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Vol. XIV., No. 9. $1.00 per year.

FARMING

MAY
1897

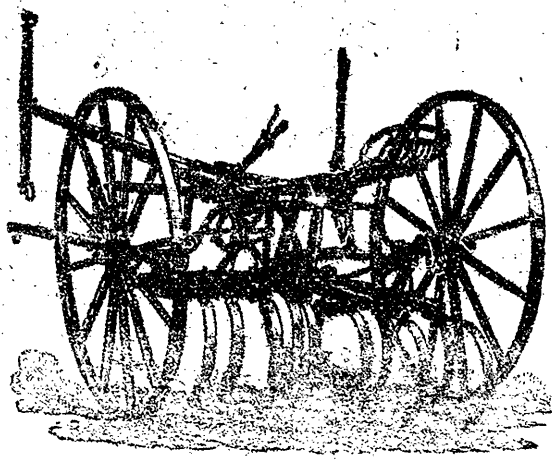
PUBLISHED BY THE BRYANT PRESS, TORONTO, CANADA.

PUBLISHED ON THE FIFTEENTH OF EVERY MONTH.

626

Will 1897 be a Good Season?

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



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Double or Single Lock Levers.

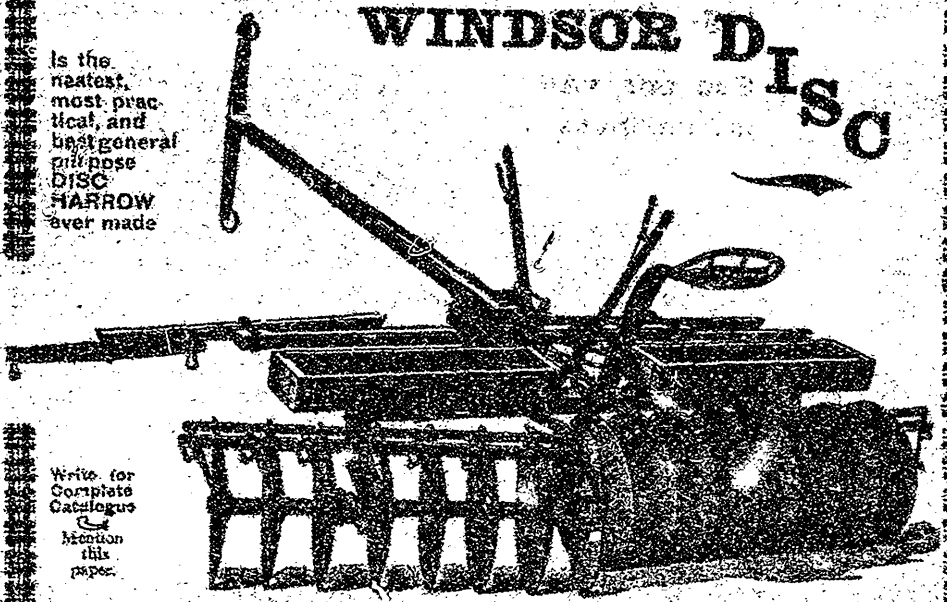
Is unequalled by any other machine in the market as a

Harrow, Cultivator, Bean Harvester, Planter, Seeder, Fertilizer, or Stalk Cutter

OUR

WINDSOR DISC

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



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Mention this paper.

American Narrow Co.,

WINDSOR, - ONT.

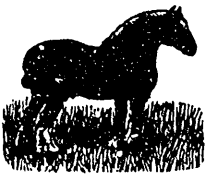
The advertisements in FARMING this issue are exceedingly interesting reading. Be sure to notice every one.

See our valuable premiums for new subscribers on pages xxxiv. and xxxv.

HORSES AND SHORTHORNS.

THORNCLIFFE STOCK FARM.

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



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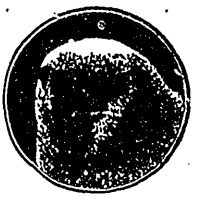
Orders can now be booked for Shearling Rams, Ram Lambs and Ewes, sired by the celebrated prize-winning English ram, Bar None. Also rams and ewes of this year's importation.

SHORTHORNS.

Choice young Heifers and Bulls by the celebrated Cruickshank 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.



599 **ROBT. DAVIES, PROP., TORONTO, CANADA.**

GLENBURN STOCK FARM

For Sale—One yearling Shorthorn Bull, two Berkshire Boars 11 months old and a few choice fall sows. Prices moderate.

Jno. Racey, Jr.,
Lennoxville, Que.,

FOR SALE

Two Choice **CLYDESDALE STALLIONS**

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

JOHN DAVIDSON,
ASHBURN, ONTARIO

"THE BRIARS"

SUTTON WEST, ONT.

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

F. C. SIBBALD,
631 J. CARSON, Agent, Yorkton, Assa.

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

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

SHIRE HORSES

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

Address

Morris, Stone & Wellington
WELLAND, ONT.

W. J. BIGGINS

CLINTON,
Ontario.

SHORTHORN BULLS AND HEIFERS
of Select Scotch Breeding at Low Prices

Fashionable Hackneys AND Prize-Winning Clydesdales

Of the best known strains

For Sale

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

MATCHED HIGH-STEPPING CARRIAGE HORSES
SUPERIOR SADDLE HORSES
FASHIONABLE COBS
HANDSOME PONIES

R. BEITH & CO., - Bowmanville, Ont.

SHORTHORNS.

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

PINE GROVE STOCK FARM,
Rockland, Ont.

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

Special bargains on young bulls of superior merit and select Scotch breeding. Also thick young heifers at the right prices. **Two imported 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.

703 **JOS. W. BARNETT, Manager.**

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

Ayrshires, imported and homebred; herd headed by Imported **Tam Glen 2nd**, No. 1310 D. A. H. B. **Jerseys** all of the celebrated St. Lambert family; herd headed by **Lisgar Pogis 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.

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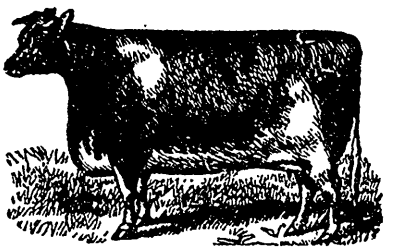


Has for sale, at temptingly low prices, a number of extra good Shorthorn Bulls, fit for service, and an equally good lot of Cows. Heifers—the very best we ever bred. Send for Catalogue and prices. Enquiries answered promptly. Our motto—"No business, no harm."

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

696

For Sale...

3 Scotch Shorthorn Bulls.	3
10 Heifers now being bred.	10
30 Shropshire Ram Lambs.	30
40 Shropshire Ewe Lambs.	40
10 Perfectly Broken Small Ponies.	10

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

JOHN MILLER & SONS, Brougham, Ont.

SHORTHORNS

SIX BULLS FOR SALE

fit for service, at reasonable prices.

Write for particulars.

D. ALEXANDER, Brigden, Ont.

SIMMONS & QUIRIE

Shorthorns and Berkshires.

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

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

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

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

FOR SALE Shorthorns, Berkshires, Southdowns and Leicesters.

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

WRITE ME, OR COME AND SEE.

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

FOR SALE. Five Shorthorn Bulls, aged from nine to twenty months, of the best Scotch Breeding—good size, good color, and A1 animals. Prices and terms to suit the times.

742 **DAVID MILNE, Ethel, Ont.**

Cargill Herd

# of Shorthorns

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

H. CARGILL & SON,

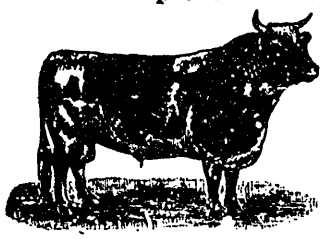
CARGILL STATION AND P.O., ONT.

AYRSHIRES.

ISALEIGH GRANGE STOCK FARM...

April Announcement

Ayrshire and Guernsey Cattle.
Improved Yorkshire Swine.
Shropshire Sheep.



Our Shropshire sheep and Yorkshire Swine are unexcelled. We offer the choicest stock of both **For Sale** at reasonable prices. Our herds of Ayrshires and Guernseys are also in first class condition. We can fill orders from prize-winning and imported animals of the very best strains. Particulars furnished on application to

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

J. H. GREENSHIELDS, Proprietor.

PARK HILL HERD
OF
AYRSHIRES

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

For pedigrees and full information address

JAS. DRUMMOND
PETITE COTE, - - - QUE.

MENIE STOCK YARD

AYRSHIRE CATTLE
POULTRY

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

Eggs and Stock For Sale at Reasonable Prices.

Wm. Stewart & Son,
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CLENHURST HERD OF AYRSHIRES

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

Also Leicester Sheep and Berkshire Swine.

DAVID BENNING, Breeder,
596 WILLIAMSTOWN, ONT.

Persons replying to advertisements will please mention FARMING.

AYRSHIRES ... For Sale

I now offer for sale the celebrated stock bull

"DOMINION CHIEF,"

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

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

JOHN H. DOUGLAS,
WARKWORTH, - - ONTARIO.

Maple Cliffe Herd of Ayrshires

NOTED PRIZE WINNERS,
And heavy milking families.
Choice Young Stock.
For sale at prices to suit the times.

Apply to

ROBERT ROBERTSON, Compton, Que.

MAPLE CLIFF STOCK AND DAIRY FARM

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

R. REID & CO.,
729 (One mile from Ottawa.) **Hintonburg, Ont.**

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

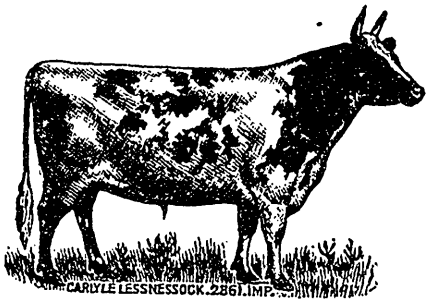
We have for sale this year a choice lot of young bulls and heifers sired by Leonard Meadowside, sweepstake bull at Ottawa.

Berkshire pigs and Shropshire Sheep always on hand.

Terms to suit the times.

J. YUILL & SONS, **Carleton Place.**

AYRSHIRES.



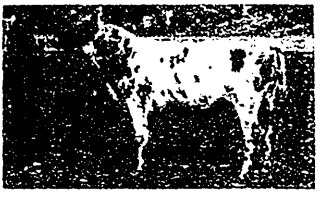
MAPLE GROVE AYRSHIRE STOCK FARM

IMPROVE YOUR STOCK.
INCREASE YOUR WEALTH.

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

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

Wooler Stock Farm.



Dominion Lad, No. 1802.

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

Prize Winning Ayrshires.

Oxford Downs and Berkshires.

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

YOUNG STOCK FOR SALE.

Satisfaction Guaranteed.

A. TERRILL, - - Wooler, Ont.

Woodroffe Dairy and Stock Farm

OTTAWA, CANADA.

AYRSHIRE BULLS FOR SALE.

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

CLYDESDALES. YORKSHIRES.

J. G. CLARK, Ottawa.

Choice Ayrshire Bull Calf for Sale

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

R. E. WHITE, Perth, Ont.

THOMAS GUY
Sydenham Farm, Oshawa, Ont.

AYRSHIRE CATTLE LEICESTER SHEEP
BERKSHIRE PIGS

FOR SALE

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

- CHOICE AYRSHIRES -

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

576

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

SOUTH BRANT STOCK FARM.

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

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

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

AYRSHIRES

—OF THE—

RICHEST MILKING STRAINS

—AND THE—

CHOICEST BREEDING

ARE KEPT AT THE GLEN FARM.

YOUNG BULLS AND HEIFERS FOR SALE

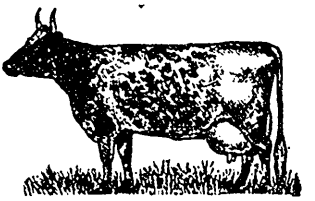
531 WHITESIDE BROS.,

Correspondence solicited. INNERKIP, ONT.

AYRSHIRES.

Ayrshires and Yorkshires

BULLS: Two very attractive bulls about a year old, also bull calves, will be sold cheap if taken soon. Young Pigs of the best type and breeding ready to ship. Anything you need in Ayrshires or Yorkshires. Write us.



ALEX. HUME & CO., - **Burnbrae P.O., Ont.**
Importers and Breeders of Ayrshires and Yorkshires ..... Hoard's Station, G.T.R.

AYRSHIRES

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

8 Ayrshire Bulls

six to eighteen months and a fine lot of in-calf cows and heifers that we will sell cheap.

Have still a few good Red Tamworths, and a grand lot of sows in farrow for spring, also some good Berkshires. **Write us now.**

CALDWELL BROS.,
"BRIERY BANK FARM." **Orchard, Ont.**

FOR SALE

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

For **Cheap** Can load on Grand Trunk or Can. Pac. Railways.

Car lots and less quantities..... **Cattle Feed**

ADDRESS—
JAMES WILSON,
Monkland Mills. *Fergus, Ont.*

ELM SHADE FARM

HOWICK, QUEBEC.

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

WM. WYLIE,
Howick, Que., OR *228 Bleury St., Montreal.*

WOODSIDE CLYDESDALES FOR SALE

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

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

AYRSHIRES FOR SALE.

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

JERSEYS.

Dawes & Co., LACHINE, QUE.

—BREEDERS OF—

Ayrshire and Jersey Cattle and Berkshire and Yorkshire Pigs.

FOR SALE

A CHOICE LOT OF **Jersey Heifer Calves**

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

W. C. SHEARER, Bright, Ont.

JERSEY COWS AND HEIFERS

The highest testing strains.
Rich breeding and good colors.

454 **ALSO TAMWORTH PIGS.**
JOHN PULFER, - Brampton, Ont.

REGISTERED

Lee Farm Jerseys

Young Bulls fit for service. Cows and Heifers in calf. Bull and Heifer calves. Solid Colors. Dairy qualities unsurpassed in Canada. Farmers' prices. Come and see or write for particulars.

E. PHELPS BALL, "Lee Farm," Rock Island, P. Q.

BRAMPTON JERSEY HERD

A.J.C.C.

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

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

THE MANOR FIELD FARM OF JERSEYS

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

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

An Advertisement in FARMING brings results.

POLLED ANGUS AND HOLSTEINS.

"RAPIDS FARM" LACHINE RAPIDS, QUEBEC

Royal Blackbird of Craigston.

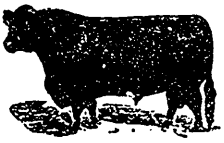
POLLED ANGUS AND AYRSHIRE CATTLE

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

COMMUNICATIONS REGARDING STOCK TO BE ADDRESSED TO

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

WILLOW GROVE STOCK FARM.



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

WILLIAM STEWART & SON,
Lambton Co. **Lucasville, Ont.**

HOLSTEINS.

GEM HOLSTEIN HERD.

STOCK FOR SALE

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

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

Helbon Stock Farm

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

FOR SALE - - -

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

J. W. LEE, 809 **Simcoe, Ont.**

HOLSTEIN-FRIESIANS.

Purebred stock of all ages, male and female, of Netherland, Johanna, Moore, and Peel strains, for sale at lowest prices.

529 JOHN McGREGOR, Constance, Ont.
Londesboro Stn.

Holstein - Friesians

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

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

Champion Blacks . .

SIZE AND QUALITY COMBINED.

Mysia 2nd of Verulam won 1st as fat cow against all breeds in Toronto, 1896, one of five that won Gold Medal at Montreal and 1st in her class at Fat Stock Show. Out of total of 10 medals offered in Ontario and Quebec in the last two years our herd has won 7, including the Montreal Gold Medal for 5 beef animals, any breed, and first gold medal offered at Ottawa for Polled Angus herd. Out of six herd prizes our herd has won five firsts, and our bull calves have never been beaten in four years. Stock for sale.

JAMES BOWMAN,
Elm Park Farm - - Guelph, Ont.

GOLD MEDAL HERD OF HOLSTEINS.

Quality, TOPS All our breeding females are in advanced **Blood, BEST** Registry or eligible for same. We have a **Prices, RIGHT** few heifers from 6 months to 3 years old for sale. We also offer for sale the **Silver Medal** Bull Calf of 1896. Dam's record, 15,000 lbs. milk in one year.

C. J. GILROY & SON,
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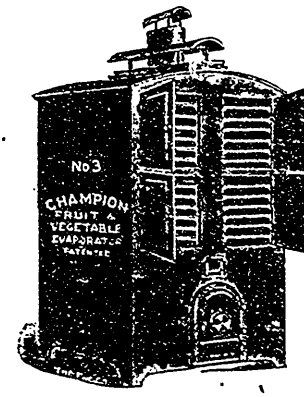

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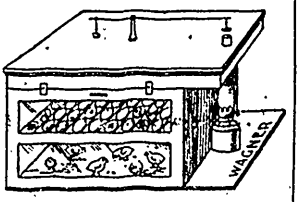

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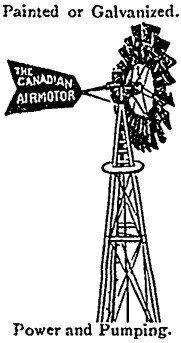

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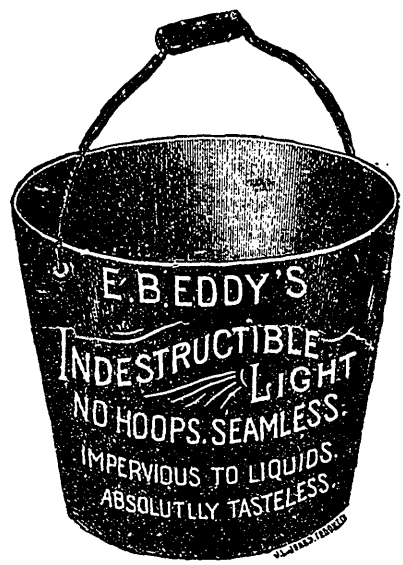

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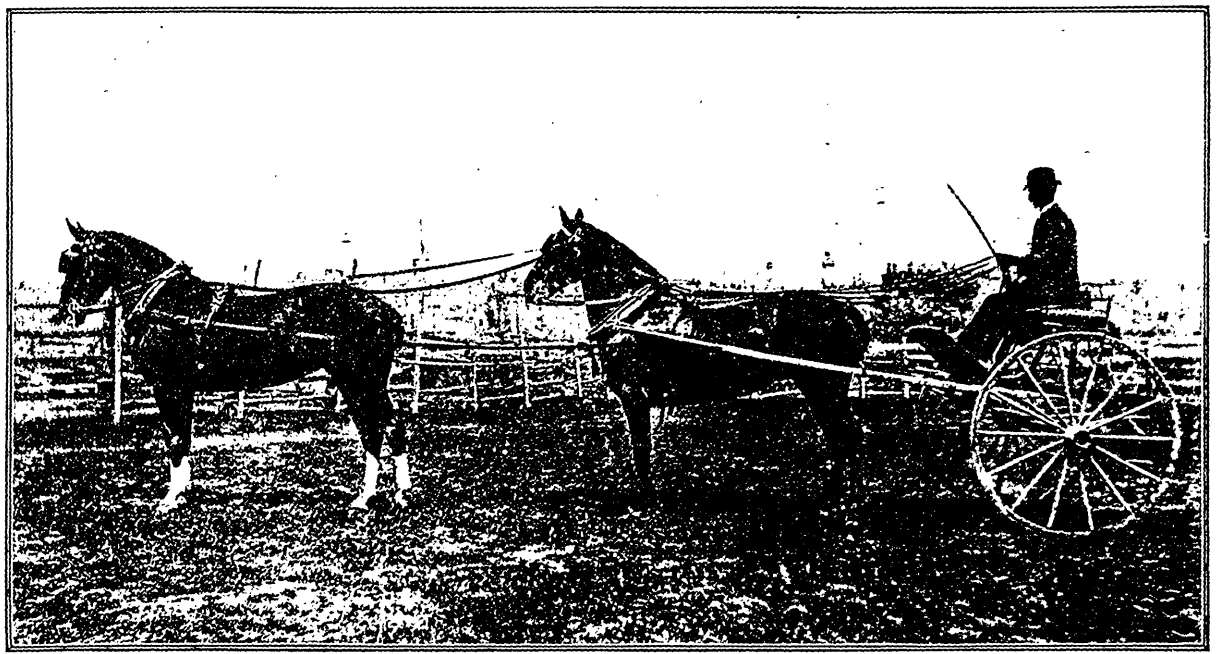

Jessica and Lady Aberdeen: Prize-winning Hackney Tandem.

The property of Robert Beith & Co., Bowmanville. Winners of first prize for tandem at Canadian Horse Show, Toronto, 1897; also second prize for pair of horses in harness not exceeding 15 hands 2 inches. *Jessica*, the leader, a brown mare, was foaled in April, 1894. Bred by owners. Sire, Jubilee Chief (imp.). Dam, Mona's Queen (imp.). Jessica also won sweepstakes for best Hackney mare of any age; also, sweepstakes silver medal for best Hackney mare or filly, by an imported sire, out of an imported dam; also second prize in high-stepping class. When shown in this class she was tired, and her action was thereby not so stylish as usual. At the Horse Show in 1895 Jessica was first in the class for three-year-olds and under. In 1895 she was first as a yearling. At the Industrial, in 1896, Jessica was first as a two-year-old filly; and in 1895 she was first as a yearling. *Lady Aberdeen*, the wheeler, a brown mare, was imported in dam. Foaled in 1890. Sire, Lord Derwent II. Dam, Florence (imp). Lady Aberdeen at the Horse Show won fourth place as high stepper. At the Industrial, 1896, she was third for brood mare with foal at her side.

FARMING

Vol. XIV MAY, 1897. No. 9.

THE SECRETARY OF THE CANADIAN HORSE BREEDERS' ASSOCIATION.

MR. HENRY WADE, Secretary of the Canadian Horse Breeders' Association, one of the secretaries and the acting treasurer of the joint committee of the Canadian Horse Breeders' Association and the Country and Hunt Club of Toronto, under whose auspices the now well-established and successful annual Canadian Horse Show is held, is, in all stock circles, one of the best known men in the country. In fact, we doubt if any man in Canada has so large an acquaintance with stock men as he. For years he has been secretary of many of the leading stock associations of Canada, including the Clydesdale Horse Association, the Shire Horse Association, the Canadian Hackney Horse Society, the Dominion Shorthorn Breeders' Association, the Dominion Ayrshire Breeders' Association and the Canadian Hereford Breeders' Association. He has also been the editor of almost all of the herd-books, stud-books, stock records, and stock registers published in Canada, including the Clydesdale, the Shire, the Hackney, and the Draught Horse, in horses; the Shorthorn, the Polled Angus, the Ayrshire, the Hereford, and the Devon, in cattle; the Dorset-horned and the Suffolk, among sheep; and the Berkshire, the Poland-China, the Chester White, the Suffolk, the Duroc-Jersey, the Yorkshire, and the Tamworth, in swine.

Mr. Henry Wade, Toronto.
Secretary of the Canadian Horse Breeders' Association.

By such activities as these Mr. Wade is known to every progressive farmer in the Dominion; but his principal work for the promotion of the agricultural interests of the country was no doubt that connected with his secretaryship of the Agriculture and Arts Association of Ontario, of which organization he was the chief executive officer from the year 1882, when he was first appointed to it, until the disestablishment of the association, December 31st, 1896. It must not be forgotten that this association was for many years our only organized department of agriculture, and that the work it did for the promotion of agriculture was always very considerable. The valuable reports issued by the association were for the last fourteen years of its existence the work of Mr. Wade.

Mr. Wade has taken a chief part in the organization of many of our live stock associations, and the esteem in which the breeders hold him because of his interest in their associations is evidenced by the fact that of every association at whose first organization he assisted he has been the continuous secretary from its very beginning up to the present. The Canadian Horse Breeders' Association certainly owes a great measure of its present standing to Mr. Wade's popularity and ability as its chief executive officer.

Mr. Wade has always taken a prominent part in our horse shows. He was the secretary and one of the chief promoters of the first Clydesdale Horse Show, held in the Market Square, Toronto, in 1886; and he remained secretary and chief executive officer of all the shows subsequently held under the auspices of the Clydesdale Association. In 1891, when the Agriculture and Arts Association took part in the holding of these shows, and all breeds of horses were admitted to competition, Mr. Wade was still retained for the same position. And in 1895, when the old "Spring Horse Show" was done away

with, and the "Canadian Horse Show" established, Mr. Wade was made one of the joint secretaries, Mr. Stewart Houston, of the Hunt Club, being the other. Also, as is well known, Mr. Wade took a prominent part in the organization and holding of the first Provincial Fat Stock Show, and for many years he was the chief executive officer in the holding of the Provincial Show. Without doubt, Mr. Wade's experience with agricultural shows, especially live stock shows, is thus larger than that of any other man in the Dominion, perhaps on the continent.

In January, 1896, Mr. Wade was made Provincial Registrar of Live Stock, which position he now holds. In 1896 he was President of the Dairymen's Association of Eastern Ontario; and he took a prominent part in the organization of the newly constituted Butter and Cheese Association of Eastern Ontario. FARMING extends to him its wishes for many further years of public usefulness and honor.

So prominently for many years has been Mr. Wade's identification with stock matters that it is sometimes forgotten that he is an experienced dairyman, and that one of the first and most successful cheese factories ever established in Ontario was owned and managed by him.

SHEEP FEEDING.*

By J. A. CRAIG, B.S.A., Professor of Animal Husbandry, University of Wisconsin; formerly Editor of *The Canadian Live Stock and Farm Journal*, the predecessor of FARMING.

PART I.—THE FEEDING OF BREEDING SHEEP.

In feeding all classes of sheep there are general details that contribute toward satisfactory results. Among these may be included all those things that are conducive to the general health of the sheep, such as considerate treatment, cleanliness of troughs and racks, healthfulness of the quarters in which the sheep are kept, regularity in feeding, and the use of such accessories as salt, pure water, and sulphur.

Professor J. A. Craig.

NOTE.—For a biographical sketch of Professor Craig, see FARMING for October, page 65.

FEEDING BREEDING EWES.

To enter into detailed discussion of the feeding of breeding ewes it will be best to divide the topic according to the season, and in this way present the subject of winter, spring, summer, and fall feeding. Under climatic conditions permitting the breeding flocks to have pasture throughout the year, what may be termed summer feeding would largely prevail at all times, so with such an understanding local conditions will not necessitate much variation from the course of feeding suggested.

WINTER FEEDING OF BREEDING EWES.

Breeding ewes require 10 to 15 square feet of space in a building, and ewes weighing from 150 to 200 pounds should have an allowance of 1.5 feet at the feeding rack. Less than this causes too much crowding at feeding time, which often results in the birth of dead lambs.

Breeding ewes need not be fed more than twice daily. It is a good practice, however, to feed them some fodder outside during the winter season, for in this way they are induced to take some exercise. With this in view the fodder may be taken some distance from the building in which the sheep are housed.

In a practical way, the shepherd should regulate the quantity of food according to the condition of the ewes. If they have gone into winter quarters in thin condition, they should be fed more heavily than if they were fat at that time. Handling the ewes at intervals furnishes the best indication as to their condition, and this will indicate the quantity of food that should be fed. In the author's experience the aim has always been to keep the breeding flocks in a condition which the general farmer would term "fat," and only good results in lambs have come from this management. When ewes are firm-fleshed,

* Being part of a Special Farmers' Bulletin recently issued by the Department of Agriculture for the United States.

through abundant feed and exercise, they are vigorous, and a healthy flock of lambs is likely to be the outcome. In general, a breeding ewe weighing 150 pounds requires daily about one-half pound of such grain as bran and oats, 2 pounds of succulent food, and the same weight of such dry fodders as clover hay or cut corn fodder. As lambing time approaches, twice this amount grain will be required. The quality of the fodder and grain will have an influence on the amounts to be fed, but the controlling factor should be the condition of the ewes. Overfeeding, especially if associated with lack of exercise, will be productive of disease in the flock, and it s likely to result in the birth of large weak lambs, while underfeeding is equally favorable for disease and the birth of undersized lambs. Overfeeding may produce sterility, while underfeeding delays the breeding season. The vigorous, firm-fleshed condition which results from liberal feeding and unlimited exercise is the aim of the experienced flock master.

Coarse fodders.—Among the fodders for winter feeding may be mentioned clover hay, pea straw, corn fodder, oat hay, oat straw, and millet. As to their relative merits, based on cost, the nourishment in them for sheep, and more especially the preference of the sheep for them are about in the order given.

At the Wisconsin Station 6 lots of Shropshire breeding ewes, with 4 ewes in each lot, were fed one-half pound of bran or oats and from 2.5 to 3.1 pounds of succulent food per head daily. In addition to this each lot received its distinctive coarse fodder, consisting of either alsike clover hay, corn fodder cut into inch lengths, cut or uncut oat hay, oat straw, or blue-grass hay. The sheep were very fond of the fine, well-cured alsike clover hay, and left only 16 per cent. as refuse. Each ewe ate daily 2 pounds of alsike clover, 2.8 pounds of corn silage with 0.5 pounds of oats and bran daily, which at the customary prices cost 1.5 cents. The ewes averaged 177.2 pounds in weight at the beginning and 196.2 pounds at the end of the experiment.

The ewes on the cut corn fodder (ears removed) ate 1.75 pounds of corn fodder, 3.1 pounds of sugar beets, and 0.5 pound of oats or bran daily, costing 1 cent. Their weight at the beginning averaged 152.4 pounds, and at the end 163 pounds. The refuse, consisting mostly of the thick parts of the stalks, was 20 per cent. We have fed corn fodder extensively, and the sheep seem to like it, and thrive well on it.

The ewes on uncut oat hay ate 2.1 pounds of the hay, 2.5 pounds of corn silage, and 0.5 pound oats or bran, costing 1.2 cents. They averaged 175.6 pounds in weight at the beginning, and 194.7 pounds at the end. The refuse was 32 per cent. The lot receiving the cut oat hay ate 1.5 pounds cut oat hay, 2.4 pounds of corn silage, and 0.5 pound oats or bran, costing 1.2 cents. They averaged 177.3 pounds at the beginning, and 182 pounds at the end of the trial. The refuse amounted to 35 per cent. No advantage was gained by cutting the oat hay, and one of the objections to it was that the small pieces of straw would get into the neck wool, cause it to mat and, in some instances, drop away. The oats were cut when green, the kernel being just filled.

The lot on oat straw ate 1.1 pounds of this daily, together with 3.1 pounds of sugar beets, and 0.5 pound of oats or bran, costing 0.8 cent. They averaged 155.5 pounds at the beginning, and 156.5 pounds at the end of the experiment. The refuse was 22 per cent. When supplemented with the proper amount of grain and succulent food, oat straw may be utilized for maintaining breeding ewes, but it is best to have other fodder to feed at intervals.

The ewes receiving blue-grass hay ate 1.5 pounds of the hay, 3.1 pounds of sugar beets, and 0.5 pound of oats or bran, costing 1.3 cents. They averaged 148.2 pounds in weight at the beginning, and 153 pounds at the end of the trial. The refuse was 6.2 per cent. The sheep apparently were not fond of this hay, although the grass is eagerly eaten as it grows in the pasture.

Pea straw is greatly relished by sheep, and in nutritive value it leads all the other fodders mentioned, with the exception of the clover. In Canada, where the pea crop is a general one, the straw is put away especially for the sheep, and it is fed more extensively, perhaps, than any other fodder, with good results.

The hardness of the stems of timothy hay seems to be one of the reasons why sheep do not care much for this fodder. They never appear to be eager for it, and if given any latitude in choice they will leave it untouched in favor of any of the other fodders, with the possible exception of oat straw.

Grains.—For the best results in thrift, wool growth, and lamb production, the breeding ewes should get some grain during the winter season. They can hardly be kept in proper condition otherwise. A good plan is to feed oats the first part of the winter, and then bran as lambing time approaches. About 0.5 pound of oats during the first of the winter, and near lambing time 1 pound of bran per head daily, will be sufficient for breeding ewes weighing from 150 to 200 pounds. These are the two most satisfactory grain foods that are generally available, both in

respect to cost and to results. Corn is not a satisfactory grain to feed ewes, as it produces too much fat, which apparently tends to accumulate internally, and impair the breeding qualities and lessen the general vigor, instead of imparting tone to the system.

Succulent foods.—Some succulent food should be fed to breeding ewes at all times, though it is very easy to feed them too much just previous to lambing. When turnips or silage are fed to breeding ewes in too liberal quantities, weak lambs are likely to result. Before lambing, 3 pounds of any succulent food, such as mangel-wurzels, sugar beets, corn or clover silage will be found sufficient. After lambing, unlimited quantities of these may be fed to stimulate the milk flow.

Turnips are relished by the sheep, and the author prefers them for sheep feeding to any other roots. Sheep are very fond of any of the varieties of Swedish turnips, and also relish mangel-wurzels near springtime. Sugar beets are satisfactory if fed in small quantities. In our trials we have found that a ewe would eat daily 3.3 pounds of sugar beets, with 1.5 pounds of hay and 0.5 pound of oats or bran, costing about 1.3 cents. The ewes that were fed this ration averaged from 150 to 160 pounds.

Corn or clover silage, when well preserved, is a succulent food that may be fed to sheep with satisfactory results. It is cheap, is liked by the sheep, and if fed in quantities not exceeding 3 or 4 pounds per head daily it will give satisfaction. The corn kernels in the silage are one of the drawbacks to feeding it liberally. In our trial with corn silage it was found that ewes weighing about 150 pounds ate daily 2.2 pounds of the silage, 1.5 pounds of hay, and 0.5 pound of oats or bran, costing 1.1 cents. Ewes of similar weight receiving clover silage ate 2.6 pounds clover silage, 1.5 pounds hay, and 0.5 pound of oats or bran, costing 1.2 cents. They gained more on the clover silage. The refuse from the corn silage was 6 per cent. of all that was fed, and from the clover silage nearly 13 per cent.

As to the relative effects of silage and roots on the milk flow, the experiments at the Wisconsin Station were without very decided results. At the New York Cornell Station this feature was studied more fully. As between mangel-wurzels and corn silage, the lambs sucking the ewes fed roots made slightly better gains than those sucking ewes fed silage, although the silage appeared to be the cheaper ration. As between beets and corn silage, the lambs of the ewes fed silage made slightly the larger gain in weight. These results show but a meager difference in the feeding value of these foods.

SPRING FEEDING OF BREEDING EWES.

If the ewes lamb before the conditions are such that they may be turned out to pasture, they will require liberal feeding, which means about 1 to 1.5 pounds of bran, 2 pounds of hay, and as much succulent food as they will eat. It is very desirable to maintain a heavy flow of milk, and to do this, grain feeding and the free use of succulent food are necessary while the sheep remain in the sheds.

Pasturage.—It is generally good management to turn the ewes and lambs out to pasture as soon as possible, provided some grain is fed to the ewes while the grass is in a very succulent state. There is not sufficient nourishment in it at this time to properly support the ewes that are suckling lambs.

It is advisable to so stock the pastures with sheep that none of the grass may grow too coarse On the other hand, overstocking injures the pasture and makes the conditions favorable for diseases. Frequent change from one pasture to another will be found advisable.

Feeding grain to ewes on pasture.—When the pasture ceases to consist altogether of a fresh growth peculiar to an early spring, there is no advantage in feeding the ewes grain. In our experiments with 40 ewes and 56 lambs it was found that the lambs did not make any greater gain when their dams were fed grain on good pasture. The only compensation for feeding grain to the ewes was in the fact that those receiving grain did not lose as much in flesh as the others. But this greater loss was easily made good again when the ewes were put on rape or pasture after the lambs were weaned.

SUMMER FEEDING OF BREEDING EWES.

In the summer management of the breeding flock there is nothing of more importance than a provision of some green fodder to supplement the dry and parched pastures that are common in most sections in the summer months. For this purpose the crops most commonly utilized are rape, rye, corn, and vetches.

Rape.—This crop is one that has many advantages for summer feeding breeding ewes. It grows rapidly, produces a large quantity of succulent food, and is greatly relished by sheep. About two months is required for the growth of a crop. It remains fresh in the field for over a month under usual conditions after the first cutting has been made. At the Wisconsin Station 62 ewes, 26 ewe lambs, and 5 rams were fed from 300 to 350 pounds of rape daily throughout the drought of August and September. From August 16th until September 17th, 9.75 tons by

actual weight were cut from 0.5 acre, or at the rate of 19.5 tons per acre.

In cutting rape at different heights, the best results were obtained from cutting about 4 inches from the ground. Two cuttings were made from the piece so treated, one August 29th and the other November 6th, and the yield was at the rate of 36 tons per acre.

Rye.—The writer has known a rye pasture to be in good condition after being used six years for pasturing sheep. The rye was never allowed to grow beyond the second joint of the stock. If the sheep did not keep it down, it was cut. It furnished unusually early pasturage for sheep, and was at all times acceptable. Rye grows quickly, will establish itself in poor soil, and is eagerly eaten by sheep if it is not allowed to become rank. It may be used as a soiling crop at any time, but with special advantage if sown in the corn at the last cultivation, so as to be ready in the spring before the pastures are in condition to turn the sheep on them.

Vetches.—These are not as indifferent to climatic conditions as the crops previously mentioned, but where they can be grown they are invaluable for soiling sheep. They are very nutritious, and sheep thoroughly relish them. Mixed with one-third oats, with the object of supplying supports for the vines, they can hardly be surpassed as a soiling crop. In the drier sections, where the need of soiling crops is greater, the vetches can not be made to produce the amount of fodder that rape does.

Feeding ewes after weaning the lambs.—When the lambs have been taken away from the ewes, the latter should be put on scanty pasture or given the range of a field of grain stubble, to dry up the milk as soon as possible. The ewes, if they have done well by their lambs, will be in poor condition at this time, but it is not advisable to give them full feed.

FALL FEEDING OF BREEDING EWES.

It is a general impression among shepherds that the condition of the ewes at the time of breedin has a marked influence on the succeeding crop of lambs. If the ewes are in vigorous condition and improving in flesh, the prospects are thought to be favorable for the production of a large percentage of lambs. It is equally accepted that the condition of the ewes in the fall prior to going into winter quarters has an effect on the susceptibility of the flock to such diseases as are more or less prevalent during the winter season. It is certain that the ewes may be gotten into vigorous condition much more cheaply and easily in the early fall than at any time later, and it is equally true that a vigorous condition is the best preventive of disease.

Grain.—As the breeding season approaches (it usually begins in October), the ewes, being in thin condition, require some grain. The best grain for this time is clean sound oats, about 0.5 pound per head daily. If the ewes are brought into a uniformly good condition by grain feeding they will breed uniformly, which of itself is an appreciable advantage. During the past season, out of the flock of 55 breeding ewes at the Wisconsin Station, 52 lambed in the month of March, and this was due chiefly to the uniformity in the condition of the ewes, brought about by rape feeding.

Fall pasturage.—It is advisable to keep some fresh pasturage for late fall feeding. Exercise in the fall is conducive to thrift in winter and healthy lambs in the spring. In our northern climate sheep are housed too much at best. The ewes may obtain more food than would be supposed from a field of fresh blue-grass pasture that has been in part retained for them.

It is becoming an opinion among shepherds that when ewes are fed on clover aftermath they are more difficult to get with lamb than if fed on other pasture or fed soiling crops. In addition there is danger that the sheep may bloat on it. The best plan is to save the second-crop clover for the lambs that have been weaned; and to prevent bloating pasture them for a part of the day on blue-grass pasture, and after they have satisfied their appetites to some extent, to change them to the clover.

FEEDING LAMBS INTENDED FOR BREEDING PURPOSES.

When the ewe has lambed, if the lamb after becoming dry is not able to obtain the ewe's milk of its own accord, it should be assisted in doing so. Some of the milk sho . l be drawn from the udder to see that the milk escapes freely, and then the lamb held so that it may reach the teat. If it is too weak to stand, the ewe may be thrown, but it is perhaps better to draw some of the milk from the udder and feed it to the lamb from a spoon. By feeding a teaspoonful every hour for a half day or so, most weak lambs soon become strong enough to get to the teat themselves. It should be seen that there is no dirty wool around the udder or any filth about the teats to prevent the lamb from sucking. In the case of young ewes it is especially necessary that attention be paid to these matters. It is advisable to keep the ewe and her lamb in a pen by themselves for at least three days.

For feeding lambs to be used for breeding pur-

poses preference should be given to bran, oats, and linseed meal. These are preferable to corn-meal, which tends to fatten and does not produce growth to the same extent as the other foods. The bran is relished by the lambs, and they may eat large quantities of it without danger or detriment of any kind. Linseed meal is best fed in a mixture with the bran, as it is very rich and concentrated. Oats are seemingly liked by the lambs, but they will not eat them as freely as the other foods mentioned. If the oats are ground, the lambs leave a considerable quantity of the chaff untouched. The best results will likely be obtained by giving an equal mixture by weight of bran, oats, and linseed meal.

At first the lambs will take only small quantities of grain. By feeding them very little at a time, and always taking away what they may leave, they soon begin to eat eagerly and look forward to feeding time. To give young lambs all they have capacity for requires frequent feeding in small quantities. When the lambs are yet in the shed and not on pasture, our practice in feeding has been about as follows: In the morning about 6 o'clock they are fed a small quantity of grain, in the trough. After the other sheep are fed, if the lambs have eaten their grain, more is put in the trough. At noon they receive another allowance. In the evening they are fed twice in the same manner as in the morning, and they are left at night with some grain in their troughs.

When the lambs are about 8 weeks old, they will eat about 0.17 pound of grain per head daily; when 10 weeks old, about 0.25 pound, and when 12 weeks old, about 0.5 pound.

Hand-feeding lambs.—In rearing lambs that have lost their mothers, or when the latter do not give enough milk to nourish the lambs properly, it is best to feed cow's milk from a bottle that has a small rubber nipple attached to it. A newly dropped lamb only requires 2 teaspoonfuls at a time given every hour. It has not been found necessary to sweeten the milk with sugar or dilute it with water, but it is strongly recommended to heat the milk and feed it at a temperature of 100° F. The lambs seem to like it hot, and they certainly thrive better upon it. It is necessary to keep the nipple, the bottle, and the vessel in which the milk is heated thoroughly free from any disagreeable taste or odor, such as that of sour milk, else the lambs will refuse the milk. When the lambs are about 2 months old they are able to take in two feeds 2 pints per head daily, in addition to such grain and grass as they may eat.

Feeding after weaning.—The time for weaning the lambs depends greatly upon the extent to which the lambs are obtaining milk from the ewes. When they are four months old they may usually be weaned with advantage. If they have been fed grain previous to weaning they will not be checked in their growth by it, and they will be almost unconscious of the weaning; but if they have not received grain they will lose in weight and be checked in their growth.

It will be advisable to separate the ewe lambs from the ram and wether lambs. If allowed to run together the ram lambs will annoy the others, and the gains will not be satisfactory. The wether and the ewe lambs may be kept together.

After weaning, the lambs should be gradually made to rely on oats as their grain ration. If on pasture of only ordinary quality, 0.5 pound of oats daily may be fed if needed, but if on good aftermath clover or blue-grass pasture less will be required.

When the lambs have just been weaned they should get the best pasture obtainable, and, if possible, the field should be some distance from the ewes. There is nothing better for lambs just weaned than second-growth clover that has grown up a few inches and has lost some of the freshness characteristic of new growth. There is not much danger of lambs of this age bloating on such food. Rape is an excellent food for the ram lambs, and if managed with judgment there is no danger in giving them free range. If neither of these can be secured for the lambs, they should at least have a clean piece of blue-grass pasture that has not been eaten down by other stock.

The best practice among shepherds giving close attention to the growth of their lambs is to sow rye in the fall for early food in the spring for the ewes and lambs, followed by vetch and oats and by vetch sown alone at intervals of two weeks. These last until the lambs are weaned and the clover aftermath is ready for them. Succeeding this comes the rape crop and fall turnips.

Feeding during winter.—During the first winter the ewe and ram lambs should receive special care. The aim should be to encourage growth as much as possible by good feeding without making them fat. Some grain, preferably oats, and wholesome fodders, such as clover hay, cut corn fodder, and others that they relish, should be fed. Until they become matured the ewe and ram lambs should be fed liberally, for any loss in growth that they may suffer through scrimped or neglected feeding can never be regained in later life.

FEEDING RAMS.

In feeding mature rams it is desirable to maintain them in a thrifty and vigorous condition without fattening. This implies wholesome food and exercise. If rams are made too heavy in flesh at any time, impotency or inability to serve ewes frequently results, and if they are once overfed and made too fat it is a very hard matter to reduce them without serious injury to their vitality. Exercise and not the reduction of their ration is the best remedy for reducing the flesh.

Winter feeding.—During the winter the object should be to maintain the weight if the ram is mature, and if a shearling or young ram to make continuous improvement. Oats are probably the best grain food, though the addition of some bran is advisable. A mature ram will need from 0.5 pound to 1 pound of grain daily to keep him in proper condition.

The fodders should be chosen so as to give as much variety as possible. They may include clover hay, pea straw, corn fodder, and others, fed at different intervals, or, perhaps better, one in the morning and another in the evening. Some succulent food should also be fed, such as turnips or silage. Experienced shepherds are very decided upon the danger from feeding mangel-wurzels. A great many rams have died from a formation of crystals in the bladder, and these have frequently been traced, it is believed, to the feeding of mangel-wurzels.

Summer feeding.—To secure the best results in the breeding season it is not advisable to let the rams run with the ewes before that time. They should be pastured as much as possible, for in this way they will keep healthier and stronger on their legs. Though the fleeces of the rams that run out may not appear to as good advantage as if housed, yet for results in breeding it is much the better plan to keep them on pasture as much as possible. They should get some grain, the amount depending on their condition.

Fall feeding.—The feeding of the rams during the breeding season is very important. The grain should be mostly oats, with the addition of some bran and linseed meal. Such fodders as vetches and rape, fed in the shed, are recommended. The breeding season is a severe strain on the vitality of the ram, which has to be met by liberal feeding of grain and other foods in as great variety as possible. About 1 pound of grain daily will be required, with as much green food as the ram will eat. At this time it has been the writer's plan to keep the rams in pens by themselves, and only allow them to go to the ewes each morning. Pasturage is replaced altogether by such green foods as rape and clover cut and brought to the pens.

Part II.—"The Feeding of Sheep for Market," will be given in our next issue.

TIMELY INSTRUCTIONS IN SPRAYING.*

By J. Hoyes Panton, Professor of Biology, Ontario Agricultural College.

PART I.—SOLUTIONS RECOMMENDED.

(1) BORDEAUX MIXTURE.

Copper sulphate	4 pounds.
Lime (fresh)	4 "
Water	40 gallons.

Suspend the copper sulphate in five gallons of water. This may be done by putting it in a bag of coarse material, and hanging it, so as to be covered by the water. Slake the lime in about the same quantity of water. Then mix the two and add the remainder of the forty gallons of water.

Warm water will dissolve the copper sulphate more readily than cold water. If the lime is at all dirty strain the lime solution.

If the lime is good the above amount is likely to be sufficient. It is an easy matter to know how much lime is required by using what is termed the ferro-cyanide of potassium test. This substance can be got at any druggist's, and very little is required. Take a small bottle (2 oz.) and get it filled with a saturated solution of this

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NOTE.—For a biographical sketch of Professor Panton, see FARMING for December, page 286.

*Being "Special Bulletin No. 105," issued by the Department of Agriculture for Ontario. For the illustrations used in this article we are indebted to the courtesy of the Hon. the Minister of Agriculture.

compound. If there is not plenty of lime in your mixture, a drop of the test added to it turns brown. Add more lime and stir. As soon as the test fails to color in coming in contact with your mixture, it indicates there is sufficient lime present to neutralize the effects of the copper sulphate. Use wooden vessels in preparing the Bordeaux mixture.

(2) AMMONIACAL COPPER CARBONATE SOLUTION ("Cupram").

Copper carbonate..... 1 oz.
Ammonia, sufficient to dissolve the copper carbonate.....
Water.....10 gals.

This solution is not much used, and is recommended only in cases where the fruit is so far advanced that it would be disfigured by using the Bordeaux mixture.

(3) PARIS GREEN MIXTURE.

Paris green..... .... .. 1 lb.
Water.... .. .. 200 to 300 gals.

Use 200 gallons of water in a mixture for apple trees, 250 for plum trees, and 300 for peach trees. When Paris green is added to Bordeaux mixture, so far as to form a combined insecticide and fungicide, add four ounces to every forty gallons of the Bordeaux mixture.

(4) HELLEBORE.

White hellebore (fresh).... .....1 oz.
Water. ..... 3 gals.

(5) PYRETHRUM.

Pyrethrum powder (fresh).....1 oz.
Water.....4 gals.

(6) KEROSENE EMULSION.

Hard soap..½ pound, or soft soap 1 qt.
Boiling water (soft)..... .. 1 gal.
Coal oil..... 2 "

After dissolving the soap in the water, add the coal oil and stir well for five to ten minutes. When properly mixed, it will adhere to glass without oiliness. A syringe or pump will aid much in this work. In using, dilute with from nine to fifteen parts of water. Kerosene emulsion may be prepared with sour milk (1 gallon), and coal oil (2 gallons), no soap being required. This will not keep long.

NOTES.

(1) When there is danger of disfiguring fruit with the Bordeaux mixture use the ammoniacal copper carbonate solution.

(2) Experience in spraying during the past two years indicates that it is best to use the combined insecticide and fungicide, commencing as soon as the buds begin to swell, again when the leaves appear, and continue it at intervals of ten to fifteen days, until the trees have been sprayed three to five times, which will depend upon the weather. In the case of a rainy season, it may be necessary to spray at least five times; while if dry, and the mixtures have been allowed to remain on the foliage, then three or four times may be sufficient.

In no case spray while the trees are in bloom, but immediately after.

(3) The combined insecticide and fungicide, containing Paris green and Bordeaux mixture, is to be used for insects that chew, and injurious fungi, but kerosene emulsion alone for those insects that suck the juices of plants, such as aphis, thrip, red spider, etc.

(4) A stock solution for the preparation of Bordeaux mixture may be prepared as follows: Dissolve 25 pounds of copper sulphate in 25 gallons of water. One gallon of this contains one pound of the copper sulphate. In another barrel slake 25 pounds of good lime, and add 12½ gallons of water. One gallon of this contains two pounds of lime. To make the mixture, take four gallons of the copper sulphate solution and two of the lime. If there is any doubt about there not being sufficient lime try the test already referred to under Bordeaux mixture. Now fill up the amount to forty gallons with water.

(5) Prepare the mixtures well, apply them at the proper time, and be as thorough as possible in the work.

PART II.—TREATMENT.

(1) APPLE.

Treatment for destroying codling moth, bud moth, tent caterpillar, canker worm, apple spot, and leaf blight.

First spraying: Bordeaux mixture and Paris green (4 oz. to the barrel of the mixture) when the buds are swelling.

Second spraying: Bordeaux mixture and Paris green before the blossoms open.

Third spraying: Bordeaux mixture and Paris green when the blossoms have fallen.

Fourth and fifth spraying: Bordeaux mixture and Paris green at intervals of ten to fifteen days, if necessary.

(2) PEAR.

Leaf blight, scab, and codling moth, the same treatment as for the apple.

(3) PLUM.

Curculio, brown rot, and leaf blight.

First spraying: Bordeaux mixture before the flower buds open.

Second spraying: Bordeaux mixture and Paris green as soon as the petals have fallen.

Third spraying: Bordeaux and Paris green in seven to ten days after.

Fourth spraying: Bordeaux mixture in ten to fifteen days after.

(4) PEACH.

Brown fruit rot, leaf blight, and plum curculio.

First and second sprayings: Same as for the treatment of the plum.

Third spraying: Bordeaux mixture in two to three weeks.

Fourth spraying: Ammoniacal copper carbonate if any danger of disfiguring the fruit with Bordeaux mixture.

(5) CHERRY.

Aphis, slug, brown rot, and leaf blight.

First spraying: Bordeaux mixture as the buds are breaking; if the aphis appears use kerosene emulsion alone.

Second spraying: Bordeaux mixture and Paris green as soon as the blossoms fall.

Third spraying: Bordeaux mixture and Paris green ten to fifteen days after.

(6) GRAPES.

Mildew, black rot, and flea beetle.

First spraying: Bordeaux mixture and Paris green when leaves one inch in diameter.

Second spraying; Bordeaux mixture and Paris green when flowers have fallen.

Third and fourth sprayings: Bordeaux mixture at intervals of ten to fifteen days.

Paris green alone when the beetle is attacking the buds in the spring.

(7) RASPBERRY.

Anthracnose and leaf blight.

First spraying: Bordeaux mixture just before growth begins.

Second spraying: Bordeaux mixture about when first blossoms open.

Third spraying: Bordeaux mixture when the fruit is gathered.

(8) CURRANT AND GOOSEBERRY.

Worms and mildew.

First spraying: Bordeaux mixture and Paris green as soon as the leaves expand.

Second spraying: The same ten to fifteen days later.

For worms alone, hellebore or Paris green will be effective.

(9) TOMATO.

Rot and blight.

Spray with Bordeaux mixture as soon as rot or blight appears, for three times if necessary, at intervals of ten to fifteen days.

(10) POTATO.

Blight and beetles.

First spraying: Paris green as soon as the beetles appear (one pound to 100 gallons of water).

Second spraying: Bordeaux mixture and Paris green when plants are six inches high.

Third and fourth sprayings: Bordeaux mixture at intervals of ten to fifteen days, if necessary.

(11) CABBAGE.

Pyrethrum applied in solution (one ounce to four gallons of water) or dusted on (one part pyrethrum to seven parts flour) for the cabbage worm.

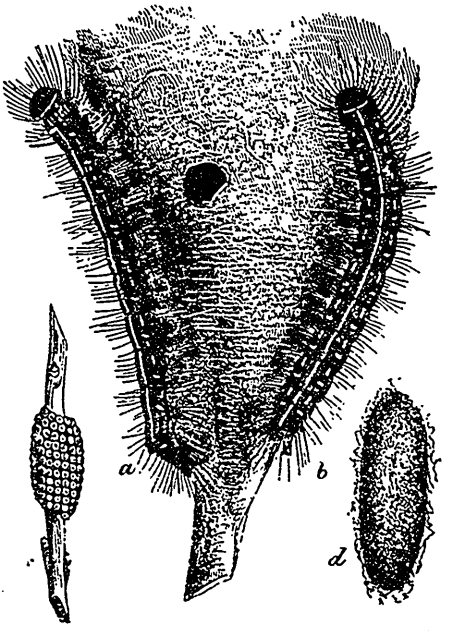
(12) STRAWBERRY.

The rust or leaf blight.

Bordeaux mixture, when it can be applied without disfiguring the fruit, will control this disease. Apply at intervals of two or three weeks on new beds after they begin to make runners.

PART III.—INJURIOUS INSECTS.

The following are some of the most common injurious insects that are troublesome in the garden and orchard. To destroy these, spraying as directed will be effective. To destroy insects only use an insecticide, but if treating for a fun-



Tent Caterpillar.
a and *b*, caterpillars feeding; *c*, one of the egg clusters *d*, cocoon.

goid pest at the same time use a combined fungicide and insecticide.

(1) TENT CATERPILLARS.

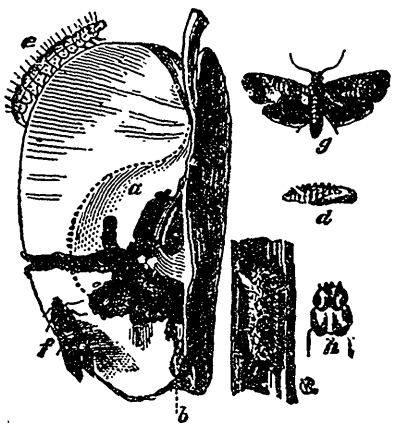
These insects weave large webs in the branches of the apple tree and do much damage feeding upon the foliage of the trees. It also attacks the plum and cherry. The *eggs*—200 to 300—are laid in rings upon the twigs of the trees and can be readily seen, so that many of them might easily be destroyed during the winter. The caterpillars grow rapidly. There are two varieties. One has a white strip down the back, and the other has a series of white spots, and thus they are readily distinguished from each other. Both develop into brown moths. The accompanying cut represents the different stages of the insects.

Tent Caterpillar Moth.

Remedies.—1. Collect the egg clusters in winter. 2. Crush the "tents" when full of caterpillars. 3. Apply Paris green alone or with Bordeaux mixture.

(2) CODLING MOTH.

The *eggs* of this tiny moth are laid on the calyx of the young apple while it is turned up. As soon as hatched the *larva* burrows into the apple, where it feeds until fully developed.



Codling Moth.

a, burrow; *b*, entrance hole; *d*, pupa; *e*, larva, or grub; *f*, moth, wings closed; *g*, moth (full view).

Affected apples fall to the ground and often contain the worm in them. The *cocoons* are frequently under the bark and in other sheltered spots.

The moth appears about the time the trees are in bloom, and is one of the worst pests that attacks the apple.

Remedies.—1. Feed to hogs the fallen apples which may contain larva. 2. Spray with Paris green, as directed for the treatment of the apple.

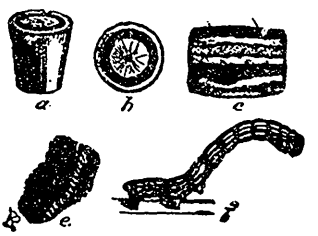
(3) CANKER-WORMS.

The spring canker-worm was very common in 1896. Both the spring and fall canker-worms are much alike, about an inch long, of a darkish brown color, slender, and move with a loop-like motion; hence, sometimes called "measuring worms." They can drop from a tree by a silken thread.

Canker-Worm Moths (Spring Species).

a, male; *b*, female.

The moth of the spring canker-worm appears in spring; the female is wingless, the male is ash-colored and has wings. The fall canker-worm is much the same, but the moth appears in the fall. The wingless females in both species crawl up the trunks to lay their eggs upon the twigs.



Canker-Worm (Autumn Species).

f, the worm, or larva; *a*, *b*, and *c*, eggs.

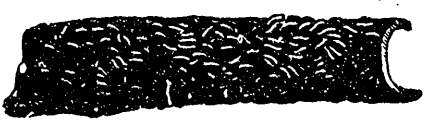
These insects attack the plum, cherry, and apple. The accompanying cuts illustrate the moths of the spring species and the larva and eggs of the autumn species.

Remedies.—1. The females may be trapped by putting a band of some adhesive material around the tree. 2. Paris green is an effective remedy, as directed in the treatment of the apple.

(4) OYSTER-SHELL BARK-LOUSE.

This insect appears in the form of minute brown scales upon the bark of the apple tree, and, being much the same color, is difficult to distinguish. The *eggs* are beneath the scales. They hatch about the end of May or the beginning of June. The young lice are almost invisible; they suck

the ends of the young twigs, where they become fixed, and continue to suck the juice from the twigs. Soon a scale forms over them. All under the scales, the shape of an oyster-shell, are females, that lay their eggs under the scale. The scale of the male is more oblong, and is rarely seen.



Oyster-Shell Bark-Louse.
Bark of a twig covered with scales containing the eggs.

Remedy.—In winter, or early spring, scrape off the rough bark from the trunk and large limbs, and rub in with a scrubbing brush the following solution: One quart soft soap, or one-quarter pound hard, in two quarts boiling water; take seven parts of this and add one part carbolic acid: then, when the young lice are moving (May or June), spray with kerosene emulsion diluted with ten parts water.

(5) PEAR-TREE SLUG.

This insect may be found attacking the pear, plum, and cherry.

The *eggs* are laid about June. The *larva* is about one-half inch in length and is thicker towards the head, of a somewhat greenish-black color, and slimy. It has many legs. The *pupa*

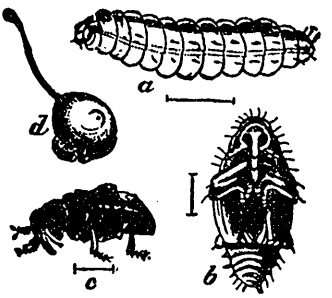
Pear-Tree Slug.
Various sizes; *a*, the grub, slightly magnified.

stage is spent in the ground and lasts two weeks. The *imago* is a small, four-winged black fly. The slug feeds on the upper surface of the leaf. It was quite common during 1896.

Remedy.—Spraying with Paris green, hellebore, or pyrethrum, in the common proportions.

(6) PLUM CURCULIO.

There is no insect better known than this little beetle. The *egg* is deposited in the plum, where it hatches. The affected fruit soon falls to the ground, and the *larvæ* leave the plums, pass into the ground, where they remain for about six weeks. The *imago* is a small grayish beetle one-fifth of an inch long, with a black lump on the middle of each wing case. If has a curved snout and a stout body. The beetles hide themselves during the winter in sheltered spots, and appear in spring about the time the trees are in bloom. This insect is also found upon the cherry, peach, and even apple.



Plum Curculio.
a, grub, or larva; *b*, chrysalis; *c*, beetle. (All magnified. The natural size is indicated by the lines.) *d*, curculio (natural size), at work on a young plum.

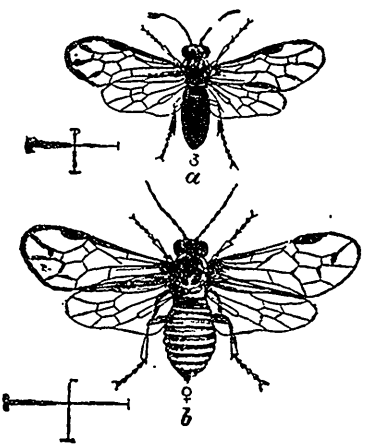
Remedies.—1. Jarring the trees morning and evening. At this time many beetles will drop and may be collected upon a sheet placed below.

2. Gather and destroy the affected plums as they fall.

3. Spray Paris green as directed for the treatment of the plum, or Paris green may be applied alone (1 pound to 250 gallons of water; if the foliage is tender add 2 lbs. of lime). Spray once before the trees bloom, as soon as the foliage is well started, again as soon as the petals fall, and repeat about a week after.

(7) CURRANT WORM.

This insect is very troublesome upon currant and gooseberry bushes. It lays its *eggs* early in the spring, on the under side of the leaves, in rows along the veins. These hatch in about ten



[**Saw Flies. (The Moths of the Currant Worms.)**
a, male; *b*, female. (Magnified. The natural size is indicated by the lines.)

days, and the young worms appear. The *larva*, when full-grown, is about three-quarters of an inch in length, of a greenish color with dark spots, and has many legs. It spins a brown cocoon, of paper-like texture, which is found sometimes on the ground among the dried leaves, or on the bush, attached to the stems or leaves. This represents the *pupa* condition.

The *imago* appears in about two weeks after the pupa stage has been entered. The male is much smaller than the female, the body black, with some yellow spots above, while in the female the body is mostly yellow. Both have four membranous wings. A second brood is of common occurrence.

Currant Worms.

These are the larvæ or grubs of the *Saw Flies*. In the cut they are represented as full-grown and feeding.

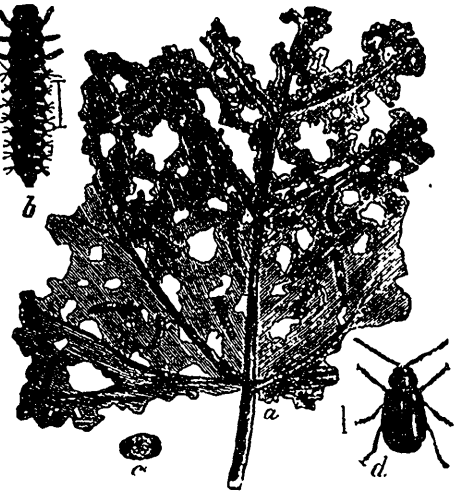
Remedies.—1. Hellebore, one ounce in three gallons of water. It may also be applied as a dry powder, mixing it with three or four parts flour.

2. Paris green for the first brood, but care must be taken not to continue this if the fruit is likely to be affected.

(8) GRAPE-VINE BEETLE.

The *eggs* are deposited on the under side of the leaves. The *larva* is about one-third of an inch long, brownish, with several black dots on the body. The *pupa* condition is passed in the ground, and continues for about three weeks.

The *imago* is a small, polished beetle, about one-fifth of an inch long. It passes the winter in sheltered spots, under leaves, or around the roots, and is very destructive in the spring to the young buds, and afterwards, in the larva condition, to the leaves.



Grape-Vine Beetle.

d, beetle; *b*, larva; *c*, chrysalis; *a*, partly eaten leaf. (The natural sizes of the beetle and grub are indicated by the lines.)

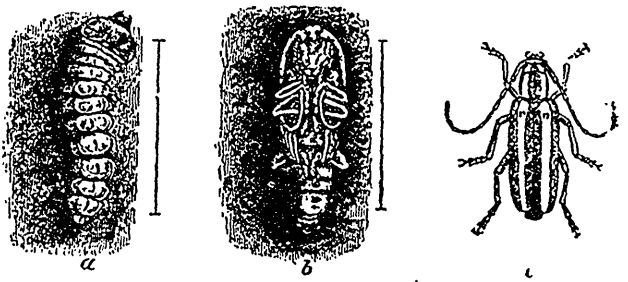
Remedies.—1. Paris green, three ounces to fifty gallons of water, or combined with Bordeaux mixture as directed under treatment of the grape.

2. Dust pyrethrum powder upon the vines attacked.

3. Jarring the vines in the morning and collecting the beetles.

(9) ROUND-HEADED BORER.

The *eggs* are deposited about June, near the base of the trunk of the apple tree. The *larvæ* eats its way through the outer bark to the inner, and takes about three years to develop. It works in the sapwood, where it forms flat, shallow cavities, filled with sawdust-like castings. These are often seen on the bark, and indicate where the "borer" is at work. As it reaches maturity, it cuts a passage upwards into the solid wood, and then curves towards the bark. In this chan-



Round-headed Apple Tree Borer.

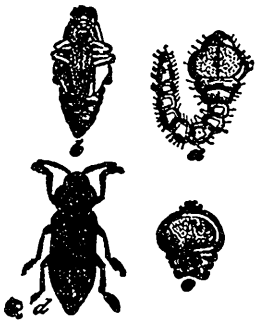
a, larva, or grub; *b*, pupa, or chrysalis; *c*, beetle. (The natural size is indicated by the lines.)

nel it enters the *pupa* stage, about spring. When fully developed, it is an inch long, with a round head that distinguishes it from the flat-headed borer, which also affects the apple tree.

The *imago* is a slender beetle, one inch long, with two broad, whitish stripes on the wing covers, and long-jointed antennæ. It appears about June.

(10) FLAT-HEADED BORER.

This insect also attacks the trunk of the apple tree, but lays its *eggs* higher up the tree than the preceding one. The *larva* is a pale yellow, an inch long, and has a well-marked flat head, much wider than the body. It is sometimes found even in the limbs, and is not so long in developing as the round-headed borer. It cuts flat channels in the sapwood, and sometimes girdles the tree. Castings and discolored bark indicate its presence. It finally bores into the solid wood, and becomes a *pupa* for about two weeks, and then emerges as an *imago* about half an inch long,



Flat-headed Apple-Tree Borer.
a, larva, or grub; *b*, chrysalis; *d*, perfect insect.

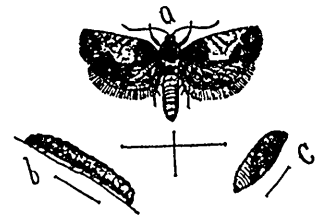
somewhat flat, and of a greenish black color, with three raised lines on each wing cover. The legs and under side of the body present a coppery lustre.

Remedies.—1. Examine the trees in autumn, and where the sawdust-like castings indicate the presence of the "borer", a stiff wire may be pushed in and the larva killed, or sometimes the larva can be cut out with a knife.

2. About the beginning of June apply the following mixture to the trunk of the tree: One pound of hard soap, or one quart soft, in two gallons of water; heat to boiling, and add one pint crude carbolic acid: make a second application in three weeks. This can be well done by using an old scrubbing-brush to rub it in.

(11) BUD MOTH.

This insect is found attacking the buds upon the apple, and sometimes proves very injurious. The half-grown *larva* winters over and appears in spring as a small brown caterpillar just about the time the buds begin to open, and feeds upon them. It measures about half an inch when full grown. By rolling up one side of a leaf, and securely fastening it with silken threads, it forms



Apple Tree Bud Moth.
a, moth; *b*, larva, or grub; *c*, pupa. (The natural size is indicated by the lines.)

a tube in which it enters the *pupa* stage, having lined the little chamber with a closely woven layer of silk. This condition lasts ten days. The *imago* is a small moth, resembling the codling moth in size and form. It is of an ash gray color. The front wings have a whitish-gray band across the middle; the hind wings are a dusty brown. The expanded wings measure half an inch across.

Remedy.—Paris green added to Bordeaux mixture as directed for the treatment of the apple.

(12) THE GRAPE-LEAF HOPPER OR THRIP.

This small insect, about an eighth of an inch long, of a white color, marked by three dark bands, is sometimes troublesome on grape vines.

They feed upon the juices of the plant, and are usually upon the underside of the leaves, where they are difficult to reach in spraying.

Remedies.—1. Remove fallen foliage at the close of the season, so that the insects cannot find shelter during the winter.

2. Spray with kerosene emulsion diluted with ten parts water, on the under side of the leaves in the cooler part of the day.

(13) RED SPIDER.

The red spider is a very small insect—a true mite—and in some places is very destructive. It sucks the juices of the plants attacked, and causes the color of the leaf to change from green to a grayish white. It flourishes in a dry atmosphere and in sunny places; shade and moisture are not favorable to its development.

Remedies.—1. Spray with clear water, and keep the atmosphere about the plants moist.

2. Spraying with kerosene emulsion should also be followed by good results.

PLANT LICE.

These minute, greenish insects affect the foliage

of many plants by sucking the juice, and thus injuring the leaves.

They can be controlled by spraying with kerosene emulsion.

PART IV.—INJURIOUS FUNGI.

The following are among the most injurious ungi that affect the products of the garden and orchard. They can be readily controlled by the proper application of Bordeaux mixture, as directed.

The usual life history of a parasitic fungus is, that it arises from a spore which is microscopic; this germinates and gives rise to thread-like structures which penetrate the plant upon which the fungus grows and derives its nourishment. Upon these structures, in time, spores are produced, as new sources from which the fungus may develop and continue to be injurious to the vitality of the plants attacked.

(1) APPLE SPOT OR SCAB.

This fungus attacks the leaves and fruit of the apple, causing the "spots" on the fruit. The vegetative portion of the fungus is chiefly around the edge of the spots where the spores are produced in great numbers.

(2) LEAF SPOT.

This disease attacks the pear, causing the leaves to show reddish spots with small pimples in the centre. When the fruit is attacked it cracks and appears stunted.

(3) BROWN ROT.

Attacks plums, cherries, and peaches. The fruit affected becomes brownish at first, then shrivels and appears dried. In this condition it is termed "mummified," and is often seen upon the trees in that form. All "mummified" fruit should be gathered and burned, as they contain spores that will perpetuate the disease.

(4) ANTHRACNOSE.

This fungus appears on the canes of raspberries as small round or oval patches, with a purple border, and sometimes upon the leaves as small yellowish spots with dark border. The affected canes should be cut out and destroyed by burning.

(5) LEAF-BLIGHT, SUNBURN.

This disease produces very conspicuous spots on the upper surface of the leaves of the strawberry. The spots are reddish at first, then the centre becomes somewhat grayish.

(6) POWDERY MILDEW.

This mildew is the well-known blight on the gooseberry. It thrives in a warm, dry atmosphere, and sometimes is very destructive.

At first the berries are covered with a grayish substance, and later assume a brown color.

(7) POTATO BLIGHT.

This fungus attacks the potato, commencing with the leaves and finally affecting the tubers.

THE METHOD OF A SUCCESSFUL TURKEY RAISER.*

By SAMUEL CUSHMAN, Pawtucket, R.I.

Of late years Prudence Island R.I., has been one of the leading turkey-producing sections of the continent. Over 800 turkeys were raised there in 1892. Mr. George Tucker raises the largest number, and probably produces more turkeys than any one in the State. In 1888 he raised 225 turkeys from 22 hens; in 1889, 306 from 28 hens; in 1890, 340 from 30 hens; in 1891, 322 from 36 hens; in 1892, 425 from 35 hens; and in 1893, he had, when I visited him, over 300 young turkeys on the way to maturity.

Previous to 1888 he had only average success, but since that time, owing to an improvement in his management, he has had but very little loss. He credits his present success to having gained a clearer understanding of the requirements of turkeys, as well as to having procured a very fine gobbler, by means of which he increased the hardiness of his flock. He has since been more careful in selecting new blood. He found that young turkeys that were kept near the house or under the trees in the orchard did not thrive; many had swelled heads and soon died. On the other hand those placed on the highest and dryest pastures, where there were no trees and but a light growth of grass, did the best of all.

He usually winters from twenty to thirty-five hen turkeys and two gobblers. One gobbler is sufficient, but the second is kept in case one should die or fail in any way. The gobblers weigh from thirty to thirty-five pounds, and usually are kept two seasons, and the hens two or three seasons, old hens being the surest breeders. They roost out in the trees the year

*This article was sent to FARMING by Mr. Cushman for insertion in our special poultry number of January, but unfortunately we had not room for it in that issue. It contains the experience of one of the best turkey-raisers in the United States.

through, and but few are lost.* In the spring a sufficient number of nests are made for the hens

Samuel Cushman.

NOTE—For an interesting biographical sketch of Mr. Cushman see FARMING for January, page 329. To what is there said it may be added that Mr. Cushman is a born poultryman. He began even as a schoolboy to breed and show fancy fowls, and was a successful prize winner before he was out of his 'teens. Later on he became interested in bees, and at one time he had a hundred colonies buzzing about him. In 1889 he became apiarian of the Rhode Island Agricultural Association.

When the poultry department in connection with the agricultural experiment station of Rhode Island was organized Mr. Cushman was placed in charge of it. In his office as poultry-manager of the station Mr. Cushman endeavored to develop the poultry trade interests of his state, and in this he was very successful. One of the points he paid great attention to was caponizing. He also did much to improve the quality of both the geese and turkeys of Rhode Island (which is perhaps the greatest poultry state in the Union) by crossing the domestic varieties, bred by the raisers, on wild Canadian varieties. These crossings have had a wonderful effect upon the flavor and delicacy of the resulting crosses. Another innovation introduced by Mr. Cushman was the making of poultry shows more practical by having them pay more attention to exhibits of dressed poultry and eggs. Mr. Cushman is an enterprising, original, and practical poultryman, and an interesting poultry lecturer, and we trust some of our associations or institutes will secure him for some of their meetings next winter.

by placing barrels by the walls and fences near the house and barns, or by laying wide boards against the walls. In them are placed leaves or cut straw. The turkeys readily take possession of these nests, although some persist in seeking out one of their own. This is usually allowed unless a swampy location, or one too far away, is chosen, in which case the nest is broken up, and the hen induced to choose another.

Sometimes several hens lay in the same nest. To prevent this, a nest in which a turkey has commenced to lay, is, after she has deposited her egg, shut up for the remainder of the day to keep out intruders. When the crows eat eggs laid in the nests that are far from the house, they are frightened away by strings stretched across near the nest. Glass nest eggs are used. Eggs are gathered daily to prevent their being chilled, and that rats may not get them. They are kept in pans having a few oats in the bottom to prevent their rolling about. Each panful holds two sittings, and each egg is dated, that their age may be known.

When a hen stays on the nest for two nights seventeen of the oldest eggs are given her; the eggs laid by her during the two days are not left in the nest. The nests are first shaped so that they will not be so flat as to allow the eggs to roll out, or so deep as to cause them to be piled one upon another. The turkeys seem to do better if not fed while sitting. Those occupying nests near together are looked after daily to see that they return to their own nests.

Mr. Tucker at first experienced some trouble in having the hens come off with a few young, those late in hatching being left to their fate. This was partly overcome by setting eggs of the same age. By feeding hens with dough when the eggs are due to hatch, they are also contented to stay on the nest longer.

When the turkeys are a couple of days old and seem quite strong, they are placed in a basket, and with the hen removed to a remote part of the farm. Triangular pens, made of three boards, twelve feet long and one foot high, are placed in the fields where it is intended the flocks shall stay until nearly grown. They are not located near together, lest the different flocks attract each other's attention. But four or five pens are put in a twenty-acre field. The little turkeys or poults are put in one of these pens with some dough, and the hen is gently placed beside them. In releasing the hen, Mr. Tucker takes pains to step quickly back toward the the wind, that, if frightened, she may go in a direction in which the cries of her young may be heard and bring her to them.

The pens are removed to fresh ground frequently. Care is taken that the pens are placed on ground free from hollows that may hold water, for some turkeys when hovering their brood in such places will remain in them while

*It must be remembered that this is on an island on the Rhode Island coast.—Ed. FARMING.

they fill with rain and the brood is drowned. After five or six days, when the young are strong enough to follow the hen without being worn out, and have become so familiar with the attendant that they will come when called, they are let out of the pens and allowed free range.

In feeding and looking after this number of turkeys, the attendant, usually one of Mr. Tucker's daughters, has to walk about three miles to go the rounds. Until four weeks old their food consists of cornmeal mixed with sour milk, and they are given sour milk to drink, no water being given them. When four weeks old cracked corn is mixed with the meal, and the quantity is still increased until at eight or ten weeks old their feed consists of cracked corn moistened with sour milk. Until June 1st they are fed three times a day. From June 1st to July 15th they are fed twice a day. After this Mr. Tucker used to give them no feed until they commenced to come to the house in the latter part of September, when a little whole corn was given them daily, but of late years he has thought they did not get enough without it, and has continued the feed the whole season. In November they are given all the corn they will eat. They like northern White Flint corn the best, fatten most rapidly on it, and the quality of the flesh is also finer when it is given. If fed new corn they have bowel trouble. Mr. Tucker usually gives old and new corn mixed for fattening.

When the young turkeys get to be the size of quails, two hens and their flocks usually join forces and roam together until fall. In the fall the sexes separate, the gobblers going together in one flock and the hens in another. About Thanksgiving the litters hatched in the latter half of May, weigh, gobblers 18 to 20 lbs., and hens 10 to 11 lbs. each. Mr. Tucker does not care to raise second litters. When he has them, it is because the hens have stolen their nests. He has considerable loss among late turkeys, and if such birds are kept over winter they get sick more readily, and as disease spreads very quickly among turkeys, he looks upon them as disease breeders.

The turkeys of the early litters that are lost generally die during the first week, or in August, when two or three months old. There are no foxes, weasels, or skunks on the Island.

Mr. Tucker prefers birds with short legs, as they have the plumpest bodies. His turkeys are a mixture. Many are of a light gray color. There are also buff, brown, and dark ones. He prefers the brown and gray to the black, as they look better when dressed. He finds medium weights sell best except at Thanksgiving, Christmas, or New Year.

CORN AS A FODDER CROP.

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

Corn as a fodder crop is steadily gaining in favor. Many farmers who have never grown it have tried it on a small scale, and it has proved so successful that they are trying it on a much larger scale. Dairymen have found a piece of early sown corn a grand thing when pastures begin to fail in the summer time, and many dairymen have determined not to be without it. The dry seasons, the last few years, have been good ones to teach them the need of some succulent food to help out the pastures. The growth of corn is thus being extended on to new farms, into new districts, and in those districts where it has been grown for years the acreage planted is steadily increasing.

No crop that the farmer raises gives such a yield of food as corn does, and the farmer is gradually finding out the important bearing this is having on his work. Growing grain for sale is an unprofitable line of farming at present prices, but the wise farmer has found that by skilfully feeding his grain with the coarse fodders grown upon his farm he can still get a high price for his grain, increase the fertility of his farm, and grow as many acres of grain as ever. It is as a crop to supply in abundance the coarse fodder, yet a very nutritious one, that corn shows to best advantage. Whether saved in a silo for winter, spring, or summer feeding, or fed green from the field in the summer or fall, or cured in the field for winter feeding, corn fodder is fast becoming a very potent factor in Canadian agriculture. One way to make more money on the farm is to grow more corn for summer and winter feed and for the silo. It is one of the crops that will enable a farmer to keep more stock, produce more milk, beef, mutton, and pork. Every farmer should have a few acres of it.

PREPARING THE LAND.

The preparation of the land should begin in the previous season. Mr. William Rennie, farm superintendent at the Ontario Agricultural College, begins the preparation of his corn land soon

after haying the previous season. That is out of the question for this season's crop, but any farmer that has a piece of sod intended for corn should plow it very shallow, turning it over quite flat; roll it down, then work up a seed bed. As the sod begins to decay it will heat and give the corn a fine start in good warm soil. If the land has been plowed in the fall, don't plow it again; if there is any short manure to spare spread it on the land and disc it in, and work up to a fine tilth.

PLANTING.

Thin planting. The old plan of growing corn fodder was to sow it with every tooth of the drill, putting on as much as three and four bushels of corn to the acre. Experience has shown that the best results are not obtained in this way. The chemists of the experimental stations have shown by analysis and by feeding tests that corn grown in this way does not possess the same feeding value as corn that is planted quite thin. The greatest amount of feeding value is obtained when the rows of corn are at least three feet apart and the stalks in the row about eight inches apart This will take about a peck of corn to the acre, instead of at least three bushels, as it does when sown broadcast. Experiments have shown that fully more feeding value can be obtained if the larger varieties of corn are sown in rows that are three and one-half feet apart. Many good farmers prefer to plant their corn in hills three or three and one-half feet apart each way, with from four to six grains to the hill. The advantages claimed are that it is easier to keep down the weeds because the cultivator goes both ways, that a better quality of crop can be grown because the development of ears is better, and that equally as heavy a weight of crop can be grown.

Many farmers contend that growing corn so thin is all right when it is grown for the silo and for winter feeding, but that for summer and fall feeding it should be grown thicker, so as to produce a smaller stalk. There is some reason in the argument; nevertheless the greatest real feeding value will be obtained by growing the corn fairly thin.

Early planting. The planting should be done as early as possible according to the season. At an institute meeting last winter a farmer said he had ripened the Mammoth Southern sweet corn last season. Some doubted his statement because they had not succeeded in doing so. When asked to explain how it was that he had been successful, he said that he had planted his corn the 8th day of May, while his neighbors had waited until the last of May or first of June before planting theirs.

As soon as the weather is at all suitable a small piece of land should be put in for early feeding.

VARIETIES OF CORN.

The varieties that are planted for fodder purposes are very numerous and vary greatly in different sections. Safe advice is to take a lesson from your neighbors, find out what varieties have succeeded with them and try those varieties. Then if you wish to experiment a little, plant a row each across the field of what you think promising varieties for the sake of comparison. Because a certain variety has given good results in one part of the province it does not follow that it will do equally as well in another, or on another kind of soil. The large growing varieties, such as Mammoth Southern Sweet, Red Cob Ensilage, Rural Thoroughbred White Flint, Giant Prolific Sweet Ensilage, should be planted very early and only in districts free of frosts until after the middle of September. Such varieties as Mammoth Cuban, Claud's Early Yellow, and Improved Leaming ripen a little earlier, while the Whitecap Dent, Salzer's North Dakota, Longfellow, and Compton's Early will ripen shortly after the 1st of September. Grow the variety of corn that will yield the greatest quantity of food per acre and yet ripen before the frost comes in the fall.

The following table taken from Professor Woll's little work "A Book on Silage," will show the importance of growing a variety of corn that will nearly reach maturity. Note the increase in the dry matter as the corn grows from one stage to another. The dry matter contains the feeding matter.

Table showing the increase in the feeding value of a corn crop as it passes from one stage to another in its growth.

	Tasseled July 30	Silked Aug. 9	Milk Aug. 21	Glazed Sept. 7	Ripe Sept. 23
	lbs.	lbs.	lbs.	lbs.	lbs.
Gross Weight.....	18,045	25,745	32,600	32,295	28,460
Water in the Crop	16,426	22,666	27,957	25,093	20,543
Dry Matter.....	1,619	3,078	4,643	7,202	7,918

CULTIVATION.

Until the corn is six inches high a pair of light harrows will be the best implement to stir the ground and destroy any young weeds that may be starting. A weeder is just the thing for this and can be used until the corn is much higher. Cultivation with the cultivator should be fairly deep and wide to start with, becoming shallower

and narrower as the corn develops so as not to cut the roots. The cultivation should be frequent enough to break down weeds and to break any crust that may form after a shower of rain.

If the land for corn is treated as Mr. Rennie treats his there will be no weeds to kill during the summer, because they will have all been killed the fall before.

THE IMPORTANCE OF OFFICIAL TESTS.*

By G. A. Gilroy, Glen Buell, Ont.

Mr. G. A. Gilroy, son of Mr. C. J. Gilroy, of Glen Buell, Ont., and a member of the firm of C. J. Gilroy & Son, the well-known and successful breeders of purebred Holstein cattle, is one of the rising young stockmen of Canada. The success of this firm in the exhibitions at Toronto and Ottawa in 1896 showed clearly that as breeders of Holsteins they occupied leading positions in the very first rank. The Messrs. Gilroy are thorough believers in the necessity of testing all cows kept for dairy purposes, and of keeping *none* but those that come up to their standard of excellence in milk production. Their famous cow "Carmen Sylvia," the winner of the $150 Milk Test

Holstein Cow, "Carmen Sylvia."

Prize at the Toronto Industrial Exhibition in 1895, is a splendid example of the possibilities of a good cow for dairy production. From August 15th, 1896, to January 30th, 1897, she gave over 9,200 lbs. of milk that tested 3.4 of butter fat. The little engraving herewith reprinted gives an excellent portrait of this magnificent cow. Mr. Gilroy, the author of the accompanying paper, is seen proudly standing by the side of his favorite. Why should he not be proud of her? As Professor Robertson says, a good dairy cow is about the choicest possession a man can have.

The year just passed has proved a victorious one for the Holsteins. At all our recent great dairy shows they have nobly upheld their standard of excellence. On account of their great performances many a farmer, who in the past was prejudiced against them, now recognizes the Holsteins as being the leading dairy breed.

We have brought our favorites to the front ranks through great difficulties, and to-day we are pressing forward to a still higher standard of perfection.

We have the material to work from; but if we idly stand boasting over our past some unforeseen achievement will have been accomplished by another breed, and before we are awakened to the fact will have taken from us the laurels which we have just recently fought so bravely for and won.

We have proved to the great mass of the people that we can produce more milk in a day, week, month, or year than any of the other of the dairy breeds; but I am sorry to say that in some instances this magnificent production has been achieved regardless of quality. It now behooves us when we, as Canadians, are forcing our way to the front with our butter for the English market to get down to solid facts and officially test our favorite breed for this product, place the actual results before the dairy farmer, and convince him that Holsteins are as well adapted to the production of butter or cheese as to that of milk alone.

We hear some farmers say that it costs more to produce cheese or butter from our favorite breed than from the other breeds. This is, in a measure, false; surely we can, nay, we must, place ourselves in a position to prove this important fact.

In the section of country from which I come people were down on the Holstein cow for quality of her milk and cost of its production. How do we find them to-day? Converted from their foolish ideas.

How did we convert them? By having official tests made of our herd. This fall we wrote Prof. Dean, of the Ontario Agricultural College at Guelph, and had him send us a competent, reliable man who took charge of and made an official test of our herd. This test, when completed, was affirmed under affidavit, and to-day the facts have worked a great change in public opinion.

It did not seem to make any difference when a record was made of our cows by ourselves.

* A paper prepared to be read at the annual meeting of the Holstein-Friesian Association of Canada, Toronto, 1897.

People would stand off and look suspiciously at all sides of it; but now that a disinterested and thoroughly competent person has come and taken charge of the test, with his work as well as our own sworn to, people see in a new light the grand capabilities of the Holstein cow.

I would now urge upon us the necessity that we as Holstein breeders should have more official tests made. All of us may not be situated so as to have individual members of the Dekol, Pauline Paul, and other noted families in our herds, but under official tests we may find that we have cows in this grand Dominion of ours capable of attaining great results—results that may perhaps equal, if not exceed, the records of the cows that head the families above named.

We, as Canadians, have not manifested as much zeal in this particular channel as our fellow Holstein breeders across the line have done; for they have now established a national reputation for producing Holsteins that lead all the breeds in butter production.

Let us, then, as Canadian Holstein breeders, go forth to our work with renewed energy, having in view as an ideal of success the Holstein cow as a butter producer. By using official tests, by judiciously breeding, by carefully rearing the offspring that we get, I trust that in the near future the splendid honors that have been won by our American brethren will be equalled by our own honors won in our own great dairy tests.

THE BREEDING AND MANAGEMENT OF SWINE.

(A paper intended to appear in our "Special Swine Number" of April.)

By W. J. Haycraft, Agincourt.

Our methods of breeding and managing swine have undergone a great change in the last fifty years. In former times it was the custom to breed from a sow of any kind, color, or type; and the requirements of the market were never taken

W. J. Haycraft, Agincourt, Ont.

into consideration at all. Anything would do, so long as it would make pork. The housing, too, was usually of as slovenly a nature as could possibly be. As a general rule, a few boards thrown across some fence corner near the house constituted the pig-pen, and in wet weather the hogs would be wallowing in mud and muck up to their bellies. The feeding trough was never in a fit condition to put wholesome food into with any expectation of receiving a profitable return. And the marketing, in keeping with the breeding, the housing, and the feeding, was done in the most slovenly manner. But prices were good, and buyers seldom found fault.

But now see, at our annual exhibitions, what fine pens of swine there are; well bred, well kept, well fed. What a contrast they present to the swine of half a century ago. But this change has been brought about by years of careful breeding and selection, and by a steady improvement in the methods of housing, managing, and feeding. Great credit is due to those who have toiled unceasingly to bring our swine-breeding to the high standard which it now occupies as one of the leading industries of our noble province.

A CLEAR AIM NECESSARY.

In any pursuit of life there must be a clear perception of what is desired in order that the best results may be accomplished. A builder would have very poor success in erecting a building if he did not have a definite plan decided upon before he began. The same thought holds with respect to every other tradesman. So it is with the swine-breeder. If you intend to breed pure-bred swine you must first decide definitely which breed will be your choice, and what one will be best suited to your locality; or, if you wish to breed only for pork, you must first decide which breed or cross will best suit the market that is most con-

venient to you. When you have selected your breed and type, breed to that type only, and success will surely crown your efforts.

THE SOW AND THE SIRE.

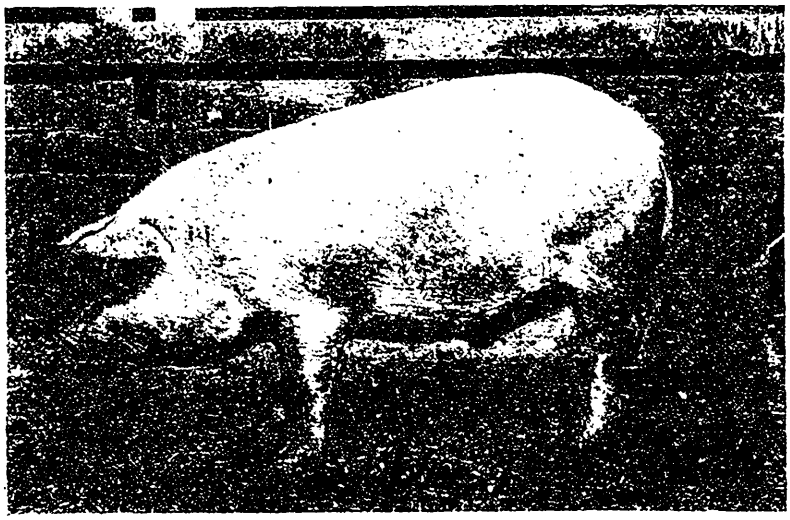
The first thing necessary to success in swine-breeding is a good brood sow. She should possess good length and depth of side, a good shoulder, and a fine, deep ham. These characteristics she should have inherited from her dam, so that if we use with her a sire of the proper type we may expect her to transmit these same characteristics to her offspring. She should have at least twelve teats, and as many more as possible, for the reason that if it ever happen, as occasionally it will, that you get a large litter, some of your little ones will die if there are not enough teats for all of them.

By strict attention to your breeding stock you will soon be able to tell which of them have the best digestive powers and respond most quickly to liberal feeding; from these select your young breeders.

Always use a purebred sire, so that your stock may be improving instead of degenerating. No matter whether your dam be purebred or not, if you use a mongrel sire your stock will continually degenerate.

THE BREED

Now, as to the best breed, it is enough to say that there is no "best" breed for all purposes and for all people. Breeders of purebred swine all claim they have the best, and each strives to win the coveted prize when they compete for "the best hog of any breed." One thing is certain, namely, that some breeds of hogs conform more closely to the pork packers' views than do others; but whether such breeds will return as much pork for the food consumed by them as will others that are not so much desired by the packer, is a matter for our experiment stations to decide. But hogs that will grow to weigh 200 pounds live weight at six or seven months old, and that possess length and depth of side, together with a good, deep ham and shoulder, are the ones that suit the packers' idea at the present time.



Prize Bacon Curers' Pig.

At the Montreal Exhibition last autumn a prize of $20 was offered by the Laing Packing and Provision Company of Montreal, "for the best bunch of hogs of any kind, ten or more in number, suitable for the *export bacon trade*, weight to be 140 lbs. to 190 lbs., live weight. Hogs to be in good condition, and not too fat." There were three entries. The hog shown in the illustration was picked out by the judges as being the best and most typical animal of the lot for the bacon trade Of the bunch of ten hogs winning the prize, two were Tamworth and Berkshire crossed; three were Yorkshire and Berkshire crossed; two were Poland-China and Berkshire crossed; and three were Berkshire. The animal represented in the engraving was from a Yorkshire boar and a Berkshire sow. The portrait here given is a more correct representation of the animal than the one that was given on page 269 of our issue for December, 1896, which, unfortunately, was "altered" by the engraver.

HOUSING.

Having selected your breeding stock, you must now provide a comfortable house for them, for if your swine are not properly cared for your labor as a breeder will be lost. I prefer a frame pen, made frost proof. My objection to stone pens is that on account of their being damp they are not so healthy as wooden ones are. Every

swine-breeder knows about how many hogs he intends to keep, so he must build his pen to suit his requirements. At one end should be a boiling house, which should be large enough for killing also; and there should be a passage along in front of the pens for convenience in feeding. There should also be a yard to each pen, and it should face the south, if possible. Good ventilation is necessary, and it can be had for very little extra expense.

If convenient, build your pen so that it will adjoin the orchard, as then your pigs will have a shady run in the hot days of summer, and be able also to pick up all wormy apples, thereby destroying numbers of insects that would give you trouble in the next year. It is also claimed by some that sowing peas in the orchard and letting the hogs harvest them is very beneficial to the orchard.

FEEDING.

The feeding of swine is, to my mind, the most difficult part of their management. The feeding should begin with the sow as soon as she has been served, or shortly after. In winter her food should consist of roots and a little grain, and in summer she will do very well if she has the run of the pasture field and the refuse from the house. A few days before farrowing time she should be put in a pen with a scantling nailed about eight inches from the floor and ten inches from the sides, so as to keep her from crushing the little ones against the wall. If possible, do not disturb her while farrowing, and do not give her anything to eat till she looks for it, and then only a little slop for the first two or three days. After that give her all she will eat clean of barley and oats chopped, and occasionally a little oilcake added.

When the little pigs are about three weeks old castrate them, and partition off a part of the pen for them to run in. Place where they can get at it a little sweet milk, and they will soon learn to eat. After they get accustomed to eat, you may add a little meal. I prefer shorts; if convenient, add a few boiled potatoes, which will be greatly relished by the youngsters.

I usually wean at six or seven weeks. At weaning, the pigs should be fed very carefully so as not to stunt them with overfeeding or underfeeding, as a stunted pig is dear at any price. Until fattening time comes the pigs should be fed with bone and muscle-forming food, so as to insure good growth. Oat and barley meal is good food for growing hogs. It should be mixed with pure water, or, what is better (if dairying is carried on in connection with hog-raising), with good, sweet skimmed milk.

Give your hogs plenty of exercise, for that is very essential to the formation of the coveted bacon that is composed of alternate streaks of fat and lean. A little trough with salt and ashes should be kept where the pigs may have free access to it at will both in growing time and also in fattening time.

FATTENING.

As fattening time comes on a more fattening food should be fed. This may consist of peas or corn, mixed with barley and oats. We should consider two things, the wholesomeness of the food, and its capacity to make a large return in flesh and fat. By strict attention to feed and a proper mode of feeding it, we ensure a greater freedom from disease. Some prefer boiled food, but the extra expense for fire and labor will not be balanced by the increased gain. We have fed shorts mixed with pure water, and have been well paid for our labor. Besides there is the manure, which is no small item where a number of pigs are kept, and strict attention is paid to bedding and cleaning; especially so if it had to be purchased with hard cash.

We do not advise the use of too highly concentrated foods. For instance, some feeders, knowing the highly nutritious nature of cotton-seed meal, are tempted to feed it to swine in hope that its abundant nitrogen may add to the fleshy part of the animal, and thus produce the much sought for pork composed of alternate streaks of fat and lean. But we must remember that in feeding animals we cannot produce as certain effects as we can in mixing paints or metals. We must consider the health and vital functions of the animals we feed. This especially applies to swine, whose internal organs are similar to those of man, and every one knows with what care man's food has to be selected, consumed, and digested In order that serious trouble may be avoided.

Thus every feeder of farm animals must make a study of the science of feeding, and then apply it to his own practice, experimenting with different foods and with different manners of preparing them, in order to find out for himself what will be the best methods for him to pursue in his own practice.

PIG RAISING PAYS.

The pig has been from time immemorial the despised and neglected inhabitant of the barnyard, but he has often been the most profitable domestic animal kept about the farm. But neglect and bad treatment have often prevented him from rendering to his owner the return in profit of which he was capable.

Of course, in the economical fattening of

swine, some attention must be paid to the market end of the business. But in this, as in other matters pertaining to the farm, the home end of the business is the most important one. The reduction of cost and the improvment of quality are two objects toward which the swine breeder must give his most strenuous attention. While the individual farmer can scarcely bring any appreciable influence to bear upon the market price which he can realize at any stated period, he can so regulate his programme of breeding and feeding as to able to market the most of his hogs at a time of the year when the market price is the highest.

Some years ago I was a great advocate of every farmer dressing his own hogs, but now my opinion is somewhat different, for the English market seems to be our outlet for our surplus bacon, and that market demands a uniform article. Such an article can better be produced when the hogs are handled in the way in which our packers handle them, and this can be done by the packers to much better advantage than by the farmers. Then, too, the time that would be occupied in killing is sufficient to deliver them alive to the packer or buyer, and thus one day's work in the transaction is saved. But we must be governed by our situation, and by the market prices that rule for "dressed" and "alive" respectively. I claim that it will not pay to dress our hogs unless we can get 1½ cents per pound for them dressed more than for 'hem alive. One thing is certain in marketing hogs as well as in marketing everything else, we must conform to the requirements of the market, and make our produce catch the eye of the buyer, if we expect to get the top price, and that is what we are all after in these times of small margins.

THE CARE OF MILK INTENDED FOR CHEESEMAKING.

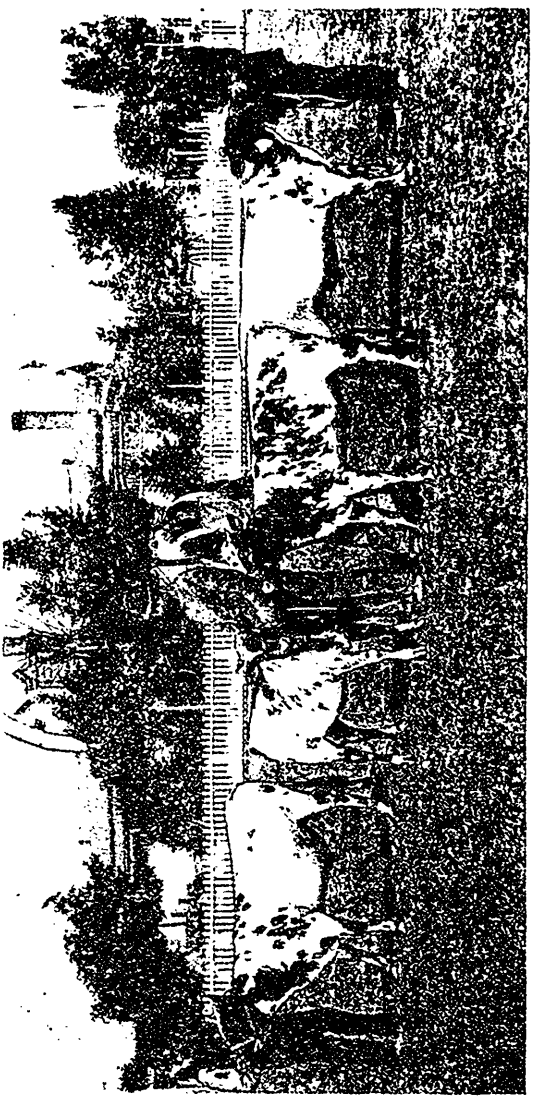
By J. W. Wheaton, B.A.,
Business Manager of FARMING; late Secretary of the Dairymen's Association of Western Ontario.

The success of our important dairy industry depends upon co-operation. The co-operative principle is the vital force which contributes chiefly to its success. Unless the company or manufacturer who owns the buildings and plant, the maker who makes the cheese, and the patron who supplies the milk, are in thorough co-operation, and each one is endeavoring to do his utmost to make the business a success, the best possible results cannot be obtained. Upon each of these three factors certain important duties devolve which are equally binding upon all. The manufacturer should endeavor to supply the best possible kind of buildings and equipment; the maker should be fully capable of manufacturing into a first-class quality of cheese all milk supplied to him in good condition; and the patron should supply only a quality of milk suitable for making the finest quality of cheese.

As we desire to confine ourselves more particularly to the care of milk and what concerns the duties of the patron, we will discuss that phase of the subject only. The duties of the patron are important for two main reasons. He has control of the cow, her feed, and her care. He also has control of the milk from the time it is taken from the cow till it is placed upon the milk wagon to be taken to the factory; or, in other words, he has control of the milk at a time when it is most susceptible to taints and odors from without. Flavor is the most important point of quality in cheese, and depends in a very large measure upon the kind of food a cow eats, the kind of water she drinks, the cleanly habits of the patron in regard to the stables, milking utensils, etc., and the care and attention he gives the milk during the interval between the time when the milk is drawn from the cow and the time when it is ready to be taken to the factory. Very often the patron fails to realize his responsibility in this matter, and feels that if the milk passes inspection when being taken in at the factory his responsibility ceases. If the chief point in quality is flavor, and if the flavor depends largely upon conditions which the patron has under his complete control, then he should be held responsible for the quality of the cheese in this particular. If the maker could always detect bad flavors in milk when taking it in he could be justly held responsible for the quality of the cheese in regard to flavor as well as in regard to other points of quality. But when it is not always possible to detect bad flavors at this juncture, owing to the cold condition of the milk, and the fact that the germs which cause the majority of bad flavors have not begun to show themselves, then he should not be held responsible. A maker must have good raw material supplied him in order to make the

finest quality of cheese, and if this is not supplied the very best results should not be expected of him.

The chief points to be noted by the patron in performing his share in this co-operative concern are those connected with the feeding of the cows and the caring for the milk.



A Group of Prize-Winning Ayrshire Calves.

The property of Mr. A. Terrill, of Wooler, Ont. These calves won first prize at the Toronto Industrial Exhibition, 1896, for the best four calves bred and owned by the exhibitor. Mr. Terrill also won 2nd and 3rd for bull calves, and 2nd and 3rd for heifer calves under six months. In the engraving Mr. Terrill himself is shown standing at the head of the bull calf at the left of the group, and his friend and neighbor, Mr. Wm. Stewart, of Menie, who is also a noted Ayrshire breeder, at the head of the calf at the right of the group.

FEED.

Last fall many of our cheese factories lost money because of the turnip flavor in cheese. We know of factories where the October and November cheese were sold for from 1 to 2½ cents per lb. less than the market price because of this injurious flavor. Now is the time to remedy the difficulty by not sowing any turnips at all for the feeding of milch cows. There are other feeds, such as corn, mangels, etc., that will produce as much milk in the fall of the year, and will not injure the flavor in any way. Every dairyman should grow a mixture of peas and oats for cutting during the latter part of July and August for his cows. This will be better than the corn at that time, as the latter will not be sufficiently matured to give the best results.

WATER.

Only pure, fresh water should be given to milch cows, and they should have access to it at all times. A cow giving milk will require from two to three pails per day more than a cow not in milk.

SALT.

All cows should receive salt regularly. The quality of the milk will not be so good, nor will the quantity be so large, if the cow does not get all the salt she needs.

CLEANLINESS.

The strictest cleanliness should be practiced in milking and in regard to all milking utensils. The udders should be well brushed before beginning to milk, and it will be more conducive to cleanliness to milk with dry hands. Cleanliness is a good antidote for all kinds of germ life, and all pails, milk cans, etc., should be thoroughly scalded after washing or before putting fresh milk into them. All milking utensils should be washed first with comparatively cool water, and then scalded with boiling water and placed where they can get the sunlight. Water at the boiling point will destroy all germ life in the seams of the cans or pails, and the rays of the sun are great purifiers. The milk should be strained in every

case directly after milking to get all impurities out of the milk before they dissolve.

AERATION.

Aeration is the important point to be looked after in the care of milk for cheesemaking purposes. All milk should receive a thorough aeration as soon as possible after being taken from the cow. This can be done by pouring the milk through an aerator several times, or by means of bailing it for ten or twelve minutes with a long handled dipper. A good plan is to invert a milk pan or pail with holes perforated in the bottom, and press it down upon the milk in the can, thus forcing air into the milk. This plan is highly recommended by those who have tried it. Some plan should be adopted by every patron for thoroughly aerating the milk, and this part of the work should under no circumstances be neglected. The morning's milk should be aerated as well as the night's, and the milk should be aerated during cold weather as well as during warm weather.

The aeration of the milk will accomplish several things. It will tend to expel the animal odor, which, if left in the milk, will produce a burnt or animal flavor that is very objectionable for cheesemaking. If the cow has been eating any foul weeds or food that will taint the milk, a large share of this bad flavor can be eliminated by aeration. It is also said to promote the growth of the germ life that it is desirable to have in the milk for cheese-making purposes, and to counteract to a large degree the growth of the germ life that will produce bad flavors and taints in the milk. By improving the flavor of the milk a better quality of cheese can be made; and more cheese can be made out of a pure-flavored milk than out of a bad-flavored milk, provided other things are equal. Bad flavors prevent the rennet from coagulating the milk properly, and produce conditions in the curds which cause a great loss of butter-fat in the process of cheese-making. It will, therefore, be money in the patron's pocket to supply a pure-flavored milk.

After the milk has been thoroughly aerated it need not be cooled down any lower than the surrounding atmosphere to be kept over night. If the night is extremely hot, or if it is necessary to keep Saturday night's milk over till Monday, the can of milk may be placed in cold water, but otherwise it will not be necessary to do so. The atmosphere where milk is kept should be pure, and free from contaminating influences, such as hog-yards, whey-barrels, or decayed animal or vegetable matter.

The patron may feel, perhaps, that the duties connected with the care of milk are of little importance. It is only, however, by the strictest attention to these little things that we can hope to improve and keep up the quality of our cheese. The general principles of our Canadian system of cheesemaking are pretty thoroughly understood and practised, so it will be only by means of care with regard to the little things connected therewith that we can hope to make further advancement. It is to be hoped that everyone directly or indirectly associated with this important industry will realize this, and not neglect the minor details, which if not considered or attended to will result in a deterioration in the quality of our Canadian cheese and a lessening of our prestige in the British markets.

GREEN FODDER CROPS.

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

The past two seasons have been such that a supply of green feed was needed to supplement the pastures if young stock were to continue to do well, and dairy cows were to continue to yield undiminished returns. Many farmers lost in diminished milk yield last year a great deal more than what they would have had to pay for putting in a large amount of green feed.

It will surely not need another season's lessons to teach farmers the wisdom of supplying plenty of supplementary feed. It is not yet too late to make some preparation with this end in view, and the increased returns will more than repay the time and labor expended in obtaining these crops.

THE BEST SUMMER FEED.

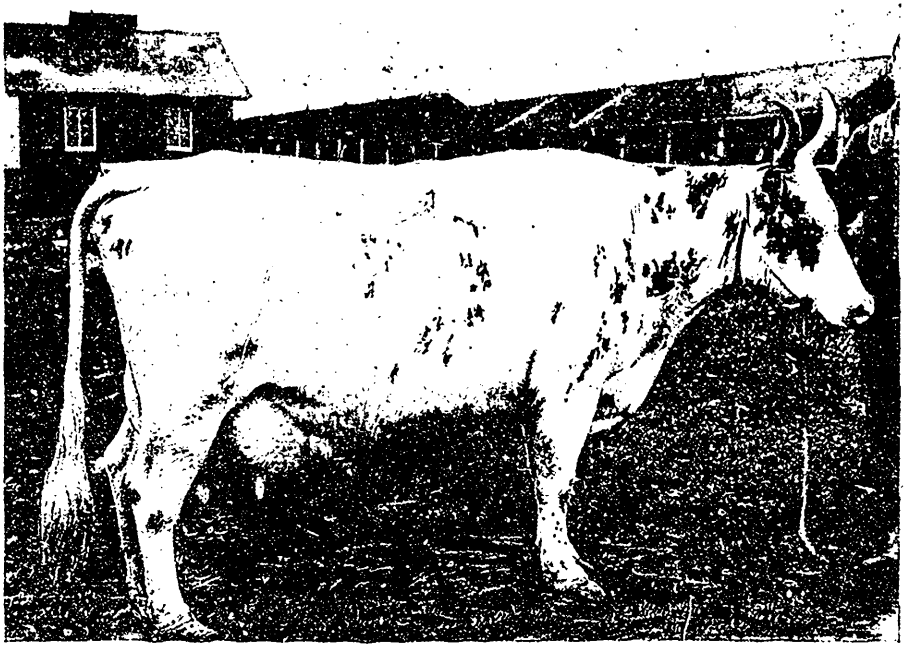
The best food to supplement pasture is corn silage. We would urge those who have a silo or intend building one to grow a few extra acres of corn, put it in the silo, and save it for feeding the following summer. Those who have tried this plan are loud in its praises. The silage is always ready to feed, saves time and labor handling heavy green feed in a very busy time, gives better results than green feed because more mature, and is cheaper, because a greater weight of corn can be grown than anything else. Try it. It will pay to build a small silo just for summer feed.

But for the present season much can be done.

Although corn is the greatest green crop that grows, it is somewhat late in the season before it attains its best condition for feeding. Before it is ready there is a demand for something green to feed. The first green stuff that will likely be ready is fall rye; but if this has not been sown the fall before it won't be on hand. Be sure and have some for next year if you don't have the corn silage. Next will come the clovers.

MIXED GRAINS.

By far the most common green feed is a mixture of peas and oats. A strip of these, sown as early as possible, will come on rapidly and soon be ready for cutting. Sowings can be made every ten days for a time, and thus a supply of green feed can be kept up until corn is ready to feed. There is a great variation in the proportion of peas to oats. A mixture of one bushel



The Veteran Prize-Winning Ayrshire Cow, Nellie Osborne,

The property of D. Drummond, Petite Cote, Que., who bought her at the dispersion sale of the herd of the late Thomas Brown, of Petite Cote. Mr. Brown, as is well known to our readers, imported in his time some of the finest Ayrshires ever brought to Canada. Nellie Osborne is now ten years old, and her career in the showring has been a succession of triumphs. At the World's Columbian Exhibition at Chicago in 1893 she was awarded the sweepstakes gold medal. She was also the sweepstakes cow at Montreal last year. Her calves have all been bull calves, except the last one. Her son, Silver King, who is now at the head of the herd of Mr. J. J. Hill, of North Oaks Farm, Minnesota, has taken eighteen first prizes without a break. (See FARMING for November, '96, page 150.) Another son, Matchless, is now at the head of the herd of Robert Robertson, of Compton, Que., and is considered by good judges to be one of the finest Ayrshire bulls in Canada. The other sons and the grandsons and granddaughters of Nellie Osborne are nearly all noted prize-winners at Montreal and other exhibitions.

ALFALFA OR LUCERNE.

Right here it is in place to urge the importance of having a small piece of alfalfa or lucerne clover near the barn for early cutting. It has qualities that commend it to farmers. Although a little difficult to start in a soil, it makes rapid growth once it has got a firm hold of the ground, and will afford three and often four cuttings in a season. It does best on underdrained land.

of oats and three bushels of peas to the acre has given very satisfactory results, but the crop is a little apt to lodge. Two bushels of oats and one bushel of peas to the acre is also a very good mixture.

A good strong-growing variety of barley may be substituted for oats with good results. Wheat may be substituted for barley, and various mixtures of barley, wheat, oats, and peas have been tried, with varying success, but there are none of

them so successful as peas and oats. This mixture is, also, a very nutritious food.

MILLET.

While not so often cut for green feed as it is used as a substitute for hay, yet millet makes a good food the after part of the summer. Some of the new millets promise well, particularly the Japanese millets.

RAPE.

Many sheep men will sow rape with oats this spring, hoping to get some pasture after the oats are harvested. It gave good returns in some places last year and will be well tried this year. But it is as a crop by itself that rape does best. Every farmer that requires extra pasture for his sheep, young or fattening stock, or even pigs, should have a piece of rape ready for fall feeding.

PUMPKINS AND SQUASHES.

The seeds are generally planted in the hills of corn and often the yield of pumpkins is very large. Some enterprising stockmen have found that it pays to grow them alone. An acre of them will yield a large amount of food that will give good results if properly fed.

CRIMSON CLOVER.

So far crimson clover has not come up to what was expected of it. It is worthy of further trial on a small scale, but it would not be wise for any one to depend upon it too implicitly.

SACHALINE.

This wonderful plant has so far been a failure in Canada. Professor Fletcher, of the Experimental Farm, Ottawa, characterizes it as a "gigantic humbug." It was frozen at Guelph in June, 1895, and at Ottawa last year by late spring frosts.

OTHER GREEN CROPS.

Varieties of sugar cane, broom corn, kaffir corn, etc., have been tried at various times with varying success. Some of them have done well and given heavy yields, but we would advise farmers to test them thoroughly before planting any extensive area with them.

Soja beans, yellow soy beans, grass peas, and horse beans are being tried with good success in different localities. But they are not plants that promise to do well generally. Thus horse beans are doing well in certain districts of Canada, but not in others.

Tares or vetches are somewhat similar. They do best in a moist cool climate.

The most reliable green crops are corn, peas, and oats, the clovers, and rape. Every farmer should have an abundant supply of green feed of one kind or another to supplement his pastures when they begin to fail.

MONEY FOR AGRICULTURE.

EDITORIAL.

It will be interesting to the farmers of Ontario to know that the Government received authority from the Legislature to spend this year the sum of $236,312 for various purposes in connection with agriculture. Last year the amount granted was $251,247. The following is a summary of the various items as found in the estimates:

ADMINISTRATION.

Departmental staff, salaries, and office expenses	$18,760 00	
Bureau of Industries, printing, stationery, and collection of statistics	6,500 00	
Maintenance and repairs of buildings at, O.A.C.	6,905 00	
		$ 32,165 00

CAPITAL ACCOUNT.

Water supply, engine, pumps, storage reservoir, hose reels, rope drive, grains, etc., at O.A.C.	$ 6,675 00	
Cottage for bacteriologist at the O.A.C.	$2,000 00	
Apparatus for physical, chemical, biological, and bacteriological laboratories at the O.A.C.	1,000 00	
Apparatus for manufacturing tuberculin for the province	250 00	
		$ 9,925 00

ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM.

College proper—Salaries, wages, and boarding house expenses	$28,006 00	
Farm proper—Salaries and maintenance	4,975 00	
Experimental department—Salaries and maintenance	6,398 00	
Dairy Department—Experimental dairy, $4,170; Dairy school, $3,080	7,250 00	
Poultry department	1,000 00	
Horticultural department	5 068 00	
Mechanical department	1,475 00	
		$ 54,172 00

AGRICULTURE IN GENERAL.

Grants to—		
Agricultural societies	$76,650 00	
Butter and Cheese associations	5,500 00	
Entomological Society	1,000 00	
Fruit Growers' Association	1,800 00	
Dominion Sheep Breeders' Association	1,500 00	
Dominion Swine Breeders' Association	1,200 00	
Dominion Cattle Breeders' Association	1,500 00	
Canadian Horse Breeders' Association	2,000 00	
Ontario Experimental Union	1,200 00	
Poultry associations	1,400 00	
Beekeepers' Association, including inspection	1,100 00	
Maintenance of experimental fruit stations	2,800 00	
For practical instruction in fruit spraying	1,800 00	
For experiments in apiculture	300 00	
To Provincial registrar of live stock	1,500 00	
To Provincial instructor of road-making, salary and expenses	2,500 00	
For sundry services, such as investigations of diseases of animals and crops, and of ravages of insects; printing and distributing reports and bulletins; travelling expenses, etc	14,000 00	
		$117,750 00

FARMERS' INSTITUTES.

Salaries, travelling expenses, and allowances to delegates	$ 7,500 00	
Grant of $25 to each institute	2,400 00	
		$ 9,900 00
PIONEER DAIRY FARM, ALGOMA.		$ 1,400 00

DAIRY SCHOOLS.

Western Dairy School, salaries and expenses	$ 3,600 00	
Eastern Dairy School, salaries and expenses	4,700 00	
Eastern Dairy School, new buildings	2,700 00	
		$ 11,000 00
Total		$236,312 00

For FARMING.

HOW TO MAKE MONEY ON FRUIT.

By O. W. BLACKNALL, Kittrell, N.C.

There are some precepts so important that they never grow old or grow out of date. They are worthy of being impressed on the minds of all men, and some men evidently need more than one impress.

One of these venerable but patent precepts, these ever old and ever young truths, is the imperative and increasing importance of intensive culture in fruit growing. By intensive culture I mean diligent and timely culture and liberal feeding with manures rich in the properties essential to perfect fruit.

It has been demonstrated that intensive culture, in that it greatly increases the yield per acre, pays the general farmer, the grower of wheat, corn, cotton, tobacco, oats, etc. In fact, that no other system really does pay him in the long run. How much more does this apply to fruit growing, where not only quantity is vastly more increased than is possible with the above staples, but where quality is also so vastly improved. And in fruit, quality is almost or quite everything.

A man who by intensive culture doubles his yield per acre of wheat or corn, simply doubles his dollars per acre. But the man who by intensive culture doubles his yield of fruit is pretty sure to so improve it in size, beauty, and general excellence, that its net value per acre will be quadrupled or even sustain a still greater increase.

My experience in fruit growing reaches back nearly twenty-five years. It has been chiefly in the culture of small fruits—strawberries, dewberries, blackberries, and raspberries, but has embraced also grapes, peaches, and apples. As there is an exceeding diversity of soils hereabouts, it has embraced likewise nearly every conceivable soil—the stiffest of red clay, rocky knolls, almost pure sand, black sandy loam with pipe clay subsoil, and so on up and down the gamut of soils good and soils bad.

This experience has impressed on me the paramount importance of two things, absolutely clean cultivation for small fruit and grapes; the sowing and turning under of pea vines or some green crop in apple and peach orchards; and the liberal application to all of fertilizers rich in potash. Ten or twelve per cent. potash, five per cent. phosphoric acid, and two or three per cent. ammonia, I find to pay best generally.

1,000 lbs. kainite or 250 lbs. of muriate of potash for the potash; 500 lbs. acid phosphate or 400 lbs. dissolved bone for the phosphoric acid, and 150 lbs. nitrate of soda or 500 lbs. cotton seed meal for the ammonia, is about the right proportion per acre. A larger or smaller quan-

tity may be used as actual experiment dictates. But a liberal application I have always found to pay best, provided always that in small fruits the weeds and grass are kept down. If a man is not determined to give clean culture the less manure of any kind he uses the better. And I may say, the fewer plants he sets the better. While none at all would be best of all.

The largest yield of strawberries that I have ever seen reported in this state—over 11,000 quarts an acre—I made by clean culture and the liberal and repeated applications of the above fertilizing ingredients.

Of course, where large quantities of fertilizers are used it must all be thoroughly mixed and applied broadcast. For small fruit, say one third thoroughly mixed with soil before plants are set in spring; one-third as a top dressing over plants, middles, and all in October; the remainder in same way just before the plants are put out the following spring. When thus used even a larger quantity than above stated can be profitably applied if thoroughly mixed with the soil before planting, and if the fall and spring top dressings are carefully applied so as not to let too much fertilizer fall directly on the plants, especially if they are then growing and tender. No possible harm can result if they are in a dormant state. For vineyards and orchards I should apply as a top dressing over the whole surface half the fertilizer in late fall and half in early spring.

TUBERCULOSIS.*

By GEORGE HILTON, V.S., Headingly, Manitoba, Graduate in Veterinary Science of the Ontario Veterinary College, Toronto.

George Hilton, V.S.

The following article on "Tuberculosis" is pronounced by Dr. Sweetapple, the accomplished professor of veterinary science at the Ontario Veterinary College, as being "exceedingly good." Its purpose is to give a clear and accurate, but at the same time a simple and readable, account of the nature of the disease, its extension, the means by which it is propagated, and the attempts that have been made to stay its ravages. As tuberculosis is produced by "germs," it is one of those diseases that modern science is doing so much to limit, if not wholly to subdue. Dr. Hilton's article is just the sort of article that our young men on the farm ought to read and study. It will put them in touch with what is known and doing in a matter of the utmost consequence to stockmen all the world over. It will also give them that which will enable them to understand intelligently a subject that is now being discussed everywhere. We have pleasure in presenting to our readers herewith a portrait of the author.

This subject, although an ancient one, has been for long periods of time a topic of much controversy among medical circles throughout the world; and, like all diseases having their origin in micro-organisms, has puzzled our greatest and deepest investigators of science for unlimited years.

Long before the birth of science, in the days when the uses and actions of medicine were, comparatively speaking, unknown, tracing time back to the old days of Moses, we find the Jewish races detecting this disease in their slaughter houses; and though destitute of science and its privileges, and living in an age when disease was taken as a matter of course, and prevention a thing unlooked for, they evidently recognized the danger to their race by consuming such flesh.

Strangely enough, the belief in chemical poisonous products antedates by many years the recognition of living germs as the cause of disease.

Poisoning by decomposing meat and fish had long been a familiar occurrence when, early in the eighteenth century, Haller experimented by injecting watery extracts of putrid material into the veins of animals, and found that death resulted.

In 1820 Kerner, investigating the question of poisonous sausage, came to the conclusion that

* Read at a meeting of the Veterinary Medical Society of the Ontario Veterinary College.

a fatty acid was the toxic principle, and Otters also pursued similar investigations.

Time advanced, and in 1849 Dr. Budd claimed that the body was invaded by organisms, which, under certain conditions and surroundings, caused infectious diseases. It was not until 1856 that a scientist named Paumn positively demonstrated that the poison was a chemical one.

To Paumn we therefore owe the first recognition of two classes of products of bacteridian growth, which act on the animal system as chemical products, and which have now come to be recognized as ptomaines.

It is only of late years, in fact, since 1870, that we have been shown the relation of micro-organisms which most closely interest the veterinarian, such as anthrax, septicæmia, cholera in its various forms, glanders, rabies, pleuro-pneumonia, and tuberculosis, which Koch and Pasteur have thrown so much light upon in later years.

THE TUBERCLE BAICLLUS DECLARED BY KOCH.

The declaration of the tubercle bacilli by Koch, in Berlin, in 1892, spread rapidly throughout the civilized globe, and caused great excitement among people interested in this sphere; probably Pasteur's great discovery in hydrophobia, which was given to the public the year previous, helped to intensify the excitement.

Unfortunately the statements were exaggerated, especially so in the case of tuberculosis, the bacillus of which was announced to the world prematurely. It is generally believed that the discoverer himself was urged to make it public before he had completed his investigations; and probably the vulgar excitement and popular curiosity aroused by the announcements in the press did much to encourage a far too universal employment of the remedy in a class of cases in which the discoverer never authorized its use.

Koch, however, after further investigations, found he had not a specific for the disease, and opposition followed from all sides. Pathologists, nevertheless, could not help but see the feasibility of his statements, having been guided in this direction by Villemin in 1865, who was confirmed by Cohnheim in 1877; these two scientists proving that tuberculosis could be produced by inoculating animals with tuberculous material.

Koch, however, continued his experiments; sufficiently so to prove that tuberculosis is an infectious disease due to the tubercle bacilli, and also to give to the veterinary profession a valuable diagnostic in tuberculin, which has also had its share of prejudice; but its rapidly increasing use speaks well for its value.

This has duly earned for Koch a world-wide reputation in bacteriology.

One of our latest pathologists has placed tuberculosis in a group of diseases termed the "Infective Granulomata," due to their lesions being similar to some forms of tumor, along with actinomycosis, syphilis, glanders, farcy, and several others.

The virus in this disease, however, does not always produce nodules; but occasionally infiltrates into the tissues, causing a diffuse inflammation.

TUBERCULOSIS IN DOMESTIC ANIMALS.

Tuberculosis evidently produces its greatest ravages in the human species, but also takes into its grasp most, if not all, the domesticated animals, including poultry and wild animals in confinement.

Among our domesticated animals the ox tribe are the most frequently affected; but experiments go to prove that all species of animals may contract this disease when in a debilitated condition; but, on the contrary, a healthy, vigorous constitution is seemingly immune.

With its numerous clients, deceitful course, and the varied distribution of its lesions, a marked variety of symptoms are produced, which speak much for the difficulty in diagnosis of such a disease.

Statistics, however, go to show that the bacilli of tuberculosis tend to propagate in special locations according to the class of animal.

In cattle the lesions are most frequently found in the lungs, pleura, and thoracic glands; especially so in adult animals. In calves they are generally located in the abdominal viscera.

The pig, although seldom affected, does not always escape the ravages of tuberculosis, and here the pulmonary form predominates.

Tuberculosis has been seen in both forms in the horse, although he is by no means an easy victim to its virus.

It is only of late years that tuberculosis has been detected with certainty in the dog, and at one time he was supposed to be immune; but it is now proved that he also receives his share, the disease attacking him also in both forms.

In the fowl the lungs are rarely affected, the lesions being well marked in the abdominal viscera, and especially the liver.

By the preceding we see how the same germ prefers different localities in its varied victims; its action, however, has many exceptions to this rule, and the germ may propagate in any organ or tissues of the body, much depending upon the vitality of the structures.

HOW THE GERM IS MULTIPLIED AND HOW INFECTION IS INDUCED.

Fortunately this parasite, whose life history is unknown, cannot multiply outside of the animal body unless carefully cultured in suitable mediums. It, however, can survive for a considerable time, especially so in the dry state, having been known to exist and retain its virulence in this state for 136 days.

The germs, however, cannot exist in putrid fluids for any length of time, owing to the rapidly multiplying septic organisms which are found especially in this medium.

Being aware of the fact that this bacillus multiplies only in the living body, we have to admit that fresh infection comes either directly or indirectly from some tubercular individual.

The infection in the majority of cases is produced indirectly, but may also occur directly. Cases are on record where physicians and veterinarians have contracted this disease in making autopsies of diseased men and animals.

Another example, although rare, is the transmission of the disease from mother to fœtus; this has long been a subject of much dispute, and has still at the present day its share of prejudice; but some marked cases are on record which go to verify this statement.

Without doubt the infection generally occurs indirectly; in the human species principally by the sputum, and in animals by discharges and excrements deposited on the ground, which finally dry and become lifted into the atmosphere to be inhaled by other individuals.

On the other hand, the discharges may be taken into the system in the moist state with the food and then propagate.

Milk of tuberculous cows probably plays an important part in the transmission of this disease, and the consumption of infected meat cannot be regarded as a safe dieting.

It, however, seems more than probable that in the majority of cases the infection is inhaled, which in a healthy individual is quickly got rid of, while in a weaker one the disease begins to develop.

Franckel, a prominent investigator in bacteriology, has proved by numerous experiments that buildings inhabited by affected animals contain bacilli in the dust collected on their walls, roof, and floor; and by inoculating guinea pigs with such dust tuberculosis was invariably produced, thus showing in a striking manner that such buildings were capable of producing a widespread infection in both man and the lower animals.

I have alluded to some of the means by which the germs of tuberculosis are transmitted from diseased to healthy subjects, but probably the condition or vital powers of an individual play the most important part in its progress.

Propagation, however, is often dependent upon a special predisposition to the disease, which is often acquired.

This is quite noticeable in the bovine species, where the majority of the affected animals are cows. This is due most probably to their milking capacities draining the system and causing a weakened condition.

Continued bad ventilation by overcrowding animals in small stables also induces a predisposition.

Catarrhal affections of the respiratory or alimentary passages favor the implantation of the germ by diminishing the resistance of the tissue elements, or by producing solutions of continuity whereby the germ may gain entrance.

THE INFLUENCE OF PREDISPOSITION.

Any means whatever which tends to debilitate the system of an animal predisposes that animal if exposed to the virus.

The predisposition is very frequently transmitted from parent to offspring, and this is probably more marked in the human family than in animals.

The predisposition, however, must exist in all animals, for the law of nature teaches us "like begets like," therefore the offspring of tuberculous patients, although seemingly strong and vigorous, must possess to a greater or less extent a limited vitality, which consequently makes them easy victims when exposed to contagion.

HOW THE DISEASE AFFECTS THE ORGANISM.

The bacilli having gained entrance into an individual under suitable conditions begin to develop, and pathological changes ensue, the bacilli being enclosed in small tubercles which are characteristic of this disease. The locations of these tubercles in the body, as already mentioned, are numerous, as these bacilli have no power of locomotion. The leucocytes (or white corpuscles of the blood), in displaying their functions, are probably by no means an infrequent source in transplanting the germ.

Fresh infections may also occur by the bursting of a tubercular focus in the bronchi; also through swallowed sputum, and less frequently by the blood stream.

From these sources alone one can realize what numerous changes are possible under suitable conditions, so that one of our prominent pathologists writes: "It is impossible to explain why some tubercular processes remain local whilst others generalize. Blocking of lymphatics, non-

invasion of the walls of blood vessels, feeble local growth of the bacillus, and healthy resistance on the part of the tissues in general, may afford imaginary explanations."

THE SYMPTOMS OF THE DISEASE.

The symptoms produced by this disease are varied, and often difficult to detect, according to the parts affected.

In the early stages of the disease they are frequently negative; but often suspicion as to the existence of the disease is aroused on hearing the statements relative to the subject presented for examination.

In cattle the disease most frequently presents the clinical symptoms of a chronic inflammation of the lungs and pleura; progressive emaciation and capricious appetite strengthen the suspicion.

In some cases the disease has developed very rapidly; while in others an unthrifty condition, with a dull, short cough, that becomes more troublesome during exertion, and on the approach of damp weather, has been noticed for some time.

Cattle affected, out on pasture during hot weather, lag behind the herd and pant heavily, and their cough becomes prolonged and troublesome, much depending upon the amount of lung tissue involved.

EFFECTS.

The general effect on the body, however, is at first slight, and in a large number of cases animals maintain their flesh for a considerable time; but as the disease progresses it invariably marks its victim. In the cow the secretion of milk diminishes, and becomes thin and inferior in quality; emaciation ensues, which may, or may not, be gradual, and its debilitating effects are soon marked by a staring, tough, and dry skin, and by digestive disturbances, accompanied by irregular action of the bowels, which continue till the animal dies in an exhausted condition after a period of sickness, which may cover months or years.

When the lesions are situated in the genital system, abortion and abnormal sexual desires are often prominent symptoms; and when in the brain, although this is of rare occurrence, convulsions, unconsciousness, paralysis, and peculiar movements of the animal in general are noticed.

LITTLE TO BE HOPED FOR FROM TREATMENT.

Unfortunately, as yet, treatment of tuberculosis has proved of little value in overcoming the disease. It being of a recurrent nature, one attack predisposing another, it seems of little use to endeavour to prevent it by means of culture products; but, nevertheless, some prominent men have succeeded in producing in the rabbit a certain degree of immunity, by injecting into it cultures of the bacillus of avian tuberculosis.

Illuminated by the progress of science we may therefore indulge in the hope that some day in the near future a preventive vaccination may be discovered.

Much can be done by taking active steps to prevent the spread of tuberculosis by separating healthy from unhealthy animals, disinfection of buildings, also by keeping stock in healthy condition, and barring out the produce of infected animals as an article of diet.

Diversity of opinion still exists as to the consumption of the flesh of such animals. Some condemn its use entirely, others limit it, while others again do not object to its use when cooked.

THE USE OF CLOVER AS A FERTILIZER.

By F. T. Shutt, M.A., Chief Chemist, Central Experimental Farm.

NOTE.—The question of using clover as a fertilizer—as a means of restoring to the soil the nitrogen that it has lost through cropping—is a very important one. The theory of the process by which the nitrogen of the air is obtained by the growing clover is not very well understood. What *is* understood of this process, however, and several other very practical points in regard to the use of clover as a manure, are brought out in the following series of questions and answers, which we are enabled to publish through the courtesy of Professor Shutt, Chief Chemist of the Central Experimental Farm, Ottawa, who has kindly sent them to FARMING for the benefit of our readers. Of course, in *theory*, all the leguminous plants, clover, peas, beans, vetches, etc., may be used as a manure crop, but, in practice, *clover* is the one most generally used.—EDITOR FARMING.

THE ASSIMILATION OF NITROGEN BY LEGUMES.

Question 1.—Do the legumes absorb nitrogen by their leaves?

Answer.—There is no nitrogen assimilated by the leaves of the legumes. All absorption of free nitrogen is by means of the bacteria in the nodules on the roots.

Question 2.—Do the legumes use nitrogen, other than that in the air?

Answer.—Legumes, like all other plants, can make use of soil nitrogen (not free nitrogen), and

this they specially do when young. Unless the soil is somewhat poor in nitrogen—when it is said to be "nitrogen-hungry"—there appears to be but little assimilation of free nitrogen and but a poor development of nodules.

Question 3.—How can it be said that the free nitrogen of the atmosphere is utilized by the legumes when it is stated that assimilation is by the roots?

Answer.—The free nitrogen made use of by the micro-organisms in the nodules is in the air occu-

Professor F. T. Shutt, M.A.

pying the interstices of the soil. In all soils there is a large quantity of air.

Question 4.—How do the organisms in the nodules make use of the nitrogen, and what becomes of the nitrogenous compounds formed in the roots?

Answer.—It is not known how the legumes utilize free nitrogen and convert it into organic compounds. It is, however, evidently a life function.

The nitrogenous compounds elaborated in the nodules migrate (most probably as amides, soluble compounds afterwards converted into albuminoids) into the stems and leaves. This, as a rule, leaves the roots poorer in nitrogen than the foliage. The ratio of the nitrogen in the roots to that in the foliage is a fluctuating one, depending chiefly on the stage of growth or maturity of the plant.

Question 5.—When is the best time to turn under a crop of clover or other of the legumes?

Answer.—After the time the seed has begun to form there will not be much more assimilation of free nitrogen. If, therefore, it is wished to enrich the soil with a large quantity of humus capable of ready decomposition in the soil—in addition to the nitrogen—the plowing should be done soon after the flowering of the plant and before the fibre becomes hard and the nitrogen, for the most part, gone into seed.

If sown after cereals as a "catch" crop, it will usually be the best practice to plow it under in the autumn, at the end of the growing season. If sown as a "cover" crop, as in orchards, it should be left till the following spring.

Question 6.—What loss of nitrogen would ensue on allowing the clover to freeze down and remain uncovered all winter?

Answer.—There would in all probability be some loss, but unless the winter were an open one it would be very slight.

Question 7.—Is green manuring with the legumes as profitable as purchasing commercial fertilizers?

Answer.—Under ordinary circumstances it is the cheapest and most economical means of supplying nitrogen and humus, both essential constituents to soil fertility. Green manuring not only enriches the soil's composition in these elements, but adds largely to the store of *available* mineral food, and greatly improves the tilth of heavy clays and light and sandy soils deficient in humus.

THE VALUE OF A GOOD SIRE.

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

The following article by Director Curtiss, of the State Agricultural Experiment Station of Iowa, lately appeared in our esteemed contemporary, the *Breeders' Gazette*, of Chicago. Although a very short article it has been pronounced by competent judges to contain the "very kernel of the matter" as regards stock-breeding. We are glad to publish it for two reasons. First, because incidentally it does honor to our old and valued friend, Mr. James I. Davidson, of Balsam, known far and wide as one of the very best Shorthorn breeders that this continent has ever produced. Secondly, because it gives us opportunity to present to our readers a portrait and a slight biographical sketch of the author of the article, who, although known to many of our readers personally, and to most by reputation, is perhaps not known to all. Mr. Curtiss has very recently been appointed to the directorship of the State Agricultural College and Experiment Station at Ames, Iowa, to succeed in that position the Hon. James Wilson, who has been chosen by President McKinley to serve in his cabinet in the important post of Secretary of Agriculture. Mr. Curtiss, as his portrait indicates, is still a young man. He was born in Iowa and raised on an Iowa farm, and received his education in the public and high schools of his native state. Later he attended his state agricultural college (of which he is now the head) and completed just ten years ago a four years course there, taking as his specialty live-stock work. For three years subsequent to this he had the management of one of the best 800-acre stock farms in the state, and was engaged very extensively in breeding, feeding, and importing. For four and a half years he acted as state statistical agent in Iowa for the United States Department of Agriculture. In 1891 he was appointed an assistant in the State Agricultural Experiment Station, and very soon he was promoted to the chair of Animal Husbandry in the Agricultural College. This latter position he now holds as well as (as was mentioned above) the directorship of the College and Station, to which he has recently been appointed. Mr. Curtiss likes Canada. In a letter to the Editor of FARMING he says: "During my recent visit to your Dominion I enjoyed Canada, Canadian agriculture, and the Canadian people so much, that my friends here called me a Canadian for a long time after my return." We trust soon to be able to place other articles by Professor Curtiss before our readers.

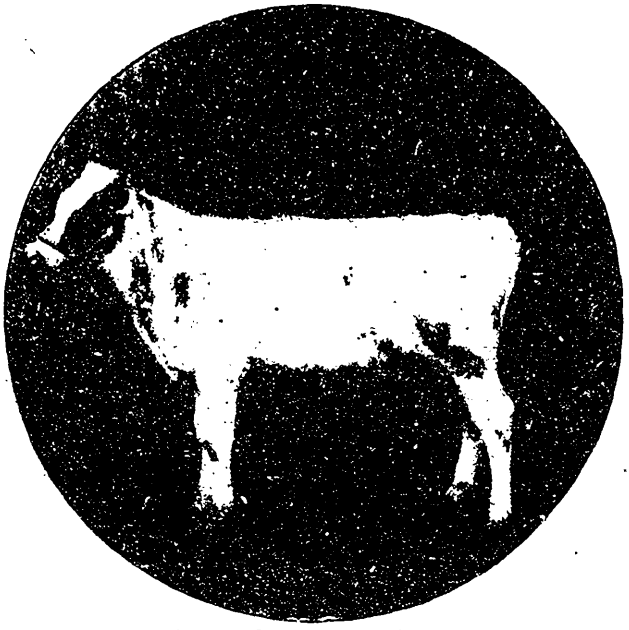
rofessor C. F. Curtiss.

The review of the work of the late Amos Cruickshank as a breeder, that has lately appeared in the columns of *The Breeder's Gazette*, calls to mind a policy of breeding and a bit of advice that Mr. Cruickshank once advocated in conversation with his intimate and trusted friend, that venerable Shorthorn breeder, who might aptly be termed the Cruickshank of America, Mr. James I. Davidson, of Balsam, Ont. Mr. Cruickshank's words were: "Look well to the sire. Any young man who starts out with a good bull and continues to use only good ones, at the same time culling the females of the herd closely, will soon build up a good herd."

This would form a capital motto for every breeder to nail above his barn door. It applies to the breeder and feeder for the block as well as to the producer of pedigreed stock. It is the one principle in breeding that ought always to be firmly adhered to under all circumstances. No breeder can ever afford to let down in the quality and excellence of the sire, but each successive change should set the standard a notch higher. It is not enough to have good females, for no amount of excellence on that side of the herd will make up for an inferior sire. Money paid for putting good cows into a herd is often expended to very poor advantage when the merit of the sire is not such as to correspond. Instead of buying both bulls and cows of ordinary merit, it is better to put the value of several common or even good cows into a superior bull, and get something that will impress his excellence on the progeny of the entire herd. The bull is only one animal, and a given sum of money can be made to go farther in keeping a good sire at the head of the herd, and breeding the cows up, than by buying both bulls and cows. Not the least of the advantages is that less capital is required by this system of breeding.

Another advantage of no little importance is more uniformity of type and breed characteristics where the sire is the dominating factor in the

herd than when frequent infusions of new blood are introduced through the dam. Strong, well-bred bulls, of good individual merit will impart a uniformity that is always a valuable feature of the herd. Breeders and feeders for the block who do not keep up pedigrees, sometimes reason that their business will not justify high prices for sires, but no greater mistake can be made. The time is at hand when the highest excellence in breeding and individual merit nowhere commands better remuneration than in furnishing a superior product for the market. This policy is applicable to the improvement of all classes of live stock. Uniform high excellence is sure to result from the continued use of a good sire. Every breeder should keep a good sire at the head of the herd or flock at any cost. It makes but little difference what a sire costs provided he is good enough. An animal of that kind is sure to return many fold on the investment. A high price for an ordinary animal, however, does not make him any more valuable as a breeder. It is the animal that counts and not the price.



Ayrshire Bull Calf, Isaleigh Earl.
Dropped October last. The property of J. N. Greenshields, Isaleigh Grange Farm, Danville, Quebec. Sire, Derby of Danville; dam, Marjorie.

THE SPAYING OF COWS.

Contributed by F. C. HARRISON, B.S.A., Bacteriologist, Ontario Agricultural College.

Ontario Agricultural College,
Guelph, March 22nd, 1897.

To the Editor of FARMING;

I enclose a short extract from a French journal which I thought might be of interest to your readers. Of course, I know that the subject might provoke not a little discussion, but I fancy it might be useful in the case of dairymen wishing to fatten their cattle.

Yours truly,
F. C. HARRISON.

Mons. Flocard, veterinary surgeon of Geneva, Switzerland, recommends the spaying of cows for the following reasons:

(1) To increase the production of milk and at the same time its richness.

(2) To do the same with regard to meat.

(3) To modify the ugly temperament of certain cows.

(4) To partly put a stop to tubercular processes.

Of these four factors three are, directly or indirectly, of economical value, and the fourth, hygienic. He bases the above advantages from observations made from his own work.

F. C. Harrison, B.S.A., Bacteriologist, O.A.C.

The effect of ovariotomy is to prolong the period of lactation to twenty or twenty-four months.

Spaying also suppresses the period of heat and allows the secretion of milk to follow its ordinary course, and this uniformity can be valued by the increased yield of 1,300 to 1,400 quarts of milk per beast for a year. Every analysis of milk from spayed cows shows an increased quantity of butter fat. Every one knows the marvellous results from the castration of bulls, in the production and quality of meat, and the operation of spaying puts the meat of cows (which public opinion has always discredited) upon the same rank as that of steers. Here is a result well worthy the attention of those dairymen who wish to fatten their cows and have heretofore experienced great difficulty in doing so.

Physiological troubles, seen in cows, which commonly speaking are always bulling and which are very frequently sterile, are altogether lessened by spaying; this operation modifying the temperament of the animal, making it docile and quiet, thus giving it those conditions which are so necessary for fattening animals.

Lastly, it is a recognized clinical fact that castration puts a stop to certain tubercular lesions and there is thus a method for combating this affection, especially if tuberculine is injected, in addition to the spaying.

With regard to the operation itself, once considered by veterinarians as out of the question, on account of the many difficulties and the high mortality, Mons. Flocard has modified the operation and reduced it to the rank of a simple surgical operation, practicable for all veterinarians. Indeed, the operative technique has been so simplified that it permits Mons. Flocard to spay three or four co . . er hour, with a mortality of not quite 5 per ce. . .

COMPARISON OF THE VALUE OF SWEET AND SOUR WHEY FOR FATTENING HOGS.

EDITORIAL.

Professor G. E. Day has been carrying on an experiment in fattening hogs with sweet as against sour whey, the results of which are somewhat surprising. It is commonly thought that sour whey has little or no feeding value; but the results of this experiment, which was repeated with another lot of hogs, go to show that its feeding value is practically equal to that of sweet whey. In August Professor Day chose nine uniform hogs and separated them into three groups of three each. Group 1 was given a ration of meal and water, group 2, meal and sweet whey, and group 3, meal and sour whey. They were fed these rations from August 22nd to October 16th—a period of fifty-five days. The meal was moistened with the water, sweet or sour whey as the case may be; about two pounds of whey was used to one pound of meal. On October 15th a second experiment was commenced similar to the first with another lot of hogs, and continued for forty-two days. The results of the second experiment were very similar to those in the previous one. Taking an average of the two experiments Professor Day found that the hogs in group 1 (water) made a daily gain of 1.43 lbs. live weight, for each hog; group 2 (sweet whey), 1.76 lbs.; and group 3 (sour whey), 1.78 lbs.

It is too soon to draw conclusions, however, though the results of the two experiments correspond very closely. This work will be continued again next season.

These experiments go to show that 100 lbs. of whey (sweet and sour) has a feeding value equal to 13.31 lbs. of the meal used, and, at the prices paid for grain the value of the whey would be about 8 cents.

Professor Day does not say in his report how sour the whey was or how it was handled. Whey allowed to sour in cans or something of that sort will not get so rotten sour as it does in many of the whey tanks at cheese factories, and thus misleading results may be obtained from such experiments. An acid test might be made of the whey as taken from factory tanks, also of whey that stands in cans for twenty-four hours after it comes to the farm, and more definite knowledge obtained upon the subject.

For FARMING.

WHAT SHALL WE DO WITH OUR APPLE ORCHARDS?

By LINUS WOOLVERTON, M.A., Grimsby, Ont., Secretary of the Ontario Fruit Growers' Association, and Editor of *The Canadian Horticulturist*.

It is always easy to ask questions, but not always easy to answer them. Everybody is asking the question which forms the topic of this paper, and probably almost everybody would give a different answer.

The fact is we feel discouraged with apple growing. Twenty-five years ago apples were sold at from $2 to $2.50 per barrel in the orchard; this year they could hardly be given away at home, and many growers would not ship them abroad for fear they would not pay the charges. One grower at Grimsby told me that he did not pick an apple in his orchard this season, and he

Linus Woolverton, M.A.

is satisfied that he did the wisest thing. One shipper is reported to have received an average of fifteen cents per barrel for a carload exported, and so the story of failure might go on without end. Now what shall we do? In reply, I will make the following suggestions:

(1) *Dig out the Apple Orchard.*—If your apple orchard occupies land that is adapted to a more profitable crop, dig it out. Many a fruit-grower has his apple orchard planted on his choicest land, selected for that purpose when the apple was more valuable, acre for acre, than any other crop he could raise. Nowadays, he finds that peaches, or cherries, or plums, or small fruits, pay much better than the apple, and that the site of the apple orchard is the very one where these fruits would best succeed. By all means, in such a case, dig out the apple orchard. Do not cut it down, and leave the stumps to hinder cultivation for years, but dig them out. Many growers of late have been blowing out the stumps with dynamite, but I believe the man who does it charges forty cents per tree. That is too much to pay. Digging out is cheaper, even with large trees. I had about 100 trees dug out last year for twenty-five cents each, and the men who did the work made big wages even at that.

(2) *Do not Dig out a Good Apple Orchard.*—But don't dig out your orchard just because of several discouraging seasons. You could not sell your apples this year for any price, I know, but how about oats? Did oats bring enough this year to pay for the cultivation? Yet who says "Never sow any more oats." Never before did all America have a large apple crop in all places, such as was the case in 1896, and probably this will never occur again for many years. The population of our great cities increases in far greater ratio than the apple trees in our orchards. Indeed, during the past ten years the apple orchards in Ontario have not increased over three per cent., while the population of our great cities has increased nearly one-third. Chicago and New York are already beginning to inquire for Canadian winter apples, while the whole South must be supplied by us with certain kinds of stock, notably Fameuse, from Canada. Then the foreign markets are calling out more and more for our good Canadian apples. The interior towns of Great Britain are just finding out that they want our apples, and they are willing to pay good prices, too. Even this year, when apples were slaughtered in Liverpool and Glasgow at 3s. and 4s., the towns of Manchester and Aberdeen were giving from 8s. to 10s. for our fruit. Since the new year the latest reports advise us that apples have advanced in price in the English markets, and now Baldwins are being quoted in Liverpool at from 15s. to 16s. Nor is this all. We are going to reach other markets. The whole continent of Europe wants Canadian apples; Hamburg wants them, Paris wants them, and so do South America and Australia. We will reach these places in time, and then you may be sorry if you have no apple orchard.

Top Graft Your Apple Orchard to the finest

Varieties.—If your orchard is thrifty in growth and situated on land that is not needed for a more remunerative crop, yet, like most of our orchards, if it consists of varieties that are not profitable, then do not dig it up, but have it top-grafted. This work is easily done by any farmer who can handle a knife well. There is no secret about it, and you do not need to have a professional come and charge three cents a graft, and make $3 or $4 a day and his board out of you. Use a fine saw for cutting off the small limbs, and these cuts should not be over two or three inches in diameter. Make a split with a wedge or grafting chisel, then cut your scion wedge-shaped to fit the opening, and give it a long bevel, and thickest on the edge next the bark of the stock. Fit two scions to each split in such a manner that the pressure will be about even the whole length of the cut, and see that the young bark of both stock and scion is in contact. Then remove the wedge and apply your grafting wax. If the cuts are smoothly made, nine-tenths of the scions should grow. It is important that the scions be cut early, before the least growth has started, otherwise they will be sure to fail. *Crown grafting* is another and simpler mode which is applicable to much larger upright stocks. In this case the wood is not split. The scions are bevelled on one side only, and then slipped down between the bark and the wood, without bursting the former, if it can be avoided. The whole is then wrapped with stiff paper, and tied fast in such a way as to form a cup, which is filled with tenacious clay. I have had good success with this method.

What kinds do you grow? Probably Baldwin, Greening, Fall Pippin, Spitzenburg and Golden Sweet. I would advise cutting off all except the two first, and I would top-graft the stumps with such varieties as Duchess, Gravenstein, Wealthy, and Ontario. You want to produce prime apples fit to ship in fancy cases in cold storage to the best markets of the world. If you do this, you may be thankful for your apple orchard.

(4) *Cultivate thoroughly.*—I cannot understand what makes people neglect the cultivation of their orchards, unless it is laziness. The best fruit pays, the inferior clogs the market and ruins the trade. Every round of the plough and every turn of the cultivator helps the vigor of the trees and the beauty and size of the fruit. The man who gives most liberally in this direction will reap most abundantly, and those who neglect may as well give up.

(5) *Prune more often and with better system.*—I am no advocate of the common method of butchering apple trees. The great limbs cut off by some are proof of years of neglect. It is foolish to let young trees spend years in growing huge limbs that you must cut off some day with a crosscut saw, with some wild notion of improving its vigor. Such treatment is ruinous to the tree. You might as well cut off a man's leg in order to impart more vigor to his constitution. I believe that every such cut is a thrust at the vitality of the tree.

Your trees should be your pets. Watch their habits from their young days and every year remove the superfluous growth. Thus you will conserve the strength and vitality of your orchard for fruit bearing. The apple orchard is like the window garden. Loved, petted and cared for the flowers will become stalky and vigorous and will rejoice the owner with a wealth of bloom. Neglect them and they will be a disgrace to your home. So the petted orchard will make its owner rich.

(6) *Fertilize better.*—It seems superfluous to say this to our leading apple growers who know as well as I do the great importance of feeding the soil in order to get good returns. The great benefit to the orchard of a liberal application of wood ashes has frequently been advocated by our association. From one half to a whole bushel per tree sown broadcast on the land, especially if the land is sandy, will have a distinct effect upon the vigor and fruitfulness of the trees. The good effects of stable manure are also too well known to need repetition, but its importance needs constant emphasizing. If sixty or seventy pound per tree (of bearing size) could be given each year, the result would be surprising, but how many trees ever get such treatment? Even these trees are not getting all the food they require. The ashes will give potash, and the manure nitrogen, and still the apple tree is hungry for phosphoric acid. This you can easily buy in the shape of either dissolved bone or dissolved apatite rock. Give each tree eight or ten pound of this each year, in addition to the other elements we have mentioned, and then your orchard will begin to show you what it can do and will yield you apples that will surprise you. What then are we to give each tree? We will say 30 lbs. of wood ashes, 60 lbs. of stable manure (or 2 lbs. of nitrate of soda), and 8 lbs. of dissolved rock. Try it on some few of your best varieties and mark the result and report to *The Canadian Horticulturist.* With such treatment, I believe you will be encouraged with your apple orchard.

(7) *Pack your Choice Apples in Better Style.*—There is no use in packing seconds, or even first-class ordinary apples, in any different package from that in common use, the apple barrel. No package is better for ordinary fruit, but, if you

have something extra choice, such as you will get from the treatment outlined above, then, try some new package and see if you cannot establish a reputation. Our Burlington friends are using the 50 lb. apple case, a good package, if you will take trouble to put in it the right class of fruit. I have tried it and, while some markets report that they do not want it at all, others who are in touch with jobbers and retailers say "Yes, that is what we want for our best customers." For export to Australia, I find the apple case is just the thing in that country. I had some choice Cranberry Pippins sold in Sydney at $3.25 per bushel, put up in that package.

Now I have briefly indicated my views in reply to the question "What shall we do with our apple orchards? I hope it may be that my replies will encourage some faint-hearted grower to try some new plans, or else to give a fair trial to the old ones; and perhaps we may wake up to find that the apple, after all, is the great staple fruit for profitable export from the Province of Ontario.

Grimsby, Ont. L. WOOLVERTON.

WHAT SHALL WE DO FOR THE YOUNG CLOVER THIS SPRING?

By Professor W. F. MASSEY, North Carolina Agricultural Experiment Station.

For generations farmers have been taught that the best thing to do for young clover the second spring to encourage its growth, and to give a good crop of hay, is to apply a dressing of plaster. In many sections, where this practice has been long followed, the results were formerly all that could be desired. But of late years there has come complaints that plaster no longer has the effect it once had, and farmers want to know the reason. We have no doubt that in many sections one reason for this condition is the exhaustion of the supply of potash in the soil. Men have long wondered why the action of plaster is so uncertain, and that while is has a wonderful effect on some soils, it should have none at all on others.

So long as a soil is rich in potash, plaster will have a good effect in making the otherwise insoluble potash in the soil available for crops. But in many places the supply of potash silicates is far from being inexhaustible, and in those places men have found that through its stimulating effect they have been enabled to rob the land of potash, and when they as usual apply the plaster to the young clover it no longer produces the effect it once had, and the only apparent effect is what can be attributed to the lime given as plant food direct, which is small indeed. Now, having, by means of the reagent, been enabled to use up the potash in the soil, the only way to get it back is to put it there. All over the central part of New York men write to me: "We do not get the results we did from plaster, which was formerly about all the manure we used." The fact was that, instead of being a manure, the plaster, in the hand of a thoughtless man, was simply a means for rendering his land unproductive. Now when the clover suffers for need of plant food, you try to induce the impoverished soil to yield up more after the deposit is about gone.

What the clover needs is phosphoric acid and potash, and you cannot get either of these from the air as you can the nitrogen. Suppose, then, you try an application of superphosphate and potash on the young clover this spring, and note the results. The most generally available form in which the phosphoric acid can be had is in the dissolved phosphate rock, and the best form of potash for general purposes is perhaps the muriate. For clover we would make a ton of this by mixing 1,600 lbs. of the acid phosphate to 400 lbs. of the muriate of potash, and would apply to the clover about 400 lbs. per acre. You will get, in the acid phosphate, about 40 per cent. of plaster, so you will be giving some plaster in any event. I will warrant that the application will give a heavier growth of the clover, and while the application might not return a profit in the increased amount of hay, it will show up bravely in the corn crop that should follow on the clover sod the next year. I have never been able to make an application of commercial fertilizer pay on the corn crop direct, but the application of mineral fertilizers on the clover the year before has always paid me, in the clover and corn crop together, and through the increased growth of the clover and the permanent improvement of the soil.

WHY SOME PEOPLE DO NOT TAKE AN AGRICULTURAL JOURNAL.

By "Syriac."

To the Editor of Farming.—As an admirer of your excellent journal, and one who has endeavoured to increase your circulation, I will endeavour to give you some of the arguments we meet with in trying to secure subscribers.

It is a lamentable fact, but nevertheless a true one, that many of those who follow agricultural pursuits take little interest in the journals that are endeavoring to promote their welfare.

One will say: "Well, a man can't farm their way, anyway. We have no money to back it up. It looks all well enough on paper. But them fellows that write to the papers don't farm themselves; they have the money (and they didn't make it at farming either) and they only do the bossing. We can't do that."

Another will say: "The writers don't practice themselves what they preach. I have seen some of their places and they were the hardest looking places I ever saw. I was surprised." And so on.

The people seem to forget that we are living in a progressive age and that those who grasp the situation and are thinking for themselves, and are feeding on the thoughts, acts, and experiences of others, as auxiliary to their own, are keeping abreast with the times.

Alas, too many are now beginning to realize, when perhaps it is too late, that by following in the old rut and selling all the farm has produced in the shape of hay, grain, straw, etc, (anything to raise a dollar) they have been selling the farm from under them; and now the complaint comes from them that farming don't pay. "We can't grow stuff like we used to; and there is no price for it if we do. We must do something else."

So if the municipality has a dollar to expend they look for a job on the road. "Oh! it's no use; we can't live on the farm; we must do something else."

But on the other hand when we find farmers (and there are many of them) who feed their land as they feed their stock, they don't have the same tale of woe. They can read a farm journal, and dissect it and appropriate every good idea to their own use when practicable.

I have said to some: "Well, I have just seen a receipt, or an article on something, that I consider worth the price of subscription. I don't see why *you* don't take a farm journal too." Then the answer comes: "Oh, well, I have'nt *time* to read it anyway; and I haven't a dollar to spare just now. And anyway, I have farmed all my life and they can't teach me anything anyway. I just know as much as they do about it."

"Well," I reply, "I am pleased that you have attained to the height of the farming profession.'

But watch these know-it-all's. Some of them will be selling hay and hides in the spring. Another, not so contended in mind, will have some animal not thriving; he sends for some neighbor; this neighbor prescribes linseed oil, or a pound of salts; the animal gets no better. Some one else says, "I would get a veterinary if it were mine." But no, he gives more salts. No better. Then he sends for a veterinary. Too late. Can't do anything. Animal dies. The trouble was this know-it-all knew it all! The veterinary's account was $5.

Now, if he had been reading and had acted as was suggested by the dollar journal in its stock notes, or in its articles on feeding, or perhaps in its veterinary columns, he might have saved enough to have been a subscriber to the journal for five years to come.

But it always was, and always will be, that the man who cannot learn anything about his business, because his own experience is sufficient for him, buys his experience dear. And to convince some people that a farm paper is worth a dollar, you must put a dollar bill in their hands and then *swear* that it is not a bogus one.

Camlachie, 1897.

Charlottetown, P.E.I., March 22nd, 1897. Dear Sir,—Your favor of the 16th inst., also Farming for March, received. Your review of the dairying service and the work it has done is exhausive and to the point. It should be interesting to your readers, and will do good, which is the main thing. Yours truly, Thos. J. Dillon Superintendent Dairying Service, P.E.I.

"I think Farming a grand monthly." D. P. L. Campbell, Vankleek Hill, Ont.

Farming in Scotland.—R. Brown, Esq., of the Hermitage, Dalbeattie, Scotland, has been a subscriber to Farming for a number of years, and, in a recent letter regarding the renewal of his subscription, he writes: "I enjoy reading Farming, and never fail to find some useful information in it."

Mr. John Davidson, of Ashburn, Ont., writes: "Farming is a credit to your firm and to our country, and deserves to succeed."

CHARACTERISTICS OF STANDARD BREEDS OF HORSES.*

By PROFESSOR J. A. CRAIG, of the Wisconsin Agricultural Experiment Station, formerly Editor of *The Canadian Live Stock and Farm Journal*, the predecessor of FARMING.

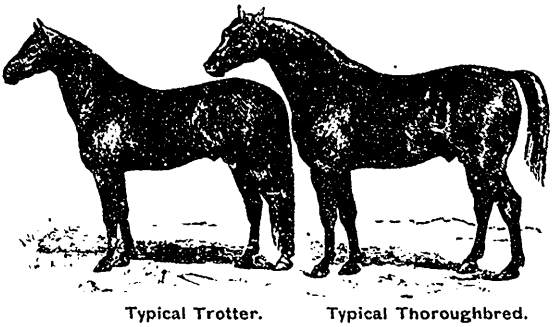
NOTE.—The "descriptions" in this article are not part of the article as written by Professor Craig. They are given here in order to put our younger readers in possession of all the principal facts known relating to the breeds of horses commonly used in this country.

I. LIGHT HORSES.

The Thoroughbred.—Leading characteristics: running speed (Salvator 1.35½, holds the world's mile record), quality, stamina, and ambition. Common colors: brown, bay, chestnut. Distinctive features: refined appearance, lengthy neck, deep chest, long body, straight croup, long thighs and pasterns, dense bone, firm muscle, active temperament, rangy type standing 16 hands. Most common defects: light bodies, lengthy pasterns, long legs, irritable temperament. Bred principally for racing, which has given them endurance and spirit. They are suited for mating with mares weighing 11 to 12 cwt., with the object of producing strong drivers or stylish carriage and saddle horses.

[*Description. From "First Principles of Agriculture," by Mills and Shaw.*— The Thoroughbred horse is the oldest and best established of all the breeds of horses. It is sometimes called the "blood-horse," by reason of the long period of time through which its purity of blood may be traced. It is no doubt descended from the oldest English breeds, but in its blood have been infused both the blood of the heavier horses of Europe, and that of the lighter and more graceful oriental races, especially the Turkish and the Arabian. Indeed, the Thoroughbreds of to-day all trace back to three Turkish or Arabian horses imported into England in the reign of William III. The Thoroughbred is distinguished for its lithe, willowy form, its clean-cut limbs, its fine skin and hair, and its intelligent eye. Its speed, resolution, and endurance, are most remarkable; but it is usually excitable and nervous in temper, and is sometimes lacking in docility. It is used principally as a running horse on the race-course; and having been for so long a time (at least, more than two centuries) bred for this purpose, it is but ill-adapted for work requiring slow and steady movement. However, it has been of great benefit in improving the quality of other breeds of horses, not only in England, but in every other part of the civilized world as well. All the trotting horses, carriage horses, and roadsters of to-day that are of good merit, possess in a greater or less degree some of the blood of the English Thoroughbred.]

The American Trotter or Standard-bred.—Chief characteristics: speed at the trotting gait. World's record for one mile against time is that of Alix, 2.03¾. The type of the leading campaigners is that towards which the trotter is tending; it is that of a horse required to have the endurance, ambition, and conformation to maintain trotting speed. Most general features: intelligent heads, light necks, low deep chests, oblique shoulders, long forearm, short cannons, round body rising slightly over loin, long croup and thighs, low hocks. Most common defects: undersize, deficiency in style, finish, and substance. Sphere: coach or carriage horses, roadsters, and trotters.



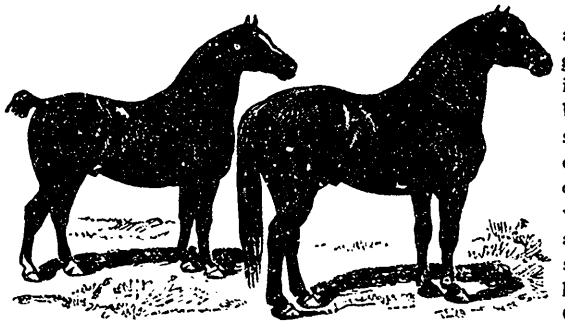
Typical Trotter. Typical Thoroughbred.
From "First Principles of Agriculture," by Mills and Shaw.

[*Description. From "First Principles of Agriculture," by Mills and Shaw.*--The Standard-bred horse owes its origin to the general fancy for speed at the trotting gait which prevails over this continent. Standard-bred trotting horses are as remarkable for speed in their own peculiar gait as the Thoroughbreds are for speed in running. The Standard-breds are entirely of American development, but are largely of Thoroughbred blood, many of them having descended from an English Thoroughbred horse named Messenger, imported into the United States in 1788. The Standard-breds resemble the Thoroughbreds in general appearance, but they are not so tall, nor

*From Woll's "Handbook for Farmers and Dairymen," recently published by Wiley & Sons, New York. See extended notice of the book in our "Publisher's Column."

so "rangy." Like the Thoroughbreds, they, too, have been instrumental in improving the common stock of the country.]

Cleveland Bay.—Uniform in color, being bay with black points. They stand at least 16 hands, and are horses of larger size and more power than



Typical Hackney. Typical Cleveland Bay.
From "First Principles of Agriculture," by Mills and Shaw.

those of most other breeds of light horses. Rough joints, coarse bone, and deficiency in action are their most common defects. Their size, power, and evenness of disposition adapt them for general work on light farms, but owing to the defects mentioned they are not as popular for breeding road and carriage horses as those of other breeds.

[*Description. From "First Principles of Agriculture," by Mills and Shaw.*—It is only comparatively recently that the Cleveland Bay has been considered a pure breed; although in the district adjacent Cleveland, in Yorkshire, England, horses somewhat resembling the recognized Cleveland Bay type of to-day, but much heavier boned and of greater strength, have been bred almost pure for a very long time back. The Cleveland Bay, as now defined by breeders, is a carriage horse, tall, and well-built, with considerable strength, and very fine action. In color, he is usually of one of the different shades of bay, with black feet, and a white star in the forehead. The good action of the Cleveland Bay, together with his strength and spirit and his gentle disposition, makes him not only desirable as a carriage horse but also one very suitable for all sorts of light work on the farm, and for drawing moderate loads on the roads with considerable speed.]

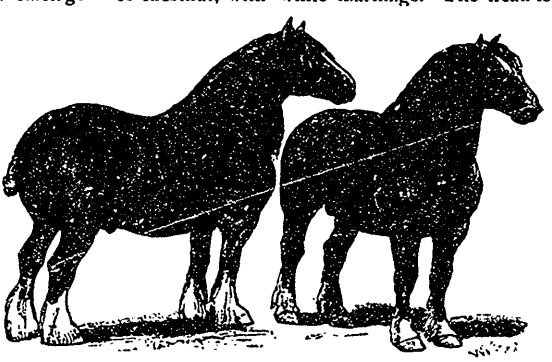
French Coach.—Smooth, symmetrical, and generally of fine quality; very graceful in movement, with high knee-action and good back action. Heads intelligent looking; necks graceful, bodies snugly ribbed, and quarters muscular. As a rule, they are striking in appearance, being upstanding and high-headed. Common colors: bay, brown, and black. Best suited for breeding coach-horses with moderately fast and graceful action. Defects: coarseness and lack of prepotency in the stallions, due to their mixed breeding.

Hackney.—The typical Hackney is a horse of extreme smoothness, with gracefully curved outlines. The head is light, neck muscular and curved, but free from heaviness; shoulders smooth and laid well back: body circular, compact, short; hips smooth; quarters plump with muscle; legs short, with tendons clearly defined. Their action is noted for its gracefulness and stylishness, being very high in the forelegs, and the hock movement is regular. Common colors: bay and brown. They are usually about 15.3 hands. Best suited for production of high-stepping cab and coach horses for city driving.

[*Description. From "First Principles of Agriculture," by Mills and Shaw.*—The Hackney, like the Cleveland Bay, has been only very recently recognized as a pure breed; but the progenitors of the Hackney have for a long time been bred almost pure in their native homes, Yorkshire and the Eastern Counties of England. The Hackney, like the Cleveland Bay, is a carriage horse; that is, one remarkable for gracefulness of action rather than for speed or strength. He is not so tall as the Cleveland Bay, and in color may vary from black to gray, but dark-brown and bay are the colors most admired.]

II. HEAVY HORSES.

Clydesdale.—Usual colors: bay, brown, black, or chestnut, with white markings. The head is intelligent in features, but sometimes out of proportion with the other parts. Shoulder exceptionally good; being sloping, it gives them a free, easy, and long stride in the walk or trot; arm



Typical Shire Horse. Typical Clydesdale Horse.
From "First Principles of Agriculture," by Mills and Shaw.

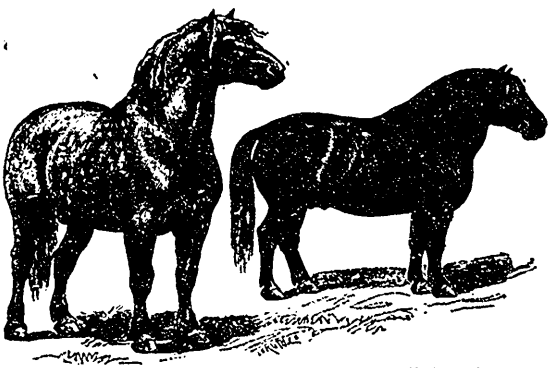
well-muscled, and legs clean and flat, with the fine and long feather springing from the edge; pasterns sloping, easing the feet from concussion; feet large and durable. The croup is muscular and the quarters especially heavily-muscled. Their combination of weight, quality, and action is exceptional in draught-horses.

[*Description. From "First Principles of Agriculture," by Mills and Shaw.*—The Clydesdale is so named from the dale or valley-land of the River Clyde in Scotland, the district in which the breed originated, some time early in the last century. The Clydesdales are remarkable for their fine constitutions, high spirit, and great strength, so much so that they are not excelled by any breed in suitability for the drawing of heavy loads. They are of all colors, but bays, browns, and blacks predominate, although there are grays and chestnuts also. The favorite color of the Clydesdale, however, is bay, with a white "ratch" or stripe on the face, and with white on the legs below the knee. The presence of a heavy growth of long, silky hair, from the knee and hock to the fetlock, is regarded as a mark of quality and good blood. The Clydesdales have been of immense advantage to Canada in improving the common stock of the country. Clydesdale grades make good, useful farm horses, and, as a rule, bring prices which well repay the breeder. Purebred Clydesdales are imported into this country from Scotland in great numbers, and are also extensively bred here.]

Shire. — The best type is low, broad, and stout. They are heavily built, muscular, with heavy bone and slow movement. The shoulder is usually too upright, making the action too short and stilted. The body is of large girth, deep and strongly coupled, with broad, short back and heavily muscled quarters. Deficiencies: lack of quality, sluggish temperament, and limited action. In general they are heavier than the Clydesdale, though there is little difference between representative animals. The best type is suitable for breeding the heaviest class of draught-horses adapted to slow work demanding strength and heavy weight.

[*Description. From "First Principles of Agriculture," by Mills and Shaw.*—The Shire horse is descended from old English stocks, for the most part heavy horses bred for purposes of war in past centuries, and known by various names, as the Great Horse, the English Black Horse, and the English War Horse. The breed is very largely used in England for general farm purposes, and also (especially the larger specimens of them) as dray horses in the great cities. In build, the Shire horse bears considerable resemblance to the Clydesdale, though he is often larger and stronger in the bone; and he is devoted to similar uses. Black, bay, and brown are the favorite colors, the two latter being most in favor. Like the Clydesdale, the purebred Shire horse is heavily feathered below the knee and hock. Shire horses, both imported and home bred, are now found in Canada quite numerously, and their number is increasing.]

Percheron.—Types: the original gray in color, and the modern of black color. Most peculiar characteristics of the former were their action, style, endurance, and strength. They had intelligent heads, prominent chests, round bodies, large bone, inclined to roundness. The modern type is shorter-legged, more compact and stouter, but lacking the size of the original. The Percheron's excellencies are seen in their active temperament, intelligent heads, crested neck, deep body, and wide croup. Their deficiencies appear in defective legs, being light or round, straight pasterns, feet narrow at the hoof, heads and quarters lacking muscle. Best type adapted for breeding energetic, quick-gaited, strong horses suited for draught work of light nature.



Typical Percheron. Typical Suffolk Punch.
From "First Principles of Agriculture," by Mills and Shaw.

[*Description. From "First Principles of Agriculture," by Mills and Shaw.*—The Percheron is named from the province *Perche* in northern France, in which district the breed is found in its greatest purity. It is sometimes called the *Norman*, and sometimes the *French Draught Horse.* It is probably descended from the ancient war-horse of Normandy, but possesses besides a large mixture of Arab blood. The Percheron horse is not quite so heavily built as the Shire or the Clyde; and he has greater activity of limb. He may be described as a horse uniting considerable strength with a fair degree of activity. In color, he is

usually of a beautiful dappled gray; though he may be of other colors, and black is often preferred. The Percheron grade makes a useful farm horse, being especially suitable for drawing loads or doing comparatively heavy work at a rather quick pace.]

Suffolk.—Color uniform, being some shade of chestnut. They are low-set, short-legged, deep-bodied, muscular horses, with clean bone and durable feet; docile, easy keepers, and steady when working. General deficiency: a lack of weight due to their smaller size in comparison with other draught horses. Suited for general farm labour; they are not the highest-priced horses on the market owing to the demand for heavier weights.

[*Description. From "First Principles of Agriculture," by Mills and Shaw.*—The Suffolk Punch is so named from the county of Suffolk in England, in which district the breed has been raised for a very long time. This breed of horses are remarkable for their strength of constitution and their activity and endurance in all kinds of heavy farm work. In general structure, they are perhaps shorter in the leg and deeper in the body than the other breeds of draught horses, and though of lighter bone, are more compactly built. Their color is uniformly chestnut. Though not as yet very numerously introduced into Canada, they have many admirers, and will no doubt be one of our most useful breeds.]

THE CANADIAN HORSE SHOW: A CRITICISM.

Contributed to FARMING by a Special Commissioner.

The third Canadian Horse Show was held in the Armouries, Toronto, the last two days of April and the first of May. It was managed by a joint committee representing the Canadian Horse Breeders' Association and the Country and Hunt Club of Toronto. The show is now a leading event in social circles in Toronto, and was well patronized by the *élite* of the city. It was opened by the Premier of Ontario, the Hon. A. S. Hardy, and graced on the closing day by His Honor the Lieutenant-Governor and Mrs. Kirkpatrick, recently arrived from Britain. The attendance was very good, not specially large in the mornings, but well filled in the afternoons and crowded in the evenings. Two of the most pleasing features were the "ladies' ride," given by four of the lady members of the Hunt Club with their gentlemen escorts, and the "musical ride" given by a detachment of the Royal Canadian Dragoons.

RIDING AND DRIVING.

The most of the harness classes were well filled, some of them were so large that they had to be taken in relays to be handled with comfort. The dealers and those more or less engaged in the buying and selling of light horses made many entries, almost filling some of the classes. The gentlemen of Toronto who have horses came out well with their entries, and showed a laudable desire to do their best towards making the show a success. In the team classes they several times captured the best of the prizes, and were also well to the front with riding horses. Outside of Toronto and the professional horsemen there were not a large number of entries. The exhibit from the State of New York made last year by a leading horseman had no counterpart this year. There was no international competition. The riding and driving classes as a whole were good. If there were no phenomenally good animals in these classes there were no very inferior ones exhibited, and the general average was high. The riding and driving was a decided improvement on that seen at the first show.

LIGHT HORSES.

In the breeding classes, Thoroughbreds and Standard-bred trotters, the aged stallions were out in fair numbers. The younger classes were very thin, and frequently there were not enough animals out to capture the money offered. Hackneys were a good and very popular class. Some very nice high steppers were shown. Coach and carriage horses were very few. The quality of these exhibits, while in many cases excellent, could not be classed as superior to that seen at some of our shows years ago. There has been no decided improvement along these lines.

HEAVY HORSES.

The Shires were represented by two stallions and two mares. The winners were not of the massive type we usually associate with the old English breed. In Clydes the numbers were smaller than ever before at a spring stallion show. These shows were begun in 1887, with 15 entries in the aged class and 14 three-year-olds. Both classes in 1888 gave 25, while the largest number, 45, is credited to 1891. This year there were 4 entries in the aged class, and only 3 for animals foaled in 1894—a terrible falling off. It is true

that horse breeding has been much depressed, but it is now enjoying a decidedly brighter outlook. 1895 was the worst year of the depression, and yet it showed 16 entries. Clearly there is something seriously wrong when this is the state of affairs. There are enough of good horses in the country to make an excellent show. Perhaps the main cause was the unfortunate time at which the show was held. Another matter about which there has been a growing feeling of unrest is the selection of judges.

JUDGING.

It is always a delicate task to criticize the judges. At best judging is a difficult and often a thankless job. Men who are good horsemen and good buyers are not always possessed of that nice judicial discrimination which is able to weigh quickly and clearly the relative value of points and defects even when they have a good knowledge of just what they want by way of a true type. The very best judges will sometimes make mistakes, especially when they are tied to a printed time-table rigidly enforced. Young exhibitors, on the other hand, are prone to see everything good in their own animals, and apt to magnify the defects of rival exhibits. The older competitors learn by experience, and usually take minor mistakes gracefully, and say nothing about them. At this show there was an unusual amount of dissatisfaction, and this was indulged in both by young and old. The chairman of the Committee of Management felt so much aggrieved that he withdrew his exhibit after the first day, and sent home a lot of very fine animals that would have been a credit to any show. In another very popular class his example was followed by one of the oldest and most prominent breeders on the continent. These men are experienced exhibitors, shrewd and capable business men, and were not likely to take any such step unless they felt that they were being wronged. It is not for us to say that they were right in this extreme step, but such incidents injure any show, and should be guarded against. An unusual number of the judges were also exhibitors, and it would seem to be a wise thing to avoid such complications in the future. No matter how just and conscientious a judge may be, and how hard he may try to do right, such a position gives room for unpleasant suggestions.

AN UNSUITABLE TIME FOR THE SHOW.

As regards all the country about Toronto, and indeed most parts of the province, the show was held while farmers were busy seeding. No farmer with ordinary help could leave this work and take horses to Toronto to show. At such a time a a day's delay may mean serious loss. The farmers, and breeders who ought to profit most from the show, and on whose behalf the Government gives a substantial grant in its aid, were unable to be present to exhibit, and few of them were able even to go and see the show. This should not be so. For professional dealers and city people the time may be all right, but for farmers it is very much the reverse. A show on the old lines, with the best horses in the country out at it, and with close runs for first places fairly won, is very much to be preferred for the farmer and the breeder and would be far better for the interests of the horsemen of the Dominion.

THE CANADIAN HORSE SHOW: REPORT.

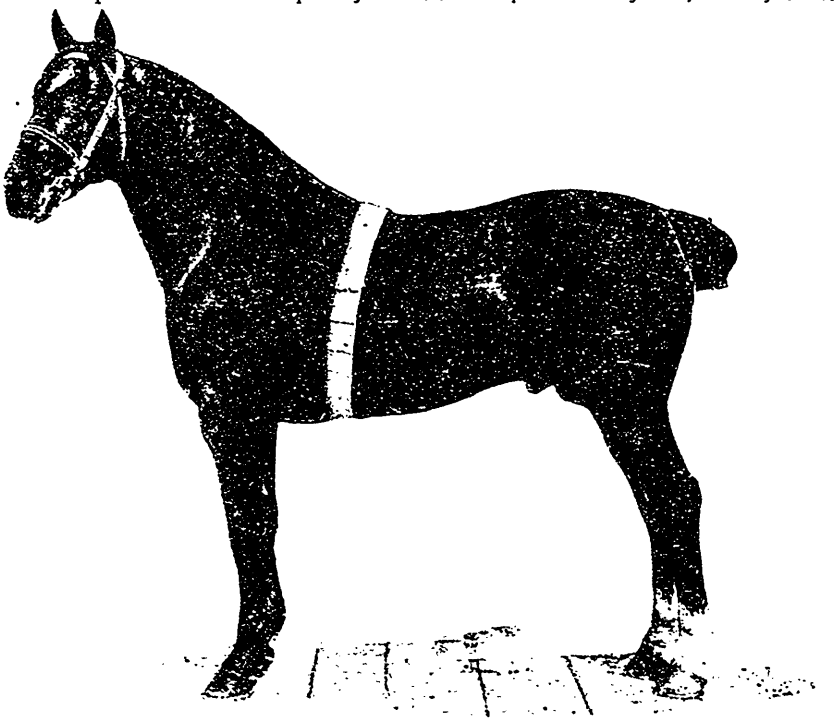
The success that has attended previous efforts of the management of the Canadian Horse Show has been repeated again this year, and the third annual show, held in The Armouries, Toronto, on April 29th and 30th, and May 1st, has been a very successful one indeed. The attendance was not very large during the mornings and afternoons, but in the evenings it was very much better. It was always an enthusiastic audience, the winners and favorites coming in for rounds of applause.

The building was nicely decorated with flags, the show ring in good condition and everything suemed to go off smoothly. The management are to be congratulated on the admirable way in which everything was arranged. The show was formally opened by the Premier of Ontario, Hon. A. S. Hardy. The last day of the Show the Lieutenant-Governor, the Hon. G. A. Kirkpatrick, and Mrs. Kirkpatrick, who have just returned from England, were in attendance, and received an ovation. Sergeant-Major Dingley, of the Royal Canadian Dragoons, proved an excellent master of ceremonies in the ring.

The musical ride of the Royal Canadian Dragoons and the ladies' ride were very popular, and were great drawing cards. The parades of the Toronto Hunt, of the Mounted Police, and of the Fire Brigade horses were also very popular. The presence of a band added to the enjoyment of the programme, although most decidedly objected to by some of the horses.

The breeding classes, on the whole, were only fairly well filled, not nearly so well as they should

have been. This, no doubt, was owing to the lateness of the date on which the show was held. It should have been held about the same time as the Boston show, or the week previous. It was put off with the expectation that exhibits from the Boston show would come to Toronto. Very few did come; only one American made any entries, and then he did not come. To accommodate them the date of the show was made too late in the season for farmers to attend with their stock, hence some of the breeding classes were not as well filled as was expected. This was espeeially so with the heavy breeds. The show to be successful must be held earlier in the spring.



Royal Standard, Imported Hackney Stallion.

[Winner of first prize for aged stallion, also of sweepstakes prize for best stallion of any age, at the Canadian Horse Show, 1897. Also sweepstakes winner at the Canadian Horse Show of 1896, and Toronto Industrial, 1896.

The harness and saddle classes were all well filled, and in many cases the competition was so very keen, that it was no disgrace to be awarded second place.

Specially reported for FARMING.

THOROUGHBREDS.—In the class for Thoroughbred stallions foaled previous to 1894 six horses faced the judge. They were rather an indifferent lot. First place went to Strathclyde, a chestnut, foaled in 1889 and exhibited by Geo. Hendrie, Hamilton; second place was given to a wild, restless animal, with a good body but poor legs, named Lee Christy, shown by the Thoroughbred Horse Association, of Bradford; third place went to Graham Bros. for Montana; and fourth to Hurd & Barbour, Toronto, for Woodcraft. There was only one entry for three-year-olds and under, Terremont, a nice bay by Dandie Dinmont.

In the class for stallions calculated to produce hunters and saddle horses there were five in the ring. First place was given to Godard, who was well brought out by Graham Bros. He was first in this class at the Industrial last fall. Second place went to S. B. Fuller's, Wyndham; third to Sleight of Hand, exhibited by D. L. McCarthy, Toronto; and fourth to Billetto, shown by W. Barbour, Toronto.

The class for filly or gelding sired by a thoroughbred stallion brought out six entries. On the whole a very poor lot. First place went to Jim W., shown by G. Ward, Woodhill; second to Norwich, Thos. Abraham, Norwich; and third, to Flossie, a brown mare shown by D. B. Simpson, of Bowmanville.

CARRIAGE OR COACH.—This was a very small class. First place went to Graf Bremer, a brown German coach shown by Jas. McCartney, Thamesford; and second to Ludwig, another German horse, shown by Geo. Cockburn, Baltimore. In the class for younger animals there were only two entries: Rainbow, a chestnut, shown by J. L. Reid, Derry West; and Pilot Chief, a brown horse, shown by Wm. Galbraith, Brampton. They received first and second, respectively.

STANDARD-BRED ROADSTERS.—Seven animals faced the judges in the aged class, but they were an exceedingly poor lot, and not the style of a horse that will improve the stock of the country. Bryson, a brown, shown by Hugh Scott, Caledonia, was placed first; second place went to

Ambrosial, a horse shown by J. M. Morgan, Ottawa; third place was given to Uncle Bob, exhibited by H. Smith, Claude; and fourth place to Leotard, belonging to W. Cowper, Dundas. Three out of the seven showed some lameness. In the class for younger animals Charity Bell, shown by A. N. Smeall, Toronto, and Lord Velvo, the property of S. A. Mackay, Shawville, Que., won first and second places. Sweepstakes for best standard-bred stallion, any age, was awarded to Bryson.

HACKNEYS.—The Hackneys were out in force and covered themselves with glory. Besides filling a large number of classes and filling them well, too, they won many good positions in the harness classes. The half-bred Hackneys also won many leading positions, so that altogether they made a very creditable record both for harness and saddle purposes. In the class for aged stallions over 15 hands 2 inches, there were five entries; one was ruled out, four competed, and they were four fine ones. Royal Standard was well brought out by Mr. Thomas Graham. This horse needs no comment, nor is it necessary to say that he won first place and sweepstakes for best stallion. Second place was won by Courier, a ten-year-old horse shown by the Logie Farm, Mt. Albion. Mr. H. N. Crossley won third and fourth places with Rosseau Performer and Fireworks, respectively. In the class for aged stallions under 15 hands 2 inches, first place was awarded to Barthorpe Performer, a Boston and New York winner, shown by the Hillhurst Farm, Que.; second place went to Banquo, by Jubilee Chief, shown by R. Beith, M.P., Bowmanville. Many of those around the ring thought that first place should have gone to Banquo, for his behaviour in the ring was just grand—he outdid himself, but the judges were in favor of the younger horse. Banquo was, however, awarded the sweepstakes for best Hackney stallion by an imported sire out of an imported dam. In the three-year-old class there was only one entry, Danish Duke, a nice bay shown by the Hillhurst Farm. In the two-year-old class the Hillhurst Farm and R. Beith had each a single entry. The former won first place with Hillhurst Sensation, a great mover, and the latter, second, with a yearling, Lorenzo. There were two entries for Hackney stallion and three of his get: Courier, shown by the Logie Farm, Mt. Albion, and Fireworks, shown by H. N. Crossley, Toronto. Courier was accompanied by three very fine animals and captured first place.

In the class for Hackney mares, three years old and under, there were six good animals for the judges to pick from. First place was easily awarded to Portia, a two-year-old chestnut, with good action, shown by R. Beith; second place was won by Birdie, a nice two-year-old, shown by H. N. Crossley; third and fourth places were won by the Hillhurst Farm for Lady Isabel and Millington Maid, respectively.

Sweepstakes for best Hackney mare, any age, was won by Jessica, R. Beith's well-known three-year-old. She is a full sister to Banquo and marked very similarly. She was also awarded the sweepstakes as the best Hackney mare out of an imported sire and dam.

The class for high steppers sired by a registered Hackney brought out seven good animals. The popular favorite was the three-year-old Jessica, and it is probable she would have won first place had she not been tired out, having been out both forenoon and afternoon; as it was, she got second place, first going to Althorpe Duchess, an imported mare shown by H. N. Crossley; third place went to T. A. Crow for Randolph, sired by Lord Randolph; fourth place went to Lady Aberdeen, shown by R. Beith.

In the class for saddle horses sired by a registered Hackney stallion, Jubilee Prince, by Jubilee Chief, shown by T. A. Crow, won first; and Diamond Jubilee, by Jubilee Chief, shown by F. Doane, won second; and Lady Cocking, shown by H. N. Crossley, won third place.

SHIRES.—Shire stallions were a small class—only two facing the judges—Darnley, shown by George Garbutt, Thistletown, and Duke of Blagdon, shown by J. M. Gardhouse, Highfield. Duke of Blagdon is not as large as one would like to see, but he is from large stock and of extra good quality. He was awarded first, and Darnley second place. Shire mares were also a very small class, there being only two to the front, Rosseau Maid, shown by H. N. Crossley, and Midnight, shown by William Hendrie, Hamilton. The prizes went in the order named.

CLYDESDALES.—Last year there were twelve stallions in the ring in the aged class; this year there were only four. Prince of Quality [2173] was an easy winner. He is a horse of great quality and a good mover, so much so that a Hackney might almost envy him. This beautiful black stallion, owned by Robert Davies, is well known to the general public. Quite a long way behind him came the twelve-year-old Str'aven Callant (6326), shown by Graham Bros., for second place. Third place went to King of Ardnacross (imp.) (8723), shown by Neil Smith, of Brampton. Fourth place went to Merry Monarch [—027], a dark bay with a white stripe on his face, shown by Graham Bros.

In the class for stallions foaled in 1894 there were only three entries, but one of these was a new-comer that was too much for the others. Young Macqueen [2290], a bright bay with four white feet and a stripe on his face, was placed first. His sire is Macqueen (imp.) (5200) and his dam, Belle of the Lyons (imp.) (3571), by Lord Lyons (855). He was bred by R. B. Ogilvie, Madison, U.S.; imported and shown by Graham Bros. From the ring side he appeared to be lacking a little in the quarters, but he had a good set of legs with plenty of feather; closer inspection showed him to be a little thin, but a substantial horse with good bone. Robert Davies' King's Own [2172], by Queen's Own, had to be content with second place. He is a big, strong colt with plenty of quality, and thought by many from the ring side deserving of first place. Third place went to a half-brother of King's Own, Macqueen [2218], a dark bay shown by Alex. Doherty, Ellesmere.

There were only two entries for stallions foaled in 1895. Robert Davies had forward a good black, a full brother to King's Own, Black Prince [2240], but he only got second, first going to Goldfinder [2289], bred by Wm. Kerr, Houdston, Scotland, and shown by James Henderson, Bolton, Ont. Alex. Doherty had the only yearling present, Prince of Blantyre.

CANADIAN BRED CLYDESDALES.—There was a very poor turnout of home-bred Clydes. The whole show of Clydes was very small, no doubt due to the lateness of the show; but when the demand for good horses is improving so well it is surprising that there were not more animals out. There were only four entries made in the stallion class. First place went to Captain Willie [2170], bred by Alsop Bros., Glasgow, Ont., and exhibited by Graham Bros. Second place went to Bay Wattie [2288], exhibited by Wm. J. Howard, Dollar; and third place was won by Addison [2158], shown by Wm. Foster & Son, Humber.

The class for Clydesdale mares brought out only three of the eight entries. Kate Hill 2nd [1923], a mare of good quality, was first. She was bred by Jas. I. Davidson & Son, Balsam, Ont., and shown by Wm. Brewster, Mein-

tyre. J. W. Robinson, St. Marys, won second and third places for Money Down [2163] and Money May [2162]. They are two full sisters, four and five years old, and got by Bay Wallace (imp.) [397], out of Darnley Maid (imp.) [1739].

The sweepstakes class for best Clydesdale stallion brought out only two animals: Young Macqueen and Prince of Quality. They were both first in their classes, and many thought it would be a walk over for Prince of Quality. The judges thought differently, and after calling in another man the sweepstakes was given to Graham Bros.' Young Macqueen, much to the surprise of many onlookers. The horses were a very close tie and the younger one won, his age turning the balance in his favor.

HEAVY DRAFT TEAMS.—Four teams were entered in the class for purebred Clydesdales, but only two of them faced the judges. First place went to Money Down and Money May, shown by J. W. Robinson. These four and five-year-olds made a slashing big team and took the popular fancy. Second went to a team, Jess and Jesmine, shown by Wm. Hendrie, Hamilton. They were a good team with hard, firm flesh, but not so good at the ground as those that took first.

In the class for heavy teams, not eligible in the preceeding class, there were the same number of entries and all came into the ring. They were four good teams. First went to a team of five-year-olds and second to a team of bay geldings eight years old, both shown in good form by Wm. Hendrie. Third place went to a good useful team shown by Geo. T. Ward, Woodhill; and fourth to another team of J. W. Robinson's, St. Marys.

HORSES IN HARNESS.—There were two classes, those over 15 hands 2 inches and those under that height. In the class for those over 15 hands 2 inches no less than twenty animals entered the ring, making the ring uncomfortably full. There was a great variety of types; Hackney, Thoroughbred, and Standard-bred types were easily discernible. The coveted red ribbon was won by E. B. Clancy with a beautiful brown mare, Allie Roe; the blue ribbon was awarded to Nightingale, shown by T. A. Cross; the white ribbon went to a grey mare shown by Robert Beith. The awards here were a surprise to onlookers, as they did not expect them to go the way they did.

In the class for over 15 hands 2 inches there was a very large entry—eighteen animals entering the ring. They were also a lot of fine animals. A half-bred Hackney, Diamond Jubilee, by Jubilee Chief, won the red. He was shown by F. Doane, Toronto. Chief, shown by Geo. H. Gooderham, Toronto, won second place with The President, a good bay shown by Isaac Watson, Toronto, for third place.

PAIRS OF HORSES.—In the class under 15 hands 2 inches there were seven splendid pairs before the judges that puzzled one for a while to tell where the red ribbon would go. It fell at last upon a pair of good steppers shown by T. A. Crow, Toronto; second place went to two purebred Hackneys, Jessica and Lady Aberdeen, shown by R. Beith. Adam Beck, London, secured third, and the Toronto Horse Exchange fourth place. In the class over 15 hands 2 inches there was another very large entry. First and third awards were secured by T. A. Crow; second went to G. H. Gooderham, and fourth to J. Ross Robertson, M.P., for Wilfred and Sir Charles.

TANDEMS.—There were eight fine turnouts in this class, and they seemed to be very popular. The rules laid down were that the wheeler should have conformation, substance, quality, and action; and the leader to be a showy, well-bred, all-round actor, with good manners. The Hackneys scored here; Jessica as leader and Lady Aberdeen as wheeler made the combination that carried off the red ribbon. T. A. Crow won second and third places. In the class for gentleman drivers of tandems, Adam Beck and G. A. Stimson, Toronto, divided the prize money between them.

SADDLE HORSES.—According to the rules, the horses were to be judged by quality, manners, paces, conformation, and ability to carry the weight in their respective classes. The gaits required to be shown were a walk, trot, and canter. There were a lot of good entries in all the classes, but also some poor ones. In the class under 15 hands 2 inches the winner was shown by D. Hughes Charles, Galt. In the class over the above height, D. King Smith, Toronto, had the winner, and Adam Beck, London, secured second and fourth places. G. A. Stimson, Toronto, secured third place. Best ladies' saddle horse was Dalmeny, shown by John A. Gunn, Toronto. This horse also won third place as best saddle and harness horse, Adam Beck securing first place.

ROADSTERS.—A roadster, when mature for driving, should not be under 15 hands high. Conformation, style of going, manners, hock and knee action, whether driven with ordinary or heavy shoes to force action, and as the horses are and appear at the time of showing in the ring, were considered in judging. J. J. Burns, Toronto, won the red ribbon for single driver; P. Irving, of Woodstock, second, and A. W. Holman, Toronto, third place. In the class for roadster pair, Thos. Oliphant, Clarkson, won first, though onlookers expected T. A. Crow, who got second, to get it. Third place was given to Dent Dalton, Delhi, but many thought that this team should have been second, and the team that was first should have been last. But one was not always able to judge correctly from the ring side; a closer inspection might have altered the decision.

PONIES.—The entries in this class were quite numerous, and the show they made in the ring pleased the crowd of children who were present in force on Saturday morning. Favorites met with rounds of applause, and the little folks were not long in picking out R. Beith's Greta as their favorite. She is a half-bred Hackney, and was placed first. Robt. Miller, Brougham, won second for a nice going grey mare, Vixen. She was a good actor. S. Nordheimer's Dolly was given third place, to the joy of some little folks. Several other good ponies were favorites with some of the youngsters, particularly Robt. Davies' Victor.

In the class for jumping ponies, Robt. Davies' Creta, a little black gelding, was a prime favorite. It was astonishing the way he would take the hurdles, and he secured round after round of applause.

PROVINCIAL DAIRY BOARD.

The Provincial Advisory Dairy Board met in Toronto on April 30th. There were present D. Derbyshire, Brockville (chairman); T. B. Carlow, Warkworth; and R. G. Murphy, Elgin, Provisional Secretary, representing the Eastern Butter and Cheese Association; and A. F. MacLaren, M.P., and R. M. Ballantyne, Stratford; A. Wenger, Ayton, and John S. Pearce, London, representing the Western Butter and Cheese Association.

The board was convened for the purpose of revising the prize lists and recommending judges in the dairy department of the Industrial, and also to consider the work of instruction in the creameries during the summer. Mr. H. J. Hill, manager of the Industrial Fair, was present, and conferred with the board regarding the dairy exhibit. An effort will be made to provide better quarters for the dairy display than those of last year, and a committee was appointed to confer with the Minister of Agriculture in regard to the advisability of having a working dairy on exhibition on the grounds during the fair. The association will give $150 towards prizes in the dairy department.

A circular letter will be sent to the creamery men at an early date, outlining the work of instruction to be carried on during the summer. It is proposed to charge the creameries $5 for one visit, $8 for two visits, and $10 for three visits of the instructor, the association to pay his salary and necessary travelling expenses. This proposal will no doubt meet with the approval of the creamerymen, and should be productive of splendid results in improving the quality of our creamery butter. Mr. Mark Sprague, formerly instructor for the Ontario Creameries Association, has been appointed joint instructor for the province by both associations. He will begin his duties at an early date.

Publishers Desk

FARMING

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

Succeeding *The Canadian Live Stock and Farm Journal.*

Published on the fifteenth of each month by

THE BRYANT PRESS,

20 BAY STREET - - - TORONTO, CANADA.

Subscription Price—

Canada and the United States, $1.00 per annum in advance. Great Britain and other countries in the Postal Union, $1.50 per annum in advance. Single copies 10 cents.

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Matter of any kind for publication must reach us before the 15th of the month preceding date of publication.

W. W. CHAPMAN, Representative for Great Britain and Ireland,

Fitzalan House, Arundel St., Strand, LONDON, ENG.

CONTENTS FOR MAY.

Farmers' Institutes for 1897.

The annual meetings of all the Farmers' Institutes of Ontario will be held on the first Tuesday in June, that is on Tuesday, June 1st, at one o'clock. These meetings are very important, and we trust that every member of an institute will be present at his annual meeting. The superintendent reports that the past year has been the most successful year the institutes ever had. During the season about 480 institute meetings were held; and at the various sessions of these meetings there was a total attendance of 110,758. The delegates sent out by the Department of Agriculture delivered 2,138 addresses, and local men 852 addresses. The total reported membership of the institutes at May 1st was 14,228, being an increase of almost 2,000 over the membership at June 1st, 1896.

Publisher's Desk.—*Continued.*

Royal Agricultural Society.—The first part of Vol. VIII. of the "Journal of the Royal Agricultural Society of England" has been issued, and contains a number of excellent articles.

Farm and Freight Wagon.—Among our new advertisers in this issue is the Speight Wagon Co., Markham. Their Ontario farm wagon is a model of durability and usefulness. It combines strength with lightness of draft.

Aberdeen Angus Herd Book.—The 7th volume of the American Aberdeen-Angus Herd-Book has recently been issued by the secretary, Thomas McFarlane. It is a handsome volume and contains the record of 3,000 animals.

Davis Cream Separator.—In this issue the John Abell Engine and Machine Works, one of our leading advertisers, advertise their "Davis Improved Cream Separator." It is made with both hand and belt power for farm use, and can be run by hand, dog, horse, or tread power.

The Red Bird.—This popular bicycle is thoroughly Canadian, and is manufactured by the Goold Bicycle Co., Brantford, whose advertisement appears in this issue. These wheels are beautifully finished, run easily, and are durable and lasting. The ladies' Red Bird is specially commended for its lightness and beauty.

Removed Four Ringbones and One Spavin.—Altamont, N.Y., Dec. 10th, 1894. The Lawrence-Williams Co., Cleveland, O.: I have used your Gombault's Caustic Balsam for four cases of ringbone and one of spavin, and found it to be successful in every case, and would recommend it to all dealers in horses. G. A. CROUNSE.

Cleveland Bicycles.—The H. A. Lozier Co. advertise in this issue their well-known Cleveland Bicycle. This high-grade wheel has acquired a reputation for durability, and gives general satisfaction to all its users. Some of the many advantages claimed for it are remarkable rigidity of frame and absolute perfection in bearings, chain, and sprockets.

Good for Enlarged Tendons.—"The Lawrence-Williams Co., Cleveland, Ohio. The bottle of Caustic Balsam you so kindly sent me in November, 1896, I have used on my horse for enlarged tendon and found it to work to my entire satisfaction, and would recommend it to all horsemen instead of using the firing irons as it has even a better result. R. O'Shaughnessy & Co., St. John, N.B. April 29th, 1897."

Duroc-Jersey Record.—Robt. J. Evans, secretary of the National Duroc-Jersey Record Association, writes from El Paso, Ill., that work on Vol. III. progresses rapidly, and it will be ready for distribution very soon. Vol. III. closed March 1st with more entries than both the former herd books, and there are already several hundred entries for Vol. IV. Letters from breeders show an increasing demand for Duroc-Jerseys.

American Dairying.—This book on dairying, by H. B. Gurler, is a most reliable and practical one, and should be in the hands of every farmer. Mr. Gurler has gained his knowledge of dairying by hard work on the farm, and gives his experience for the benefit of others. His book covers the work in the private dairy, also in the creamery, in a masterly and interesting manner. It is published by the J. H. Saunders Pub. Co., Chicago. Price $1.00.

Ontario Agricultural College.—The 22nd annual report of the work at the College has been published. It contains a store of useful information. The report of the experiments carried on in the dairy department should be read by every dairyman, while the report of the bacteriologist is equally interesting and instructive. The report of the experimentalist is a mine of information and will well pay reading. The same can be said of the report of the experimental union, which is bound in with the college report.

New Advertisements.—We would draw the attention of our readers to the following, among other new advertisers, in this issue: The McClary Manufacturing Co., London, Ont.; The Woodstock Wind Motor Co., Ltd., Woodstock; Noxon Bros., Ingersoll; Burrow, Stewart & Milne, Hamilton; McLaughlin Carriage Co., Oshawa; The Speight Wagon Co., Markham; James W. Provan, Oshawa; Thom's Implement Works, Watford; Dowswell Bros., Hamilton. They are all reliable firms, and specialists in their particular lines.

Brantford Steel Wind Mills.—Our readers, who desire effective and low-priced power, will do well to write Goold, Shapley & Muir Co., Ltd., Brantford, Ont., for illustrated circulars of their celebrated Ideal, galvanized steel wind mills. They have the largest and best equipped wind mill factory in Canada, and the only firm having a complete galvanizing plant. Their advertisement appears in this issue, and calls particular attention to the patent roller and ball bearings used on the Ideal Wind Mills. The company invite correspondence.

Canadian Horse Show.—On the whole the third annual Canadian Horse Show has been fairly successful, but the classes for Shires and Clydesdales were woefully lacking in the number of entries. A greater effort must be made next year to hold the show at such a time that it will be possible for farmers to attend with their breeding stock. The prize money for Clydesdales this year amounted to $590 and a gold medal, while the Industrial last year gave $630 in cash and three silver medals. So that it cannot be the prize money that is keeping the stock away. Give them a chance.

Our May Premiums.—The attention of our readers is directed to the splendid list of premiums on pages 34 and 35 of this issue. These premiums have been especially selected for their utility and adaptability to the needs of every farm. They can be secured by sending in new subscribers to FARMING. Can we not count upon every subscriber doing his utmost to increase the circulation of FARMING in his locality? A little special effort on your part will enable you to secure some of these valuable premiums and to do your neighbors a good turn by supplying them with a first-class, up-to-date farm magazine.

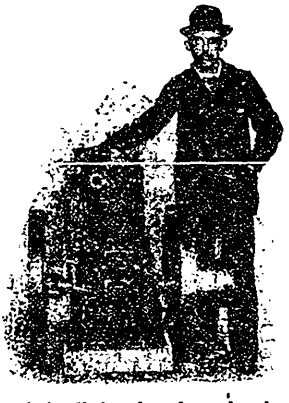
Alexandra Separators.—Dairymen will be interested in the advertisement of John S. Pearce & Co., London, Ont., advertising their well-known Alexandra Separator. This machine, manufactured by R. A. Lister & Co., Dursley, England, has acquired a world-wide reputation for simplicity of construction, the ease with which it runs, and the cleanly and complete manner in which it does its work. Some of the many advantages claimed for the "Alexandra" are as follows: "The bowl is made of one piece of steel, and has no loose plates inside. It is detachable from the drawing spindle, and if it should fall on the floor cannot take any harm. The bowl centres and balances itself; and, this being the case, all lateral or side strain on the neck bearing of the spindle which drives it is avoided. The Alexandra is

Publisher's Desk—*Continued.*

claimed to be the cleanest skimming machine made, every part being easily understood by a farmer." A specialty is made of separators for the private dairyman. These range in sizes suitable for herds of from two to thirty cows.

New Ontario.—Agriculturists will be interested in this portion of our fair Province. Reports recently received indicate that the town of Dryden is flourishing, and that there are only two lots for sale of the original survey. Some confusion seems to exist in the minds of some regarding "Dryden" and "Wabigoon." There is no connection between these two places. The latter is at the eastern end of Lake Wabigoon, about thirteen miles distant from Dryden, and is not fostered in any way by the Government. Mr. A. E. Annis, superintendent of the Pioneer Dairy Farm, Dryden, Ont., reports that the fall wheat has come through the winter in good style. The clover is commencing to grow again, and none of it seems to be killed or heaved out. Settlers are coming in fast, and there is a keen demand for town lots and for farms.

A New Power for the Farm.—Every farmer knows the advantage of a good reliable means of power to run the smaller labor-saving machines which are used on every good farm. In the past you have had to depend on the steam engine, the windmill, horse powers, and tread powers. Windmills are probably more used than any other means, and are seen on many farms throughout the country. Within the last few years, in England, Germany, and the United States, there has been brought to a high state of perfection an engine which seems to us to be an ideal means of producing power, and which, for a great many reasons, is especially adapted to farm work. We refer to the gasoline engine. Only one firm in Canada, The Cooper Machine Co. Ltd., 92 Adelaide street east, Toronto, is engaged exclusively in the manufacture of these engines. A visit to their shops would be very interesting and instructive to anyone. We found there a small 2 h. p. engine, a cut of which we show here, that could be started to work at any time in less than one minute. This saves the time used in getting up steam in our old friend, the boiler. There is no boiler in connection with this engine. The only water about it is what is used as a water-jacket to keep the cylinder cool. A small tank stands beside the engine, and the water from it is all the time kept in circulation, and used over and over again. There is no fire in any shape about it, and no sparks are thrown from the exhaust, for the simple reason that there are none to throw. We held our hand in the exhaust, less than a foot away from the engine, and could only feel a strong puff of warm air from it. This engine can be run as safely on a barn floor as out of doors, and just fills the bill for doing such work as running a cutting box or grain grinder in bad weather. Thousands of these engines are in daily use on farms in different sections of the United States, and we look to seeing our progressive Canadian farmers installing them in the near future. They can be built in any size and used for any purpose whatever where power is required.



The Poultry and Pigeon Fanciers' Companion and Breeders' Directory.—This is a small hand-book published by Geo. E. Howard & Co., of Washington, D.C.; price, 25 cents. Its contents include a breeders' directory, a calendar defining the duties of a poultry-keeper for each month in the year, a glossary of technical terms, the diseases of birds, egg hatching, show records, and other useful information, in a very convenient form. It is illustrated with portraits of the various breeds of fowls, and is altogether a handy book to have.

A Hand Book for Farmers and Dairymen.—This is the title of a work recently issued from the press of John Wiley & Sons, New York, and compiled by Professor F. W. Woll, of the University of Wisconsin. Price $1.50. It is a compendium of useful information on farm and dairy topics, being, in fact, a third edition of the dairy and agricultural calendars previously published by Professor Woll. The book is undoubtedly a most valuable addition to the author's list of useful farm literature, and we predict for it a very flattering reception at the hands of those for whose benefit it is compiled. Amongst the names of contributors to its valuable contents are to be found those of Professors Thos. Shaw and J. A. Craig, both of whom are well known contributors to our own pages. The book is one which we can confidently recommend to our readers. It is comprehensive, concise, and reliable; and covering so vast a field of research and

Publisher's Desk.—*Continued.*

comprising so diffuse a volume of information that the wonder is how it could be all included within so small a compass.

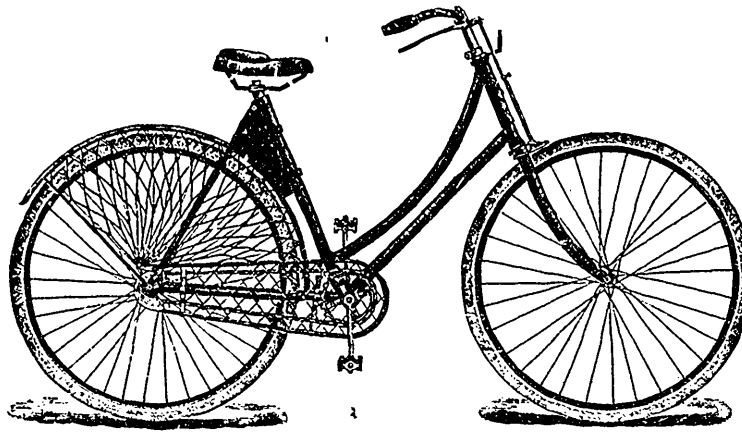
Correction.—In the short sketch of Mr. Sidney Coxworth, Whitby, Ont., published in our April issue, it is stated that Mr. Coxworth went to Winnipeg in 1896, where with the exception of a first and two seconds, his stock and their get carried off all the first and second awards of the show. The mistake was made of stating that Mr. Coxworth went to Winnipeg in person instead of stating that the get from his stock carried off the above prizes. The cut of Manor Hero on page 565 of the same issue, Mr. Coxworth's imported Berkshire boar, does not do justice to that prize-winning animal. It was taken when the animal was in poor condition, and though it shows off to some extent his excellent qualities it comes far short of presenting to our readers in complete form this high bred and typical Berkshire boar. A typographical error was made in calling Highclere 20th a boar instead of a sow. This typical Berkshire sow was imported by Mr. Coxworth in June, 1896. At the Royal County Show, Bournemouth, Eng., in 1895 she was considered by good judges to be the best type of a Berkshire on the grounds.

C. B. Scantlebury & Co —Our readers have, no doubt, noticed the advertisement of Messrs. C. B. Scantlebury & Co., of Belleville, regarding wall papers. As we have had some personal dealings with this firm, we have pleasure in describing their method of doing business *as we experienced it.* Needing some wall paper for a house, we wrote to the Messrs. Scantlebury for samples and quotations. Immediately came back by express, expressage prepaid, a large assortment of the most beautiful samples of wall paper we ever saw, suitable for bedrooms, halls, parlors, and sitting-rooms. The prices attached seemed to us very reasonable, indeed; and the assortment was almost bewildering in its richness and variety. Full directions were also sent as to methods of measurement, mode of papering, bordering, etc. All we had to do was to make our choice and return the samples (the expressage on which the firm also paid). We say with all confidence that we never saw, even in the largest shops in Toronto, a finer or a lower-priced line of wall papers, than what were submitted to us in the samples sent us by the Messrs. Scantlebury.

Solid Facts About Vegetables.—Few squash growers or squash lovers know to what extent they are indebted to the veteran Marblehead (Mass). seedsman, Mr. James J. H. Gregory. Always an enthusiast on the squash subject, Mr. Gregory takes just pride in the fact that he has introduced more standard varieties of this delicious and useful vegetable than any other seed grower. To him is due the introduction of the long famous Hubbard and Marblehead, the widely celebrated Butman, White Chestnut, Cocoanut, and many others. All of Mr. Gregory's enthusiasm and energy have not been expended on squashes, however, as growers of his All-Season, Deep Head and Hard Head Cabbages and of his Early Ohio and Burbank Potatoes can attest. Of late the wrinkled varieties of peas have been the object of Mr. Gregory's special and deep study, resulting in the introduction of the splendid and widely grown Nott's Excelsior. The zenith of pea culture has been reached in Gregory's Electric Pea. Remarkably early, wonderfully prolific, and of such excellent quality, it must soon entirely supersede the hard varieties of early peas. Gregory's Seed Cata-

Reward hath its merit

CLEVELANDS



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Correct lines, remarkable rigidity of frame, and absolute perfection in bearings, chain and sprockets, make this the ideal wheel for track use, and unequalled as a light roadster.

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H. A. LOZIER CO.

SALESROOM

169 Yonge St. - Toronto

Publisher's Desk.—*Continued.*

logue is a practical, common-sense book that should be in the hands of every planter. J. J. H. Gregory & Son, Marblehead, Mass., mail it free to any one that requests it.

The Spramotor Co.—Our representative recently called upon this well-known firm at their offices in London. There has been a greatly increased demand this year for their fruit spraying apparatus, over one hundred machines having already been disposed of. A new and valuable spraying cart has recently been made which will greatly facilitate spraying operations among small fruits. The following testimonials from a couple of our Experimental Fruit Stations [illegible] volumes for this valuable Spray Pump: "Winona, Ont., April 30th, 1897, Spramotor Co., London, Ont. Dear sirs,—Will you please send me one of your Spramotor Pumps as arranged for two lines of hose, extension rods, spramotor nozzles, and all accessories that are needed for spraying both large and small trees. I have several pumps, and the use of others offered free of charge to use at my experimental station, but I have greater confidence in the spramotor than any other I have seen in use. Yours very truly, M. Pettit." "Ottawa, March 16th, 1897, W. H. Heard, Manager Spramotor Co., London, Ont. My dear sir,—I have your catalogue for 1897, and in looking it through I find it quite complete, and I am sure it will be of great service to fruit growers throughout the country. I am much obliged to you for sending me a copy. Yours very truly, John Craig, Horticulturist."

Stock Notes.

Items concerning conditions of stock, also information as to recent sales, purchases, milk performances, or any other matters that will be of interest to our readers as news freely admitted in these columns. Items describing stock for sale, or anything else of an advertising nature, will be inserted only if paid for.

MR. J. R. HAND, of Fenelon Falls, Ont., has just purchased a nice quintette of Rose-comb White Leghorns, and will have a limited number of eggs for sale this season.

JAMES MCCORMACK, Rockton, finds that his young stock by Jock Morton are coming right, and they will give an account of themselves when the time comes. The young bull, Neidpath Jock, by Beauty's Style of Auchenbrain, out of Flecky of Auchenbrain, is doing well. All his stock are doing well.

BARRED PLYMOUTH ROCKS.—Mr. W. C. Shearer Bright, Ont. advertises in this issue, eggs from this important breed of poultry. This is a fine opportunity for farmers' sons and daughters to get a start with this excellent breed of poultry. You may depend upon it, you will not be satisfied with any kind of mongrel birds afterwards.

D. H. RUSNELL, Stouffville, has at the head of his Shorthorn herd a fine young roan bull, Stouffville Lad, out of Pickering's Jenny. He is breeding well. He is a straight, good animal, and ought to leave some good stock. The young spring calves are blocky, deep-bodied, good-backed fellows, and promise well. His Shropshires and Berkshires are doing well.

JOHN NEWMAN & SONS, Lachine. The Ayrshire herd of this firm pay their way every day in the production of milk, which goes to Montreal. Among the cows in this herd are to be found many rich, deep milkers, of good form and first-class breeding. A fine two-year-old heifer put up an udder like a mature cow when she came in for the first time, and promises to make a milker that will be a record-breaker.

MR. F. A. FLEMING, Toronto, says: "My 'ad.' inserted in FARMING for two issues has sold my entire herd. I had numerous offers from Nova Scotia to Manitoba for single animals, and also for two's and three's, and also offers for the entire herd through the advertisement. The best offer came from nearest home, and the whole lot went to Mr. Alfred

Stock Notes.—*Continued.*

Stone, Guelph, who, I am sure, will do well with them. I am glad to report that there is now a brisk demand for Herefords."

H. CARGILL & SON, Cargill, Ont., write: "Shorthorns, we think, are on the mend. We sold the last of our young bulls, suitable for service this season, a month ago; have also sold six females. We have twenty calves and more to follow. Have been highly complimented on the appearance of our herd by every visitor during the past winter, notwithstanding the shortage of feed. We still have for sale good young cows, heifers, and heifer calves, and all at prices to suit purchasers."

MR. A. G. GILBERT, Manager of the Poultry Department, Central Experimental Farm, Ottawa, has been addressing a series of meetings in New Brunswick and Nova Scotia. The meetings were all well attended and great interest was taken in the subject, viz., "Poultry as Revenue Makers to the Farmer." Mr. Gilbert speaks in the highest terms of the kindness shown to him on every hand, and has no hesitation in saying that the farmers of the Maritime Provinces are intelligent far above the ordinary, have comfortable and delightful homes situated, for the most part, in a charming country.

JAS. D. DRUMMOND & SONS, Petite Cote, Que., have a large number of rich, deep milkers in their long-established Ayrshire herd. Among the younger cows there are two three-year-old heifers that are exceptionally good ones, and giving a very heavy flow of milk. Among the older animals Viola 2nd, a fourteen-year-old cow, has a really good calf, and is doing well herself. So also are Lily, Kate Hill 2nd of Park Hill, Maggie Sands 2nd, and others too numerous to mention. The younger stock are in thrifty growing condition, and will give a good account of themselves.

D. DRUMMOND, Petite Cote, Que., makes his Ayrshire cows pay their way every day the year round in the milk business. Thus, independent of any success they may win in the show ring, they return him a handsome profit as milkers. Nellie Osborne is in good condition, and still giving a heavy flow of milk: her heifer calf is developing in a way that promises to make her a ringer. A number of three and four-year-olds are milking extra well. Maggie of Burnside has a very promising calf by Silver King. The calves from Glencairn 2nd are coming very satisfactorily. Kelso Boy, by Silver King, out of Maggie Mitchell, is in fine form.

DAWES & Co., Lachine, Que., keep their stock for the production of milk, and have in their herd a lot of superior performers. Such Ayrshire cows as Yellow Bess 1st of Bogside, by White Prince of Bogside, out of Yellow Bess; Brisbane 2nd of Knockdon, a noted prize-winner by Baron 4th, out of Brisbane 1st.; and Tena 2nd of Nethercraig, by Plunger, out of Tena 1st, both of Nethercraig, are cows that would grace any herd, and also turn a good profit. Cherry of Lachine a two-year-old heifer, gives promise of being a very fine performer. She is by Sir James of Bogside, out of Yellow Bess 1st. The young stock are all of excellent style and good breeding.

W. W. OGILVIE, Lachine, Que., has his cattle in very comfortable quarters, under the management of Mr. Robert Hunter. Among the Ayrshires Miss Betsy of Williamstown is doing well, and Miss Rose of Lancaster is giving a heavy flow of milk. A three-year-old, Pearl, is developing into an extraordinary milker. Annie Laurie gave over six gallons a day when she came in in October, and is still giving over four and one-half gallons a day. The young calves are developing into vigorous, strong, deep-bodied animals. Sparkling Star is doing particularly well. A number of Polled Angus heifer calves are developing into thick, low-set, blocky animals. The bulls at the head of the herd are doing well. The cows are in good condition, and have come through the winter well.

JAMES S. SMITH, Maple Lodge, Ont., writes: "Our sale on 25th March was quite successful. The attendance was good, and included a large number of buyers from Ontario, Manitoba, and Michigan. The prices, if not large, were a little better than last year. We had a good lot of cattle, in nice condition, and our visitors seemed well pleased with their appearance. Capt. Robson conducted the sale in a very satisfactory manner. His thorough knowledge of the breeding and values of purebred stock, together with his frank and gentlemanly bearing, should make him very popular as an auctioneer of valuable stock. The admiration given our Leicesters by those attending our sale rivalled that given the Shorthorns. Our sheep are in very fine shape, and lambs extra good. We made a number of sales on the 25th and since."

W. J. BIGGINS, Elmhurst Farm, Clinton, Ont., writes: "We have made the following recent sales of Shorthorn bulls: To Angus McLeod, Holmesville, Ont., a very nice red Matchless calf, Royal Sentinel; to William Aikenhead, Brucefield,

Stock Notes.—*Continued.*

Ont., Dragoman, a Mina, a large, strong-boned calf; Alex. Anderson, sr., Baillieboro', Ont., gets Royal Marcher, an extra good calf of the Mina family. The above were all sired by our silver medal bull, Imported Royal Don (c4717). William Wallace, Summerhill, Ont., gets another good Matchless bull in Dignity, and William Pollard, Leadbury, Ont., takes Romeo, a low-set, blocky bull. The two last ones are sired by the Kinnela bull, Imported General Booth (54353). The three oldest bulls we have at present are about eight months old, of the very choicest breeding, and growing into good ones. We have yet a couple of heifers for sale. Enquiries have been numerous and the demand active."

J. E. BRETHOUR, Burford, Ont., writes: "The Oak Lodge herd of improved Yorkshires is in extra fine condition, and the young stock are of extra quality. I have now over one hundred young pigs of spring litters, and some sows yet to farrow. The demand is very brisk, and I am making a lot of sales, which is good evidence that the Yorkshires are increasing in favor. Breeding and feeding pigs for pork is now more profitable than any other class of live stock. Coarse grain is very cheap, and the right kind of hogs are selling at paying prices. Farmers should give more attention to the breeding of the right type, that they may realize the top price, and also assist in building up the reputation of Canadian bacon in the English market. It is a great satisfaction to know that our bacon is growing in favor in the English market. Pork packers inform me that this is largely owing to the introduction of the Improved Yorkshire breed. Farmers should endeavor to produce what will bring the highest price."

JOSEPH YUILL & SONS, Carleton Place, Ont., write us: "Our stock have wintered remarkably well, and the demand for Ayrshires has been better than it has been for the past few years. During the month of April we sold the following stock: A young bull, Ely Meadowside —2064—, to William Burdon, Quyon, Quebec; a fine heifer calf, Minnie Ha Ha, to T. G. Robertson, Sault Ste. Marie; a yearling bull, Hector Meadowside —2116—, to J. A. Harris, Tramore, Ont.; Robert Meadowside —2151—, to Thos. Kidd, Lanark, Ont.; Dalkeith Meadowside —2174—, to A. D. Stewart, Dalkeith, Ont.; one beef calf and a heifer calf to Robert Burgess, Norwood, Ont.; one bull calf to John Breckenridge, Westwood, Ont. The aged bull, Farmer's Boy —1709—, and one young cow, Mamie, have also been sold. Of all the young bulls we had last fall only one is left. We have a fine lot of young Berkshires ready to ship, and a nice lot of Shropshire lambs will be ready for the fall trade."

JOHN MILLER & SON, Markham, have at the head of their herd the young bull, Aberdale, by Aberdeen, out of Rose Montrath 6th. He is a thick-fleshed, blocky roan, and counted by good judges one of the best bulls they ever raised. The young stock have been pretty well sold out, the demand has been so good. They have a nice lot of young calves, one a roan by Royal Robe, out of Mirth, is a thick-fleshed, mossy-coated fellow that will make a right good one. Another nice calf is a half-sister of the young bull, by Golden Guinea. Circe 2nd, the dam of the champion heifer last year has another good calf by Golden Guinea that will make another winner. Rose Montrath 3rd has a heifer calf by Golden Crown. It is a deep, thick calf that should make a winner. The yearling heifer, Modesty, by Aberdeen, out of Mirth, and a two-year-old, Blushing Maid, also by Aberdeen, out of Bashfull, are two good, thick heifers that show what the young stock of this herd will do. The Southdown ewes are lambing well, and there will be a nice flock of lambs.

ALEX. HUME & Co., Burnbrae, write: "In April Stock Notes you made us say: 'Our yearlings, etc., include the winners at Toronto last year of the first and fourth prizes for heifers under six months,' which should be, 'of the first and fourth prizes for heifers under one year, and first and fourth prizes for heifers under six months.' That is, they include four prizewinners instead of two, which, we think, is very unusual in one herd. Our young bulls are handsome, both in appearance and in dairy conformation and breeding. They are so playful and eager for service. We might say that our entire herd will go out on grass in the best condition they have yet done, and, as they are nearly all light-colored, they have a very bright and uniform appearance. Our pigs are the nicest lot we have had, and we feel justified in saying that we can guarantee satisfaction for quality. The following are some recent sales: Bull calf to Daniel McCuan, Carleton Place; Bull calf to John Preston, Stirling; young boar each to R. Watson, Burnbrae, and J. Collins, Campbellford."

R. E. WHITE, Perth, Ont., writes: "Our stock have come through the winter in good condition, and we now have some fine young stock coming on, both in Ayrshires and Berkshires. The young bull, sired by Grand Duke and out of Brownie of Burnside, is growing into a right good one, and should be a getter of good milking stock. The young heifer, Mary of Burnside, bred by Robertson & Ness, is growing well and promises well as a dairy animal. We have lately purchased

Stock Nots.—*Continued.*

from Mr. Arthur Johnston, Greenwood, Ont., a very fine Shorthorn heifer in Lily Gordon. She is one of the four Mr. Johnston was fitting for the Toronto Industrial; and, to use his own words, "the best one of the four." In Berkshires our stock boar, Watchman, is getting us some very fine pigs. Have just weaned a litter from Pansy, sire Star One (imp.), and sired by Watchman. In this litter there are extra good sows and boars of good bone and capable of carrying plenty of bone. I think the April number of FARMING alone worth the subscription price, and wish you success in the good work."

ISALEIGH GRANGE, Danville, Que. Under the able management of Mr. T. D. McCallum, the Ayrshire and Guernsey herds at Isaleigh Grange are more than holding their own. Last fall the Guernsey herd won great honors for themselves. May Queen 6th and Little May Queen are two very successful cows, both in the show ring and at the milk pail. The young stock are good, and will more than uphold the reputation of the breed. The foundations of the Ayrshire herd are being laid in good, strong constitutioned cows that are rich, deep milkers. The young Ayrshire calves are beauties, and show careful breeding. A two-year-old heifer, Barbara of Danville, by Duke of Monmouth, out of Dewdrop, is a perfect model of a dairy cow. Her calf by Derby of Danville, a son of Silver King, is an extra good one. The greatest care is exercised in selecting the Yorkshires bred at Isaleigh Grange, and none but the very best of the best are bred, and only first-class animals offered for sale. Purchasers are consequently more than pleased with the stock they get. The Shropshires are doing well, and there will be a lot of fine lambs for the fall trade.

C. J. GILROY & SON, Glen Buell, Ont., report that they have recently learned the results of their butter test competition with the oldest and wealthiest breeders of the United States and write: "It certainly afforded us pleasure when we found that the three entries we sent forward were successful in winning us three good prizes out of a class of sixty entries. Our celebrated butter-bred cow, Gilly Flower, drew the 19th prize of $32. We find in looking over the records that this cow made the highest per cent. of fat test when she tested 6 2/10 per cent., and also that she had the highest average per cent. for the 7 days' test. As regards quality she was to the front in the list, but other cows yielded more lbs. of milk, which gave them the lead. These tests have been carried on for the past 3 years, and we find that on no occasion has any other cow reached so high a per-cent. of fat. Inka Sylvia, a two-year-old daughter of Carmen Sylvia, won 24th place, while her half sister, Midge Inka, won 31st place. These last two heifers had been in milk about four months when the tests were made. These winnings, with others of the past few years, speak well for the Gold Medal herd of Holsteins kept at Maple Glen Stock Farm.

W. C. EDWARDS & Co., North Nation Mills, Que., have at the head of their Ayrshire herd the noted bull, Tom Glen 2nd —1310—, bred by Wm. Stewart, jun., Menie. His sire is White Prince 2nd, imported in dam —808—, and his dam Jessie Stewart, by Success. His calves are coming fine; about twenty of them testify to his good breeding qualities. The calves by Cyclone are also coming on well. The imported cows, Lindsay 5th and Countess of Barcheskie, are still to the fore and doing well. This herd is developing nicely. The milk is all made up on the farm and the product shipped away. In 1892 the herd consisted of 34 cows, Ayrshires and Jerseys, and the average test of butter fat was 4.47 per cent. A record is kept of the milk each cow gives, and of what it tests by the Babcock tester. The purebred Ayrshire cow, Dufferin, from March 9th, 1895, to Jan. 30th, 1896, gave 6,551 lbs. of milk testing 5 per cent. butter fat, thus making 327 11/20 lbs. of butter. Countess, another Ayrshire cow, from December 7, 1894, to Sept. 30, 1895, gave 7,840 lbs. of milk testing 4.2 per cent., making 344 24/25 lbs. Other instances could be given of the milking qualities of this herd. Shropshire sheep of noted breeding and Berkshire pigs of the best strains are also kept.

JAMES COOPER & SON, Kippen, Ont., writes: "The following are among the more important sales of Shropshires we made during the past six months. The most extensive on the list was our April sale, when some 54 head of rams were shipped to Mr. J. T. McFee, Lennox, Iowa. Forty or more of these were lambs, others were sheep over one year old, including one imported three shear ram. The despatch of these made us free from any surplus from last year, and when loaded on cars constituted a neat carload. Mr. McFee is one of the most substantial and experienced of Yankee buyers. Most of the consignment were our own breeding, and were an even and breedy bunch of average priced sheep. The sale of next importance, numerically, was our January

Stock Notes—(*Continued*).

sale of ewe lambs to a Maryland, U.S.A., buyer. This lot made up a half car, some 20 head, also 1 imported ram and 1 home-bred yearling ram of exceptional breeding and covering to the same gentleman. Other smaller but more select sales were made to the Hon. Thos. Greenway, Premier of Manitoba; 7 head, two pair of picked ewe lambs and three two-shear imported show ewes. These went to assist in forming a foundation flock of Shropshires for the Hon. Minister in the far west. They were large, weighty, good quality, and higher priced stock. Two first-pick ram lambs, weighing 150 lbs. each, to Mr. T. F. Hales, Mt. Sterling, Iowa, in November last, shipped on special order for weight and size at a given age. One ram lamb to Mr. Ashdown, North Bay, Ont. One, same sex and age, to Mr. Murray, Port Finlay, Algoma. One well-bred yearling ram to Messrs. Fraser & Baird, Brucefield, Ont.; and one ram lamb to each of two other smaller breeders in our own locality. We have reserved some first-pick lambs of both sexes for show and breeding purposes. The foregoing is a fair summary of our dealings in registered Shropshires for last half year, and they are all that are required to be sold from our flock at the present time."

GOOD SHORTHORN HERDS.—Mr. Joseph Lawrence, of Lawrence & Sons, of Clearwater, Manitoba, has been making an extensive trip among the Shorthorn-breeders of Ontario with the object of purchasing some of the best of our stock for his large farm. Mr. Lawrence says: "It is next to impossible to get the class of stock we want from the breeders in Ontario. Not because there is not plenty of extra good cattle in sight, but because it appears that every breeder that has a good animal is fitting it to fight a battle royal at the Toronto Industrial next fall. We found a lot of useful heifers at Mr. Russell's, Richmond Hill; the only fault they have is that they are very thin in flesh, as feed has been scarce this winter. We found some very good animals at Mr. John Isaacs, but he also is short of feed and priced his animals too high for us. At the farm of the veteran breeder, John Miller, Markham, we found an extra good lot of breeding cows and heifers; in fact, we might say the evenest lot we saw in Ontario, but there was no young stock to be seen except five or six young calves. Mr. Miller has no trouble in selling all his young stock as fast as he can breed them. We purchased Mr. Miller's show heifer, Mabel. We consider her an extra good heifer, and cannot understand why she was not placed first at the Industrial last fall, as she is far ahead of anything we saw that was placed ahead of her. Our next visit was at Mr. John Miller & Sons, Brougham. Here we found an extra good lot of cattle, especially the young stock. It did not take us long to come to the conclusion that the sire of such stock as we saw at Mr. Miller's was the very animal we were after. We found the honor of producing such stock belonged to Sittyton Stamp (imp.) After a lot of dickering we secured this grand bull to use on our Indian Warrior heifers. We also purchased two heifers from Mr. Miller, one is Conopus, by Sittyton Stamp, out of Crocus (imp), and the other, Anaden, by Sittyton Stamp, out of Anemone. We next visited F. & S. Nicholson's herds and found a good lot of young things with which the Messrs. Nicholson intend to uphold their good name as breeders at the Industrial next fall. We purchased an extra good two-year-old bull from them. We next paid a visit to the herd of Charles Simmons, Ivan. We found all the herd in extra good condition, and the young stock are all ready for Toronto Industrial, even if it came in May. We could not purchase anything here as "Charles" intends to make it hot for some one next fall. Our next visit was made at Capt. T. Robson's, Ilderton. Great improvement has been made in this herd, and he has some right good animals. There is one thing I must say, and that is, I don't think the breeders of Ontario have had such an inferior lot of stock bulls in 20 years as they have at present; in fact, there are not six good stock bulls in Ontario. I was greatly surprised to see breeders of high repute using such inferior stock bulls, and I have not the slightest doubt that if Ontario breeders would attend our Industrial Exhibition at Winnipeg, next July, we will be able to show them the kind of stock they should have." If Mr. Lawrence's estimate of the stock bulls of Ontario is true, the breeders will have to look to their laurels.

BRITISH HORSE AND CATTLE SHOWS.

(Notes from our own special correspondent.)

The last week in February and the first two weeks of March are the horsemen's weeks in London. This triumvirate of horse shows makes a yearly meeting place for breeders of all kinds of stock, particularly horsemen.

The show this year was specially successful. First came the Shires, and grand they were, with an entry of 533, as compared with 503 for 1896. The champion stallion in the class was the four-year-old colt Markeaton Royal Harold, sired by the ex-champion Harold, a horse of well-known ability. The second to Markeaton Royal Harold was Mr. Thomas Charnock's Seldom Seen, a very taking horse one year older than the champion.

Stock Notes.—*Continued.*

The female section was rightly headed by Mr. A. Grandage's great mare, Queen of the Shires, a splendid mare of great quality and grand movement. The R.N. went to Lord Langattock's well-known mare, Cui Bono.

Generally speaking, the quality of the whole exhibit was better than formerly. One very general remark was heard, that the present-day judgments appear rather to favor the points derived for showing purposes, at the expense of the more practical tests needed for dray work.

The sale held in connection with the show was a very good one indeed, clearly typifying that there is no end of vitality in this business. No doubt many are doubtful as to its future, but there is always this section in everything. In spite of the importation of large horses the demand and prices for the best heavy draught horses are as good as ever, $350, $400, and $500 having been recently paid for five-year-olds fit for work. At prices such as these there is money to be made in breeding.

Good as was the Shire show, that of the Hackneys was much better. It was in many respects the best show the society has ever held. Many classes were so good that it was really a difficult matter to make the awards. The entries numbered 485, as against 442 in 1896. The entry was a record one, as was the whole show, both for quality and attendance. Nearly every animal sent out for veterinary examination returned to the ring with a certificate of soundness, a great merit for a breed to boast of. The entries in the various classes may be enumerated as follows: In the yearling stallion class there were 42 entries, of which 35 were sent to the veterinary, all of which returned as sound except one. In the two-year-old classes there were 42 entries, 37 being sent to the veterinary, all of which came back with the valued certificate. The three-year-old stallions under 15 hands were a grand lot of twenty, all of which passed as sound. The three-year-old 15 hands and over numbered 36, of which 28 were passed as sound. Stallions, four-year-old and upwards, 15 to 15½ hands high, numbered 32, 29 of which passed as sound. Stallions, four-year-old and upwards, over 15.2, were a very strong lot of 25, 21 of which passed as sound.

The female section of the Hackney classes was a grand one. It would be invidious to select one class more than another, for all were fully worthy of detailed mention. Seldom if ever have such classes been seen as were this year seen at Islington. An American judge who is a yearly visitor to the show stated that almost every class was well worth taking the journey over here to see. Orange Blossom, Sir Gilbert Greenall's, was decided to be the champion mare, and a grand one she is, certainly; a very beau ideal of a Hackney mare, and one that fully merits her great victory. Mr. Walter Waterhouse secured the R.N. for his mare Bonwick Belle. She has grand shoulders, back, and loin, full of quality, and of first-class action.

The Hunters' Improvement Society was another excellent show. What an immense improvement has been effected through the efforts of this society we were fully able to realize when the jumpers came on view. They were strong in numbers, but stronger in quality and merit. So great was the merit that in nine classes, by special resolution of the council, no less than three extra prizes were awarded. The interest in this department was not, perhaps, so great as in the Hackney,

Stock Notes—*Continued.*

but nevertheless enough was shown to fully justify the holding of a special exhibition for this class of horses.

CATTLE.

The Birmingham show and sale of Shorthorns was a really capital one. The entries numbered 517, against 434 in 1896. There were 398 bulls and 119 cows and heifers. The sale was a good one all through, $750 being the top price, while others sold for $675, $550, and $525. The cows sold remarkably well, at prices ranging from £99 5s. to £60 5s. 10d.

The demand for Herefords has been pretty extensive, and the sales made have been of very great importance. At the thirteenth Hereford Cattle Association sale a very strong demand for all the best was found to be the case, purchasers from abroad being in full force.

SHEEP.

The price of fat mutton is now very high, 9 cents per lb. being readily obtainable. The supply of really tip-top quality is very short, and, despite the fact that our importations have been as large as ever, the tendency of prices is to rise. The demand for sheep for export for breeding purposes continues unabated, and many sales of Lincolns are constantly reported. Amongst the latter is a very large lot of 102 Hampshire Downs for the United States. A number of Southdowns have been sold for export to France. A recent report of exports shows that both Lincolns and Southdowns have been sent to North Africa. [Kent or Romney Marsh sheep (whenever are your breeders going to wake up to the value of these sheep?) are being largely enquired for, not only for Buenos Ayres, but also for the Falkland Islands, where they thrive well. Amongst other sales already announced, in addition to the Hampshire Down sale, the Lincoln annual sale and the Kent annual sale, are the entire stock dispersal sales of Meford E. Ellis' noted flock of Southdowns, which, beyond dispute, is one of the most successful of the present age as regards show-yard success.

Mr. Hy. Dudding, in a recent letter, says his demand is as large as ever, and he is known to have refused during the early part of this month $5,000 for twenty ram lambs.

S. E. Dean & Sons report that their $1,750 ram has worked well, and has left a lot of ewes in lamb to him. An old customer recently visited their flock and selected a ram lamb at $600 and several others at $300.

Edwin Buss reports a grand fall of pigs, upwards of 100 having been farrowed during December, 1896, all being bred from selected and typical specimens of their kind.

All Eyes are on this Invention!

Patented 1893, '95, and '96.

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

EVERY MACHINE WARRANTED.

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

No drilling holes in Mower Bar or Inside Shoe. A wrench is all that is required to attach it to any Mower.

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

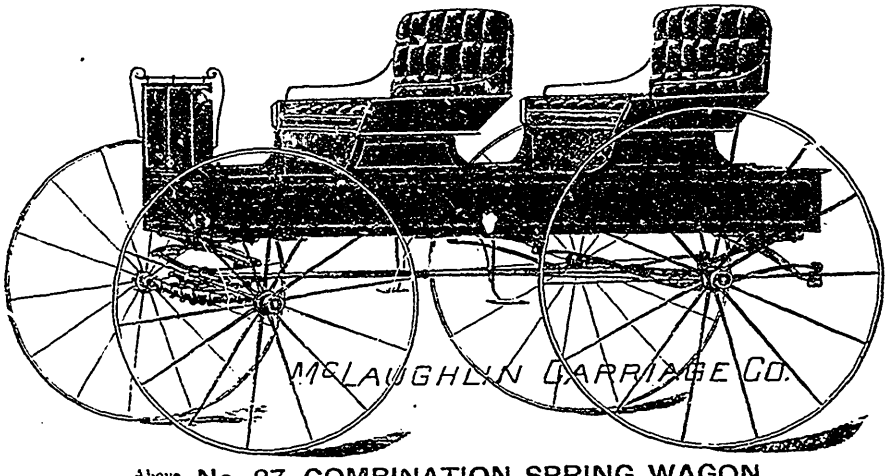
TOLTON BROS., - - - - GUELPH, ONTARIO.

"ONE GRADE ONLY AND THAT THE BEST" our Motto.

We Make and keep in Stock

60 Styles of Wheeled Vehicles

16 Styles of Spring Wagons and Democrats



Above is our **No. 37, COMBINATION SPRING WAGON**

One of the best spring wagons built. This we make in three sizes, with axles 1⅛ inch, 1¼ inch, and 1⅜ inch and with carrying capacity of from 1000 to 1800 pounds. Sizes of bodies from 3½ x 6 feet 8 inches to 41 inch x 8 feet, inside measurements. It is a thoroughly well made and substantial job, rides easy and hangs lower than most democrats. We also make the Two Spring, Three Spring, Duplex, and Full Platform Gears. Our 76 page catalogue describes it all, or the address of our nearest agent we will gladly give you for the asking.

THE McLAUGHLIN CARRIAGE CO., - - OSHAWA, ONT

Premiums are given only to those SENDING IN NEW SUBSCRIBERS.

Special Premium List... for May

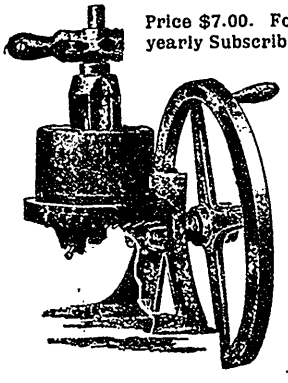
See Lists in January, February, and March Numbers

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

Nothing Succeeds Like Success

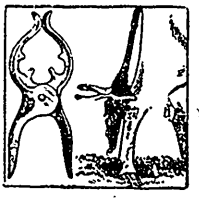
Make an effort and we feel assured that you will be successful in securing some of these valuable premiums.

"Excelsior" Green Bone Cutter



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

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



VICTOR COW CLIP

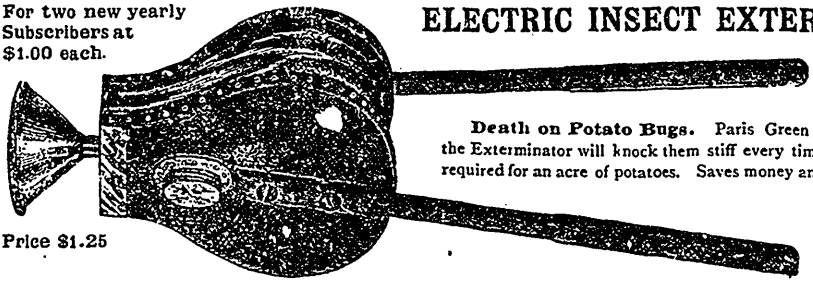
Price 25c.

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

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

For two new yearly Subscribers at $1.00 each.

ELECTRIC INSECT EXTERMINATOR



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

Price $1.25

FARMERS' FAVORITE BABCOCK MILK TESTER

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

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

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

MILKING TUBES

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

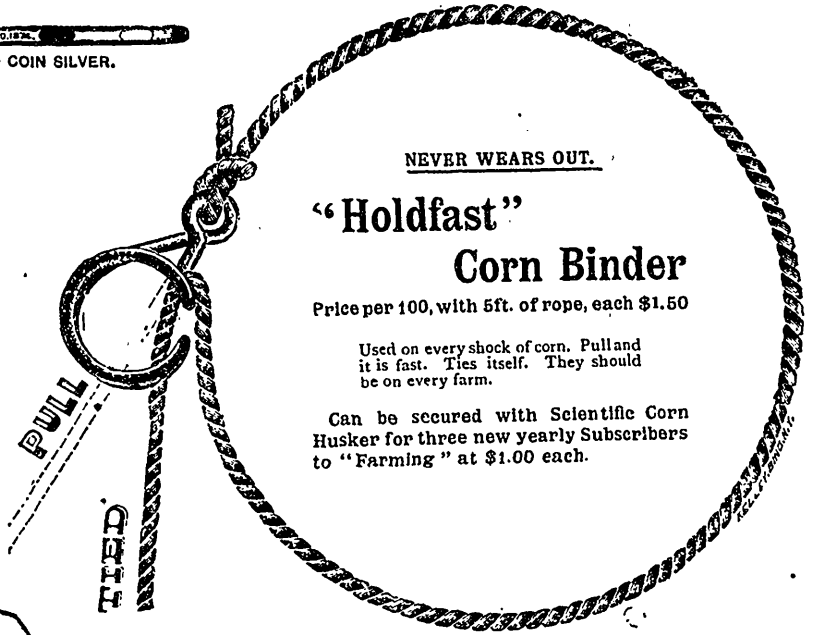
NEVER WEARS OUT.

"Holdfast" Corn Binder

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

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

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



SCIENTIFIC CORN HUSKER

PRICE 15 CENTS.

Greatest Little Tool on Earth.

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

SHEEP LABELS

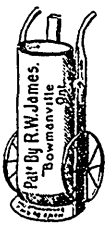
Very useful for owners of sheep.

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

Combined Truck and Bag Holder

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

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



Your Own Subscription Free

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

For six months for one new yearly subscription at $1.00.

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BRITISH ADVERTISEMENTS

BRITISH ADVERTISEMENTS.

KENT or ROMNEY MARSH SHEEP

ASHFORD RAM SALES.

The First Annual Sale of Registered Kent or Romney Marsh Rams consisting of selected specimens from leading flocks of the breed will be held at

ASHFORD, KENT, ENGLAND,

—ON—

Friday, October 1st, 1897.

Registered Rams will also be offered for sale at **Ashford** on **Tuesday, October 5th** and **12th,** and at **Rye, Sussex** on **Wednesday, October 13th** and **27th, 1897.** Catalogues and full information from W. W. CHAPMAN, Secretary Kent or Romney Marsh Sheep Breeders' Association, Fitzalan House, Arundel Street, Strand, London, England.

Lincoln Longwool Sheep Breeders' Association

Ram Sales for 1897.

The Sixth Annual Sale of Lincoln Longwool Rams will be held in

LINCOLN

On FRIDAY, SEPTEMBER 3rd, 1897.

The Sixth Flock Book will be sent to Press shortly and will be ready about the end of March. Apply to

St. Benedicts' Square,
LINCOLN, England.

Stephen Upton,
Secretary.

Secretary to the National Sheep Breeders' Association of England and the Southdown Sheep Breeders' Association ; Hon. Secretary Kent Sheep Breeders' Association.

W. W. CHAPMAN,

PEDIGREE LIVE STOCK AGENT AND EXPORTER.

All kinds of Registered Stock, Horses, Cattle, Sheep, and Pigs supplied on Commission.

References—JOHN JACKSON & SON, Abingdon, Ont.; N. CLAYTON, Selsey, Chichester, Eng.

Offices:

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Registered address for cables—"Sheepcote London."

BRITISH ADVERTISEMENTS.

HAMPSHIRE DOWN SHEEP.

Great English Pedigree Sales. July, August, and September, 1897.

WATERS & RAWLENCE, Salisbury, England, will sell by auction during the season upwards of

50,000 Pure Bred Ewes, Lambs, and Rams,

including both Rams and Ewes from the best registered prize winning flocks in the country.

Commissions carefully executed. Address

62 WATERS & RAWLENCE, Salisbury, England.

J. D. Millington

SEMPRINGHAM, HOUSE,
near . . .
FOLKINGHAM, LINCOLNSHIRE,
ENGLAND,

HAS for sale pure bred registered Lincoln Rams, Ewes and Ram Lambs and She Lambs, descended from the best blood in the country. Flock established over 100 years. The Lambs are this year principally sired by the 200 guinea ram Sempringham Ashley Rover (1291). This sheep gained first prize at the Yorkshire Show in 1895, and last year clipped 31 lbs. of wool). Also by Sempringham Pointon A 2241; Laughton Chief 1427 (hired from Mr. J. E. Casswell at a high figure, and one of his best wooled Rams; and Sempringham Duddings, 2240, half brother to the Royal Prize Shearling at Darlington.

Registered Stock Book No. 56.

Telegrams and Mail Station

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MISCELLANEOUS.

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There is a "best" in everything.

BUY-CYCLES

but do it carefully. There are many GOOD wheels—there are some better than others. . . There is one best

THE STEARNS

The Yellow Fellow.

Consult your interests by reading our catalogue; it tells many truths about bicycles. Its free.

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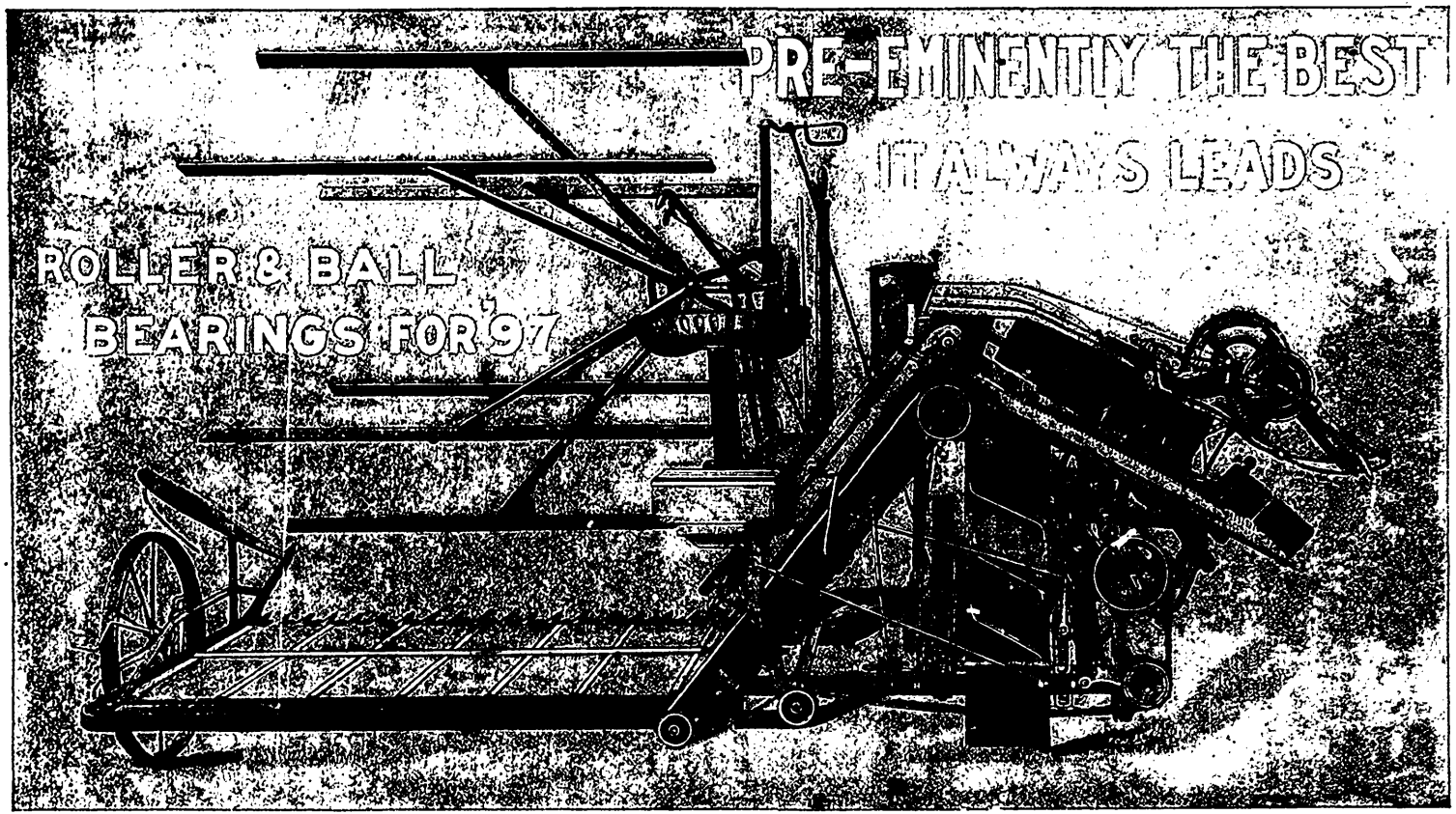
Agents Wanted in Unrepresented Districts

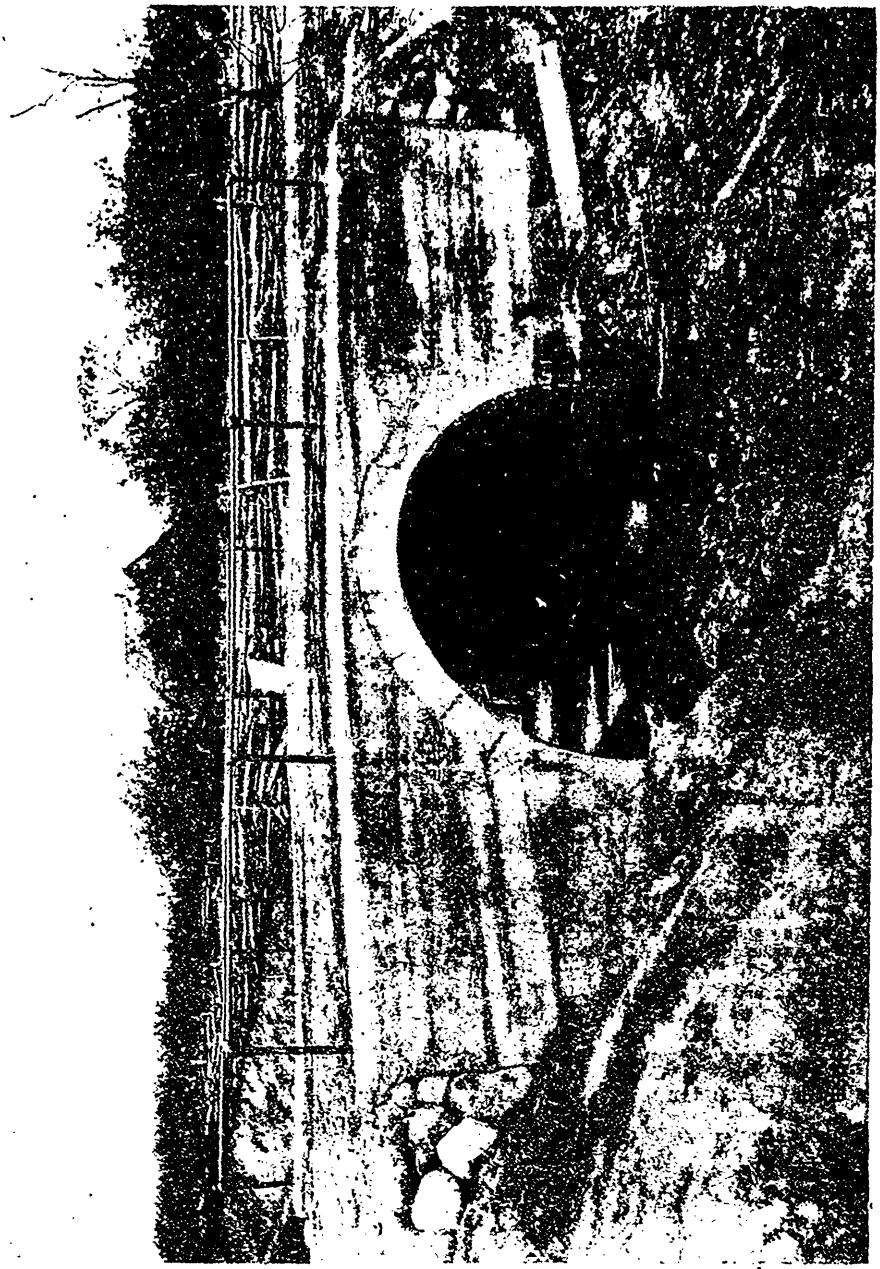


Massey-Harris Wide-Open Binder .·.

A Triumph of Man's Genius. It will do its Work well in any Kind of Crop, no matter how Tall or How Short, how Heavy or how Light, how Tangled or Fallen and Lodged. It Saves lots of the Crop that other Machines Lose.

Concrete Arch

Built by the Township of Gosfield, five miles southwest of Kingsville, Ont.



Designed and built under the superintendence of Isaac Usher, and built with Isaac Usher & Son's

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and coarse gravel

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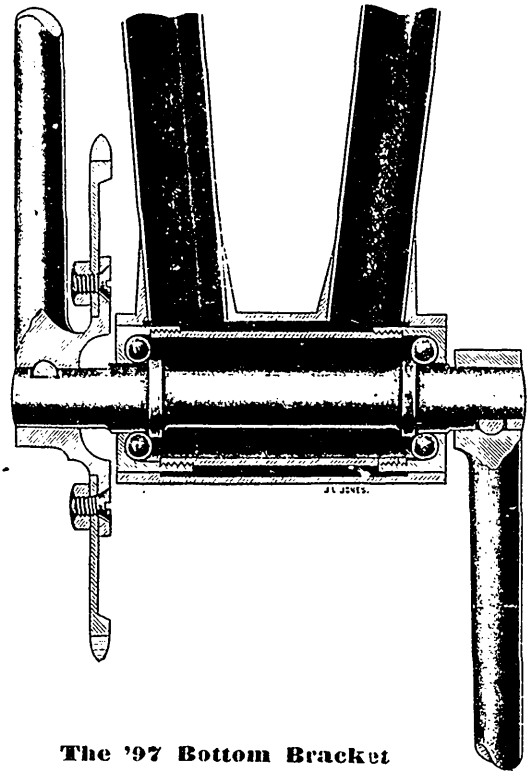
For further particulars address, **Isaac Usher & Son, Thorald. Ont.**

THE RED BIRD'S BOTTOM BRACKET

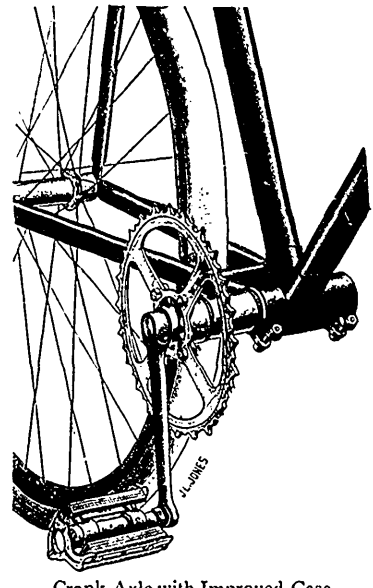
One of the prominent features of the '97 Red Bird is its bottom bracket. It is a triumph of modern skill in bicycle building, designed with a view to promoting the pleasure and convenience of cycling. It is strong, durable, and easily got at when an examination becomes necessary.



The '97 Bottom Bracket

'97 Oiler

Half Section of '97 Oiler



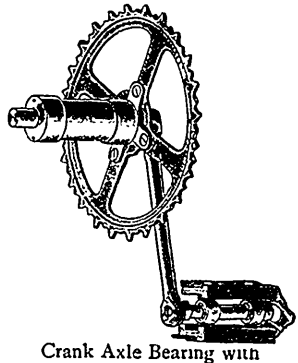
Crank Axle with Improved Case Being Removed from Bottom Bracket

The two cups that form the bearings have ten 5/16 balls each. They are threaded and put on a sleeve that is turned perfectly true, and then all are ground to a uniform size on a universal machine made for only grinding purposes. The sleeve is then placed inside of bottom bracket and held by two bolts.

In case it is desired to remove, all that it is necessary is to take off one crank and pull sleeve out, as shown in accompaning illustrations. You then have all the working parts of your bicycle directly before you.

So carefully and ingeniously constructed are these bottom bracket cups that it is impossible for dust or grit to get near the bearings.

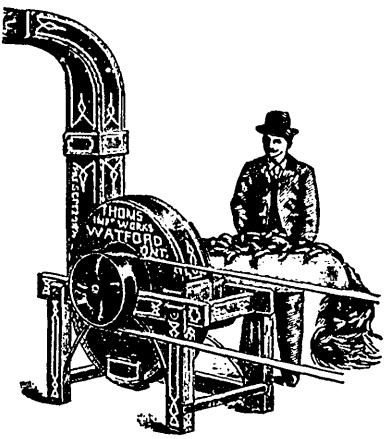
The patent ball oiler, used exclusively on the Red Bird, goes straight through the bracket, and is fitted into the sleeve in such a way that it is impossible for oil to do otherwise than to go direct to the bearings. This patent ball oiler is convenient, simple and effective. In oiling it is merely necessary to push ball to one side with the point of the oil can, inject oil, and when the can is removed, the coil spring underneath brings the ball back into its original position.



Crank Axle Bearing with Improved Case Removed from Bracket.

The Goold Bicycle Co., Ltd., Brantford, Ont.

Branches: Toronto, Ont.; Montreal, Que.; St. John, N.B.; Winnipeg, Man.; Sydney, Australia; Capetown, S. Africa.



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

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

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

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

THOM'S IMPLEMENT WORKS,

WATFORD, ONT.

Send for Testimonials

Established 1875.

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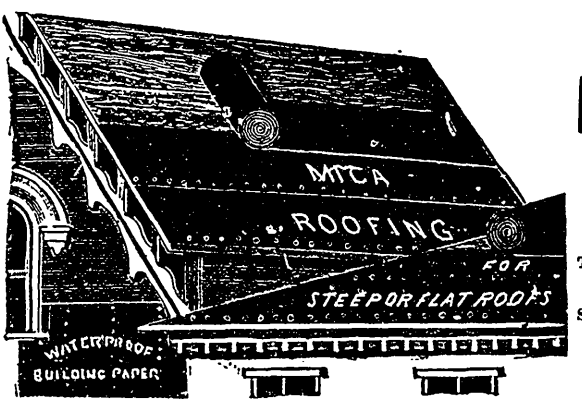
USE

Mica Roofing

On all your buildings.

It is cheaper than shingles.

Waterproof and Fireproof.



USE

Mica Paint

To Repair Leaky Roofs.

Shingle, Iron, or Tin Roofs painted with it will last twice as long.

RAPIDLY TAKING THE PLACE OF SHINGLES.

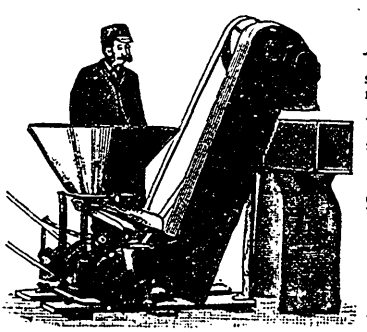
Is put up in rolls of one square each, 40 feet long by 32 inches wide, and costs only $2.25, including nails, thus affording a light, durable, and inexpensive roofing, suitable for buildings of every description—especially flat roofs—and can be laid by any person of ordinary intelligence.

HAMILTON MICA ROOFING COMPANY,

664 **Office—101 Rebecca Street, HAMILTON, ONT.**

THE VESSOT IMPROVED GRAIN GRINDER

PATENTED Awarded Gold Medal and Diploma World's Fair, Chicago, 1893.
First Prizes at Canadian Exhibitions.



SEE WHAT OUR CUSTOMERS SAY ABOUT IT

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

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

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

☞ Scores of other testimonials can be furnished on application.

We also furnish an improved **Corn and Cob Crusher.**

Send for circular. Information cheerfully given.

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

Do you keep cows?

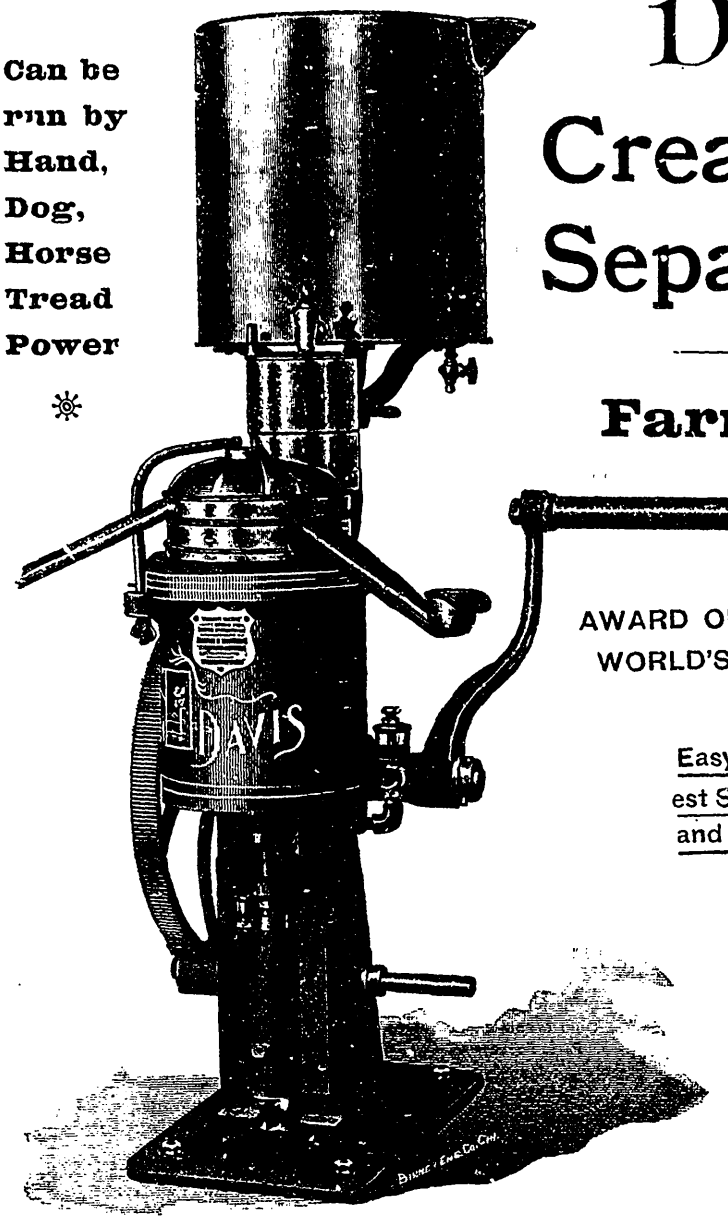
HAND AND BELT POWER

Can be run by Hand, Dog, Horse Tread Power

DAVIS Cream Separator

—FOR—

Farm Use



The "DAVIS" Improved Cream Separator.

AWARD OF WORLD'S FAIR JUDGES:

"Excellent Design, Easy of Operation, Highest Standard of Material and Workmanship."

Capacity, Cream and Skimming Qualities Perfect.

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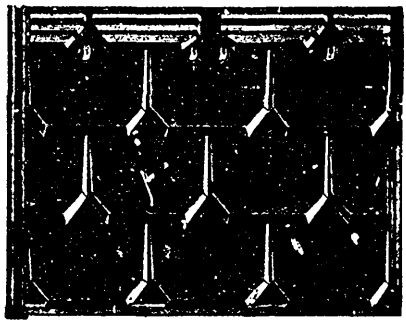
Useful Catalogue free by mail

....TORONTO, ONTARIO.

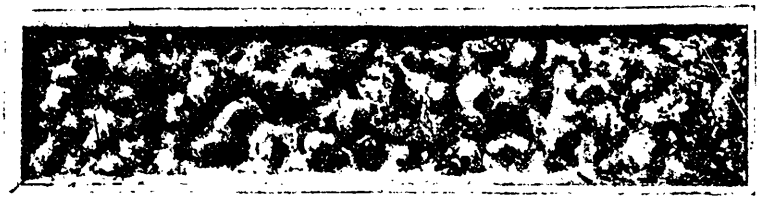
STEEL SHINGLES

The "Eastlake" Steel Shingles have been on the Canadian market twelve years, and have never failed to give satisfaction. They are absolutely *Fire, Lightning, and Storm Proof*, and very easily applied.

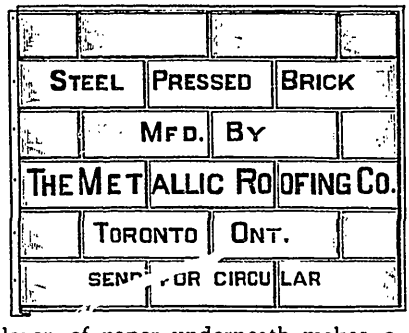


The "Eastlake" Patent Steel Shingle.
"Beware of Imitations."

ROCK FACED SIDING



Looks like solid stone. Just the thing for the sides of wooden buildings.



With a layer of paper underneath makes a building warm in winter and cool in summer.

☞ *Write for Catalogue.*

Metallic Roofing Co., Ltd.,

= MANUFACTURERS . . =

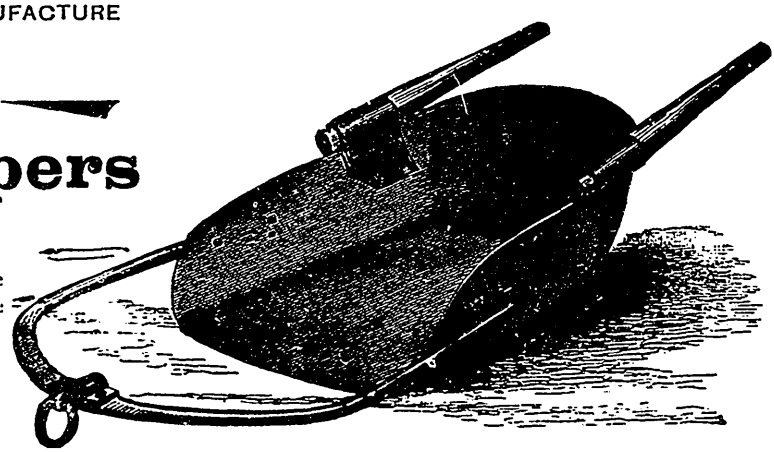
1194 King St. W., = TORONTO

The WILKINSON PLOUGH CO. Ltd.

TORONTO

MANUFACTURE

Drag Scrapers



Three sizes.

Heavier steel in the bowls and in the bales.

Larger capacity.

They fill easily.

They dump easily.

Wheel Scrapers

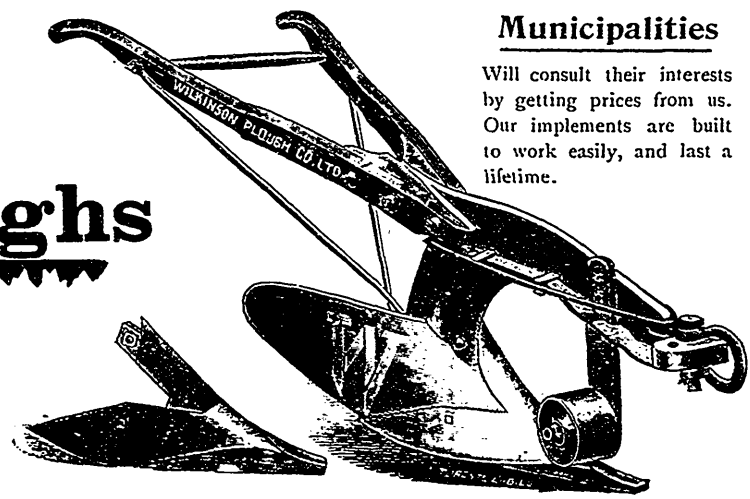
Two sizes. Sand-proof boxes, best dumping and locking attachments. Bowls and all other parts interchangeable and always in stock. Price within the reach of all.

SCUFFLERS, TURNIP DRILLS, WHEELBARROWS OF ALL KINDS.

PLOUGHS

Ploughs

PLOUGHS



Municipalities

Will consult their interests by getting prices from us. Our implements are built to work easily, and last a lifetime.

Grading Ploughs **Railroad Ploughs**

Rooter Ploughs **Pick Ploughs**

In Ploughs of all kinds, for all parts of the Dominion, we lead. They are the strongest, last longest, draw lightest, and run best. Our name and address on all implements, all heads, all sole plates, all points.

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