what you order may be palmed off on you. Small three-year-olds may be given you for large two-year-olds. Exorbi-

tant prices may be charged. You may be talked into buying a new variety at a fancy price, when an old standard variety would be indisputably better. Buy directly from the nursery, if you can, and speak for first-class trees, medium in size, shapely, straight, budded near the ground, showing full promise of vigorous growth. Apples and pears with three years' growth from the bud or graft, dwarf pear, plum, and quinces with two, and peaches with one, are usually selected. Take plenty of time in selecting your nurseryman and your nursery stock, but, once having satisfied yourself on these scores, lose no time now in giving your order.

In the winter the plum trees and the cherry trees should be examined carefully for traces of black knot. Every portion of wood in which the fungus occurs should be collected and burned. Black knot is a very destructive disease, but it is perfectly controllable. Eternal vigilance is the price of safety from its ravages. The fungus appears on the trees the year after the germs obtain a lodgment; and the most vulnerable parts of the tree are the croches and the junctures of the annual growths, the bark being there more tender. Excellent results have been obtained from the use of Bordeaux mixture in the spring, for this fungicide remains upon the branches a long time, and the summer spores of the fungus are killed. But, if the knots are all removed in early winter, there will be no occasion for using the Bordeaux mixture in the spring. Considerable apparently sound wood should be cut away with the knot in order that no portion of the disease may remain. It will be labor lost if the cuttings are left on the ground, for spores will mature on them, and will scatter themselves over the orchard just as though they had been left undisturbed on the trees. A great healthy public sentiment should be roused against black knot wherever it exists, for one infected orchard may contaminate a whole neighborhood. The law should be vigorously enforced against those who wilfully allow this disease to spread on their trees. All thickets, hedges, and useless trees, capable of breeding and distributing it, should be destroyed. Wild cherry trees should also be examined for traces of black knot.

Before winter sets in and the ground becomes unworkable, the fruit-grower sees to it that his orchards are prepared to stand the rains and floods of the spring. Good drainage

is absolutely essential to success in growing fruit. No tree or shrub can thrive in low, damp soil, where water will remain till it disappears through evaporation. One season's neglect may ruin an orchard the situation of which is not all that could be desired in regard to draining. It would be well to have all land underdrained that is set out in fruit. But this ideal condition is not often present. In any case, no standing water should be allowed to remain in the orchard. Wherever there is danger of it, the land should be well hollowed between the rows, and made to slope gradually so as to allow the water to run off rapidly. The fall is the best time also for tile-draining and ditching generally. In the spring more urgent, though not any more useful, work requires attention.

Before the ground hardens, it would be well to work into the soil some of the fertilizing materials that are intended to be used. Barnyard manure and other nitrogenous fertilizers are best applied in the spring, but ashes and bone dust, or other forms of potash and phosphoric acid, may be applied with much advantage in the fall. The action of the frost tends to decompose them, and thus to render them more available for plant food next season. No farmer should allow a bushel of ashes to leave his place. It is worth a great deal more to him than anything he can get in exchange for it. Canada ashes are sent all the way to Florida, and are eagerly sought after by enterprising fruit-growers in that distant state. Why should they not be prized as much at home?

The compost heap in the barnyard should be enlarged by all possible devices. Livery stables and other places where horses are kept, in cities and towns, collect accumulations of manure, which the owners will gladly have removed and exchanged for a reasonable equivalent of fodder. It is strongly recommended to keep at hand a quantity of ground gypsum or plaster of paris to sprinkle daily in the stable. It conserves the nitrogen of the manure, its most valuable constituent. While it is necessary, for the proper fermentation of the manure heap, that it should be freely watered, no liquid should be allowed to drain away from the barnyard. Lastly, do not allow any intermixture of ashes and barnyard manure, or apply them on the soil at the same time. There is in that case a waste of nitrogen.

Japanese Fruits.

In selecting varieties of trees to plant next spring, give a good place to the recent importations from Japan. The Japanese varieties of plums excel ours in size, color, productiveness, and flavor. They have been well tested here, and can be relied upon. Japanese pears are not equal in quality to ours, though some of their varieties are of enormous size. The Kieffer is a cross from a Japanese kind, and is being very extensively planted. I planted fifty of them two years ago, and I must say that they have grown very vigorously, and give fine promise. I hear, however, some contradictory reports regarding this Kieffer pear. Some speak of it in terms of highest praise, as being a large, luscious, beautiful fruit and very productive; a few condemn it as small and hard. It seems, at all events, to appreciate good surroundings and careful attention.

The Elberta peach is another gift from Japan, or rather a seedling from Japan stock. It is hardy, vigorous, and prolific, besides being a large, well-flavored fruit. It is thus a valuable addition to our older varieties.

The Abundance plum, the Kieffer pear, and the Elberta peach, all of Japanese origin, are now considered among the most valuable of their kind on this continent.

Public Tastes.

It is a discouraging fact to a fruit-grower that often his best and choicest products are not appreciated according to their merits. Something else should be cultivated along with choice fruit; and that is, public taste. When you go to interview a nurseryman with regard to what varieties to plant, he will ask you whether you want a good variety, or one the fruit of which will sell most readily. The public will buy a variety that looks well, in preference to one that tastes well. That is something that remains a constant puzzle to those who really appreciate fruit. Dealers will tumble over one another to get Champion grapes which no fruit-grower would put near his mouth. Niagara grapes are demanded two weeks before they are ripe. Showy apples, like the King, command a higher price than the modest-looking, though much superior, Greening. It is in pears, especially, that public taste is at fault. I remember, on one occasion, shipping to market two baskets of pears together, one of the Clairgeau variety,

the other a Beurre Bosc, both good samples of their kind. The Clairgeau is a rather large pear, well-shaped, mellow-looking, with a faint blush of red, giving a delicate under-coloring to the skin; but the flesh is coarse and without flavor. The Beurre Bosc is a homely-looking, undersized, or at best medium-sized, pear, with a plain, russet-skin—though, when one looks closely, one can see that its texture is fine—altogether an unattractive pear. The Beurre Bosc is one of the most delicious fruits of the orchard, and, among pears, has no rival but the equally homely Seckel, yet for the Clairgeau basket I received 75 cents, and for the Beurre Bosc 50 cents.

There is an earlier variety of pear, called from its shape the Bell. It is a beautiful pear to look at, but so acrid and austere in taste that the very worms will have nothing to do with it. Needless to say, it generally commands a fair price in the market.

This state of things cannot but work harm to the grower as well as the consumer. The latter, in his disappointment, will not feel disposed to buy again; the former, in like disappointment, will cultivate showy fruit in preference to that which has intrinsic merit. The remedy lies in the cultivation of public taste. The matter will gradually right itself. People should not be in a hurry to buy fruit before it is ripe, and growers should not be in a hurry to ship it; and all concerned should bear in mind that the proof of the fruit, particularly of the pear, lies in the tasting of it.

Fertilizers.

It is pretty generally known that, although there are many other elements in the construction of a plant, there are only three that the soil will not supply indefinitely. These three are nitrogen, phosphoric acid, and potash. The other elements are just as important, and one of them, carbon, is required in greater quantity, but the soil or the air contains an inexhaustible supply of them, and they need not be taken into account when the question of fertilization is considered. Some trees draw much less of these three than others. The olive, for example, obtains the materials for its oil entirely from the atmosphere, and, in consequence, remains a long period with unimpaired vigor, though no fertilizing substance is added to the soil. But all our common fruits require liberal feeding. They draw heavily from the soil, and the successful fruit-grower must use fertilizers.

It may happen that the mechanical condition of the soil is at fault. It may be that lime is needed to cure a certain sourness of the soil; or gypsum, to counteract an alkaline character; or salt, to attract moisture. There may be plenty of plant food, but not available for the tiny rootlets of the trees.

It is often difficult to tell which of the fertilizing elements is most needed. A deficiency in growth of foliage is usually taken to indicate a need for more nitrogen and barnyard manure or nitrates. Inability to produce fruit, provided the growth of foliage is normal, is usually set down to a lack of the other elements. But the most satisfactory means of ascertaining the actual needs of worn-out soils is afforded by actual tests with fertilizers.

Once a farmer or fruit-grower knows what his soil most lacks, it will save him much labor and money, for then he need buy only the plant food that is necessary, or concentrate his efforts upon that particular feature of the soil that renders his labor ineffectual.

The Pear.

The pear is a fruit that has developed its excellent qualities in comparatively recent times. Although known and cultivated by the ancients, it was not held in high esteem. It had to be boiled before it could be eaten. What great progress has been made in the development of all vegetable and animal life that serves human purposes! Historians tell us that five centuries ago a sheep's fleece weighed, as a good average, a pound and a half; and of wheat twelve bushels per acre was considered a good yield. But nowhere do the results of selection and care show so well as in the case of the pear. In France, especially, this fruit has been cultivated and developed with care and patience, as the French names among our most esteemed varieties amply testify. There are over one thousand different varieties under classification in America; but of these not more than fifty are really valuable. Some of the best have been discovered by accident. The Duchesse was found in a hedgerow; the Seckel is a chance seedling, and so is the Bartlett; and all these are not much more than a hundred years old.

The pear is a long-lived tree, and may grow to a height of sixty feet and a thickness of two and a half feet, but usually it is not more than twenty feet high. Though it resembles very much the apple, it will not graft on

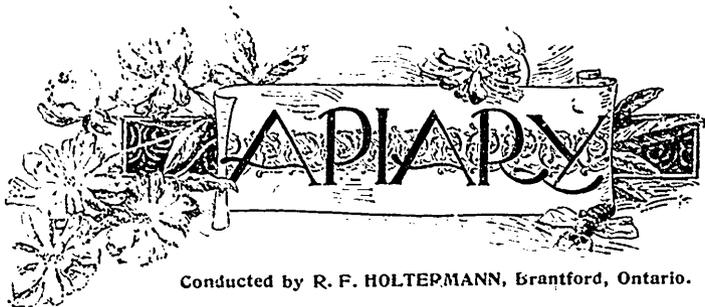
apple stock. But upon the quince—or, at least, the Angers variety of quince—it grafts and buds very freely. When a pear bud is grafted on a quince stock, a dwarf pear is the result. The dwarf bears earlier, and heavier in proportion, than the standard, but is shorter lived. Some varieties, such as the Duchesse, mentioned above, do much better as dwarfs than as standards, though, as a rule, the standards are better. Dwarfs can be removed from one place to another without injury, and they can be changed into standards by having the point of junction below the surface of the ground, so that rootlets may start from the pear trunk. Pears are of all sizes and shapes; the Bartlett may be taken as the typical form. Japanese pears are of the same shape as apples.

The pear needs a good, strong soil, well drained and well cultivated. It has a number of enemies that prey upon the tree or the fruit. The chief of these are the bark-louse, the slug, the curculio, and, worst of all, the fire blight.

Pears are classified according to the period of the year in which they ripen their fruit—into summer, autumn, and winter varieties. Of summer varieties, the earliest with us in this district are two French pears, the Doyenne d'été and the Beurre Giffard. Clapp's Favorite and Doyenne Boussock are better known and more esteemed varieties. The Tyson is a pear that deserves more notice than it gets. It is a sweet, clear-skinned, pretty pear, and the tree—in my orchard, at least—bears abundantly every year. One would wonder how so small a tree can carry such a load. But all summer varieties—indeed, all kinds of pear—yield the palm to the Bartlett. I need not describe this well-known fruit. Its flavor is not excelled by many other kinds. It bears abundantly, year after year. It is one of the hardiest varieties, as well; and, all things considered, it is the most desirable variety to plant.

A greater assortment of excellent pears may be found among the autumn varieties. The Flemish Beauty, the Howell, the Kieffer, the Clairgeau, the Beurre Bosc, the Duchesse, the Sheldon, and the Anjou all have special features to recommend their cultivation. If the Beurre Bosc were not so slow and shy a bearer, it would be the nonpareil of pears.

Among winter pears, the Lawrence is the most esteemed. It keeps till the end of January, and is a large, smooth, well-shaped pear, of excellent taste and grain. The Josephine and Winter Nelles are other well-tried varieties.



Conducted by R. F. HOLTERMANN, Brantford, Ontario.

THE Rev. L. L. Langstroth, the inventor of the movable frame hive, who attended, at the age of eighty-five, the North American Beekeepers' convention at Toronto, died suddenly of apoplexy while preaching at Dayton, Ohio.

THE mild days during the early part of November offered an opportunity to careless beekeepers to prepare bees for winter. As there was but little swarming during the past season, it will pay beekeepers to give their bees every attention during the coming winter.

BEEKEEPERS should attend farmers' institute meetings, and assist in the discussions which take place on beekeeping.

North American Beekeepers' Convention.

(Continued.)

Thursday afternoon opened with an address from S. T. Pettit, upon "Introducing Queens." Mr. Pettit stated that many queens, when introduced, were accepted under protest, and later on put to death or superseded. He recommended the preparation or selection of a weak hive. Take the queen and put her in a clean cage, and place her in a clean, sweet, airy place (not in the pocket). As soon as the weak colony manifests its loss, place her within about a foot of the entrance, and let her run in. Placing a valuable queen with combs of brood just hatching selected for the purpose is the surest way. A number disagreed with Mr. Pettit, and it was rather strange and amusing to hear the opposing testimonies of various members, and from the discussion the novice could derive a little benefit. Next on the programme was the question of amalgamation of the Beekeepers' Union and the North American Beekeepers' Association. The Beekeepers' Union was organized by Thomas G. Newman, 145 South Western Avenue, Chicago, Ill., at one time

editor of the *American Bee Journal*. Its object is to protect the rights of beekeepers, members of the union, and to prosecute those who adulterate honey. Dr. C. C. Miller and Mr. Newman took the subject in hand, and from the discussion which followed it is very likely that the amalgamation will take place. The following were the committee appointed to carry on the negotiations: Dr. A. B. Mason, Toledo, Ohio; T. G. Newman, Chicago, Ill.; F. A. Gemmill, Stratford, Ont.; J. T. Calvert, Medina, Ohio; M. B. Holmes, Athens, Ont.; Eugene Secord, Forest City, Iowa; R. F. Holtermann, Brantford, Ont.

Mr. G. M. Doolittle, Borodino, N.Y., followed with an address, "Something of Interest to Beekeepers." Amongst other things he spoke as follows:

"Another thing I shall say (and I may step on some editors' toes here), they have said altogether too much regarding the adulteration of honey. We have said a good deal, and were able to accomplish but little; our thoughts and our actions have been right, but it has tended to throw back on our own heads. The secular journals have taken our papers, and it has gone forth in the world that there was great adulteration in the honey, so that people who should consume honey have failed to consume it because they said it was an adulterated article. Now, if we had gone to our state legislature and you to your legislatures and quietly demanded that laws be passed to make it a criminal offence to adulterate honey, then, after these laws were passed, quietly gone to work and captured the individuals, and sent out through the land that such a man was in the penitentiary, being punished for a crime he had committed, we should have accomplished something. Last spring, in my own neighborhood, a mail carrier who was carrying mails began to use cancelled stamps on his letters. It was ascertained by the postmaster what was going on, and so he

quietly wrote to the inspector, telling him what was being done. In due time the inspector came; he found out who the person was, and he was arrested and sent to the penitentiary. Up to this time no person except the postmaster and one or two others knew what was going on, but when he was arrested, then the papers came out and told the whole matter, and so there goes over the country to-day an awe regarding the use of cancelled postage stamps that will keep the people from doing such a thing for years to come. And so if we had taken this course in regard to the adulteration of honey, we might have accomplished something."

At the evening session the convention was honored by the presence of the Hon. John Dryden, Minister of Agriculture for Ontario, and Dr. Mills, president of the Ontario Agricultural College, Guelph. The Minister of Agriculture, in his pleasing address, said, amongst other things:

"I wish you every success in your enterprise. You represent a large industry. It is composed of very small drops, but, taken together, it means a great deal. Our people in this country and the people in the United States do not realize what it means, but you can add wealth to this country and to your country by paying attention to this industry. We who represent the province believe we help all the people when we help the beekeepers of Ontario, and therefore it is that we give grants, year by year, to this association, and assist, as far as we can, to help them in their work."

Dr. Mills, in his address, gave all a warm invitation to visit the Ontario Agricultural College. In speaking of farming, he said:

"Now, a short time ago, in thinking over the circumstances and conditions of different classes of people in this country and elsewhere, the thought occurred to me that success in farming, more than any other occupation, depended on a number of uncertain and uncontrollable conditions or circumstances. The mechanic has work, and, if it is done in a workmanlike manner, he is almost sure to receive remuneration for his labor. If a merchant proceeds on business principles and attends to his business, a fair share of trade is the only thing necessary to insure his success,

and in professions—in law, for instance, in medicine, teaching, journalism, and so on—if a man has the requisite physical, mental, moral, and educational equipment, he rarely fails to secure a fair, if not a liberal, compensation for the work done in the line of his occupation. With the farmer the case is quite different. He may be in every respect a first-class man; he may have every possible equipment for his work, and he may do his work at the best time and in the best manner possible, and, after all, have no return for his labor. Have you not seen that? Success in farming depends not only on the way in which the farmer does his work, but on the temperature from day to day, on the heat, the cold, the frost, upon the sunshine and the shade, upon the rain—too little or too much, or at the wrong time—and upon insects on every hand, upon injurious fungi of every description, such as rust and smut, plum knots and apple scab, and we know not how many others. I sometimes speak strongly in favor of farming in preference to other occupations, but there are certain things which make it clear that the farmer is different from other people in this, that the product of his labor depends on circumstances over which he has no control. They are at the mercy of wind and weather. Now, we must admit they can never be sure that they are going to have a fair return for their labor, however skillfully it may be performed. That being so, I would venture to say that, in my judgment, it is generally unadvisable for a farmer to confine his whole attention to any one line or branch of his occupation; that it is not wise for him to put all his eggs into one basket. Of course, I would not be understood as saying that a farmer, any more than any one else, should be a Jack-of-all-trades and master of none. I hold that every farmer should have a specialty of some kind. He should consider the market and the climate in which he lives, his soil, his tastes, his ability, and his capital, and then make up his mind to devote his attention chiefly to some one thing, and, in that, aim to surpass all others, if possible."

At the close of the meeting both gentlemen were unanimously elected honorary members of the North American Beekeepers' Association.

RECENT INVESTIGATIONS

Conducted by "ENQUIRER."

Effect of Food on Milk.

The New Hampshire Experiment Station reports the results of feeding cows different kinds of oils. The tendency seemed to be to slightly increase the per cent. of fat in the cow's milk when the oil was first added to the ration; but the increased fat content was not retained, and the per cent. of fat soon returned to the normal. The bulletin concludes: "That the composition of a cow's milk is determined by the individuality of the cow, and that, although the unusual food may disturb, for a time, the composition of the milk, its effect is not continuous."

Cream Ripening with Bacillus No. 41.

Prof. H. W. Conn obtained from milk coming from Uruguay an organism which has a remarkable effect on butter. It is called "Bacillus No. 41." Cultivations have been used in more than 100 creameries with very favorable results on the butter, the quality and buttery flavor (grass flavor) of which is improved in the summer, and produced also in the winter. The influence of the cultures on cream seems to increase until the third or fourth week, when it rapidly deteriorates, and a new culture must be used. "Bacillus No. 41" is not only remarkable for producing the desired aroma and augmenting the quality of butter, but it actually destroys many injurious organisms which chance to be in the cream. It does not necessarily sour the cream, and no previous treatment of the cream is needed to obtain good results.

Application of Farmyard Manure.

Bulletin 21 of the New Hampshire Experiment Station gives a summary of results obtained from experiments in modes of applying manure. The following conclusions are drawn:

"Manure applied in the fall to the surface, either of plowed or grass land, will, by the action of frost and rain, become so thoroughly pulverized and distributed through the soil

that it acts more quickly, and is in better condition for plants to assimilate than the same manure would be if applied in the spring.

"The loss from evaporation and drainage, when manure is thus applied in the fall (unless the surface of the soil is very steep), will probably be much less than the loss resulting from fermentation if the manure is allowed to accumulate in cellars, or the washing, if left in open yards.

"On most soils, and for most crops, surface application is better than plowing in, especially if the manure is applied in the fall. In any case, it is a safe rule to keep the manure as near the surface as possible, and to have it as thoroughly mixed with the seed bed as can be done. This carries with it the necessity of using only such bedding and absorbents as are, of themselves, fine or easily pulverized."

It is also concluded that it is not profitable to use more than from five to seven cords of manure per acre for ordinary field crops.

The same bulletin also treats of experiments with commercial fertilizers, and the author concludes that, frequently, the unsatisfactory returns from commercial fertilizers are due to the fact that many such fertilizers contain the elements of plant food in unsuitable proportions. It is stated that chemicals, properly mixed and used, will give as good results as farmyard manure.

Corn Silage.

Bulletin 40, of the Minnesota Station, reports experiments in feeding silage from flint, sweet, southern, and dent corn. The following is the author's summary:

"(1) A hundred pounds of dry matter in either dent, sweet, or southern ensilage corn silage proved nearly of equal value for producing milk and butter in these trials, though the advantage in all cases was slightly in favor of the silage from dent corn. This corn bore a fair crop of ears.

"(2) Flint-corn silage did not prove as good, in this one trial, for producing milk and butter, as dent-corn silage.

"(3) Cattle did not seem to relish silage of flint corn as well as silage of the other three classes of corn.

"(4) Where a large amount of silage is wanted from a small area of land, to feed with cheap mill feeds, these results would indicate that the most feed can be procured by using, in any given locality, corn so large that it will barely pass the roasting-ear stage before frost."

The Secretion of Milk.

F. W. Morse and E. P. Stone (New Hampshire Station) report on milking three times versus twice a day.

Two new-milch Durham cows were milked three times a day (at 5.30 a.m., noon, and 6.30 p.m.) from Feb. 1st to May 6th, and after that period they were milked twice a day.

Following are the conclusions :

"A study of the composition of the milk shows that the morning milk was richest in solids, not fat, and poorest in fat ; while the noon milk was richest in fat.

"The yield of milk in the morning was 44 per cent. of the total, and 78 per cent. of the sum of noon and night milk. The yield at night was less than at noon, and averaged less in fat also.

"As a result of milking twice a day, there was no notable change in the amount of milk, but there was a decrease in the fat.

"The results of these experiments show that in the short milking periods there was relatively more fat produced than in the long one, while the solids, not fat, did not increase. Milking three times a day also caused a greater secretion of fat than was produced by milking twice a day."

Leguminous Plants for Green Manuring: Schultz-Lupitz.

The author found no constant relation between the length of root and stem. In a dry season, when the top growth was not great, the roots penetrated deeply, those of the lupine extending five feet down. In a wet season they did not reach so deeply, but root tubercles were more abundant.

Potatoes, when grown after lupines, sent their roots to a much greater depth than when the preceding crop was wheat. After lupines, the potato roots followed the course of the decayed lupine roots, and thus penetrated a hard substratum of soil, through which

they were not able to pass on land where no lupines had been grown. The yield was much greater where the roots went deep enough to reach the moist strata of soil.

For potatoes, green manuring with lupines was found to be much more profitable than the application of stable manure.

Feeding Value of Straw and Chaff.

At the Gottingen Station, numerous experiments have recently been made on the digestibility of oat straw and chaff, and wheat straw and chaff. The results show a wider difference in the feeding value of these substances than has generally been supposed to exist. Wheat straw proved to be more digestible than wheat chaff, oat straw more digestible than wheat straw, and oat chaff more digestible than oat straw. These experiments, therefore, show oat chaff to have a very much higher value than wheat chaff. A further investigation of the matter is promised.

Ensilage, Sugar Beets, and Mangels for Milk Production.

The Pennsylvania State College Report for 1894 gives the result of a test of the foders mentioned above. Nine cows were divided into three lots having three cows in each lot, and the experiment covered three periods of thirty days each.

Period I.—All the cows were fed alike.

Period II.—Lot 1 received silage, mixed grain, and corn fodder. Lot 2 received the same as lot 1, except that sugar beets took the place of silage. Lot 3 received mangels instead of silage or sugar beets, the rest of the ration being the same as for lots 1 and 2.

Period III.—All the cows were fed alike, and the same as during period 1.

An attempt was made to so apportion the roots and silage that each lot should receive the same amount of dry matter during Period II.

The results of the experiment are anything but conclusive, and indicate the need of much more work before anything definite can be asserted. So far as the experiment goes, the results are somewhat favorable to ensilage, milk and butter being produced more economically therefrom than from sugar beets and mangels, though it is not clear that the difference was due entirely to the ensilage.



FARMING

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

Succeeding *The Canadian Live Stock and Farm Journal*.

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Communications for any particular editorial department should be sent to the address given under the heading of that department.

Matter of any kind for publication must reach us by 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.

We are fully aware of the injustice and annoyance caused subscribers by the publishing of unreliable advertisements. We are also aware that good advertisers do not keep company with those of the "fake" class. Therefore, for the protection of our subscribers and legitimate advertisers, we will take pains to exclude all advertisements of a doubtful nature. Any cases of fraud or misdealing on the part of advertisers that is reported to us will be promptly investigated. Subscribers will confer a favor if, when writing to an advertiser, they will state that they saw the advertisement in *FARMING*.

Dairy School, Guelph.

The Dairy School in connection with the Agricultural College, Guelph, will reopen on January 14th, 1896, and remain in session to the 14th March, a period of two months.

The course of practical instruction consists of two branches of the dairy business, viz.: Factory dairying and home dairying. In the former, students, under competent instructors, make cheese and butter on a large scale, learn how to run cream separators, and are given full and repeated instruction in the use of the Babcock Tester and the Lactometer, together with directions as to the simplest and fairest method of paying patrons for their milk in factories where the Babcock Tester is used.

Cheese and butter factories should encourage their makers to devote a couple of months in the winter to this course. It is not intended to take the place of practical experience in a factory, but to supplement it.

The home dairy course is intended especially for farmers' sons and daughters who wish to learn something about running cream separators, using the Babcock Tester, and making butter on a farm. The department is furnished with hand separators, butter-workers, printers, etc.; and full instruction is given by a competent butter-maker in every detail regarding home dairy appliances, the handling of milk and cream, and the making of butter. Special instruction in cheese-making is also given when required.

Jottings.

Mr. Greenshields' Sale.—The joint auction sale of stock held by Mr. Greenshields and Mr. McCallum, of Danville, Que., on October 15th, was not a success either in point of the numbers that attended or in the prices realized. The weather, too, was unfavorable. Everything had been done by the proprietors to meet the wants of purchasers. The barnyard had been divided off into pens and a very complete and systematic arrangement and classification of the stock made. The Guernsey bull, Isaleigh Duke, only fetched \$60 and Ontario's Pride \$90, while the Ayrshires went very cheaply. The Shropshire sheep and Yorkshire pigs also met with a dragging sale. In view of the high character and breeding of all the stock offered at this, the first of what is intended to be an annual sale, the poor results are to be greatly deplored.

Ladies to Address Farmers' Institutes.

Miss Bessie Livingston, superintendent of the Ottawa Cooking School, Ottawa, Ont., and her assistant, Miss Miller, have consented to address Farmers' Institute meetings on the following subjects, any time between the first of December, 1895, and the first of April, 1896. The subjects will be: "The Food Value of Milk," "The Cooking of Vegetables," "The Farm Kitchen," and others, and there will be, besides, demonstration lectures on various food topics. These ladies are highly recommended by Professor Robertson and Dr. James Mills, president of the Ontario Agricultural College, Guelph, Ont. Institute officers who wish to secure the services of these ladies should correspond at once with F. W. Hodson, Superintendent of Farmers' Institutes, Guelph, Ont.

Biggle Poultry Book.—Biggle Poultry Book, like its predecessors the Horse Book and Berry Book, is overflowing with good, sound, common sense. Like the *Farm Journal*, from which much of its material is taken, it is boiled down and to the point, and yet every chapter covers the ground carefully and thoroughly. The enumeration of a few of the leading chapters will give an idea of the scope and character of the book: Early Broilers, Hens Expressly for Eggs, The Farmers' Flock, The Village Hennerly, Fattening and Marketing, Diseases and Enemies, Chicks with Brooders, etc., etc. Then there are special chapters devoted to Breeds of Chickens, Pigeons, Geese, Ducks, and Turkeys; indeed the whole poultry yard has been systematically and fully covered.

Too many the feature of the book will, no doubt, be the sixteen colored plates showing twenty-three breeds of poultry, true to color and shape.

In addition to these exquisite plates there are over forty-two handsome engravings in half tone and sixty-one other illustrations of houses, nests, drinking vessels, etc. An excellent index completes the work.

The book is handsomely printed on thick, high finished paper, is bound in cloth, the cover being printed in two colors, and is sold at 50 cents. Publishers, The Wilmer-Atkinson Co., Philadelphia.

Stock Notes.

Horses.

MESSRS. GRAHAM BROS., Claremont, Ont., write: We have just consummated the largest sale of highly bred horses that has probably ever been made in Canada, certainly for many years. Mr. F. R. Black, of Amherst, N.S., acting for the Nova Scotia Government, has purchased from us the Canadian champion Hackney stallion, Kilnwick Fireaway 36998, and the choice Hackney stallion, Seagull 2261, besides two very promising Hackney fillies, daughters of Seagull. To Mr. Forgie, of Washington, Pa., we have sold the imported Clydesdale mares, Daisy and Evergreen, which took first at Montreal and Ottawa exhibitions this fall, and the black saddle gelding, Gentleman Jack. To Messrs. G. P. Smith & Bro., Hagerstown, Maryland, we sold the Hackney stallion Drundrennan, and to Mr. A. Montgomery, of Castle Douglas, Scotland, we recently shipped a very handsome team of half-bred Hackney five-year-old mares. The Nova Scotia Government is to be congratulated on securing two such breeding sires as Kilnwick Fireaway and Seagull. Kilnwick Fireaway 36998, foaled July, 1890, by Lord Swansland 1834, dam Trip 6251, by Tripway 2296, is one of the best individual Hackney stallions that ever appeared in a Canadian show ring, having vanquished such horse: as Jubilee Chief and Banquo, winners at the World's Fair and New York, and taking the sweepstakes both at Toronto and Ottawa this fall as the best Hackney of either sex on the grounds. He is a dark bay with black points, stands 15.2, and is a fine actor, with perfect knee and fine hock action. Seagull 2261, by the great Danegelt 174, dam Lady Lucy 1646, is a perfect Hackney in conformation, and, while not as good an actor in the show ring as Fireaway, has proven himself a remarkable breeding sire—the Hackney characteristics being stamped on every one of his colts. We have also sold to Messrs. John Miller & Sons, Brougham, Ont., the grand Clydesdale filly foal, Bonnie Bess. She is by Queen's Own, and we regard her as the best one we have ever bred. Our stock are all doing well, and business is brighter.

MESSRS. A. & G. RICE, Curries, Ont., report: The demand for the best class of Holsteins continues very good, owing, no doubt, to the success of the black-and-whites in the dairy test. We have a large inquiry for all kinds of stock. We have sold that

fine young bull, Marcena's Pet Baron, to Mr. Adam Greene, Diamond, Ont. He was awarded first at London. His sire is Siepkje's 3rd Mink Mercedes Baron, a World's Fair prize-winner. This latter is also the sire of other prize-winners, having sired the first-prize yearling bull and the first-prize three-year-old cow at the recent fairs, and has many other good ones to his credit. The dam of the young bull is Marcena's Pet, which has a record of 54 lbs. in one day at five years old, and is a good stamp of a dairy cow. Another young bull, from her daughter, Marcena's Pet Jewel, we expressed to Mr. William Rice, Wawanesa, Manitoba. Another bull, Daisy Texal's Sir Jewel, we sent to Mr. Thomas Johnson, Malakoff, Ont. This is a son of Daisy Texal, one of the best matrons of our herd, which stood second to Eunice Clay in the Toronto milk test, 1894. She has given 13,000 pounds of milk in eleven months, and is a regular breeder, three of her daughters winning prizes this fall at the great fairs, one as a cow (four-year-old), one as a three-year-old, and one as a two-year-old. The young bull is full brother to these three, all being sired by Jewel 3rd D. Netherland, whose dam, Jewel 3rd, gave 2,378 pounds of milk in thirty days, and whose grandam, Jewel, was one of the greatest cows of the breed, being victorious wherever shown in America from 1883 to 1888, and having a record of 100 pounds of milk in one day and 31 pounds of butter in seven days. We have also sold Catholine 5th Sir Aaggie Clothilde to Mr. Thomas Davidson, Spring Valley, to head his fine little herd. It will be remembered that Mr. Davidson bred Carmen Sylvia, that won so much honor for herself, her owner, and her breeder in the recent dairy tests at Toronto. The dam of the young bull, Catholine 5th, is a great young cow, having given us 51 pounds of milk in one day and 200 pounds in four days, when just three years old, and with her first calf. The sire's dam has a milk record of 82 lbs. 4 oz. of milk in one day and 21 lbs. 8 oz. of butter in seven days. Such high-class bulls are bound to be a good investment for their purchasers. We have sold two Poland China sow pigs to Mr. Truesdale, Spring Valley, Ont.

Mr. R. G. STEACY, Brockville, Ont., has made another important importation of ten Ayrshire heifers. This consignment of valuable and highly-bred Ayrshires included three grand two-year-olds, bought from Mr. Alex. Cross, of Knockdon. One of these was Polly 6th of Knockdon 8626, sire Baron 3rd of Drumlanrig, dam Polly of Knockdon. This heifer is really full sister to the Ayr Derby winner, Polly 2nd of Knockdon, as both were out of the same cow, and their sires were full brothers. Another of the heifers from Knockdon was Lady Grizzel 6th of Knockdon 8625, sire Prince Charlie of Newton, dam Lady Grizzel 3rd of Drumlanrig. The other heifer from Knockdon was Trim 8th of Castlehill, sire Avon King, dam Trim th, which was winner at the

MISCELLANEOUS.

Windsor Salt

For dairy use is the BEST.

Perfectly dry and white, and no lime in it.

Better Cheese and Butter can be made with it than with any other salt.

It pays to use it.

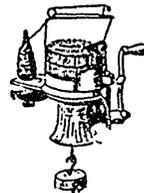
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"An Ounce

Of prevention is worth a pound of cure." Ripan's Tablets do not weigh an ounce, but they contain many pounds of good. One tabule gives relief. Try for yourself the next time you have a headache or bilious attack.

Ripan's Tablets may be obtained through your nearest druggist. Price 50 cents a box.

302



THE IMPROVED FAMILY KNITTER

Will knit 10 pairs of socks a day. Will do all knitting required in a family, home-spun or factory yarn.

Simplest Knitter on the Market.

A child can operate it. We guarantee every machine to do good work. We can furnish ribbing attachments. Agents wanted. Write for particulars.

PRICE, \$8 DUNDAS KNITTING MACHINE CO.
Mention this journal. Dundas, Ont.



IRON FENCING

COMMUNION RAILING

and all kinds of

IRON AND WIRE WORK

TORONTO FENCE AND ORNAMENTAL WORKS.



MISCELLANEOUS.

Just a Moment

**You use matches—
every one must, whe-
ther for lighting
lamp, stove, or cigar.
Price being no more,
wouldn't you buy the
best?**

Naturally—you would ask for

**E. B. Eddy's
Matches.**

67

Corn

is a vigorous feeder and re-
sponds well to liberal fertiliza-
tion. On corn lands the yield
increases and the soil improves
if properly treated with fer-
tilizers containing not under
7% actual

Potash.

A trial of this plan costs but
little and is sure to lead to
profitable culture.

Our pamphlets are not advertising circulars boom-
ing special fertilizers, but are practical works, contain-
ing latest researches on the subject of fertilization, and
are really helpful to farmers. They are sent free for
the asking.

GERMAN KALI WORKS,
93 Nassau St., New York.

Plymouth "Royal" as a cow in milk. Mr. Cross bought this heifer at the Castlehill dispersion sale last year. The draft also includes two capital yearlings, bought from the Fairfield Farming Company. One of them is Beauty of Fairfield 3252, sire Young Duke of Jackston, dam Lizzie 5th of Drumlanrig. She is rich in Bright Smile and White Prince blood. The other heifer from this herd is Snowdrop 5th of Castlehill 9713, sire Peter of Castlehill, dam Snowdrop. This heifer also was bought at the Castlehill dispersion sale. The consignment also includes three two-year-olds and two yearling heifers from Lessnessock. One of these two-year-olds is Wyllie 2nd of Lessnessock 9710, sire Baron Wallace of Bogwood, a bull of Auchenbrain breeding, dam Wyllie 1st of Lessnessock. This heifer stood first as one of a pair at the Ayr show this year. Another of these two-year-olds is Lily of the Vale 6th 9715, sire Baron Wallace, dam Lily of the Vale. This heifer also showed well up in the prize list at Ayr show this year. The third two-year-old heifer from Lessnessock is Snowflight 4th of Castlehill 8826, sire Peter of Castlehill. This heifer was purchased at the Castlehill dispersion sale. One of the yearlings from Lessnessock is Bright Smile of Alticane 9711, sire Baron Wallace, dam White Flower of Alticane. White Flower was the dam of the famous heifer, White Rose, which won for Mr. Steacy the championship for females at the Toronto show last year. The other heifer from Lessnessock was Clementina of Alticane 9712, sire Baron Wallace, dam a daughter of White Flower. These heifers are all of the very highest individual merit, as any one may see from their showyard record and the herds they have been drawn from. They were selected with the greatest care by Mr. Adam W. Montgomerie, a son of Mr. Robert Montgomerie, Lessnessock, who came out in charge of them, the milking properties and also the constitutional vigor of the stock they are descended from being specially taken into account, and they should greatly assist Ayrshire interests in the Dominion.

Sheep.

MR. J. T. WILKINSON, Chilliwack, B.C., was remarkably successful at the recent fall shows in British Columbia. At New Westminster he took every prize offered for Southdowns, and also the only prize offered for Cotswolds, as well as the silver medal offered by P. W. Ellis & Co., Toronto, for the best sheep in the show. In the class for Berkshire swine, too, he was a winner, while his standard-bred horses were also to the fore.

THE PAGHAM HARBOR CO., who have, for some years now, run a continuous advertisement with us, report that during 1895 show season they exhibited thirty-six sheep, every one of which received a prize. This goes far to prove that this flock is one of the best, if not the best, in England now. At any rate, all the leading men go there for rams; hence this is

where to go for any one who wants any of what Mr. J. E. Springer so aptly describes as "these incomparable mutton sheep" which do not fear "free wool."

MESSRS. JOHN MILLER & SONS, Brougham, Ont., write: We have shown Shropshires, Cotswolds, and ponies at the four largest shows in Canada that can be reached in our circuit, viz., Toronto, Montreal, Ottawa, and Markham, and we won forty-six first prizes, ten seconds, and four thirds. Five of the first prizes were won by ponies in harness, in which class we have never been beaten. The Shropshires won eighteen firsts, five seconds, and three thirds. Cotswolds won twenty-one firsts, four seconds, and one third. A pair of Leicester ewes won two firsts and one second prize for us. We have a grand lot of ewes, and never had such good ram lambs, and we will sell them at low prices.

MR. HENRY ARKELL, Arkell, Ont., writes: My trade in sheep has been very good this season. I have sold over 250 Oxford Downs this year. To Mr. P. B. Moss, Montana, have gone a car load of yearling rams; to Mr. R. Jones, Wyoming, another car load; to Mr. C. W. Barney, fifty lambs. I also sold show lots to Messrs. Geo. McKerrow, Sussex, Wis.; Uriah Privitt, Greenburg, Ind.; A. Bardnell, N.Y.; Wilson Neel, Mich.; J. W. Murphy, Mich.; G. J. Campbell, Ohio; C. C. Riner, Ohio; P. B. Merrill, Stanstead, Que.; P. B. McLaren, Manitoba, and single sheep through Canada and the United States too numerous to mention.

MESSRS. TURNER & JULL, Mount Vernon, Ont., say: Our sheep are looking well, but pasture is poor, owing to the dry weather. We sowed eighteen acres of rye the last day of August, and it has been a great boon to our sheep. We have had thirty to forty head pasturing on it for six weeks, and it is furnishing good pasture yet. We secured twenty-five prizes, mostly firsts, on our Oxford Downs this fall. We only showed at three county shows, and our sheep were not specially fitted up for showing. We have added seven imported ewes to our flock of Oxford Downs this fall, bringing the number of breeding ewes up to fifty.

Sheep.

MESSRS. J. G. SNELL & BRO., breeders of Berkshire swine, whose post-office has hitherto been Edmonton, write that, for the future, all letters should be addressed to Snelgrove P.O.

Poultry.

Mr. M. H. PARLEE, Sussex, N.B., won a number of prizes with Light Brahmas, S. L. Wyandottes, Leicester sheep, and Berkshire and Yorkshire swine at the last St. John, N.B., Exhibition.

MR. THOS. A. DUFF, Toronto, Ont., has twenty-five Black Minorca cockerels to dispose of. Black

MISCELLANEOUS.

Horse Owners Should Try

COMBAULT'S

Caustic Balsam

THE GREAT FRENCH VETERINARY REMEDY

A Safe, Speedy and POSITIVE CURE.



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

SUPERSEDES ALL CAUTERY OR FIRING

Impossible to produce any scar or blemish. The Safest and Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, Etc., it is invaluable.

WE GUARANTEE that one tablespoonful of CAUSTIC BALSAM will produce more actual results than a whole bottle of any liniment or spavin cure mixture ever made.

Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price \$1.50 per bottle. Sold by Druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS CO., Cleveland, O.

400 ACRES.

400 ACRES.

FRUIT AND ORNAMENTAL TREES

Grape Vines and Berry Plants.

Planters will find it to their interest to patronize a Canadian Nursery.

Varieties are offered most suitable to our climate; useless sorts discarded. My stock is graded with scrupulous exactness, and is true to name. Everything new and old in the nursery line deemed worthy of distribution. Having one hundred acres in fruit here, from which scions, buds, and cuttings are taken, I can offer stock that I know is true to name.

Agents wanted in every township.

Helderleigh Fruit Farms and Nursery,

400 ACRES IN EXTENT.

E. D. SMITH, Prop., WINONA, ONT.



Do you keep a DOG? Send for Pamphlet (gratis) on Diseases etc.

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Caverhill, Hughes & Co., Montreal; J. A. Simmers, 147 King St. E., Toronto; The Eby, Blain Co., Ltd., Toronto; A. M. Smith & Co., London; M. F. Eagar, Halifax, N.S.; H. N. Bate & Sons, Ottawa; Whitehead & Turner, Quebec; W. H. Gilloard & Co., Hamilton, Ont.

TO STOCKMEN AND BREEDERS

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

For the destruction of Ticks, Lice, Mange, and all Insects upon Sheep, Horses, Cattle, Pigs, Dogs, etc.
Superior to Carbolic Acid for Ulcers, Wounds, Sores, etc.
Removes Scurf, Roughness and Irritation of the Skin, making the coat soft, glossy, and healthy.

The following letters from the Hon. John Dryden, Minister of Agriculture, and other prominent stockmen, should be read and carefully noted by all persons interested in Live Stock:

"MAPLE SHADE" HERDS AND FLOCKS.

BROOKLIN, ONT., Sept. 4th, 1890.

DEAR SIR,—I cannot afford to be without your "Little Sheep Dip and Cattle Wash." It is not merely useful for Sheep, but it is invaluable as a wash for Cattle, etc. It has proved the surest destroyer of lice, with which so many of our stables are infested, I have ever tried; it is also an effectual remedy for foul in the feet of Cattle. I can heartily recommend it to all farmers and breeders.

JOHN DRYDEN.

17 Gold, Silver, and other Prize Medals have been awarded to "Little's Patent Fluid Dip" in all parts of the world. Sold in Large Tins at \$1.00.

Special terms to Breeders, Ranchmen, and others, requiring large quantities. Ask your nearest druggist to obtain it for you; or write for it, with pamphlets, etc., to

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

133

It is not Paradise,

But—

If you have some cash to spare and are willing to work, financial independence cannot be more surely secured than by buying a few acres of irrigated land in Salt River Valley.

This valley is in Southern Arizona, and is noted for its fine semi-tropical fruits and superior climate. Horticulturists say that greater profits can be realized here from oranges and grapes than in Florida or California. Physicians assert that the warm, dry, bracing climate excels in healing qualities Italy's balmy air. The great blizzard of 1895 did not blight the tenderest leaf in this protected spot.

To get there, take Santa Fe Route to Phoenix, A. T., via Prescott and the new line, S. F., P. & P. Ry. Address F. T. Hendry, 63 Griswold Street, Detroit, Mich., for illustrated folders. They tersely tell the story of a remarkable country. Actual results are given—no guesswork or hearsay.

It is the

Salt River Valley.

Minorcas are noted the world over for their splendid laying qualities. One of these birds introduced into your flock will improve your fowls' laying qualities more than you can imagine. They are offered at the low figure of \$1.50 each.

MR. WM. HODGSON, Brooklin, Ont., writes that he won second prize on Toulouse gander at Toronto show, and not Mr. Haycraft, as reported. Mr. Hodgson has bred Bronze turkeys and Toulouse geese for many years, and has been one of the largest exhibitors of them at our shows, carrying off a large number of prizes, to the credit of his establishment.

MR. W. J. BELL, of Angus, Ont., shipped ten Bronze Turkeys of this year, and a male bird hatched in June, '94, to Mr. F. C. Smith, Boyle, Ireland, on Thursday, November 7th. Two of the young birds were prize-winners at the Industrial, and the yearling was the diploma winner at the same fair. This is, no doubt, the largest shipment of prize turkeys ever sent across the ocean for breeding purposes.

MR. JOHN LAWRIE, Malvern, Ont., joins with us this month as an advertiser. This gentleman has for some years been associated with the best Colored Dorkings in America, his stock having won for several years at the Toronto Industrial Exhibition, and also at Madison Square Gardens, New York. Mr. Lawrie states that he has a large number of young and old birds for disposal, and, as he is in need of room, will let them go very cheaply.

Special Stock Reviews.

Laurentian Farm Ayrshires and Jerseys.

Messrs. W. C. Edwards & Co., of whose Shorthorns we gave an illustration in our last issue, conduct an equally large breeding establishment at North Nation Mills, P. Q. This farm is devoted to buttermaking, which is carried on in conjunction with the breeding of a beautiful herd of Ayrshires, and another of Jerseys. The Ayrshire herd, which is a large one, was originally founded upon such reliable families as could be purchased from the foremost breeders of that noted Ayrshire district that lies in the Province of Quebec and the eastern portion of Ontario.

The greatest care in selecting the best class of sires has been exercised. The first of these was Promotion (imp.), and the handsome things he left behind him are a tribute to his breeding. The next bull was Emperor, a red and white son of Stirling of Dromore, bred by Mr. Matthew Templeton, Dromore, Scotland, and imported for the herd in 1889. Cyclone was the next bull used. He was bred by Mr. Andrew Mitchell, Barcheskie, and was imported in his dam, Lindsay 5th, which was also added to the herd in the same importation mentioned above. Cyclone proved of great benefit to the herd, as the wonderfully good lot of heifers he has sired attest.

Last fall, Tam Glen was purchased from Mr. W. Stewart, Menie, and, judging from his excellent breeding, we should expect that he will prove a great sire, especially as he has begotten some good things for Mr. Stewart.

Among the cows are Countess of Barcheskie, by Knowlesie, Lindsay 5th, by the same sire, and Millie of Barcheskie, also by the same sire. All these were imported by Messrs. W. C. Edwards & Co. in 1889, and some very good stock from them can be seen in the herd. At the Laurentian Stock Farm, the cows have been kept up through the day all through the hot weather, a succession of soiling crops having been sown on purpose for this work.

Mr. Sryver and Mr. Maclean, under whose management this establishment is conducted, speak in very high terms of the success that has attended this year's experiment in this line. At the time of our visit, we could not help remarking upon the comfort and contentment of the cows. The stables are kept as dark as possible, and no flies trouble the cattle, as the doors are only opened to take out the droppings. The cows have milked well all summer, as we should expect, as the plentiful supply of succulent food is in direct contrast with the dried-up pastures which have been too much the rule in many directions throughout the past grazing season.

Mr. R. E. White's Ayrshires.

Among those who have recently started breeding Ayrshires is Mr. R. E. White, Perth, Ont. At the head of the herd is Grand Duke, bred by Mr. James McCormack, Rockton, Ont., and sired by that gentleman's last year's sweepstakes bull, Sir Laughlin; while the dam of Grand Duke is Primrose 4th, which won 1st for cow and two of her offspring at the Toronto Fair. Grand Duke is a fine young bull, and will doubtless prove a great benefit to the herd. Among the females we noticed Brownie of Barnside, by Jerry, a noted show bull at Montreal, Sherbrooke, and Ottawa, while the dam of Jerry was an extra milker, having given 56 lbs. of milk per day for a length of time. Lady of Albion, by Albion Chief, which bull was sired by Messrs. David Morton & Sons' Royal Chief (imp.), is not only a promising thing herself, but is descended from a strain of really good ones.

Mr. White has a number of useful cows which he finds are exceptionally good milkers.

Clydesdales at Mr. George G. Stewart's.

One of those breeders and importers who have been wise enough to cling to Clydesdales through the depression in prices, from which horse-breeding interests have suffered so much of late years, is Mr. George G. Stewart, Howick, P.Q., whose name has been associated with the importation of many a good one. And now with a gleam of prosperity once more showing through the dark days now happily passing away, he will be prepared to meet the demand for stallions which is sure to follow in the wake of the

MISCELLANEOUS.

BOYS FOR FARM HELP

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

MR. ALFRED B. OWEN,

Agent Dr. Barnardo's Homes,

214 Farley Avenue, TORONTO, Ont.

397

DON'T GET IN THE MUD

If you can help it. You *can* help it if you get one of Widdifield's attachments. You pull the string, we will do the rest—we will swing the gate away from your horse, and close it after you.

IT'S NOT NECESSARY

To get out of your wagon or buggy when you get to your gate if you have one of Widdifield's Attachments.

WE WANT

you to see one of our Patent Gates because we know you will buy one. Township and County rights for sale.

C. H. WIDDIFIELD, Pine Orchard, Ont
J. W. LEON, Pottageville, Ont.

SASKATCHEWAN BUFFALO ROBES

Received the highest award at the World's Fair.

Have had six years' experience in Canada.



We guarantee every robe to be absolute wind, water, and moth proof, and will not wear bare in spots like a skin robe. They will dry quicker and never get hard, are as strong as leather and far more durable and warmer than any cheap fur robe.

The robe is made in three parts—the Fur Cloth, the Astrachan Lining, and Rubber Interlining. All these parts are without seams.

The increased sale of these Robes is the best evidence of their popularity.

Others having noted the great sale and popularity of these Robes have undertaken to imitate them. We would caution the public that none are genuine unless bearing this Trade Mark.

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NEWLANDS & CO., Galt, Ontario, and
AMERICAN BUFFALO ROBE CO., Buffalo, N.Y.

MISCELLANEOUS.

Twelfth Annual ONTARIO PROVINCIAL FAT STOCK and DAIRY SHOW

TO BE HELD IN THE
CITY OF GUELPH
December 10, 11, 12, 1895

Under the auspices of
The Agriculture and Arts Association of Ontario
The Sheep and Swine Breeders' Associations
The Dairymen's Association of Western Ontario
And the Guelph Fat Stock Club

Prize lists can be obtained from the secretary,
H. WADE, Toronto



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Steel
Wind
Mills

With Patent Roller Bearings.

**GALVANIZED STEEL TOWERS
AND WHEELS**

The Best in America.

Ideal Spray Pumps, Iron Pumps,
Water Tanks, Piping, etc.

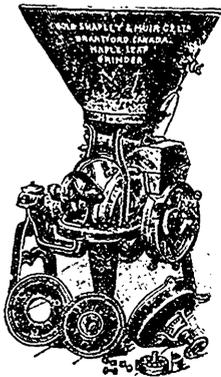
The Ideal Solid Power Mill, with
Roller and Ball Bearings, is a wonder.
Send for Circular, and mention
this paper.

THE CELEBRATED
"MAPLE LEAF" GRINDER

10 Inch Reversible Plate.
Fine and Coarse Sides
Ball Bearings for Plates.
Relief Springs.
For any Power or any Work
Always Guaranteed.



BRANTFORD CAN.



DEALER IN
GRAIN AND PRODUCE

Established 1868.

James Kerr

239 Wellington St., Montreal.

Shippers' Headquarters for Live Stock Supplies. Pressed
Hay a Specialty.

270

better prices that heavy draught horses now command.

Three exceedingly useful stallions are now in the stable, and the fact that they have been well patronized during the past season is one of the good signs of the times, for farmers have come to the conclusion that heavy horse-breeding is still destined to be one of the best paying departments of the farm.

Of the three stallions, Lord Rollo is the one which Mr. Stewart appears to place first. Lord Rollo was sired by the Macgregor horse, Macaroni, a family he very much resembles, for he is smoothly finished and tightly put together, with the gay action that generally accompanies a horse of this type. Lord Cross, his stable companion, is not unlike the last mentioned. He is by that capital breeding horse, Garnet Cross. The third on the list is Inveralmond, a dark brown, sired by the Duke of Hamilton horse, Almondale. Inveralmond is of lighter build than the two previously mentioned, but, like them, is sound, and useful enough to ensure attention from any one wanting a good one.

Maple Hill Holsteins.

Mr. Geo. W. Clemons, secretary of the Dominion Holstein-Friesian Record, not satisfied with working to get other breeders' cattle carefully recorded, appears to be determined that fresh blood shall not be wanting toward improving this breed of cattle if he has to go abroad for it himself; and the beautiful lot that he selected from among the most royally-bred families of those noted breeders, Messrs. Henry Stevens & Sons, Lacona, N.Y., bear high testimony to his judgment. A number of these cattle are not only destined to play an important part in the show rings at the different fairs, but the individual merit and high-class breeding which are combined in this selection will prove of vast benefit to those who are looking to the improvement of their herds in Canada.

The importation comprised two cows, three two-year-old heifers, one yearling heifer and one bull calf; while the three two-year-old heifers dropped two heifer calves and a bull calf before arriving at their present quarters. It would be difficult to find two cows which look more like business than Inka 5th, by Prince Monroe, and Lady Akkum 2nd, by Lad Deane. The former gave 8,529½ lbs. of milk in 8 months and 13 days, commencing at 23 months old, while at 7 years she gave 75 lbs. of milk per day, and 18½ lbs. of butter per week. The latter gave 67 lbs. of milk per day as a five-year-old, and 24 lbs. of butter in one week. High performances may be noted along the whole line for each individual. Mr. Clemons' selection is bred not only for large milk yielders, but they test high in butter fat.

Few herds can show four such two-year-old heifers, three of which are included in his recent importation. These are Queen De Kol, calved April, 1893, a large shapely heifer that gives great promise for the future. She was sired by De Kol 2nd's Netherland,

while her dam, Woodland Queen, has a six-year-old record of 73¾ lbs. of milk in a day. Lady Netherland De Kol, by the same sire as the last, has for dam Lady Netherland of Brookside, which has a two year old record of 51½ lbs. per day.

Inka Rose Pietertje De Kol, also by De Kol 2nd's Netherland, dam, Inka 4th's Pietertje Rose, with a record of 54 lbs. as a two-year-old, and 18½ lbs. of butter in a week before she was three years old, is probably the best of the three remarkably handsome heifers. Mondamin's Daisy Barrington, by Orphe's Lyle, dam, Mondamin's Daisy, won first as a calf last year at a number of leading eastern shows, and she has done the same as a yearling this season.

The bull calf imported is richly bred in butter-and-milk producing lines. He is named Sir Pietertje Josephine Mechthilde, whose dam, Empress Josephine 3rd, and sire's dam, Mechthilde, have butter records averaging 35 lbs. 11¼ oz. in seven days.

In selecting this importation, Mr. Clemons aimed at securing as much as possible of the De Kol blood, which has become so famous through Messrs. Stevens' great cow, De Kol 2nd, which, ten days after calving, produced 26.57 lbs. of butter in seven days.

These cattle, in addition to the excellent herd Mr. Clemons has been breeding up and purchasing during the last few years, will put the herd on as strong a footing as any other in the Dominion, both as regards individual merit and performances, and for the enterprise he has displayed in this venture he deserves the patronage of Holstein breeders.

Glenburn Shorthorns and Berkshires.

A short drive out from Lennoxville and we arrived at the farm of Mr. John Racey, jr, who has been breeding purebred stock for several years in the eastern townships. The Shorthorn herd has the Strathallan bull, Strathroy, in service. Strathroy, by Vice-Consul (imp.), is a handsome roan, which, it appears, is breeding well by what we saw of the young calves at Glenburn. Among the cows, Duchess of Halton 4th, by Prince of Carignano (imp.), was pointed out to us as an excellent breeder, which we could well fancy from her appearance, and that of her two daughters, Duchess of Halton 5th, by Neidpath Prince, and Duchess of Ascot, by Wallace. Blooming Belle, by the Kinnellar-bred bull, Sir Charles, is descended from that good old family, Lily, by Warden. She is a large cow that has bred some good things for the herd, which show their good feeding qualities. This we should expect from their being topped out by Scotch bulls.

Rosebery, by the imported Kinnellar bull, Princess Duke, is a neat heifer, that comes from a capital milking family. We noticed several most promising bull calves. Among these was Billroy, from Blooming Belle, a straight and evenly-finished bull, possessing the touch and quality that one likes. A dark-red bull, named Red Eric, which can boast of smooth finish, is by Aberdeen, a bull bred in the herd, from

MISCELLANEOUS.

ONTARIO VETERINARY COLLEGE

Temperance St., Toronto, Can.

Patrons: Governor-General of Canada and Lieutenant-Governor of Ontario. The most successful Veterinary Institution in America. All experienced teachers. Classes begin on Wednesday, Oct. 17th. Fees, \$65 per session. Apply to the Principal, PROF. SMITH, V.S. EDINBURGH, TORONTO, CANADA.

CHAMPION EVAPORATOR

FOR MAPLE, SORGHUM, CIDER, and FRUIT JELLIES. Has a corrugated pan over firebox, doubling boiling capacity; small interchangeable syrup pans (connected by siphons), easily handled for cleaning and storing; and a perfect automatic regulator. The Champion is as great an improvement over the Cook pan as the letter was over the old iron kettle hung on a fence rail.



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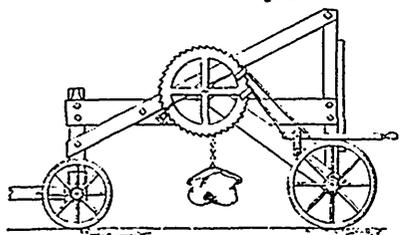
THE G. H. GRIMM MFG. CO.,
HUDSON, Ohio, & MONTREAL, Quebec.

THE LEMIRE

STONE and EXTRACTOR STUMP

UNIQUE OF ITS KIND

Patented 1894.



Lifts a stone of 18,000 lbs.

Can raise, carry off, and put in a fence 4 to 5 feet high, the stones extracted. By buying this strong and durable machine you can build your fence with your large stones instead of buying barbed wire for fencing. You will also clear your land for your mower and binder. In order to raise a stone, use the lever, and the hooks will hold the stone as it rises. You can let it down in the same way, or you can let it fall at once by touching a ring that is in the wheel. The axle-trees of this machine are made of wood, and we will sell it without the wheels to those who have wheels with tires 3 to 4 inches in width. Several farmers can combine and buy one.

PRICE - \$120

Patent for sale. For full information address, **AZARIE LEMIRE, Wotton, Que.**

9 CORDS IN 10 HOURS



BY ONE MAN, with the FOLDING SAWING MACHINE. It saws down trees. Folds like a pocket-knife. Saws any kind of timber on any kind of ground. One man can saw 100 ft. timber with it than 2 men in any other way, and do it EASIER. \$7.50 in use. Send for FREE illustrated catalogue showing latest IMPROVEMENTS and testimonials from thousands. First order secures agency. Address **FOLDING SAWING MACHINE CO.,** 63-65 St. Clinton Street, Chicago, Ill.

Ⓢ We manufacture in Canada. No duty to pay.

Strathroy and Blooming Belle. Then there is a stylish, good-fleshed, white calf, which Mr. Racey considers is from one of his best families, which possesses flesh and style in a remarkable degree. In all, there are about fourteen Shorthorns of different ages.

Mr. Racey has for years been very partial to Berkshires, and has spent a good deal of money in procuring the best blood obtainable.

Of two boars in use Randolph is a capital yearling boar, of Mr. Benjafield's, of Motcombe, England, breeding, and belongs to his Topsy Duchess family. He is a smooth-fleshed, lengthy, and even boar, with capital hams, and nice coat. Clifford has won many prizes at local shows, and is a particularly well-bred pig, in whose top crosses we find such celebrated prize-winners as Royal Stuart and Sir Dorchester. Ruba, by Perry Lad (imp.), dam, Sunrise (imp.), and her daughter, Rosetta, by Queen's Own (imp.), are a handsome pair of sows, while Stella, another sow, is of the noted Sally family, and from her have been bred some exceedingly good pigs. Mr. Racey had a grand lot of young pigs that possessed wonderful length and nice finish.

Mr. D. McLachlan's Ayrshires.

Silver King, the monarch that reigns over Mr. McLachlan's capital herd, has so many friends among Ayrshire men that we feel diffident in describing him.

The three outstanding points in his favor include all that is necessary in a breeding bull. First, that he be royally bred. None can discount the breeding and performances of his sire, Traveller, at the head of Mr. Andrew Mitchell's herd at Barcheskie, which

is doubtless one of the most successful show bulls of the day, and from prize-winning parentage, too. Of Nellie Osborne, Silver King's dam, it would be dangerous, indeed, to speak except good words, for not only has she been wonderfully successful in Canadian show rings, but it was she who carried the highest honors at the international contests at Chicago World's Fair, where, in addition to her class prize, she won the championship for the best cow in milk; and the number of grand bulls from her that head other herds speaks volumes as to her breeding capabilities. Secondly, as to Silver King as an individual, we have only to look at his distinguished record as a prize-winner when competing on every exhibition ground in Canada. His great size and superb dairy form we must leave others to see and describe.

Thirdly, it goes without saying that, as no bull of his age, of any breed, has as many sons at the head of first-class herds as Silver King, his reputation as a sire is already established.

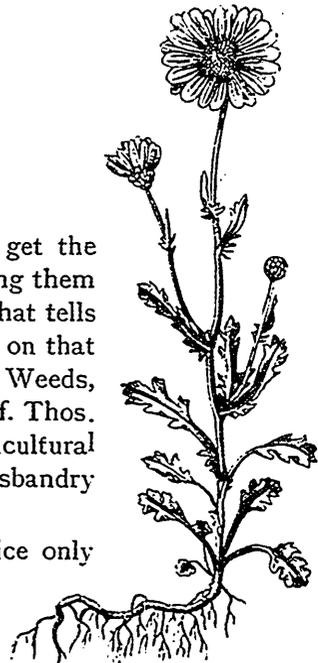
The number of capital imported cows in this herd are no less strong a feature. They comprise the following names, all of which are imported: Lustre, by Baron of Foulton; Sweet Aston, by Sonsie Jock; Maggie Mitchell, by Traveller; Lady Stirling, by Sir Stirling; and Scarlet Flower of Carston, by Isaac of Muir; while cows and heifers of different ages, by such bulls as Chieftain of Barcheskie (imp.), Prince Henry (imp.), and Silver King (imp.), form an array of females which, mated with the grand stock bulls, should give results that will insure even a greater demand than ever, and prove of immense benefit to Ayrshire breeding interests.

Have you any bad weeds on your farm ?

They are bad things to have, and, once they get the start of you, you will have no end of trouble in getting them out of the land. There is at present only one book that tells how to get rid of them. It is really the only book on that subject which is of any practical value. The name is "Weeds, and How to Eradicate Them." It is written by Prof. Thos. Shaw, late Professor of Agriculture at the Ontario Agricultural College, Guelph, Ont., and now Professor of Animal Husbandry in the Minnesota Agricultural College.

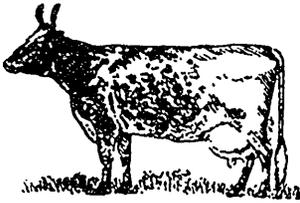
The book is neatly bound and illustrated. Price only 75 cents. Send for a copy to

THE BRYANT PRESS, TORONTO, CANADA.



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Keep Milch Cows In Good Health

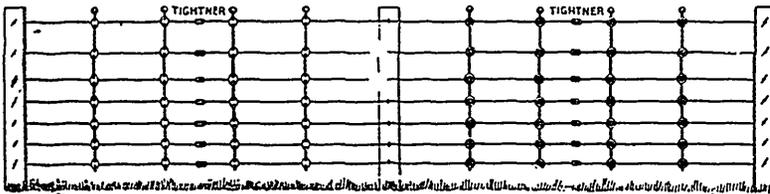


IT PAYS.—It is useless to expect a lean, run-down cow to have a good flow of milk, though she will eat more than an animal in good flesh. The difficulty is the nutriment is not all extracted from the food because her digestion is out of order.

Dick's Blood Purifier

will strengthen the digestion and make the food produce milk. It will cost but fifty cents to try it on: the poorest cow you have and you will get back your money with interest in a few weeks.

For sale by Druggists, at general stores or sent post paid on receipt of 50 cts.
Dick & Co., P. O. Box 482, Montreal.



him try it. We also supply the Double Lock Wire Fence, which is claimed by some to be second to none, the lateral wire of which, as well as the upright stay, being crimped at joints. Our agents build either on premises. Agents wanted everywhere in Canada, to whom sole territory will be allotted. County and township rights for sale. Our Gas Pipe Frame Gate takes the lead. No better or cheaper place in the city to get plain or fancy turning done. Call on, or address,

No better wire fence built than the Casey Diamond Grip. Pat. Just the thing for farmers—neat, strong, and durable. Will last a lifetime, barring accidents. Uses only straight wires, with so little depression as not to cause the galvanize to crack or peel. If a dealer wants something better to handle than he has had let



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We manufacture a full line of

Root Pulpers and Slicers

(Single or Combined, and for Hand or Power.)

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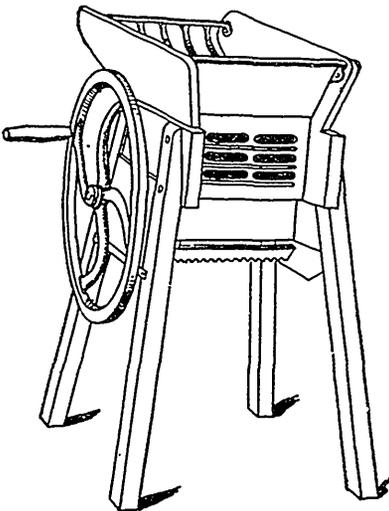
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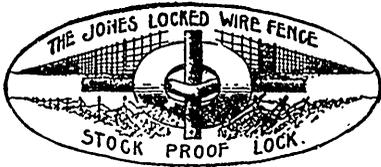
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Mention FARMING.

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Read of its many advantages :

Our Fence contains all the particular points claimed by other companies, besides having the following exclusive ones:—

- Highest award at the WORLD'S FAIR,
- More Weight, More Strength, Heavier Stay,
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- No Remnants—Repairing of old Fence,
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- Accommodates itself to any condition of weather.



WE ALSO MANUFACTURE A **ROOT SLICER** WHICH FOR

SPEED, LIGHT RUNNING, and SUPERIOR WORK
CANNOT BE BEATEN.

Write for catalogue. Agents wanted in unrepresented districts.

THE **Locked-Wire Fence Co.** LTD.

INGERSOLL, ONTARIO.



COULTHARD, SCOTT & CO., Ltd.

Oshawa, Ont.

- Spring Pressure and Tilt Grain Drills.
- Sectional Spring-Tooth Seeders.
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- Scotch Diamond Harrows.

Awarded Medals at World's Fair
Agents at all convenient centres. Call and see our goods.

Page Woven Wire Fence

for farms and railroads is used in greater quantities than is any other smooth wire fence.

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is five feet high—nothing can get over it.

Page Woven Wire Fence

has eleven horizontal wires, woven close at bottom, with cross wires one foot apart. If fence no animal or fowl can get through it.

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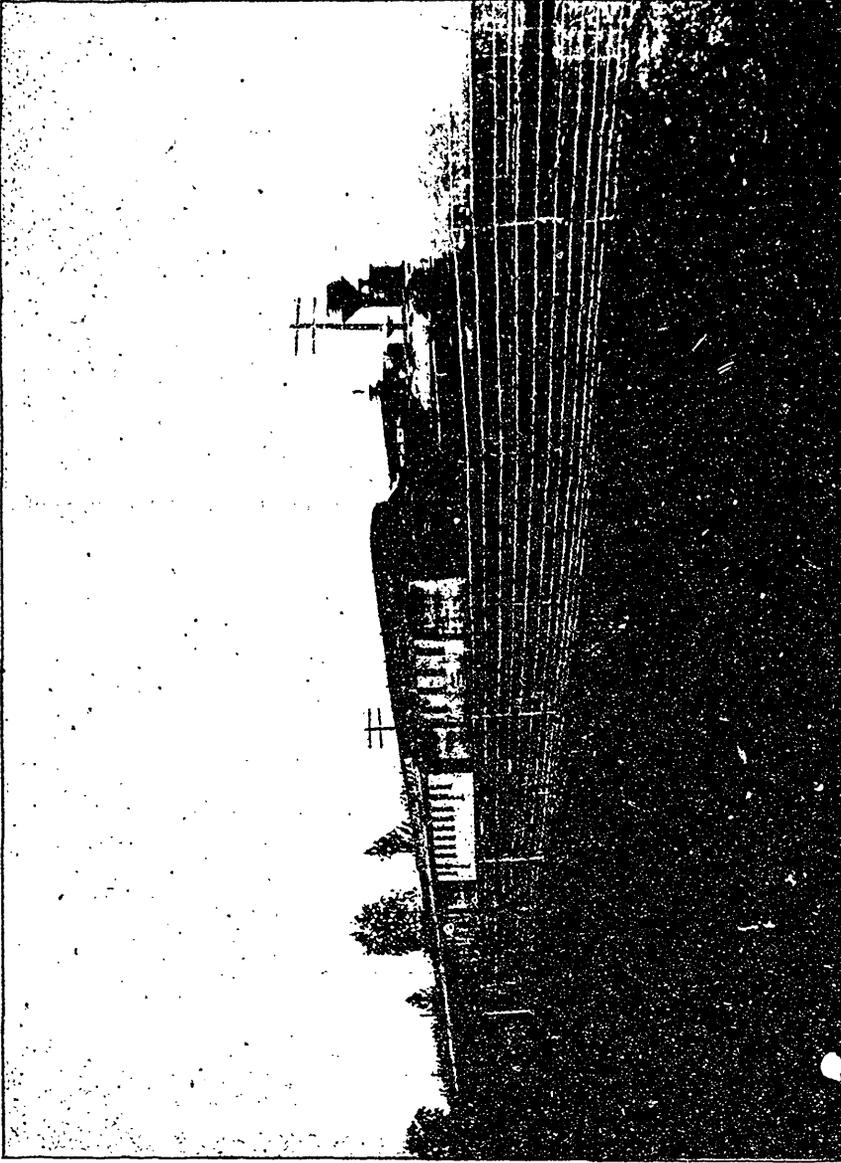
is made of the best machine-spring steel wire, which is twice as strong as the wire used in other fences.

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has a coil spring in every foot of each horizontal wire, thus making the wire elastic and still stronger.

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is all woven by machinery in our factory, and we furnish it to the user through local dealers, or direct from our factory, at a less price than that of any other first-class fence.

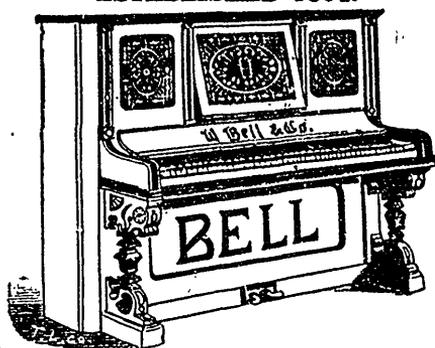


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CONCRETE OR OTHER WALLS, CISTERNS, STABLE FLOORS,
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Write for prices and particulars. When parties use our goods, when necessary, we will send a skilled man, at our own cost, to give instructions how to build. Farmers can thus build their walls and save half the cost.

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THE LATEST AND BEST AND THE ONLY DOUBLE ROOT CUTTER MANUFACTURED.

ALL the World
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Tolton's No. 1 Double Root Cutter

Is the favorite among all Pulpers, having won all the first prizes last year; also captivated the hearts of all the stockmen who have used or seen it. It is a money winner to all concerned and a saver of time and labor to the operator, and one which sells at sight after a careful inspection, as it will either pulp coarse or fine, or slice by simply turning over the centre grate and turning crank the reverse way; and is considered in either capacity superior to any single machines.

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1st.—To change from pulping to slicing is but the work of a moment, which can be done at the one feeding, with no loss of time and no trouble.

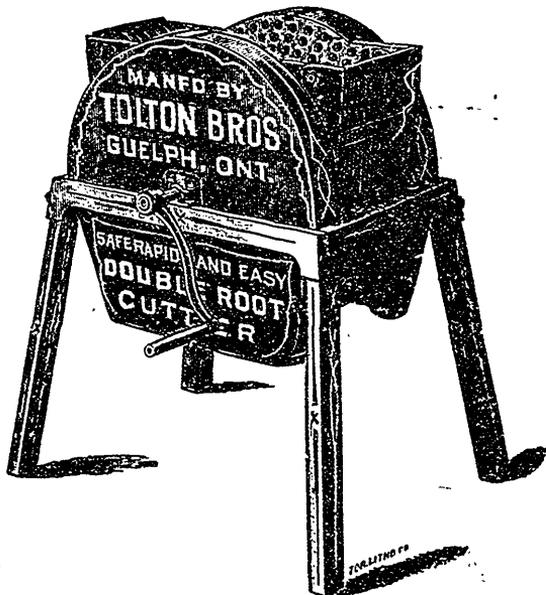
2nd.—There being two separate wheels, one for pulping and the other for slicing, each one is specially adapted for the work it has to do, with the best of knives placed in their respective wheels in a manner to obtain the very best results possible (three for slicing and six for pulping).

3rd.—The united force of both wheels is always used in doing the work in either capacity. This accounts for it being a steady, easy-running, and rapid root cutter.

4th.—The Hopper being between the wheels, and having large lower pockets, prevents choking, and with the knife-wheels both internally shielded makes it perfectly safe and prevents the roots from acting as a brake on the wheels, and also from jostling them about, so common in all other combined machines.

5th.—Hence the Latest and Best, and, what has been long looked for, a safe, rapid, and easy Double Root Cutter.

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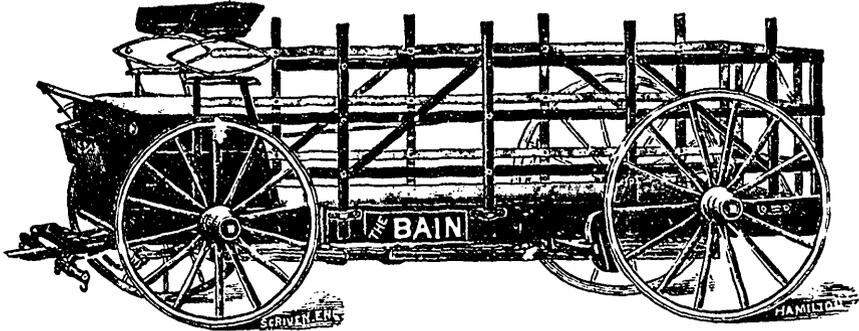


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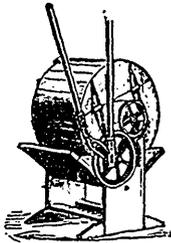


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