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FARMING

JUNE 1896

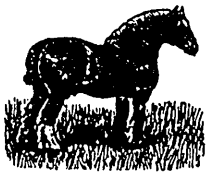
TOR. ENG CO

Published by THE BRYANT PRESS, TORONTO, CANADA.

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.



SHROPSHIRES.

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.**

ROBERT NESS

IMPORTER AND BREEDER OF

CLYDESDALES

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

WOODSIDE FARM,

484 HOWICK, Que.

CLYDESDALE STALLIONS

DIRECTLY IMPORTED FROM BEST SCOTCH STUDS

SURE GETTERS

Guaranteed Sound

481 Reasonable Prices

Geo. G. Stewart, Howick, Que.

1864 Hillhurst Farm 1896

Oldest Stud of Hackneys in America.

FOR SALE ✱ Highly-bred Young Hackney Stallions.

Prize-winning Imported Mares and Homebred Fillies of the most fashionable breeding, in harness and saddle show condition. Prices low. Write for particulars or come.

M. H. COCHRANE,

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SHORTHORNS.

SHORTHORNS

Four bull calves of finest Booth breeding. The dams are imp. Lady Ann, daughter, and granddaughter. Lady Ann sired by Mr. Booth's renowned Paul Potter, her daughter by a Warlaby bull, her granddaughter by a Booth bull. The sire of these calves is of finest Polwarth and Warlaby blood. Two roans, two red and little white. Price, $100 each. Also several heifers.

D. ALEXANDER,

446 BRIGDEN, ONT.

1855 WILLOW BANK FARM. 1896

SHORTHORNS of both sexes for sale. Four young Bulls and a number of fine young Cows and Heifers. Prices to suit the times. Address

JAMES DOUGLAS,

657 CALEDONIA, ONT.

"THE BRIARS"

SUTTON WEST, ONT.

100 Head of Registered Shorthorns.

Including bulls of various ages.

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

F. C. SIBBALD.

631 J. CARSON, Agent, Yorkton, Assa.

SHORTHORNS AND BERKSHIRES FOR SALE.

Four choice young Bulls, and a number of young Cows and Heifers. A few good young Boars and Sows fit to breed. Write for prices, or, better, come and see.

532 **H. B. JEFFS, Bond Head, Ont.**

H. I. ELLIOTT

Breeder of Scotch Shorthorns and Southdown Sheep.

Imported King James at the head of herd.

704 **Riverview Farm, Danville, Que.**

SIMMONS & QUIRIE

Shorthorns and Berkshires.

The herd is headed by the Matchless bull, Royal Saxon =10537=, by Excelsior (imp.) =2693=(51232), with Barmpton M. =18240=, sired by Barmpton Hero=3244=, as reserve. Among the females are representatives of the Strathallans, Minas, Golden Drops, Mysies, Elviras — all pure Scotch breeding, except the Elviras, which are Scotch crosses.

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

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

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

- FOR SALE -

We have yet on hand Two Very Fine Bull Calves, about twelve months old, one from an imported Cruickshank cow, the other a Matchless, and both sired by (Imp.) General Booth (54353).

W. J. BIGGINS,

Elmhurst Farm, CLINTON, ONT.

SHORTHORN BULL CALVES

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

JOHN DAVIDSON,

699 **ASHBURN, ONTARIO**

FOR SALE. 8 choicely bred SCOTCH SHORTHORN BULLS from 12 to 18 months old. Good colors and good animals, at prices and terms to suit purchasers.

DAVID MILNE, Ethel, Ont.

SHORTHORNS.

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

PINE GROVE STOCK FARM,
Rockland, Ont.

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

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

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

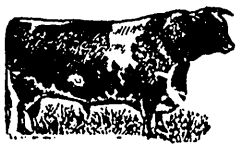
LAURENTIAN STOCK and DAIRY FARM,
North Nation Mills, Que.

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.

- CARGILL HERD of SHORTHORNS -

FOR SALE



We have but one bull calf left (the best of the lot). Got by Albert Victor (Imp.), out of Lovely Lena, a daughter of Lovely 19th (Imp.). This is a calf fit to head a herd anywhere, and we will sell him right. He is thin in flesh, as we were not troubled with any extra feed this winter.

We have also some grand show heifers and some Canadian bred cows for sale, and must sell, as our herd is outgrowing their quarters. Come and see them, prices are right. 444

H. CARGILL & SON, Cargill, Ont.

ARTHUR JOHNSTON
GREENWOOD, ONT.

SHORTHORN CATTLE AND BERKSHIRE PIGS

FOR SALE—A grand lot of choice-bred young Shorthorn bulls fit for service, and in perfect condition.

Young Cows and Heifers equally fine and Registered Berkshire Pigs of the best English strains. Send for catalogue. "No business, No harm," is our motto.

Claremont Station, C.P.R. Pickering Station, G.T.R.
Greenwood, Telegraph and P.O. 695

SCOTCH SHORTHORN CATTLE AND BERKSHIRE PIGS

For Sale—Choice young cattle of both sexes of the most select breeding. Also young Berkshire pigs from sows selected from the herd of J. C. Snell, Edmonton, Ont. Write for prices. **W. WARD,**
Brighton, Quebec.
633 Farm one-half mile from station, C.P.R.

4 Grand Young Shorthorn Bulls 4

Twenty heifers of finest quality and best Scotch breeding. Sired by the greatest living Cruickshank bull, Sittyton Stamp (66368). Also a few high-class Welsh ponies. Prices low. Write us. 497

JOHN MILLER & SONS, Brougham, Ont.

JERSEYS.

Brampton Jersey Herd
A.J.C.C. OF CHOICEST STRAINS.

Also a number of high-grade springers bred to Sir Ollie. Prices right.

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

FOR SALE—Pure St. Lambert Yearling Bull, $40. Also pure-bred and high-grade cows and heifers bred to Sir Ollie.

JERSEY COWS AND HEIFERS.

The highest testing strains.
Rich breeding and good colors.
454 **ALSO TAMWORTH PIGS.**

JOHN PULFER, - 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.**

HEREFORDS.

Ingleside Herefords . .

THE BEST ALWAYS CHEAPEST

CHOICE BULL CALVES
FOR SALE

YORKSHIRE AND TAMWORTH SWINE
All Ages and the Right Sort.

Satisfaction Guaranteed . .

H. D. SMITH, *Ingleside Farm,*
536 **Compton, Que.**

AYRSHIRES.

Imported Ayrshire COWS and HEIFERS

. . . FOR SALE . . .

I will offer for sale my herd of AYRSHIRES, including my imported heifers

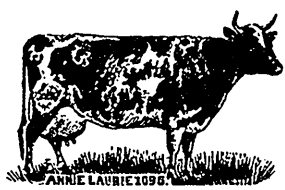
Alice of Hatton, Violet of Park, Fair Queen, Imp., Miss Bonnie Doon,

two heifers from Fairy Queen, also heifer calf, dam, Alice of Hatton, bull calf, dam, Violet of Park, both calved about 1st October, 1895, and a number of yearling and heifer calves sired by **Dominion Chief,** also two purebred Shorthorn yearling heifers sired by **Gibson Duke.**

Write for prices and particulars. . . . .

JOHN H. DOUGLAS,
WARKWORTH, - - ONTARIO.
508

Menie Stock Yard



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

Wm. Stewart Jr.
Menie, Ont.
Hoard's Station,
G.T.R. 435

AYRSHIRES.

AYRSHIRES FOR SALE

Six young bulls, fit for service; also a choice lot of young calves from deep milkers, sired by White Prince II. and Earl of Percy; bred by J. H. Douglas, Warkworth, and a few cows and heifers at prices to suit the times.

F. W. TAYLOR, Wellman's Corners, Ont.
Hoard's Station, G.T.R.
76

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.

MAPLE CLIFF STOCK AND DAIRY FARM

AYRSHIRE CATTLE, BERKSHIRE AND TAMWORTH SWINE. Our herd is headed by the grandly bred Gold Ring 1387, from Nellie Osborne (imp.) 2018. We have *still three young Bulls for sale, and young Pigs of both* breeds.

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

THOMAS GUY
Sydenham Farm, Oshawa, Ont.

AYRSHIRE CATTLE LEICESTER SHEEP
BERKSHIRE PIGS

Four Young Bulls from prize-winning stock now for sale. Closely related to winners at the World's Fair. Write for particulars. 757

AYRSHIRES Bulls for sale. Two fit for service, one from Jessie Osborn, (Imp.). Also three fall calves, one from White Floss cow, which won silver medal at Toronto. All fine calves and sired by Imp. Glencairn. Also
EGGS—Silver Laced Wyandotte eggs. The best American strains. Prices right.

James Boden,
Tredonnock Farm, ST. ANNE DE BELLEVUE, QUE.
719

Isaleigh Grange Stock Farm

OUR STOCK OF PUREBRED

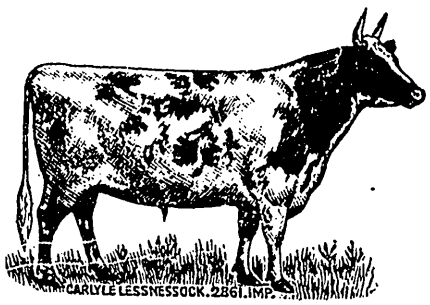
AYRSHIRE AND GUERNSEY CATTLE, SHROPSHIRE SHEEP, AND IMPROVED YORKSHIRE SWINE

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

J. N. GREENSHIELDS, Proprietor. **T. D. McCALLUM, Manager.**

539 **DANVILLE, - - QUEBEC.**

AYRSHIRES.



MAPLE GROVE AYRSHIRE STOCK FARM

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

= FOR SALE =

TWO BULL CALVES *(Imported in Dam)*

To head herd they have no equal.

ROUGH-COATED COLLIES AT STUD.

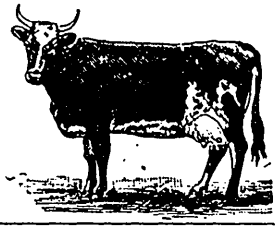
Imp. Clip, stud fee..... $15 00
Bisley, " 25 00
Of most noted champion Southport perfection strains.
For further particulars address,

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

JOHN NEWMAN & SONS

LACHINE, QUE.

Breeders of High-Class Ayrshires



We have a number of choice imported prize-winning cows in the herd, together with the best milking strains obtainable. A number of choice young bulls by our prize-winning bull, Glencoe, which we will sell at reasonable prices. Call and see our extensive herd. Immense choice. First-class quality. 560

AYRSHIRE CATTLE.

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

Also Leicester Sheep and Berkshire Pigs.

DAVID BENNING, Breeder,
596 WILLIAMSTOWN, ONT.

AYRSHIRES

A few fine young stock bulls for sale.
One by the same dam as the Columbian winner (Tom Brown).
Also some good young females.
565 Come and inspect our stock. Prices to suit the times.
ROBERTSON & NESS - Howick, Que.

AYRSHIRES

A few choice calves of both sexes for sale, from deep milking dams, and sired by Grand Duke; bred by Mr. James McCormack & Son, Rockton. Also a few cows. Write for prices and particulars.
549 R. E. WHITE, Perth, Ont.

GLENGARRY STOCK YARD.

My herd traces direct to stock imported by the late Thomas Brown, of Montreal. I have now for sale four very fine young **Bull Calves,** from six to eight months old. One of these calves is from my prize cow Glen Rose, and Glen Rose has proved herself to be as good in the show ring as her brother **(Tom Brown),** who took First Prize and Sweepstakes at the World's Columbian Exposition, Chicago. Write for prices.
478 **JOHN A. McDONALD, Jr., Williamstown, Ont.**

Choice Ayrshires.

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

Please address **D. McLACHLAN,**
535 **Petite Cote, Que.**

CORNWALL STOCK FARM

AYRSHIRE CATTLE
BERKSHIRE PIGS

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

DAVID LEITCH,
CORNWALL, G.T.R. 578 Grant's Corners, Ontario.

AYRSHIRE CATTLE.

Now is the time to secure your stock bulls before the best are picked, and we have a few left. 2 two-year-old, 3 year-lings, and a fine lot of calves, also females of all ages. Shrop-shire sheep, and a fine lot of young Berkshire pairs not akin. Prices to suit the times. Give us a call before buying.

J. YUILL & SONS,
Carleton Place, Ont.
725

AYRSHIRES

Purebred, of different ages and both sexes. No inferior animals. Write for particu-lars.

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

JAMES COTTINGHAM, Riverside Farm, Ormstown, Que.
Breeder of
AYRSHIRE CATTLE.

My herd is headed by the prize-winning bull, **Sir James**(5051);sire, Rob Roy (3971). Stock of both sexes for sale at all times, includ-ing some choice young bulls and heifers. 707

AYRSHIRES

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

FOR SALE

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

SHEEP.

SWINE.

SWINE.

Chester Whites

Sows in farrow, and
Mammoth Bronze Turkeys,
AT ROCK-BOTTOM PRICES.

375 JOS. CAIRNS, Camlachie, Ont.

LARGE ENGLISH BERKSHIRES

I have a large number of pigs of good length and fine quality, bred from the best imported families. Two fine litters of Spring '96. All first-class. Send order for a pair not akin, or a single pig of this most profitable breeding sort.

GEO. THOMSON,
603 Bright, Ont.

D. A. GRAHAM, - PARKHILL, ONT.

Importer and Breeder of Large English Berkshires.

I am prepared to book and ship orders for March, April, and May Pigs. Pairs and trios furnished not akin. Sires and dams weighing 300 to 800 lbs. Prices right. Poultry, B. P. Rocks, Brown Leghorns, S. G. Dorkings, and Black Javas. Eggs, 13 for $1, 30 for $2. Pekin Duck Eggs, 9 for $1. Bronze Turkey Eggs, 15c. each. 553

ELMDALE HERD OF TAMWORTHS

One yearling boar, a prize-winner at the Western Fair, 1895. Has proved himself a good stock-getter. Also September, '95, boars and sows from prize-winning sires and dams; pairs not akin. Write for prices.

JOHN C. NICHOL - 623 - Hubrey, Ontario.

POLAND-CHINAS

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

OLIVER DRURY,
710 Fargo, Ont.

MOUNT PLEASANT STOCK FARM

Large English Berkshires

Herd took 21 firsts, 10 seconds, and 4 third prizes in 1895. I have a number of pigs farrowed this spring, good length, and large bone, and fine quality. Registered pedigrees. Satisfaction guaranteed. Write for prices.

602 Box 102. W. H. SPENCER, Morpeth, Ont.

ENGLISH BERKSHIRES

The home of the famous imported sires, Baron Lee 4th and Star One. Young litters arriving every month out of matured sows. Highest quality. Best breeding. Now is the time to order spring pigs. Write for prices, or come and see us.

J. G. SNELL, Snelgrove, Ont.
Brampton Stn., Ont. 455

REGISTERED POLAND-CHINAS

For sale, cheap, young pigs of different ages and both sexes. Orders booked for spring pigs. Also eggs for hatching of the Barred Plymouth Rock and Black Minorca varieties. Satisfaction guaranteed.

R. B. McMULLEN, Goldsmith, Ont.
649

SWINE.

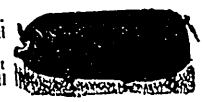
MAPLE LEAF FARM.
IMPROVED LARGE YORKSHIRES

If you wish
REALLY CHOICE STOCK
Come and see us or write. We have on hand some grand young pigs that cannot be beaten for exhibition purposes. We guarantee that quality and prices will suit you.

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

Best Strains of

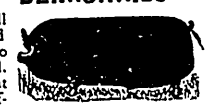
LARGE ENGLISH BERKSHIRES



Selected from the herds of J. G. SNELL & BRO., Snellgrove, and T. TEASDALE, Concord.
Boars and sows of all ages, not connected. Sows in farrow. All first-class stock. Address,

650 Wm. McALLISTER, VARNA, ONT.

GOLD MEDAL HERD OF BERKSHIRES



Young boars and sows of fall litters, bred straight from imported stock. Sires weigh from 650 to 840 lbs. Size and quality combined. Orders booked for spring pigs at eight weeks old. Jersey cows, heifers, and calves for sale.

426 J. C. SNELL, Snellgrove, Ont.

LARGE ENGLISH BERKSHIRES

The sweepstakes herd at the Western Fair, London, 1895. Headed by my famous boar, Bright Prince, assisted by two grand yearling boars. Some choice sows and boars for sale. Am booking orders for spring litters. Write me for prices before you order. My motto, "A good pig at a fair price." Also choice Shropshire sheep and Silver-Laced Wyandottes for sale.
Sunnyside Stock Farm. 453 T. A. COX, Brantford, Ont.

THE SWEEPSTAKES HERD OF

TAMWORTHS

has won the highest honors for the last three years. Boars and sows of all ages by the Industrial and London first prize-winner, Glen Sandy. 559

WALTER. T. ELLIOTT, Hamilton, Ont.

POLAND-CHINAS at Williscroft.

ARE THE RIGHT KIND.

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

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

CHARING CROSS HERD.

FOR SALE, Choice lot of Chester White swine from 2 to 6 months old. Also Eggs from fine poultry. Partridge Cochin, Light Brahmas, Barred P. Rocks, Golden Laced, Silver Laced, and White Wyandottes; *Silver Gray Dorkings, Brown and White* Leghorns, Cornish Indian Game, Black, Red, and Brown Red Pit Game. Eggs mixed of any breed if desired, $1.50 per 13. Bronze Turkeys, Toulouse Geese, and Pekin Duck Eggs, $1.50 per 11. We guarantee safe shipment and good hatches

GEORGE BENNETT & PARDO,
409 CHARING CROSS, ONT.

SWINE.

E. D. GEORGE

PUTNAM, ONT.

Importer and Breeder of

Ohio Improved Chester White Swine

The largest and oldest established registered herd in Canada. I make this breed a specialty and furnish a good pig at a fair price. Write for prices. 667

OAK LODGE HERD

IMPROVED LARGE YORKSHIRES.

ONLY ONE BREED KEPT

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

J. E. BRETHOUR,
668 Burford, Ontario.

MY COTSWOLDS won in 1895 at eight provincial and county fairs 39 firsts, 29 seconds, and 3 diplomas, nineteen times being first and second. **Berkshire Boars**, fit for immediate service. January and February litters, not akin, ready to ship. **Plymouth Rock Hatching Eggs** of the best imported hatching obtainable. 40 eggs for $2. All stock guaranteed as described. Visitors welcome.
632 **C. T. GARBUTT**, Box 18, **Claremont, Ont.**

MAPLE LEAF STOCK FARM . . .

Improved Yorkshire Pigs
of the best strains of breeding.

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

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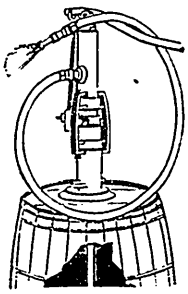

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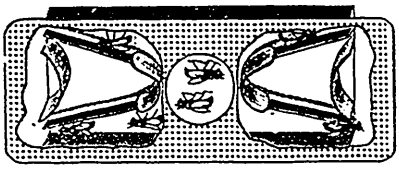

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BRITISH ADVERTISEMENTS

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Sheep always for sale. Inspection invited. The best only are kept. Specialty, good wool and mutton combined. 29

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Ram Sales for 1896

The Fifth Annual Sale of Lincoln Longwool Rams will be held in Lincoln, England, on Friday, September 4th.

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including both Rams and Ewes from the best REGISTERED PRIZE-WINNING FLOCKS in the country. Commissions carefully executed.
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GALLOWAYS.

A. M. & R. SHAW Brantford, Ont., Breeders of Galloway Cattle. Choice young animals for sale. 360

DAVID McCRAE, Janefield, Guelph, Canada. Importer and Breeder of Galloway Cattle, Clydesdale Horses, and Cotswold sheep. Choice animals for sale. 630

AYRSHIRES.

J. McCORMACK, Rockton, Ont., Breeder of Ayrshire Cattle, Toulouse Geese, and Colored and Silver-Grey Dorkings. 629

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W. F. & J. A. STEPHEN, Brook Hill Farm, Trout River, Que., Breeders of Ayrshire Cattle and Yorkshire Pigs. Young stock for sale at reasonable prices. 635

WALTER NICHOL, Plattsville, Ont., Breeder of Ayrshire Cattle and Leicester Sheep. Choice young stock for sale. 527

J. G. CLARK, Woodroffe Dairy and Stock Farm, Ottawa, Canada, Breeder of choice Ayrshire Cattle and Yorkshire Swine.

JERSEYS.

WM. ROLPH, Glen Rouge Farm, Markham, Ont., Breeder of Jersey Cattle. Herd nearly all pure St. Lambert. Young stock always for sale at reasonable prices. 708

E. P. BALL, Rock Island, Que., Breeder of Standard-bred and Roadster Horses, St. Lambert Jersey Cattle, and Shropshire Sheep.

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WM. WILLIS, Pine Ridge Farm, Newmarket, Ont., breeder of St. Lambert Jersey Cattle. Stock always for sale. 645

ROBT. REESOR, Locust Hill, Ont., Breeder of Jersey Cattle and Shetland Ponies. Young stock for sale at reasonable prices. Locust Hill is 20 miles from Toronto on the C.P.R. 361

J. H. SMITH & SON, Willow Grove Farm, Highfield, Ont., Breeder of St. Lambert and St. Helen's Cattle. Prize herd at the last Industrial. Young stock for sale. 297

HOLSTEINS.

E. PANNABECKER, Fairview Farm, Hespeler, Ont., breeder of Registered Holsteins. Stock for sale. 720

WM. ARMSTRONG, Locust Hill, Ont., Breeder of Pure-bred and High-Grade Holstein Cattle. Stock for sale. 694

JOHN A. RICHARDSON, South March, Ont., Breeder of Holstein-Friesian Cattle, Dorset Horn Sheep, and Tamworth Swine. All registered.

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W. J. RUDD, Eden Mills, Ont., Breeder of Devon Cattle, Cotswold and Suffolk Sheep, Berkshire Pigs, Plymouth Rock Fowls, and White Turkeys. 380

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WM. SINCLAIR, Varna, Ont., Breeder of Poland-China Swine. Stock for sale. Write or call. 451

FOR the finest Tamworth Swine correspond with H. FEARMAN, Hamilton, Ont. 625

W. H. O'DELL, Belmont, Ont., Breeder of Registered Tamworth Pigs. Stock for sale. 374

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JOSEPH STRATFORD, Brantford, Ontario, has twenty beautiful thoroughbred Dorset rams, one, two, and three shear. Prices right.

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W. H. BEATTIE, Wilton Grove, Ont., Breeder of Shropshire Down Sheep and Collie Dogs. 637

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The property of Mr. John Macdonald, Oaklands, Toronto. (See Horse Department.)

FARMING

Vol. XIII. JUNE, 1896. No. 10.

Ontario Crop Report.

The first bulletin of the season on crops has been issued by the Ontario Department of Agriculture. Fall wheat in most places is reported as poor, a great deal of it having been frozen out by ice forming on it. Clover was considerably damaged by freezing out during the winter and spring. The earliness of the growing season is alluded to by all the correspondents, who report it as being from one to three weeks in advance of the average season. Hay is scarce, but there is an abundance of oats on hand.

While live stock have come through the winter thinner than usual, as a rule, still they are in a fair condition of health. Horses have fared best. Cattle, with the exception of a few cases of "'umpy jaw," are remarkably free from disease. Sheep are in good health, and there is a good crop of lambs. With the single exception of a few cases of paralysis, swine are freer from disease than usual.

Health on the Farm.

A farmer's life is proverbially a healthy one; but it is evident, in many cases, that the standard of health might easily be improved, were it not for the neglect of certain sanitary conditions. Fresh air and green fields do much to remedy what would in other surroundings, such as in a city, cause severe attacks of certain diseases; but even these aids to health fail occasionally, and the individual has to succumb at length to the insidious foe, disease.

Pure water is one of the most important essentials to good health. None but those who have wandered through other lands, where pure water was a scarce commodity, can realize the blessing enjoyed by the man who has at his door an unstinted supply of good, wholesome water. In this country, as a rule, there is usually no lack of excellent water, which, if preserved free from contamination from surface drainage, sewage, or stable liquids, presents a supply of first-class quality sufficient for all needs. In the care of our wells and springs, however, we oftentimes show a lamentable disregard of the interests of our health. Too often the well is located near to the stables, or in such a position that the drainage from the stables, both surface and through the ground, finds its way, sooner or later, into the water, and contaminates it. In other instances, frogs, rats, and mice find their way into the wells, and die there, poisoning the water with their putrid bodies. Many cases of sickness can be traced to causes such as these, and it is, therefore, of the highest importance that our wells should receive considerable attention every year.

There are a few important points concerning the supply of well water that should be borne in mind by everyone. In the first place, a well should never be located very close to the stables, manure piles, or cesspools; and, if a well has to be dug near to such, it should always be on a higher elevation than the place where they are, so that there can be no possibility of leakage from the latter to the former. It is wonderful how far drainage will permeate through the soil, and, therefore, every caution should be used to prevent such reaching the well water. In heavy soils the filtration of the drainage through the ground would be slower than in the lighter soils; but, nevertheless, after a time the contamination would take place. It is best, therefore, to take no risks in such matters.

In the second place, it is well to build up the last few feet of the sides of the well on top with a solid wall of brick and mortar, and to take care that the platform over the top fits tight and solid. This will prevent frogs, and, to a large extent, rats and mice, from getting into the well. The wall should also run up a little above the surface of the ground, and be banked up with earth, so as to shed all surface water, and thus prevent all contamination from the surface.

Another very important, but too much neglected, matter is the periodical cleaning of the well. This can best be done when the water is comparatively low, as, for instance, in August. The water should all be pumped out then, and the accumulation of sediment on the bottom scraped out as clean as possible, after which a little fresh lime should be thrown in to purify the water.

In our last issue we gave portions of an address given by Prof. Shutt, Ottawa, at the Ontario Creameries' Association, on "Pure Water on the Farm." As an analyst Prof. Shutt has opportunities of investigating the samples of water sent to him from all parts of the Dominion; and we regret to see that his analyses show that a very large proportion of the samples sent to him are contaminated with drainage from stables and manure piles. This state of affairs cannot be allowed to continue. The health of those who drink the water from such polluted wells, and of their animals, must suffer in consquence, and, where dairying is carried on, the injury done is the more serious. Animals cannot give pure milk when they drink such water, and the use of it for washing dairy utensils cannot be too strongly condemned. It is probable that in a large number of cases the owners of such wells are ignorant of the dangerous character of the water; but it is to be feared that oftentimes lamentable carelessness is shown about such matters. It is to be hoped that, now that attention is called to the risks run, efforts will be made to obviate them.

Notes from Great Britain.

(By Our Own Correspondent.)

The English show season will, ere this appears in print, be in full swing. From information to hand, the entries in those whose entries have closed appear fully up to the average; in fact, above that of the last few years.

The Royal Show is to be held at Leicester, where, as usual, all classes of horses, cattle, sheep, and pigs will be found. The Royal Counties' Show will be at Eastbourne, where sheep will be the leading section, Hampshire Downs, Southdowns, Kents, and Shropshires being well to the fore. Tunbridge Wells show, at Tunbridge Wells, will provide an excellent display of Clydesdales, Shires, Sussex and Jersey cattle, and Southdown and Kent sheep; while at the Shropshire and West Midland, at Bridgewater, Shropshires will be found in strong force.

HORSES.

Mr. William Graham's celebrated stud of Clydesdales at Eden Grove, Penrith, was dispersed on April 17th, 1896, a very large company being present. The average price for sixteen lots sold was $585, the highest prices being as follows: Royal Rose, foaled in 1891, $2,250; Bet Macgregor, foaled in 1885, $1,025; Wild Rose, foaled in 1893, $850; Eclipse, foaled in 1892, $600; a bay colt by Patrician, $1,000.

Messrs. Macdonald & Fraser held a sale of Professor McCall's Clydesdales recently at Glasgow, when six brood mares made an average of $345, the highest price being $500 for Flower of Moray.

Another very successful sale of Clydesdales was that of Sir John Stirling Maxwell and Mr. Archibald Sterling, at Keir, Scotland, when fifty-three animals were sold. Twenty-nine brood mares made $11,082.50, an average of about $382; five three-year-old fillies, $1,234, average $246.80; eleven two-year-old fillies, $2,977, average $270.63; four yearling fillies, $856, average $214; one yearling colt, $136; three stallions, $1,617, average $539. That the Clydesdale is fast becoming a favorite horse for the farmers in the south of England is a fact beyond dispute, and it is greatly owing to the public spirit and enterprise of such breeders as Lords A. & L. Cecil, who, regardless of expense, have secured leading stallions in Scotland and taken them down south. It is with great regret that we notice that these noblemen have suffered a very severe loss in losing by death the celebrated stallion, Orlando 8092, that they recently, at a very high figure, purchased on purpose to travel this season in Essex. Orlando was got by Prince of Wales 673, out of Lady McDuff, by Darnley 222, and he was sold as a yearling for $5,000. His most notable victory was when he won as a three-year-old at the Glasgow Stallion Show.

The great annual horse fair took place recently at Lincoln, when a very large supply of moderate horses were shown, the better qualities and first-class ones being scarce. Matched pairs made from $900 to $1,250; brougham horses, $650 to $1,000; carriage horses with good action, $400 to $600; 'bus and van horses, $125 to $200; van horses, $300 to $350, with good demand.

CATTLE.

The Lincoln bull fair held on April 23rd was selected by the Lincolnshire Red Shorthorn Association as the place for their first annual sale of registered bulls, and we are pleased to be able to chronicle an excellent sale, with a strong demand; 153 bulls were offered, and all were sold but 10, realizing an average of $116 per head, the highest prices being $250, $225, and $200.

The Whittingham Red Poll milk record for 1895 has just been given to the public, from which the following notes are taken: Eighty-five cows, which had produced more than one calf, gave for the year 1895 (364 days) a total of 470,216 lbs., an average of 5,531 95 lbs. In 1895 the best record was 10,024¼ lbs.; in 1894, 12,056 lbs. The cow Crocus 2728 is a noteworthy example of a cow giving a continuous yield.

of milk. She has been in milk from May 11th, 1890, when she was rendered incapable of further breeding, and gave, during the year 1895, 4,583½ lbs. of milk, being only 37 lbs. less than she gave in 1894. Another record for the first quarter of the present year is 941½ lbs., and this within a few days of her being in continuous milk for six years—a record that, we fancy, will be hard to beat.

SHEEP.

The records of lambing for the past year are now fairly complete, and the result is a successful year, with a fair crop of lambs, and very few losses amongst ewes.

The competition in our show rings this year bids fair to be very keen. So far as we are at present informed, all, or nearly all, of our old exhibitors will be to the fore. Whilst we are pleased to note this fact, we are also pleased to know that in several breeds, particularly in Southdown and Kent sheep, a considerable lot of new names will be found. Already numerous inquiries are being made for specimen sheep by exhibitors, not only from the States and Canada, but from other countries as well, and it is evident that for the best specimens good prices will be realized.

PIGS.

All being well, and should no further outbreaks of swine fever occur, we shall possibly see at most of our leading shows once again an exhibition of pigs. Most of the breeders of note of all kinds have prepared show lots for exhibition, and we hope that they may have full opportunity of meeting each other once again.

For FARMING.

A Visit to Rothamsted Experiment Station in 1895.

The morning of August 20th, 1895, was one of those delightful English summer mornings—not too hot and not too cool for comfort. After a hasty breakfast at the Midland Grand Hotel, at St. Pancras Station, London, the writer took the train at 7.50 a.m. for St. Albans, to visit the famous Rothamsted Experiment Station. After getting out of London, the country is very beautiful for the twenty-five miles of the journey. The hedges along the railway are kept in excellent condition, but many of the farm hedges are patched with old rails, pieces of boards, and wire, and did not give a visitor that impression which one obtains by reading about English hedges. On alighting at St. Alban's station, I found that it was four miles to Rothamsted, but was told that, by going on to Harpenden, I should be within a few minutes' walk of my destination. The moving train was quickly boarded, and in a few minutes it halted at Harpenden. The village is a small one, resembling an average Ontario hamlet. On making inquiry, I was told that if I followed a lane, which opened on the main street, until a "wicker gate" was reached, it would lead me into the "park." The lane seemed a very long one, and the "wicker gate" was difficult to find. I walked a mile or more without seeing the "gate," and finally found myself in a plowed field which was full of weeds and dirt. I thought, surely this cannot be Rothamsted? After looking in vain for buildings such as I might expect to see in connection with an experiment station, I saw some men working in a field, and resolved to go to them and make inquiries. They said that it would be necessary for me to retrace my steps through the plowed field, and go back along the lane in order to find the "gate," which was not "wicker," but iron. My boots at this time were laden with mud gathered from the plowed field, wet with dew. Both my body and temper were warm, all because Englishmen call all gates "wicker," whether made of wood or iron. I was further distressed by the condition of my boots and clothing, for was I not going to see an English baronet in his own manor house? Having set my feet towards the place of honor, however, I resolved not to be turned back by soiled clothing.

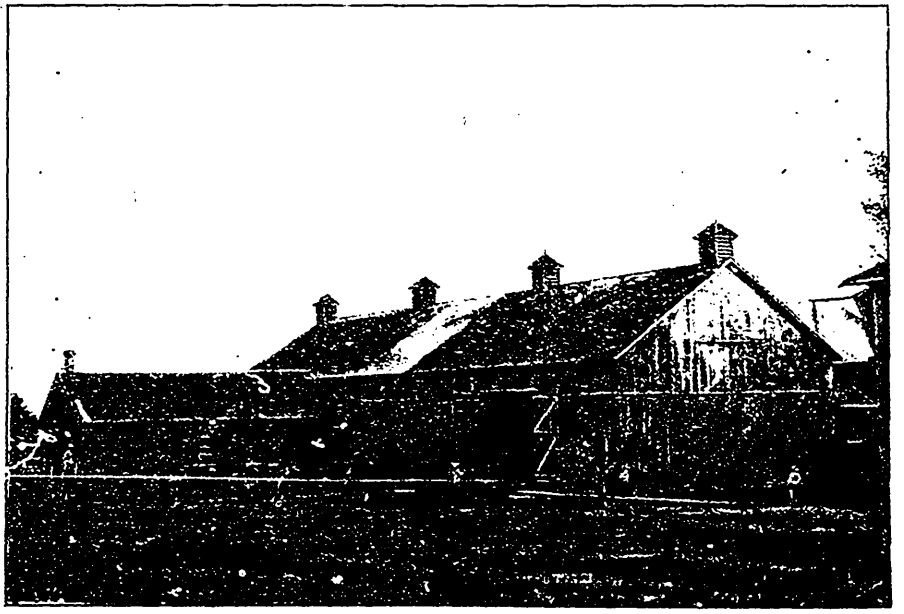
A long gravel drive leads to the manor house, and a branch of it turns off to the farm buildings. Noticing the carts laden with grain making their way to the barns, I followed them, and soon found myself in a barnyard, full of stacks and having numerous buildings in and around it. Into one of these buildings men were carefully placing the grain from the experimental plots. A large canvas was laid in the bottom of the cart-rack, so as to catch every grain possible.

The laboratory, the men said, was in a distant part of the park, and thither my steps were directed. Off to one side of the estate, and not far from the village, are situated the famous laboratory and sample buildings. At the laboratory all was quiet. Sir Henry Gilbert was in Switzerland, and only two or three persons were seen in and about the buildings. Mr. Wilson, who is connected with the station, very kindly showed me through the place. The laboratory itself was as untidy as the average chemical laboratory. In several places were indications of work having been done, but the refuse from the work remained there. Considerable litter, waste pieces, broken apparatus, unclassified samples, etc., were strewn

about the place. In the buildings there is said to be a collection of over 40,000 bottles of samples of experimentally grown vegetable produce, of animal products, of ashes, or of soils, and, besides these, there are some thousands of samples not in bottles. A capacious "sample house" was built in 1888, but already it is becoming inconveniently full. A great deal of money has been spent on expensive apparatus, some of which has seldom, if ever, been used. An instrument for sampling soils, which was made of iron, with sharp edges, and having much the same shape as a butter-printer, looked like a very effective apparatus for getting a correct sample of soil from a field.

The plots where grain has been grown for forty to fifty years continuously are near by. A number of men were carefully gathering up every head of grain and placing them on the cart, which took its valuable load to the barns, there to await threshing, weighing, sampling, and analysis.

A few minutes' walk brings the visitor through a magnificent park of firs and oaks, within sight of the manor house itself. It is a low, rambling structure, which was commenced before the days of Elizabeth, but the building has been altered many times since. Each occupant has added his own peculiar ideas of architecture to the Elizabethan beginning, and the result is a somewhat strange-looking pile. A circular gravel drive



Outside View of Mr. Casselman's Barns. (See page 582.)

From the laboratory we went through a large field garden, which is divided into small plots for the benefit of the village people, who there grow the vegetables required for home use. This land is either furnished to the people free, or at a nominal rent, through the generosity of Sir J. B. Lawes. An ingenious device for recording sunshine is located in the garden. At the farther end of the garden there was a large excavation, and what appeared to be the ruins of an elaborate contrivance. Inquiry elicited the fact that here was located the famous apparatus for collecting data in reference to drainage, rainfall, etc. All is now a ruin. Berry bushes, weeds, and long grass now surround what at one time was no doubt a very important place.

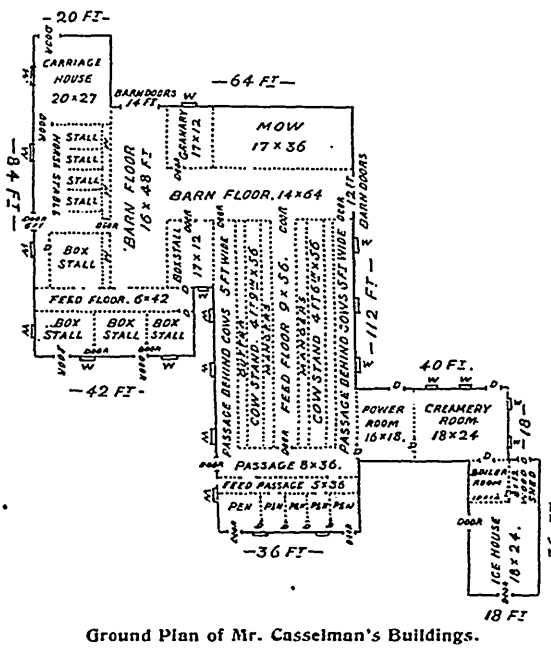
sweeps around the front of the house. A good sized open space is left on the front, but outside of this the building is surrounded by trees so dense that it is difficult to see it unless a person is quite near.

A knock at the heavy oak door was answered by a servant, who took my card to the Baronet. (All this time the mud on my boots and nether garments put a damper on my courage each time they came in view. Here was a poor Canadian asking admittance to a manor house, while his clothing resembled that of a plowman.) After a short wait, the visitor was ushered into a large hall with a low ceiling. The hall was lined with heavy oak. Two large brass dogs kept watch at the sides of an open fireplace. By a circuitous route I soon

found myself in the study of Sir J. B. Lawes. He greeted me with a pleasant smile, a humorous twinkle of the eye, a hearty handshake, and a request to be seated.

The room was very plain, as also were its furnishings. Heavy oak furniture, oak ceiling and walls, having on them rude carving, were the chief ornaments. The chair in which the baronet sat was a hard-bottomed, stiff-backed, unyielding affair. The desk was low, and covered with books and papers. A candle on each side indicated the lights used when darkness comes on. He is much smaller than his photograph would lead one to expect. His hair is white, as also are his whiskers. His voice is somewhat harsh in tone. His clothes were a suit of ordinary gray tweed, or homespun. No collar or tie hid the flannel shirt, which was not even buttoned at the top. A pair of slippers did not disguise the gray socks.

At my entrance the worthy proprietor laid aside a paper which he was writing for some agricultural meeting. He remarked that he had numerous requests to attend agricultural and social gatherings, but he did not accept many, as he preferred the quiet of his own place to social fêtes. "He did not expect ever to cross to America, as it was too far for a man of his age." "At Rothamsted they endeavored to lay down laws or principles of growth, and did not aim directly to teach." He thought that all soils contained sufficient food to grow "white" crops for many years, if the weeds were kept down. This had been proved in their experiments on the rather poor, chalky soil of their station. The rich, deep soils of America, he thought, were practically inexhaustible so long as the supply of available plant food was used only by the crops sown. "The feeding and growing of legumes (peas, beans, clovers, etc.) is a puzzle," said this student of over half a century. "If you feed them on nitrogenous food it kills them."



Ground Plan of Mr. Casselman's Buildings.

After some further conversation in reference to scientific agriculture, during which he remarked that the British were not fond of science, but were more commercial in their tendencies, Sir J. B. Lawes asked if I cared to visit the experimental grass plots. A walk, flanked with lime trees, whose boughs, bent to the earth, take root and start new trees into being, leads to the experimental grass plots, which have been undisturbed by the plow for over forty years. The chief interest centres in the effect of manures on clovers and grasses. This agricultural sage said he could take any pasture or grass land and produce clover or grasses at will. "Apply ammonia manures," said he, "and the grasses are so stimulated that they will crowd out the clovers. Apply potash and phosphates to pasture lands and the clovers will be stimulated and the grasses crowded out. Some unmanured plots of forty years' standing had a great variety of plants, but chief among them were the weeds. "Without manure," said my guide, "it is a fight for the survival of the fittest, or strongest, and these are weeds to a large extent." He remarked that there was a great deal of discussion as to the best methods of renovating pastures and getting a variety of clovers and grasses in them. This, in his opinion, could easily be done by applying the right kind of fertilizers.

After thanking the courteous and obliging prince of investigators in scientific agriculture for his valuable time and knowledge placed at my disposal, I retraced my steps to the cottage of Mr. Wilson, where his good lady provided a much-needed lunch. In a short time the commons of Harpenden was crossed, and my seat taken in a train for London. May the seeds sown by the two gray-haired scientists of Rothamsted bring forth abundant fruit, not only in old England, but in her daughter, Canada! The blessing of all agriculturists will always rest upon them and their work.

CANADIAN.

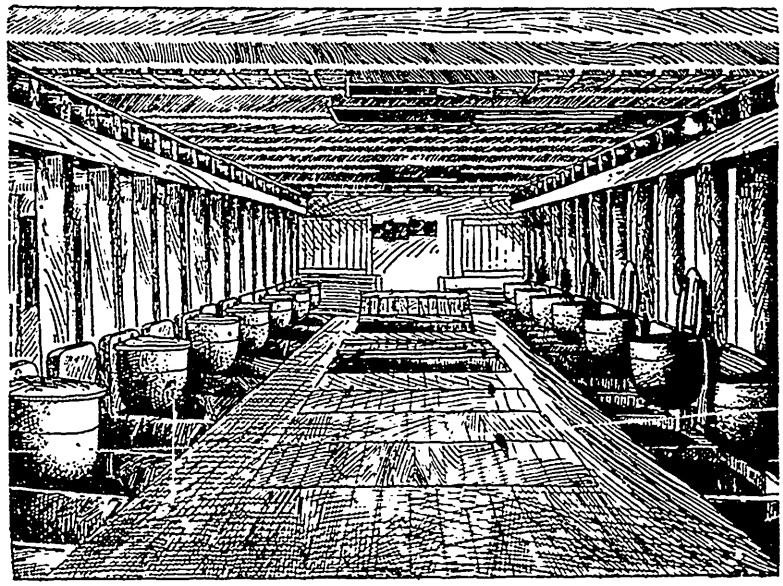
Useful Dairy Buildings.

In the building of new barns and stables, or in the rearrangement of old buildings to suit modern ideas, there is plenty of scope for the farmer to exercise his ingenuity. Most people, when about to enter on work of this kind, spend some time looking over the barns of their neighbors or of some of the more advanced farmers in their district, or even further afield. A great many valuable ideas can be thus acquired, and other people's experience made use of to the visitor's benefit.

In a country like this, where dairying is such an important branch of farming, the arrangement of barns to meet the needs of dairying is a most important question, i e especially when the question of expense has . be considered. Anything, therefore, that will throw any light on this subject should be welcomed.

Mr. W. H. Casselman, Riverside Farm, Chesterville, Ont., is one of our dairy farmers who has remodelled his old buildings with considerable success. They were arranged for utility and not for show, and are such as any farmer can have on his farm. In response to our request, Mr. Casselman has sent in the following description of them, which explains the illustrations given herewith :

Fig. 1 shows the outside of the barns and creamery. The main barn is 112 ft. long and 36 ft. wide, with posts 16 ft. It is sheeted on the outside with inch pine lumber, and all the stables are double-sheeted both inside and outside, with an air space between. This with a good stone wall underneath makes them frost-proof, a condition which is absolutely necessary for the successful carrying on of a system of all-year-round intensive dairying. In the main barn is the pig pen, the cow stable, and one mow. Connected with this building by means of a six-foot annex is another barn 42 x 66 ft. with 16 ft. posts, and in this barn is the horse stable, box stalls for young stock, and the granary. Our buildings consist simply of three old barns rearranged, and though over the stables there is ample storage capacity for forage crops, yet, were I building anew, while I would build exactly on the same plan, I would add 4 or 8 ft. to the height. The extra height would add a great deal to the convenience and appearance and would cost comparatively little more.



Interior of Mr. Casselman's Cow Stable, Showing Feeding Floor.

Fig. 2 is a properly proportioned representation of the ground plan of the buildings, which are all under one continuous roof.

Fig. 3 is a view of the interior of the cow stable, showing the feeding floor, with trap doors opening into the root cellar beneath, the watering arrangement, the feed mangers, the hay chutes, and the openings of centre ventilators.

Fig. 4 is a corner view of the same stable, showing the platform upon which one row of cows stand, the manure gutter, salt cups, and cow tie.

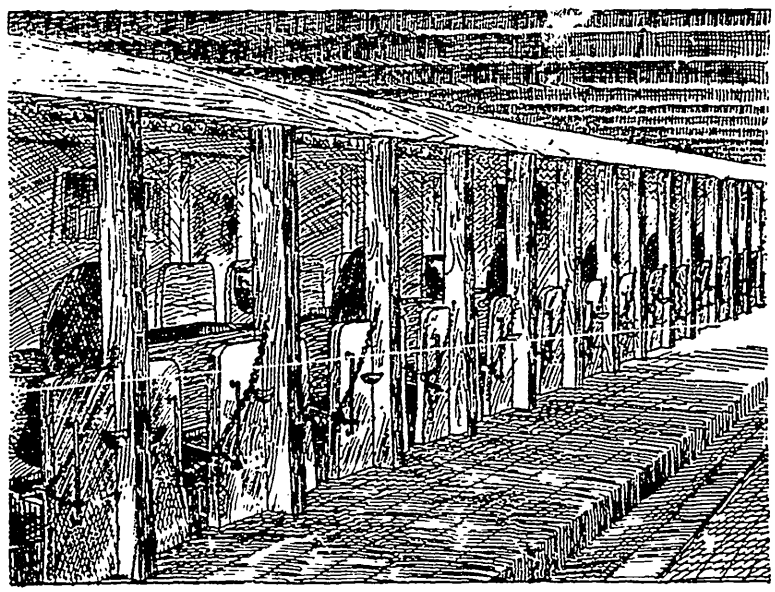
Fig. 5 is a sectional view of the interior of the creamery.

In describing these buildings I will commence at the ice house, which, as shown in Fig. 2, occupies 18 x 24 ft. in a new 18 x 36 ft. building with 8 ft. posts, which has been erected since the photograph represented in Fig. 1 was taken. In this same building is a woodshed 8 x 12 and a boiler room 10 x 12. In the boiler room we have a No. 2 Eureka boiler, by means of which (when necessary) milk is heated for passage through the cream separator, and water is heated for washing up purposes. From the boiler there is a steam pipe running through the creamery and power rooms into the cow stable and pig pens, by which feed may be steamed for the cows and pigs.

Between the creamery and the cow stable there is a room 16 x 18 feet, in which is a one-horse tread power, with speed regulator attachment. This power drives a shaft 25 feet long, and this shaft runs the churn, the cream separator, the force pump, etc. This compartment is also intended for a small workshop.

The piggery occupies 16 x 36 feet of the east end of the main barn. It is divided into four 6 x 11 and one 11 x 12 pens, with doors opening into each. The feed passage is five feet wide, and has two doors opening from it into an eight-foot passage at the end of the cow stable. The ventilation is the same as that in the cow stable described below.

The cow stable occupies a space 34 x 64 feet



Corner View of Mr. Casselman's Cow Stable.

The creamery occupies 18 x 24 ft. of another building which, as shown on the ground plan, is 18 x 40 ft. with 8 ft. posts. In the creamery is a De Laval Baby Cream Separator No. 3, a churn, and other dairy appliances, and a combined hand and power force pump. By the power attachment of this pump water is drawn from a well underneath the creamery and forced into an overhead tank, from which water may be had for use in the dairy by simply turning a stopcock, as shown in Fig. 5. By this same power attachment water is also forced into a tank in the cow stable, and from this tank the watering buckets are fed. From the cream separator there is a galvanized iron pipe which carries the skim-milk directly into the hogpens.

(inside measure), and, allowing 3½ feet in width for each cow, it accommodates thirty-two cows standing in two rows of sixteen each, facing each other. Running across one end of the stable is a passage eight feet wide, with a door at each end, through which the cows may come in or go out. The passage behind each row of cows is five feet wide, and each passage has a door opening on the driveway, through which doors bedding may be brought from the mows or loft. The platforms upon which the cows stand are raised six inches above the level of the passages behind. One platform is four feet six inches wide, and the other is four feet nine inches wide. My experience has taught me that it would be better to have the narrow platform start at four feet wide

at one end and gradually widen out to four feet six inches; and the wider platform start at four feet six inches and widen out to five feet. Thus the smallest cow could be placed at the narrow end, the next in size next, and so on around. The cows would be much more comfortable and would be much more easily kept clean were the platforms so arranged. The wedge, which would be made by having the platforms so arranged, should be left in the gutter. The gutter is eighteen inches wide and eight inches deep on the side next the cows. It holds as much manure as should be allowed to accumulate in any stable at any time, and, from the fact that it is only two inches deep on the side next the passage, the manure is easily lifted while the cows are in the stable. The passage behind the cows should have a pitch of one-eighth of an inch to the foot toward the gutter, so that any liquid falling upon it might readily run off. The platform should also have a slight slope toward the manure gutter.

The feed floor is on a level with the floor of the driveway. It is nine feet wide and is ten inches higher than the cow stands. This forms a manger ten inches deep in front of each row of cows, and this manger is partitioned off between each two cows, so that there is a box eighteen inches wide at the top and fourteen inches wide at the bottom, 3½ feet long and ten inches deep, in front of each cow. This we find plenty large enough for feeding any kind of cut feed, and no progressive dairyman can afford to feed uncut feed.

Under the feeding floor is a root cellar fifty-six feet long, nine inches wide, and three feet deep. Where circumstances would permit I should advise a deeper cellar, but it was impossible for me to go deeper than three feet. In every four feet of the feeding floor there is a trap door four feet wide and six feet long, through which the roots may be fed directly into the cows' mangers. We draw our roots in with dump carts, which are backed down the feed floor and their contents dumped through the trap doors into the cellar beneath.

As shown in Fig. 4, our cow tie consists of an ordinary cow chain, which is fastened by a ring to the centre of another chain, which has a ring in each end. This second chain passes across under the cow's neck, and slides up and down on ⅝-inch iron rods, which are bolted to the partitions that keep the cows out of the mangers. This tie is, in many respects, much superior to any tie I have ever yet found; though, while it is just as convenient as any other chain tie, yet I must confess that cattle are by no means as readily fastened and unfastened by it as by the ordinary stanchion. If convenience for the attendant is the only object sought, by all means use the stanchion; but if the aim is the comfort and well-being of the cow, and the profit of her owner, I would say by all means use some such tie as I have described.

Our cows are each supplied with a metal salt cup, which, as shown in Fig. 4, is screwed to the back side of the partition. These cups hold about a pint each, and are always kept full, so that the cows may have salt whenever they desire it.

Our watering arrangement, as shown in Fig. 3, consists of a metal bucket, holding about fifteen gallons, for every two cows. These buckets are connected by one-inch gas piping, which runs the whole length of the stable along each manger, about nine inches below the bottoms of the buckets. The connections between the buckets and the piping are made by short pieces of piping with right-hand threads cut on one end and left-hand threads cut on the other. One end of these pieces of piping is screwed into the bottom of the buckets and the other end into "T's" in the piping directly underneath. About six inches of one end of each of these short pieces of piping is rimmed off and then threaded, so that when screwed into the buckets they run up about six inches from the bottom, and thus dirt settling does not find its way into the piping. Each day fresh water is pumped by horse power into a small tank at one end of the stable, and as the water rises in the tank it rises in all the buckets as well. The buckets, which are cast in the form of a half oval, are bolted to the partitions, and are entirely out of the way of both the cows and their attendant.

Before leaving our description of this stable there are a few features which I believe to be absolutely necessary in a good cow stable—and which are possessed by this stable—upon which I would like to lay particular stress. The first is ventilation. The ventilation of their cow stables is a matter that has been entirely overlooked by nearly all the farmers of our country, and yet I believe that a very great percentage of the germs of disease that are said to exist and become infectious in milk and beef may be traced to the housing of dairy cows and beef cattle in ill-ventilated stables. No building which is intended for the close housing of man or beast is complete without a thorough system of ventilation. Our cow stable has six ventilators in all. Four of them run down the walls of the building, inside, to the floor—two of them behind each row of cows and directly opposite each other. They run up along the side walls, through the upper floor, to the main plate of the barn, and from the plate they run along between two rafters to the peak, where they find vent by means of cupolas built on the roof of

the barn. These four ventilators have openings at the floor, and they carry off the foul air which always finds its way to the bottom of a stable. The remaining two ventilators run across the stable horizontally, at the ceiling, and connect with the upright side ventilators as they pass through the upper floor. In the centre of the stable, between the two rows of cows, there is a slide door in each of the cross ventilators. These slide doors are always open to carry off the warm breath of the cows as it ascends. The ventilators consist simply of wooden pipes, 16 inches wide and 4 inches deep.

This is the most satisfactory as well as the most inexpensive system I know of, and the atmosphere of our stable is always sweet and wholesome.

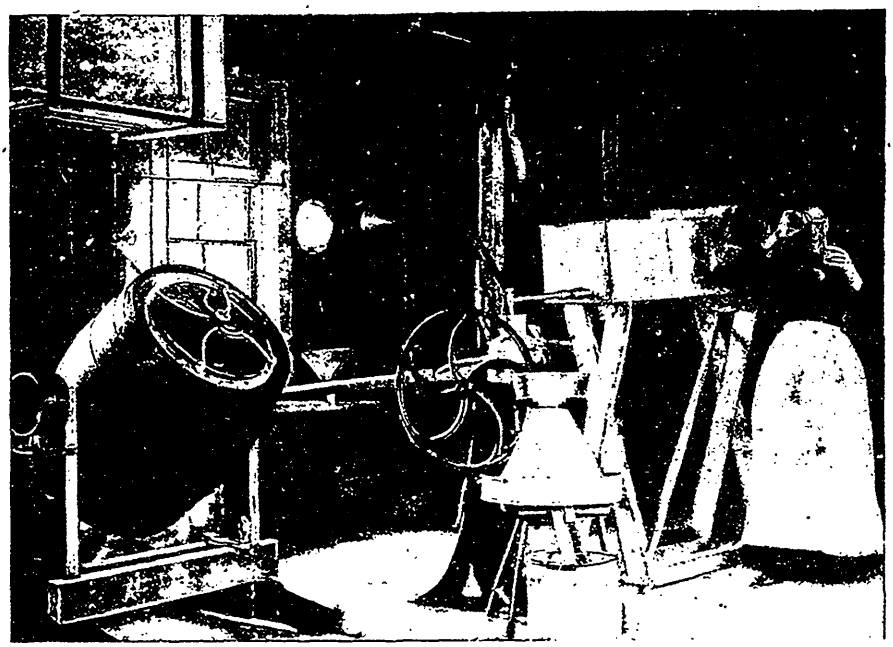
Another feature which I believe to be essential to a good cow stable is plenty of light. No animal or plant can live and maintain a healthy and vigorous constitution in a dark and dismal place. In the successful pursuance of a system of intensive dairying, where cattle are stalled for the greater part of the year, sunlight in the stable is as necessary as good ventilation and wholesome food.

Our stable has six windows, three on each side. The windows consist of twelve lights of 10 x 14 inches glass in each. They are placed in the building the long way, horizontally, that they may be readily opened in warm weather by sliding back to admit of a free circulation of air. In the winter we use double sash, which prevents the windows frosting over and darkening the stable, and also adds to the warmth.

It will be unnecessary to enter into a detailed description of the remainder of our building arrangements, as a good idea of what they are like may be had from a study of the ground plan.

It may be remarked that there are no silos shown in the plan. The explanation of this is that I am shipping the product of my dairy, in the form of cream, to the city of Montreal. The milk company with which I am dealing will have nothing to do with milk from ensilage-fed cows, or with cream taken from such milk. I aim to please my customers, therefore I have no silos; but the mow across the driveway from the cow stable may be utilized for the building of silos any time circumstances may seem to warrant their construction. In the meantime, I grow the corn just the same, cure it in large stooks in the field, draw it in and run it through an ensilage cutter as required for feeding, and realize, in my opinion, just as good, if not better, results as though the corn were converted into ensilage.

[Should our readers wish to learn further particulars, Mr. Casselman will be only too pleased to reply to communications addressed to him.—ED.]



View of Interior of Mr. Casselman's Creamery.

NIGHTINGALE is one of the biggest winners Mr. Hamlin ever bred.

GOLDEN GATE PARK, San Francisco, has a very fine drive for speeding trotters.

NEWARK has a fine drive set apart for speeding. Often as many as 2,000 spectators attend to see the friendly trials of speed there.

BY the explosion of an oil stove in one of the cleaner's rooms at the Buffalo track horses valued at $75,000 were burned.

THE black gelding, Spofford, is now champion trotter of Europe. His record is 2.15⅛. His sire was Kentucky Prince, and he was foaled 17 years ago.

THERE are a few gray Shires, and they are said to be a good, hardy sort, but the color has not been a fancy one for some time. It is just 42 years since a gray Clyde won at Glasgow.

LARABIE, 2.12¾, by Jay Bird, dam Kate Brooks, was winner of the champion prize in the standard-bred class at the Boston show. He is owned by Alexander MacLaren.

NANCY HANKS, 2.04, has dropped a fine filly foal by Arion, 2.07¾, much to the delight of her owner, J. Malcolm Forbes, of Boston. The dam of this youngster has the best record of any breeding mare.

ASHLAND WILKES (sire of John R. Gentry, the pacer with a record of 2.03¾) was sold lately to S. Bathgate, Newark, N.J. The stallion is to be used at the buyer's stock farm in Kentucky. The price paid was $10,000.

GRAND'S spring sale, April 16th, in New York was a grand success. At the sale, M. H. Tichenor & Co. had 28 head, which brought $15,110, an average of $540 per head. One team (a pair of finely-turned brown cobs) sold for $1,625. X Ray sold for $1,000. Fun and Frolic, a nice team, sold for $1,075, while Autograph, by Ormond Wilkes, brought $1,250.

ADVICES from England say that the market is bare of large sound geldings—heavy draught with plenty of weight. At Lincoln fair several good ones brought $500 each. The great difficulty was to find horses with weight enough and sound.

BARON DE MAUDET-GRANCEY has been writing in French papers on his experience with American and Canadian horses. The latter, he says, are suitable for the army, and can be purchased and sent from Montreal to France at a cost of about $125 per head.

JOHN H. WALLACE is out with an offer of $100 to anyone who will produce proof that a Thoroughbred ever trotted a mile in three minutes. The offer, he explains, is not made to belittle the Thoroughbred, but actually to find out whether or not such a performance has ever been made by a Thoroughbred horse.

OF the horses that were Derby winners before 1880 only two are alive, Galopin, and George Frederick, who was sent to Canada last year. All the subsequent winners are still alive—Iroquois, St. Blaise, and Ormonde, in the United States; St. Gatien, in Germany; and Melton, in Italy. The others are still in England.

A PROPOSAL has been made in England to solicit aid from the government for the encouragement of Shire breeding. The matter was taken up by the Central Chamber of Agriculture, who passed a resolution on the subject. When this resolution came before the Council of the Shire Horse Society, they passed the following resolution: "That this council is of opinion that State aid for the encouragement of Shire or cart horse breeding is not necessary or desirable."

A CANADIAN summer circuit for trotting and pacing has been arranged to open at New Hamburg on June 3 and the following day. Future meetings are to be held at Stratford, June 9, 10, and 11; Tilsonburg, June 16, 17, and 18; St. Thomas, June 23, 24, and 25; Hamilton, July 1 to 4; Windsor, July 6 to 11; Sarnia, July 14 to 16; Aylmer, July 21 to 23; Brantford, July 28 and 29; Wingham, August 4 to 6; Listowel,

August 12 and 13. This gives eleven weeks of racing, and is the longest circuit yet formed for 1896.

THE mysterious disease that killed quite a number of horses in the neighborhood of Winton (New Zealand) some years ago has broken out with fresh virulence, and the area over which animals are affected has been considerably extended. One of the symptoms is a strong impulse to go forward, the poor brutes pushing through fences and hedges, oblivious of the injuries received. It is believed that the ragwort, ragweed, or bindweed, a coarse weed common about Winton, is the cause of the disease.

THE floors of stalls for horses should never be high in front. Professor Almond says that he is convinced from his own experience that a horse should never be compelled to stand for any length of time higher in front than behind. His experience leads to the conclusion that most of the common cases of bent knees in young horses is from their being tied in stables where the front of the stall is higher than the back. It is cruel to the horse, and an injury to all young animals. A horse, for comfort, should stand a little lower in front.

ONE of the greatest patrons of the English turf, Baron Hirsch, has joined the majority. During the past eight years he has paid high prices for Thoroughbred yearlings, twenty of the tops of those he bought costing him $156,750. For La Flèche, by St. Simon-Quiner, he paid, $27,500 at Her Majesty's sale in 1890. She won for him $175,000 in stakes, including the One Thousand Guineas, the Oaks, the St. Leger, the Lancashire Plate, the Cambridgeshire and the Ascot and Liverpool cups. Lately Lord Lurgan has had the management of his racing stable and breeding stud.

THE *Scottish Farmer* says: "The proof of the vast superiority of a Clydesdale gelding over a Shire gelding in every point which goes to enhance value in a draft horse is complete, and the way to improve the English gelding in these valuable properties is to cross the ordinary big, open Shire mare with a well-bred Clydesdale horse. Last year the number of Clydesdale horses travelling in England was considerably in excess of the number travelling in any previous year, and there were few counties in which a Clydesdale stallion was not at work. This season, as far as we can learn, there has been no diminution in the supply, and ere many years are over a better class of geldings will be found in some districts than those seen in the Royal Agricultural Hall, Islington, this spring."

THE *Horse Review* tells a story of one G. W. Marsh, of Concord, N.H., who had a vicious horse which grabbed him by the arm when he went to feed him, and chased him out of the stall. He sold him the same day, and agreed to deliver him to the unsuspecting purchaser that evening. When he went to halter the horse to deliver him he was again attacked, and so severely injured that the delivery could not be carried out. This reminds the writer of an old story of a thief who, having stolen a sawmill, returned to carry off the mill-dam, fell in, and was drowned. and adds: "As a matter of fact, every owner of a vicious horse should follow the example of the young man in New Jersey, who, discovering that a recently-purchased mare was vicious and ungovernable, promptly shot her, making it impossible for her to maim or kill anyone."

THE London *Live Stock Journal*, which is generally down on anything colonial, and which is especially against the admission of Canadian cattle to Britain, says: "In face of the flooding of the London markets with Canadian 'cart vanners,' it is scarcely possible that there can be a reaction in favor of homebred horses of similar type or some time to come. The average number of these Atlantic 'swimmers' sold under the hammer during the past few weeks has been between 350 and 400, and it is known that the floating cargoes o come in are such that this average will be considerably increased. There are really no first-class London dray horses amongst them, but the town contractors find them suitable for rough-and-tumble work, and economical at the money." We are glad to have even this faint praise from such a source, and hope to send some first-class heavy draught horses in days to come from Canada.

MR. F. C. STEVENS, the well-known Hackney breeder of Maplewood Stud, Attica, N.Y., has lately brought out from England one of the best and most carefully selected lot of Hackneys that ever left England. Some time ago Mr. Stevens had the misfortune to lose the stallion Ottawa (4440), which won for Mr. Robert Beith, M.P., of Bowmanville, the first prize at the World's Fair, Chicago. To replace this loss, and also bring out a few good mares, Mr. Stevens sent over his manager, Mr E. T. Gay. With him went Mr. Alex. Galbraith, of Janesville, Wis. They brought Clifton II., last year's champion winner at the Royal. He is a dark dappled chestnut, four

years old. His sire was Danegelt (174), and his dam Lightsome, by Fireaway (249). They got a fine lot of mares. Stella was the first at London last year, and won the champion cup at the recent London Hackney show. She is a fine show mare, and is in foal to Danegelt. Others brought were Kathleen, by Danegelt, a champion in 1893 and 1895, and Applause, a three-year-old filly, a winner this year and last. She is by Saxon. Last year Mr. Stevens brought over Langton Performer 242, said to be the highest priced Hackney that ever left England. This year's lot will add much to the reputation of Maplewood.

ON most farms in Aberdeenshire, a few young horses, mostly with a good dash of Clydesdale blood, are bred. During winter they are housed at night, and get a feed of shillocks, turnips, and straw, while they have the range of the lea fields during the day. A great many of the farms are fairly large concerns, running from three to six pairs of horses. Such a thing as a double cart—that is, a cart with one horse in the shafts and another in the traces—is not to be seen in Aberdeenshire. In all cases work is conducted with one horse in each cart, one man always being in charge of two carts. The carts are very much less than those used in Forfar and Perth shires, the weight of each running from 7 to 8 cwt., whereas in the latter counties the weight of the cart is rarely under 10 cwt. Consequently, the loads are much less, and the horses have not the same chance of being strained; but, though the loads are less, as each Aberdeen plowman with his pair of horses has two carts instead of one, the Aberdonian has the best chance of doing the most work. As a whole, Aberdeenshire farmers and plowmen are much more attentive to the welfare of their horses, and treat them with more kindness and humanity, than is the case in most other districts, and this, doubtless, is the reason why so many genuine, good-working, fault-free horses are to be obtained in Aberdeenshire.

Echoes of the Horse Show.

Toronto Horse Show this year was a decided success. It was well managed, and the animals brought out to it were a credit to the show and the province. The judging generally was very satisfactory, and there was no suspicion of anything underhand, and the greatest care was taken that the best animals should win.

* * *

The visitors from the United States, both guests and exhibitors, expressed themselves as delighted with the show and with their treatment thereat. Many of the judges were from the land of the stars and stripes, and yet joined with right good will to help to sing "God Save the Queen" at the stewards' luncheon to the Earl of Aberdeen. It was pleasant to have our friends from over the border, and have them take an interest in our Horse Show. We would be pleased to see more of them, both visitors and exhibitors, and hope that they may always enjoy themselves and carry away pleasing recollections of Canada and Canadians.

* * *

There might be some changes in the prize list. It does seem strange that the same horses should come time and again before the judges in quite different classes. If such a classification as permits this be necessary and desirable, it would seem to some that the judges might be changed; otherwise there is always a tendency to confirm previous awards, and, as a consequence, the same animal comes in a winner time and again. Harness and saddle classes are better kept separate. Saddle horses are a distinct type, and should be judged as such. They should not be eligible to show in the harness classes.

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THE time given for judging is altogether too short for a close and critical class. The programme has to be carried out on time, and the judge should have ample time to do his work well. Instead of having all the work done in the ring, an opportunity should be given to the judge to look the horses over and carefully handle them before they are brought into the public ring for final awards. This time might also be taken for an examination by a veterinary surgeon for soundness of the short leet made by the judge. This preliminary work done, the exhibition in the ring and the putting on of the ribbons could be made popular and attractive, and put through on schedule time without slighting the class.

* * *

TAKE, for instance, the class for aged stallions, Clydesdales. With the large number of entries and the closely-matched animals to be judged, no one could give them justice in the time allotted. To look over and critically examine every animal would take more time than is allowed for the class. Very naturally, the judge took pains to see most of the animals before they came into the ring, and was able to give several hours of close attention to the work before they paraded.

* * *

WINNERS of two years in succession should be dealt with in some special way. The British shows act on this rule and make a champion class. Former winners are debarred from the

regular classes and have to enter in the champion class, where medals are more in vogue than money prizes. This matter has not yet become a grievance because the show is young and the winners have often been sold to go elsewhere at good prices, but it is a matter worth attention. Again, the breeder of an animal good enough to win is as much entitled to some award as the purchaser and exhibitor. This may be made nominal or honorary, but is something that should be considered. Let us do all we can to encourage the breeding in Canada of better horses.

* * *

NOW that there are horse shows all over the continent, from Boston to San Francisco, it is time to consider the advisability of having an organization to control the settlement of disputes, and generally to look after the interests of horse shows. The fall fairs have such an organization which does good work. Working on a common basis, and profiting by the experience of such and the failures of some, will be of advantage to all.

Hackney vs. Standard-Bred.

There has been quite a flutter in New York State between the Hackney and standard-bred breeders. It appears that Messrs. C. J. & H. Hamlin, of the Village Farm, Buffalo, N.Y., had approached F. C. Stevens, the owner of Langton Performer, asking the fee for twenty Mambrino King mares sent to the celebrated Hackney. The Messrs. Hamlin are great trotting men, and when the item appeared as a matter of news in the press they were deluged by protests from many trotting breeders. Under this influence they changed their minds, and declined to proceed with the experiment. The publishing of the letters has made lively reading for the public, and has shown the trotting men in rather an unfavorable light. The experiment might or might not have been a success, but was one well worth a trial. In Canada some excellent horses have resulted from a cross of the Thoroughbred upon the standard-bred trotting mares, and it seems altogether likely that good results might come from crossing a good class of trotting mare with such a famous Hackney as Langton Performer.

Hackneys and Trotters.

The controversy that has lately raged in the United States over the merits of the two breeds, and which waxed warm over the Hamlin episode, has not ended yet. In a recent issue of the *Rider and Driver*, W. Seward Webb, the well-known Hackney breeder, gives his experience. He began breeding ten years ago with a French coach horse, Incroyable, purchased from W. K. Vanderbilt. The result of his breeding was uncertain. He then imported six horses from France, but the results were disappointment and loss. He tried breeding a high-class trotting stallion to good Hackney mares. The result was a trotter without the Hackney type. He has at present a lot of young things, one to three years old, from a Hackney sire and trotting dam, and they promise well for a fine class of harness horses.

In 1891 he bred a roan trotting mare to a Hackney sire, and got Charm, now owned by J. J. Astor. Charm has been a great prize-winner and a valuable animal. He says: "Charm won second as a yearling in New York, first as a two-year-old in New York, and second as a two-year-old in Philadelphia, and is a beautiful half-bred Hackney, with all the conformation and action of the Hackney, and the speed of the dam. All my half-breeds at Shelburne Farms are very uniform in size, color, and conformation, and any one who is doubtful about the cross of the Hackney or the trotter I invite to go down and see for themselves the results I have obtained." Such practical testimony is very valuable.

Breeds of Horses.

SOME HISTORICAL THOROUGHBREDS.

The English Thoroughbred is considered to be an animal of composite blood. There was a time when no such horse as our modern Thoroughbred was found in England. At present no horse is accepted as a Thoroughbred unless he appears duly registered in the studbook. This is at present the standard by which the breed is judged as to purity of blood. In the days of the Romans we know that Julius Cæsar found many horses used in the native British army, and these of excellent quality. Later, the Romans under Severus are said to have run Arabs at the races at Wetherby in Yorkshire. Hugh Capet, of France, sent King Athelstan a present of a "running horse." This would be about A.D. 925. When the Normans came in A.D. 1066, they brought with them Spanish horses, which were at that time largely of Eastern blood. The times of the Crusaders brought into England some of the best of the Arab blood captured from the Saracens. Henry VIII. imported horses from Turkey, Spain, and Naples. Many fine Spanish horses were captured in the ships of the Spanish Armada. These were largely of Barb blood. In the reign of James I. half a dozen Barbs were brought to

England by Sir Thomas Edmunds, and one Arab known as the Markham Arabian. "About this time there were many good English horses," Mr. Gerome Markham writes. "Again, for swiftness, what nation hath brought forth that horse which hath exceeded the English? When the best Barbaries that ever were were in their prime I saw them overrun by a black hobbie at Salisbury, yet that hobbie was more overrunne by a horse called Valentine, which Valentine neither in hunting nor running was ever equalled, yet was a plain-bred English horse both by sire and dam."

Both James I. and Charles I. imported horses of Eastern blood, but there is no record of any mares being brought. In the reign of Charles II., Sir John Fenwick went abroad and brought back some mares of the best blood he could find. These were afterwards known as the Royal mares. With them came some good stallions, and their blood was mixed with that of the old English racehorse. Of the later horses imported three sires stand out notably.

The Byerly Turk was ridden by Captain Byerly during the campaign in Ireland under King William. He came to England about 1689. The famous horse Herod was from Jigg, by The Byerly Turk. Among Herod's sons were Highflyer, Woodpecker, and Phenomenon. From two mares by The Byerly Turk are descended in the female line Bend Or, Robert the Devil, Uncas, Speculum, Bluegown, Craig Millar, Paradox, etc. About 1712, a Mr. Darley, of Buttercomb, in Yorkshire, introduced the Darley Arabian. He obtained him through his brother, a merchant of Aleppo. From the Darley Arabian was descended the horse Eclipse, and also King Fergus, Pot-8-os, Waxy, Whalebone, Orville, Touchstone, Irish Birdcatcher, Sauercost, The Baron, Rataplan, Stockwell, King Tom, Newminster, and Hermit. The Godolphin Arabian is said to have been presented by the Emperor of Morocco to Louis XIV. of France. He there drew a light cart till rescued by a Mr. Coke, who brought him to England and gave him to Mr. Williams, and by him he was given to Earl Godolphin. He was of a brown bay color, and about fifteen hands high. He had a very high crest, and round and drooping quarters. He was foaled about 1724. His first racer was Lath the Cade, the sire of Matchem. From him came Conductor, Trumpeter, Sorcerer, Comus, Humphrey Clinker, Melbourne, West Australian, Prime Minister, Knight of the Garter, etc., etc.

The three sires, Herod, Eclipse, and Matchem, are the three great fountain heads of the modern English racehorse. One or more appear in the pedigree of every first-class racehorse of modern days. While they are descended from Eastern sires they also carried a good deal of English blood. Matchem was bred by John Holon, of Carlisle, in 1748. He did not race till five years old. He won many prizes, brought in his owner $85,000 in winnings and stud fees, and his stock in twenty-three years won over $750,000.

Herod, foaled in 1758, was a nice bay of good size and fine symmetry. He was bred by the Duke of Cumberland, and at his death was bought by Sir John Moore. His racing stopped in 1766. His stock won over a million dollars.

Eclipse was foaled during an eclipse of the sun in 1764. He, too, was bred by the Duke of Cumberland. At the sale he was bought for $375 by Henry Wildman. He sold a half interest in him to Col. O'Kelly for $3,250, and next year sold the other half for $5,500. In 1769 he won a $250 purse at Epsom, and his owner on the second heat of this race won a very large sum by betting he could place the six horses in the next heat. He placed Eclipse first and the rest nowhere, and Eclipse easily distanced the field and won the bets. He won eleven King's plates, carrying 168 pounds in all but one. He died in 1789. His stock won $790,000. He was a strangely formed horse, higher behind than before, long and low, with superb quarters and muscular power behind, which sent him always to the front with a rush. He is the most celebrated of all the old English racers.

The Trotting Standard.

Not a few horsemen are at a loss to know just what constitutes a standard-bred trotter. The rules have been lately revised, and the standard proposed for adoption on May 1st, 1897, is as follows:

THE TROTTING STANDARD. — When an animal meets the following requirements, and is duly registered, it shall be accepted as a standard-bred animal:

(1) The progeny of a registered standard trotting-mare.

(2) A stallion sired by a registered standard trotting horse, provided his dam and grandam were sired by registered standard trotting horses, and he himself has a trotting record of 2.30, and is the sire of three trotters with records of 2.30, from different mares.

(3) A mare whose sire is a registered standard trotting horse, and whose dam and grandam were sired by registered standard trotting horses, provided she herself has a record of 2.30, or is the dam of one trotter with a record of 2.30.

(4) A mare sired by a registered standard trotting horse, provided she is the dam of two trotters with records of 2.30, by different sires.

(5) A mare sired by a registered standard trotting horse, provided her first, second, and third dams are each sired by a registered standard trotting horse.

These rules have been adopted by the committee on revision, subject to the approval of the stockholders of the American Trotting Register Association at the annual meeting, to be held April, 1897. In presenting this report the committee say that they believe that the time basis for the standard should be gradually eliminated, and that no animal should be eligible for registry as a breeding animal solely on account of its performance or the performance of its relatives.

For pacers they recommend similar rules, except that 2.25 is the basis for the pacers where 2.30 is named as that for the trotters.

A Fine Pair of Carriage Horses.

Our main plate illustration this month is one of the fine pair of carriage horses which won first in class 38 at the Canadian Spring Horse Show last April, the class being for horses not under 15.2 hands, shown before a brougham, the horses to count 60 per cent., and the brougham and general appointments 40 per cent. This pair is owned by Mr. John Macdonald, Oaklands, Toronto, and thoroughly deserved the place at the head of the six entries which composed the class, their style, manners, and action being of the best. They are shown in the illustration attached to a "skeleton break." The off horse is by Hamilton Jr., and the nigh one by Diplomat. The nigh horse also won as leader in the unicorn class.

Superfœtation.

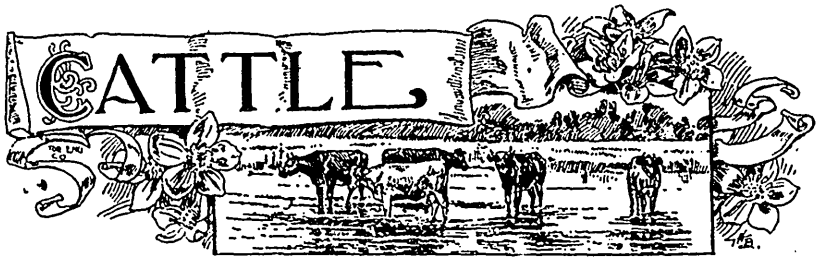
In a letter to the *Breeder's Gazette*, F. B. Mumford, of the Missouri Agricultural College, comments on the few cases on record in which two ova of the female have been impregnated by different males and at different times, often several weeks or months apart. This peculiarity of conception is known as superfœtation, and is of some interest to stockbreeders.

Examples of superfecundation, in which two ova are fertilized by different males during the same day, or at the most during the same heat, are not rare, says Mr. Mumford. For instance, a mare may have a horse and a mule colt at the same birth as a result of breeding her to a stallion and jack during the same heat. I have recently had brought to my attention two interesting cases of superfœtation. The sources from which the information came are apparently reliable, and chances for error, so often present in such reports, seem to be reduced to the minimum. The first case is reported by Mr. Eugene Rhodes, a member of the Missouri State Board of Agriculture. This gentleman bred a mare nine years old to a stallion in the month of May. She had apparently conceived all right, and was considered to be safely in foal, but in August following she showed unmistakable signs of being again in heat. Much disappointment was felt by the owner at this condition, but he determined to change his plans, and breed her to a jack in the neighborhood. This plan was carried out, and in January following, about nine months from the time of breeding to the stallion, the mare gave birth to two young—a horse and mule colt. The horse colt was badly shrivelled, but apparently otherwise well formed. The mule colt was perfectly normal, and was, from all appearances, about five months along in fœtal development. Both colts were dead at birth. The second case is reported by Mr. F. L. McGinnis, of Texas, a student of our short winter course in agriculture. A mare owned by a Mr. Cammack, of Texas, seemed to have considerable difficulty in conceiving. She was bred regularly through a period of six weeks, and had apparently failed to get in foal. She was then bred several times to a jack, and, apparently failing to conceive, the owner gave up trying to breed her. At about nine months from the time of the first union with the stallion she gave birth to two colts, one a horse and the other a mule colt. The colts were not discovered until several hours after birth, during which time they were exposed to a cold rainstorm. When found both animals were dead, but there were slight evidences that they had been born alive.

Worms.

S. H. D., Toronto: I have a yearling colt which is troubled with worms. What is the proper method of treatment?

ANS.—Finely powdered sulphate of iron—a scruple for a dose—is recommended, mixed with a warm bran mash. Santonin is a favorite worm medicine, and turpentine is also used by some. Remedies are best given after a fast, and followed by physic to carry off the worms.



IN spite of the disturbed condition of affairs in that country, South Africa continues to import a considerable number of cattle. Quite recently shipments of Shorthorns, Devons, and Ayrshires have been made to Cape Colony and Natal.

STOCK are not worth much in some parts of Australia. In the Cooktown district of North Queensland seventy bullocks lately sold for twenty-eight shillings a head, and horses are bringing only about fifty shillings apiece.

CATTLE have probably not gone out of the stables in such lean condition for many years as they have this spring. Pasture, however, has grown fast since the warm weather came, and, unless it gets checked by late frosts, as it was last spring, cattle will soon regain their usual condition.

A RECENT outbreak of pleuro-pneumonia in Essex, England, has resulted in the slaughtering of ninety-three animals. Six were found to be affected. It is alleged that no previous case had been known in England for over twelve months. It seems strange how the infection could linger so long without showing itself.

AT the Royal Dublin Show Shorthorn bulls met with a ready at sale from 35 to 60 guineas apiece. For Polled Angus bulls the demand was even greater, at prices ranging from 35 to 45 guineas, and one bull, a two-year-old, brought 60 guineas. Polled Angus heifers sold very readily at similar figures. Kerry cows and heifers brought 16 to 25 guineas and Jerseys 15 to 35 guineas a head.

AT a recent sale of pedigreed Herefords, in England, the auctioneer dwelt on the prospects there were for better prices in view of the exclusion of foreign cattle by act of parliament. However, the prices realized were not large. The highest priced cow out of nine sold brought just $100, and heifers sold down to $60 each. Young bulls brought $70 to $80. Store stock at the same sale sold for 13 cents per pound, live weight.

MR. W. S. MARR, Uppermill, Aberdeenshire has purchased from Mr. J. Deane Willis, Bapton Manor, Wiltshire, at a long figure, the promising young Shorthorn bull, Spicy Robin, a son of Roan Robin, out of a dam of the well-known Sittyton Silvery tribe, sired by Captain of the Guard. Spicy Robin is closely related to Mr. Willis' yearling heifer, Seraph, which figured prominently as a winner at so many English shows last season.

IN olden times, when cattle roamed wild over the country, it was necessary for the cow to hide her calf in as safe a place as possible, while she was away in the open picking up her food, because the feeble calf could not accompany the mother on what must have occasionally been long trips in search of food. A dense thicket would serve as a good hiding-place during the mother's absence, and, as a further protection against the attacks or animal foes, the calf inherited the tendency to curl itself up in as small a space as possible so as to escape the keen eyes of rapacious animals. This tendency can be seen in young calves of the present day, being one of the wild traits that can still be found in domesticated cattle. It may also be noticed how cows about to calve when in the fields will seek a retired spot, in a bush, if possible, and if such is not at hand the shelter of an angle of a snake fence has often to serve the purpose.

Letting Calves Run with their Dams.

The practice of letting calves run with their dams at pasture is still occasionally practised by some breeders, but it is not one to be commended. The only two points that can be urged in favor of this practice are (1) the saving of labor in feeding, which, after all, does not amount to much; and (2) it is held that the exercise is beneficial to the growth of the young animals.

There is no doubt that exercise is beneficial to all growing animals; but cannot a sufficient amount of exercise be obtained without letting them run with their dams all day? I think so,

and, to my mind, the disadvantages far outweigh the advantages of that system.

In the first place, the system is certain to result in injury to the milking qualities of the dams. This takes place in all cases where calves are allowed to suck their mothers, but more especially will it be found to be so where the sucking takes place at all times during the day, when there is no one at hand to watch proceedings; and, as the calves grow older and stronger, they are very apt to injure the udder by their persistent "bunting" in the hopes of inducing a further flow of milk. No breeder of dairy stock who is solicitous for the welfare of his cows would ever think of following out such a system.

The plan which I have followed, and which seems to me the best, is to have one or more small fields near the barn for the calves to run in by themselves. Here they can run in the daytime, from the time pasture starts till the flies get troublesome. After that I keep them in the stables in the daytime, and let them out at night, till the weather gets cold again. The bulls and heifers are separated as soon as the former show signs of being troublesome. In addition to what they pick up in the fields, they get their grain, and other rations if required, fed to them in the stable. By having the fields near the barn, the labor of turning out and bringing in the calves is reduced to a minimum.

Cattle Raising in Aberdeenshire.

A special correspondent of the Dundee *Courier*, who has been travelling a good deal in Aberdeenshire, has the following to say about the system of cattle raising and feeding pursued in those parts:

"The rearing and feeding of cattle being the primary object of all Aberdeenshire farmers, the growing of grain and potatoes is with them only a secondary consideration. The great aim is to have the farm so laid out as to produce the greatest amount of food for the cattle, and, as oat straw is much better for that purpose than that of any other grain, the cereals grown are nearly all oats, and only sufficient potatoes are grown to serve the people on the farms. Knowing the high repute of the county for superior beeves, I expected to find the system of cattle-rearing and feeding to be high pressure from calfhood, but was surprised to find it the most natural system imaginable, the cattle being kept almost exclusively upon grass, turnips, and straw, only getting an allowance of cake for six or eight weeks before leaving. No greater number of cattle are kept than will permit of each getting such a sufficiency of the home produce as will keep them in a forward growing condition, a good foundation being laid in calfhood by an ample allowance of sweet milk, after which great care is taken never to let the animal lose its calf flesh. Ordinary commercial animals are sent to market fat when two years of age, but those great animals meant for the Christmas shows and sales are kept a year longer upon plain ordinary fare, so as to let them grow to large size before they are put upon forcing rations. There is a general belief amongst north country farmers that a beast will neither attain great size nor perfect symmetry if forced when young, but cattle meant for the young class shows must be forced from the day they are calved. In setting aside the animals for the great Christmas shows and longer keep great care is taken to select the best sorts and the best doers.

"The prevailing pure breed of the county is the Black Polls, but the great majority of the commercial herds are crossbred, a purebred bull either of the Aberdeen-Angus or Shorthorn being used. The using of a Shorthorn bull with the black cows begets a good sprinkling of the beautiful blue grays so much admired in the southern markets. The most of the cottars keep a cow or two, and these and many of the small farmers sell their stirks as stores to the large farmers to keep their herds up to the proper standard. Besides that, a good many Irish stores have to be purchased. The Irish are, however, not so much appreciated, and are only resorted to when homebred stirks cannot be got. A good many of the large farmers have tried Canadian stockers, and found them to pay for their keep much better than Irish cattle, and not much, if any, behind the homebreds. The housing of the cattle is all in byres, there being scarcely a cattle court in all the county. The byres are very long and two-headed, with a broad passage down the middle behind the rows of cattle. When feeding, everything is raked from beneath the cattle so as to let them stand on the bare stones to cool their feet. They are carefully curried and brushed daily, and let out once every two days to a lea field for water, air, and exercise, and with the great care and attention devoted to their welfare they thrive equally well as they would in covered courts. Nevertheless, many of the farmers would prefer courts, but not so much because of the greater comfort to the cattle, but because they believe the manure would be much richer. Very few sheep are kept on low country farms. I did not see above half a dozen lots of sheep on turnips in the whole county, and very few grazing on the leas, the farmers preferring to reserve all the keep they have for their cattle."

Leucorrhœa.

Most breeders are aware, says Mr. William Watson, Keillor Park, Ill., that "leucorrhœa," or "whites," takes its name from a whitish discharge that exudes from the vulva. It is the result of an inflamed condition of the uterus, probably due to some injury in calving, or weakness of the organ. Retention of the placenta is frequently the cause of the most serious and obstinate cases of leucorrhœa; it may also appear as the forerunner of tuberculosis. It is in the cure of whites that the inestimable value of carbolic acid is to be found, through drenching the affected cows. I am strongly opposed to vaginal injections, unless done by a competent veterinary. There is a certain amount of danger attending the operation, and, judging from the cow's actions, a great deal of pain and uneasiness results. If you do inject, do so by the use of a rubber tube and funnel.

Drenching with diluted carbolic must be far more effectual in searching the entire system than merely applying the preventive locally by injections; at all events, my experience would lead me to believe so. By drenching, or mixing the carbolic acid in slop, you not only cure the animal of the fœtid discharge in a marvellously short time, but you also destroy the germs that are supposed to cause the disease.

Administering Medicine.

In Murray's "Cattle and their Diseases" there are the following sensible remarks on dosing cattle:

In administering medicine to cattle it is generally advisable to give it in solution. It is very common in treating disease in the horse to give medicine in the form of a pill, but when medicine is administered in this form to cattle the pill falls into the rumen (first stomach), and may consequently produce no effect, or act slowly, if at all; but when a liquid is poured down the animal's throat a large part of it passes into the third stomach, so that it will from thence pass into the fourth stomach and then into the intestines, and a much more speedy effect will be produced than when it is given in solid form. It is also advisable, in giving a purgative which requires to be dissolved, to administer it in a considerable quantity of water, as it is then more certain to produce a purgative action.

In giving medicine take the animal by the nose, holding by the cartilage which divides the nostrils, and slightly raising its head so that, when the neck of the bottle is introduced into the mouth, the medicine will run easily down the throat. When a second person is present he should stand on the left side and hold the animal by the horns, which will render it easier to give the medicine. The animal's head should not be held in too perpendicular a direction, nor should the head be twisted to one side, as in either case there is danger of the liquid passing down the windpipe. It is generally very easy to give medicine to cattle, but for this reason it should not be given too hurriedly, as by so doing there is considerable risk of accident.

French-Canadian Cattle.

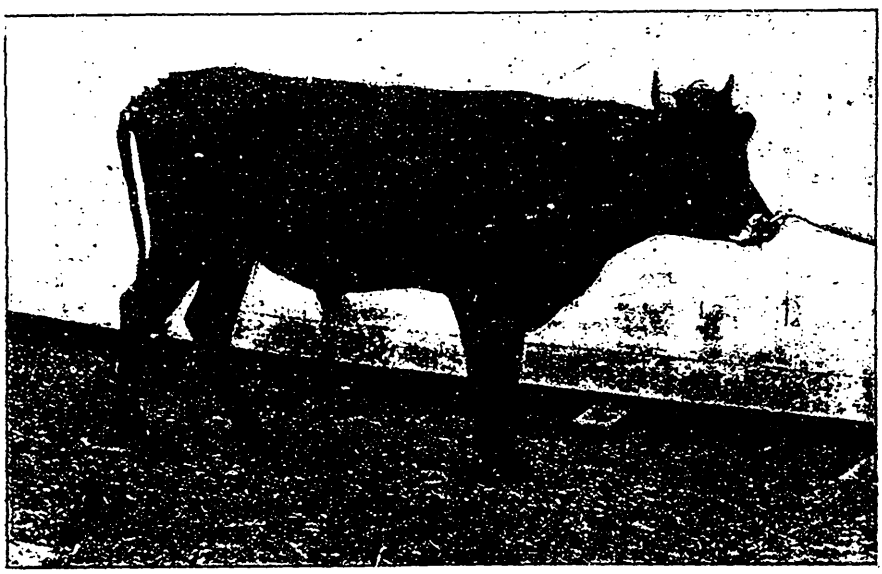
French-Canadian cattle may truly be called cousins of the Jerseys, so much do they resemble them in many points, including color, and they are unmistakably derived from the same origin. The French-Canadian cattle are descended from the French or Brittany cattle brought over by the early French settlers, and, although, till of late years, no attempt had been made to preserve them pure from outside breeds, yet the clannishness of the French-Canadians, in a great measure, served this same purpose. Now that the herd-book under the care of Mr. J. A. Couture, M.V., Quebec, has been started, there has been a wonderful increase in the amount of attention paid to their cattle by French-Canadian breeders, and a great deal of interest has been attracted to them from outside sources as well.

As a rule, these cattle have not had a good chance at the hands of their breeders to distinguish themselves as milkers. For the most part, they have had to rough it, picking up what they could in the season of pasture, and living on a bare sustenance ration during the winter. Yet, even under these circumstances, there have been wonderful instances of great milkers among them. Mr. A. Roch, St. Norbert has a cow that gave 12,698 lbs. of milk and 742⅝ lbs. of butter in 336 days, without any forcing, while there are numerous instances of cows doing nearly as well. That French-Canadian cattle are special purpose dairy cattle can be seen from their form, and they only need good feeding to show what they can do. Hardy, vigorous, and good milkers, they only require to be better known to become general favorites. Of course, there are poor milkers among them, as there are among other dairy breeds, but, when carefully selected, the French-Canadian will be found very profitable.

We have been able to secure a couple of photographs of these cattle, and from them have made the illustrations which accompany this description of them. These cattle are owned by Mr. N.

Garneau, Ste. Foye, Quebec. The cow Brunette de Ste. Foye (1496) is now seven years old, and is solid black in color. She has a record of 40 lbs. of milk a day on pasture alone all through the grazing season, and Mr. Garneau is justly proud of her.

The bull Belmont de Ste. Foye (363) is two years old, and is also solid black in color. He was sired by Grandville (731), he being out of the cow Féconde (11), which has an attested record of 353 lbs. of milk and 13¾ lbs. of butter in seven days. Belmont's dam is Phœbe de St. Denis (1100), whose record on grass alone is 49 lbs. of milk a day.



The French-Canadian Bull, Belmont de Ste. Foye.
The property of Mr. N. Garneau, Ste. Foye, Quebec.

Guernseys in Their Native Home.

In the *Guernsey Herd Register*, that well-known authority, Mr. F. S. Peer, Mt. Morris, N.Y., gives an interesting sketch of the Island of Guernsey and its cattle, as seen by him on a recent visit, from which we take the following extracts:

It is generally admitted on the island that the origin of the Guernsey family is French; that their ancestral home was Normandy; that they were imported to the islands during the reign of William of Normandy, as the Channel Islands were peopled by the Normans. It is reasonable to suppose they brought with them cattle from the fatherland. Normandy, or Northern France, is only 13 miles west from Guernsey. The island is 130 miles south of England. The islands were first inhabited by several orders of monks, and the ruins of their places of worship are still pointed out. As the monks of the early centuries were the leaders and teachers of advanced agriculture, it is another reason for believing that the cattle originated in Normandy. The original Guernsey cow, according to island tradition, was a white-faced animal, which markings are occasionally met with to this day. The white face is still a characteristic of one of the oldest breeds of Normandy. Whatever may have been the origin of the family, there is one foundation stone on which to stand, *i.e.*, something over one hundred years ago the conservative islanders passed laws prohibiting the landing of any foreign cattle on the island. Heavy fines and imprisonment were levied against anyone attempting to land foreign animals, the ships bringing them were to be confiscated, and the crew imprisoned. There has always been a spirit of rivalry between the islands of Jersey and Guernsey, and that island also passed similar laws. This law remains unaltered to this day. Animals for beef may be brought to the island, but must be landed at a special wharf, where they enter an enclosure adjoining a slaughter house, which not a single animal has ever left alive. No French or Jersey cattle are admitted to the island on any account. The word foreign, however, does not apply to Alderney, Sark, and Herm, as these

three islands, but a few miles distant, form part of Guernsey, and are ruled by one and the same laws. Cattle upon or from these are admitted to register in the Guernsey Herdbook, the same as if bred on the Island of Guernsey. Therefore, it is is safe to say the Guernseys of to-day are the Guernseys of a century ago. Whatever change has taken place is owing to feed, handling, and climatic influences, also to greater care and intelligence in selecting and breeding.

The ruling prohibiting the importation of foreign blood to the island must have seemed very arbitrary to many of the islanders when first put into execution, but it has brought to the little island of Guernsey (17 square miles) millions of dollars. Between the years 1870 and 1890 they exported 512 bulls and 12,761 females. The arbitrary ruling of our Agricultural Department at Washington, compelling cattle to remain 90 days in quarantine, has put a check on importation to this country. It seems to me that Channel Island cattle should be exempt, as never in the history of the islands has any contagious disease been known among their cattle. Two years ago I made a thorough and most painstaking examination of the cattle for tuberculosis on the islands of Guernsey and Jersey, and went from farm to farm and questioned and cross-questioned the farmers as to the symptoms of any cows that had died in their herds. I also tried the veterinarians on the island, and they all affirmed that they had never had a case of consumption, or found it in post-mortem.

Guernsey is a little island (17 square miles), but it contains 35,000 population. The principal industry is agriculture, cattle, and hothouses for growing grapes, tomatoes, potatoes, etc. Of late years the hothouse craze has so taken possession of the island that the cattle must now be placed as secondary in importance, and in many cases they have been driven from the farm altogether or quite neglected. Land is worth from one to two thousand dollars an acre to build hothouses on. Keeping it to pasture cows on seems like an expensive luxury, although butter is worth about 50 cents per pound, most of it going to France and England to private families. Guernsey butter is seldom seen in market in town. Land rents from thirty to fifty dollars per acre for growing early potatoes, which is, perhaps, the principal exported product.

The root crop forms from 75 to 80 per cent. of the cattle's feed summer and winter; about the only exception is that the cows in milk in the summer are tethered in a field. They begin staking them out in this way in February, when the weather is nice. They begin at one end of a field and stake them along across the field, and then begin over again. They are generally cared for by the women and girls. Some of the young stock are not turned out until they are in milk. The islanders take the greatest care of their cows when fresh in milk. They are blanketed, and only allowed to go out of doors during the middle of warm sunny days in springtime, and for days are kept blanketed out doors and in. They are milked several times a day. The dread of a Guernsey farmer is milk fever, hence this unusual precaution. The cows are not forced there as in this country. Why milk fever is more prevalent there than in this country I am unable to say. Besides roots they grow a tree cabbage for a soiling crop, which grows on a slender stalk from four to seven feet high, the leaves resembling and tasting like those of the cabbage. They strip off the leaves, and the stalks become an article of trade as canes, and are sold mostly to tourists as souvenirs of the islands.

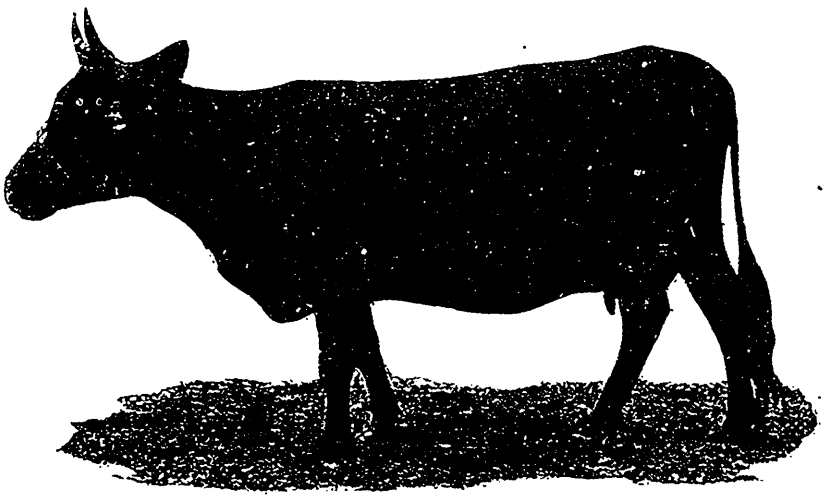
One of the most noticeable things in the herds on the island is the large number of very old cows, cows from fourteen to twenty years old, with forms wonderfully well preserved. I once asked the price of a grand cow that looked about eight or nine years old. "Oh, you don't want her; she is nineteen years old. She is not for sale at any price. She is the best of the lot." The farms are from five to twenty acres, the average about eight. On a ten-acre farm there will be ten to fifteen head of Guernseys and four to six horses; from two to three acres will be devoted to pasture, followed by roots, the balance to hay or oats. The land devoted to farming carries nearly two head of full-grown stock per acre. From three to four and even five head of stock are supported a year from the product of a single acre.

The tide about the islands rises from 22 to 23 feet every ebb and flow, and during the winter, when it is out, the farmers gather great quantities of the sea weed that each tide brings in, which they either compost with manures or spread broadcast upon the fields.

There are no special families on the islands; nearly every farmer has some two or three grand old cows, the descendants of some favorites that have come down from father to son. One or two of these cows are crossed with the best bull in the neighborhood, with a view of getting a bull calf. The bull from that particular cow is used in turn by the neighbors, but each farmer has a strain he wants to keep. They know little or nothing of pedigrees. They record their stock because English and American buyers demand it. They only know that a certain cow or calf is the

son or daughter of another grand cow in their herds, whose ancestors have been kept on that particular farm for generations. This is the principal reason, no doubt, for their maintaining their herds in such a degree of uniformity, and should the foolish pedigree craze take possession of them I believe they would have long ago degenerated. As there is little method in their breeding, it is quite safe in their hands.

There are, however, many worthless specimens on the islands since the cutting off of their best customers (Americans). Many of the breeders have lost heart, glass houses are the fad and craze of the day, and many a good herd is selling from the wrong end. I regret very much to see this, as the time is sure to come again when Americans will see the need of Island blood to replenish their herds, and will have it, quarantine or no quarantine.



The French-Canadian Cow, Brunette de Ste. Foye.
The property of Mr. N. Garneau, Ste. Foye, Quebec.

Management of a Large Bull.

Subscriber: (1) Can you give me a description of a breeding crate for breeding heifers, or small cows, to a large bull? (2) What would be a good grain ration for a bull during the breeding season, that is inclined to put flesh on daily?

ANS.—(1) I do not know of a breeding crate such as you mention. If the bull is active, it should suffice to put the heifers and cows on a somewhat higher elevation than the bull when they are being served. You could make a small pen for this purpose with the sides on a slant from the front down, so that the back parts will not bother the bull when serving, making the floor higher than where the bull stands. I prefer, however, having them served without the pen, if they will stand. If any of our readers know of a breeding crate, I hope they will let me know.

(2) It all depends on the number of cows he has to serve. You might try chopped oats and green feed for a time, and see how that ration suits him. See that he has plenty of exercise every day. Exercise will make a wonderful improvement in the way he will serve cows.

Kerry Cattle.

Young Subscriber: Can you give me the address of a breeder of Kerry cattle? I believe that some one in the Province of Quebec is breeding them.

ANS.—We do not know of anyone breeding them in this country. If there are any breeders of Kerries, they should advertise.

Sheep for the Markets.

The sheep for the home market of to-day should not be too large, neither should it be too small. One-year-olds at 120 pounds, if good and prim and tidy, will sell well. At a somewhat younger age they will probably sell all the better, if they run from 100 pounds to 120 pounds. The British market will probably call for a heavier lamb, but even there the very large over-grown lamb is not in request. Owing to this change in the demands of the market, the mutton lamb need not of necessity be dropped too early; that is to say, the lamb that is to be sold the following winter. If lambs are dropped in April or the first half of May, they can be made to attain the necessary weights without special pushing. If they are to be marketed at Christmas time, they will want better feeding.

Once upon a time beef, pork, and mutton could not be made too large. The age for such production is among the things that were. We cannot any more grow such meat at a profit, because there is no demand for it, and there is no demand for it because the public taste has changed; and it has changed for the better. We cannot modify the public taste, but we can grow such products as it wants. And this we must do if we are going to make a success of our work.

Pastures for Sheep.

Don't forget to sow some pasture for the sheep. The fall rains may come, and pasture may be plentiful; but they may not come, and then it will be scarce. Vetches grow nicely with us, and they make an excellent sheep food, but it should be remembered that it would not be the best thing to sow them alone for pasture. The sheep would tramp them too much. It would be much better to sow them along with oats or barley to hold them up. Sheep are extremely fond of them. When grown as indicated, and when the sheep are turned in on them while both the tares and the allied crops are but a few inches high, they furnish fine food for the sheep, and they will grow up a second time, and thus furnish a lot of pasture.

But rape is the great reliance for fall pasture. After what has been said about it during recent years, our farmers must surely know how to grow it; but, lest some should not, it may be mentioned that with us it will usually be found better to sow it in drills, as turnips are sown, and to cultivate it as turnips are cultivated, except that the rape does not require to be thinned. When thus grown, about two pounds of rape seed per acre should suffice. If may also be sown broadcast, but as much seed again is then wanted. The usual time for sowing is in June. The rape will be ready by the time the tares are all eaten.

Castrating and Docking Lambs.

The first of June is the season beyond which castration should not be delayed, nor should it be delayed so long if the lambs have been dropped early. Of course, if the local dealer is going to pick up the lambs in early summer, there is no great necessity for either docking the lambs or castrating them. But it is entirely different if the lambs are to be carried on until Christmas, or even for a longer period. It is a poor business feeding ram lambs. They do not grow so well as wethers. They do not fatten so easily. They do not make such good meat, and they do not bring so good a price. Since the butchers of New York revolted against the ram lamb business, and cut down the price, more attention has been given to castration. Those men did a kindness to lamb growers when they took that step. But they did not take it soon enough; however, its influence will be greatly beneficial in the future.

The want of docking is simply inexcusable, as it may be so easily done when the lambs are young. It is not a gratifying sight, especially in the autumn, when the sheep are on soft pasture, to witness them come home to the yards like those of "Little Bopeep"; that is to say, with all their tails behind them.

The Pet Lamb.

Many a home has a pet lamb this year as in other years, and many a pet lamb brings comfort to the little folks who feed it, we are apt to suppose. Give the little folks lots of milk for the

pet lamb. It is helping them and influencing them for the better more than we know. The tending of the lamb is developing a love for the live stock of the farm, and of caring for the same. Then let the little folks get all the good they can and all the enjoyment that they can out of the pet lamb. And when the time comes for parting with the lamb, be sure to give them the price. They have earned it. Let them have it to be theirs. It will do them good, because of the encouragement it will give them to care for other lambs, and to do other work that will bring them money. In this way habits of industry will be encouraged, and the love of farm work will be strengthened. But if the little folks prefer to keep the lamb rather than to sell it, then let it be kept. If the lamb is sold and borne away with eyes looking after it half hid in tears, cords are sundered which may mean far more than separation from the lamb. They may mean the severance of ties which bind to the farm and farm life. Cut those moorings and away the little folks drift, and oftentimes on a very turbulent sea. Look well after the pet lambs both in the paddock and also in the home.

Sift out the Culls.

The fall of the year is the season when the shepherd finally separates the inferior sheep from the others, but he should look ahead. Perhaps he is breeding purebreds; if so, he will have some lambs which will not be promising. If he has, let him give them due attention. If they are males, they should be castrated. If they have upon them the stamp of inferiority, why should they be longer left uncastrated? What good can come of selling culls as breeders? They will injure the man who buys them because their progeny will be inferior. They will injure the man who sells them because their progeny will be inferior. They will injure purebred stock because of the prejudice which they will beget. And they will in this way injure the cause of progress. Therefore let the culls be sifted out. Let them be got in shape for being disposed of. The day once was when anything called purebred was considered good enough to buy and good enough to sell, but that day is now gone, and we trust forever. It is a great pity that such a day ever existed. The man who sold such stuff did his neighbor a wrong, and the man who bought it did himself a wrong. Only the average, and what is above the average, is good enough to keep for breeding uses.

Autumn Lambs from Grade Sheep.

Can we obtain autumn lambs from ordinary grade sheep? This question very naturally comes into the mind of those who have bred lambs for the market, and more especially since Dorset sheep have been introduced into this country. Can the other breeds be made to bring forth at that season? And is there any process by which we can get lambs from grades without resorting to an infusion of Dorset blood?

These are important questions. How shall they be answered? Our belief is that any habit within the realm of changes that are reasonable can be engrafted on purebreds as well as upon grades, but to engraft some habits would require many years, and a good deal of persevering effort, and we lean to the belief that the habit of dropping lambs in the autumn by breeds which have been accustomed to drop them in the spring from generation to generation would be one of those habits that it would be difficult to impart so that it would become uniform and constant in its action.

Such a habit could only be secured by a certain line of breeding and selection continued through a long course of years, and it would be, in outline, as follows: Ewes would have to be selected which had dropped lambs early the previous season. They would require to be put on some kind of stimulating food, a few weeks before the normal season for breeding, to induce them to breed earlier. In this way some advance would be made in the direction of early breeding. The ewe lambs dropped thus early would require to be similarly handled when old enough to breed, and some further advance would probably thus be made. This process would have to be continued from generation to generation, until fixity of habit were secured; that is to say, until the habit of producing lambs had been shifted from spring until fall, and until it had become so fixed that it could be reckoned on with certainty. And, while the transforming process was going on from generation to generation, the ewes which failed to breed as desired would have to be discarded. Such a transformation by this method would take a long time, so long that only some wealthy farmer could afford to do it who engaged in agriculture as a pastime.

But, by using pure Dorset rams, such a transformation should be rapid, rather than slow. It should accomplish the end sought in a limited number of generations. If Dorset rams were crossed upon ordinary grade females, no advance, of course, could be looked for until the female progeny of the first generation were ready to be bred. From their sire they would inherit the

impulse to breed early, on the principle that like produces like. But this impulse would be counteracted by inheritance through the dams; hence it would not be found in the first generation as in pure Dorsets. But the inheritance from the sire of the tendency to breed early should be stronger than the counter inheritance from the dam to breed late; hence early lambs should be looked for rather than late ones. The second generation should have a stronger inheritance in this direction than the first, providing pure Dorset sires have been used, and in each succeeding generation the tendency to breed early should grow more and more, until it had become fixed as stably as we find it in the Dorsets themselves.

But here also a continuous process of culling would have to be adopted. Those females which failed to breed early would have to be discarded, from time to time, until the habit could be looked upon as firmly established. Attention would also have to be given to the food, as, by exercising due care in feeding, more especially as the desired breeding season approached, it could be somewhat hastened.

In this way grade ewes could be secured which would produce autumn lambs sufficient to meet the wants of the market. And, when thus secured, they could be crossed by rams of other breeds, if a different type of mutton lamb were desired. Such crossing would not influence the breeding qualities of the dams, but it would those of the progeny. In the female progeny there would be a tendency to revert to inferior types.

Shearing Sheep.

The proper time for shearing must vary greatly with the locality. While it is advisable as a general rule to shear early, yet this advice must be qualified to a considerable degree. When the ewes are shorn early, they feel more comfortable and are able to do better by their lambs; but if there is a likelihood of the weather becoming cold, there are chances of loss taken in shearing early. Ewes that are milking heavily cannot stand exposure without the protection that their fleeces would give them, and when these are removed they are likely to succumb to inflammation or some other disorder due to unusual exposure. It is best to err on the side of caution and not to remove the fleeces until there is actual need of it, and the rough spring weather has passed. There is a time, however, when it is both safe and advisable to remove the fleece, and that is when the wool has become ripe. This term may be applied to wool in the same sense that it is used speaking of fruit. Anyone who has had experience in the shearing of sheep can tell as soon as hands are placed on the fleece if it is ripe, but this is best told when an attempt is made to remove some of it with the shears. Ripe wool may be removed from the sheep in shearing with fully one-half the trouble that it takes to shear it at any other time. It cuts easy, and enables the shearer to do his work with more dispatch. The method of shearing varies somewhat in different localities. Some shearers like to have the sheep placed on tables for them. This plan may work all right when small, fine-wool sheep are being shorn, but it is out of the question when the large sheep are being shorn. Others tie the legs of the sheep, but that would seem to be a needless operation. Where the shearing is done with the greatest skill and dispatch, the plan generally followed, with a few modifications, is that in vogue in Great Britain.

As good a method as any is to first remove the belly wool from the sheep as it lays on its side held down with the leg of the shearer passing over the sheep's neck, and its front foot held in the knee joint of the operator. After the belly wool is removed and also that between the hind legs, the sheep is then held between the legs, as it sits on its rump, and the wool from the back of the head down on the neck is removed. The neck and left foreleg is shorn, and then the opposite side is carried down to a similar point. The shearer now drops on one knee, and bending the sheep towards him the skin is made tight, so that the clips may be made quickly and without the least fear of cutting the sheep. The left side and the back, if the sheep is an ordinary-sized one, is carried down in this way; the sheep in the meantime being allowed to lie on its side on the floor. After the fleece from the left side and back has been removed as far as the hind leg, the shearer then takes hold of the hind leg and shears the wool off from the hind foot along the inner edge of the leg until he meets with that which has been shorn from the side. In this way the hind part is shorn, including the region about the tail. The sheep is now turned and the right side is shorn, the clips running from the back to the belly. The main consideration that the shearer has to bear in mind is to hold the sheep firmly and comfortably, and, above all things, see that the skin is always tight where the shears are at work; otherwise cuts are very likely to be made, no matter how experienced the shearer may b

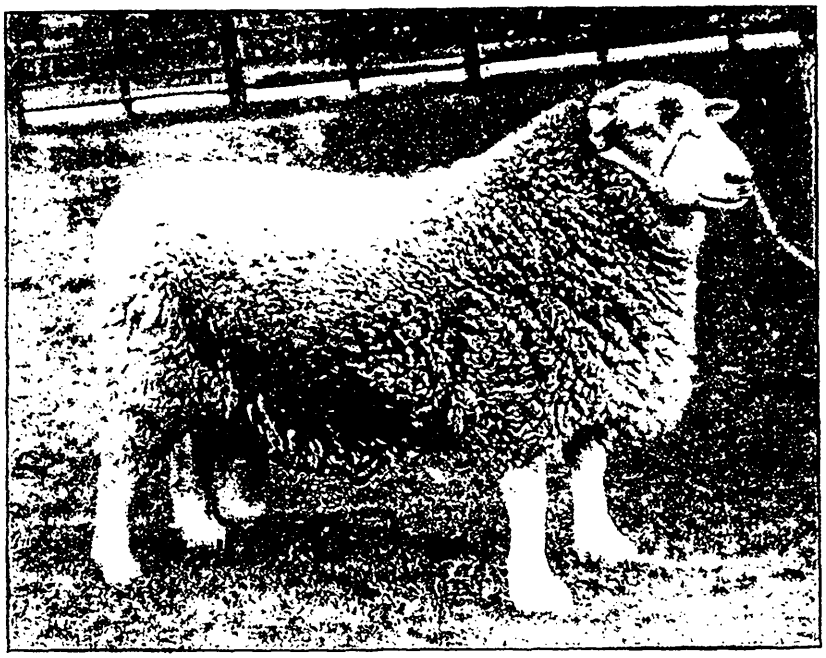
The fleeces may be tied up in several ways. A wool press may be made that will enable anyone to put the fleece up in a very attractive manner. Unless wool is being put up so as to be specially

attractive, however, there is no advantage in doing it in this way, as the buyers generally do not like it. Their preference is to have the fleece tied with twine. Another excellent plan is to twist the neck of the fleece after the rest of the fleece has been rolled, so that it may be used as a tie.

The proper method of rolling the fleece is to spread it on the floor with the weather side up and the skin side down. The edges of the fleece are pushed together so as to make it somewhat firm, and then the sides are thrown in towards the centre. The rolling is started from the tail end, and as it is rolled the sides are gathered in and the roll pressed. After the neck has been rolled in the fleece is tied with binder twine; or, previous to that, it may be that the neck is twisted and used for binding the fleece together. The fleece should be stored at once in a dry place and covered with canvas, if there is any possibility of dirt getting into it. Wool, when tied up dry, and kept so, will not lose much in weight. If it is put up in good form and carefully stored away, it may be kept from year to year without much risk, except that moths may get into it and do some damage.—*J. A. Craig, Wisconsin Experiment Station.*

A Kentish Ram.

We have been enabled to secure a good photograph of the champion Kentish ram at the Royal in 1895, from which the accompanying half-tone is made. This ram is the property of Mr. W. Millen, Synedale Valley, Faversham, Kent, and, as may be seen, is a particularly good individual. The flock to which he belongs has been established for over eight years, and has met with great success in the show ring. Mr. Millen has sold a number of sheep, from time to time, to go to South America, New Zealand, and the Falkland Isles, where they have done well.



A Kentish Ram.
The property of Mr. W. Millen, Synedale Valley, Faversham, Kent, England.

Summer Forage for Sheep.

HOW FLOCKMASTERS MAY GROW IT.

In the previous paper something was said about the way in which we grew summer forage at our (Minnesota) station. The farmer should not copy these methods exactly. Ours was experimental work. We sought to establish a principle, viz., that of making summer foods grown for the purpose supplemental to the pastures, in the first place, and of making them the chief

reliance when necessary, in the second place. In the first idea there was nothing new. In the second, all is new—so new that, if the United States Patent Office recognized such inventions, the system could be patented as Shaw's system of pasturing sheep, without infringing on the rights of anyone.

In growing such foods it is not absolutely necessary to have a grass pasture, but it is greatly advantageous to have one where food is thus grown in a large way. It is necessary, first, because it is not good practice to pasture the sheep on forage sown for them when the forage or the ground is wet. They would impact the ground too much at such times, and other disadvantages would result. And it is necessary, in the second place, because the summer food thus grown may not always be sufficient in supply, so that it may be necessary to have a pasture, as it were, in reserve. The flockmaster could not bother with many little plots in doing such work, nor should he attempt it. But he can sow one, two, or three of these foods to carry his flock through the season on succulent foods in time of need.

The plan to be adopted would, in outline, be as follows: First, sow foods for summer forage in proportion to the probable needs of the flock. Second, choose those kinds which will provide food in abundance when they are most needed. Third, only attempt to grow such foods as are adapted to the climate and soil. Fourth, it will seldom be found necessary to sow more than two or three kinds in the one season. Fifth, it will be necessary to have as many fields as there are kinds of food sown. And, sixth, it will frequently be found practicable to grow two pasture crops on one piece of land the same season. The application of the principle will have to be wrought out by each individual for himself.

Of all the foods grown for the purpose thus far, sorghum and rape are the two most valuable. Usually it will be found that these two aids will carry the flock through the season, along with the grass pasture. The first-mentioned carries the flock through the hottest and driest weather on ample supplies, while the latter grows both early and late in the season, but not so well in hot weather. Winter rye is also an excellent aid. When spring-sown, rape may advantageously be sowed along with it, and fall-sown rye may be followed with sorghum when there is enough moisture in the land.

And it is well to bear in mind that when a crop which grows a second or a third time is eaten down, the harrow may be used with much advantage by running it over the land after each season of pasturage. It not only kills small weeds that have sprouted, but it causes other weeds to sprout upon which the sheep will feed when they are young and tender, and the harrowing helps rather than hurts the growth of the crop.

The advantages of such a system include the following: First, it enables the farmer to grow many more sheep on a given piece of land. Second, it enables him to furnish them with foods succulent and nutritious from spring until fall. In other words, it makes it quite possible for him to grow mutton equal to the best English-grown. Third, it is death on weeds. By no other possible method can they be so cheaply, so easily, and so effectively destroyed. Fourth, the land is left in an excellent condition as to enrichment for the succeeding crop. It is manured without any labor involved in drawing and distributing the manure. And, fifth, it will usually answer simply to disc the land thus pastured, when preparing it for the following crop. The labor of plowing it is, therefore, rendered unnecessary.

Flockmasters, look into the question. It is a question of questions among those that relate to the sheep industry at the present time. The system is applicable to the East as well as to the West. The only difference is that which relates to selection of the crops that should be grown. And the drier the season and the more shyly grasses grow, the more advantageous will the system be found. By this system enough sheep could be grown in the United States to supply the world.—*Prof. Thomas Shaw, in National Stockman.*

Cooper's Dip.

E. J. W., Dundurn, Assa: Where can I get Cooper's Sheep Dip?

ANS.—Messrs. Wm. Evans & Sons, Toronto, are the head agents for this dip. Small packages for 25 sheep cost $6 per dozen, and large packages for 100 sheep $24 per dozen.

Grain Feeding Lambs on Pasture.

Breeder: Will it pay to feed grain to lambs while running with their mothers on pasture?

ANS.—There are a great many features that influence this question asked by "Breeder," but it is possible to offer enough data on it to enable him to determine whether it will pay or not under his conditions. The price of the lambs, the time they are to be marketed, and the discrimination of the market as to the condition of the lambs, all have an important bearing on the

question. At the Wisconsin Experiment Station they made experiments directly on this problem. In one trial the ewes were fed alike, receiving grain in all instances, and their lambs were divided into two lots of fourteen in each; and one lot was fed a grain mixture of cornmeal, bran, and oil meal, and the other lot had to rely on the milk of their dams. Both lots had a similar pasturage. The grain was charged to the ewes and to the lambs that received it, at market prices, and t was found that the cost of the grain eaten by the lambs in the lot that had grain amounted to $3.16 in the ten weeks before weaning. Including the cost of the grain that the ewes of both lots ate, we find that it cost $2.53 more for the grain-fed lot than it did for those that had no grain. During the ten weeks the lambs that had grain gained 432.25 lbs., and the fourteen that had no grain (only the milk of the ewes and pasture) gained 395.75 lbs., or a difference of 36.5 lbs. A local butcher priced the lambs at the conclusion of the experiment, and those that had grain were valued at ¾c. per lb. more than those that had no grain. At the prices that lambs were then selling at, the grain-fed lot were worth a total of $7.63 more than the others. As it cost in grain but $2.53 to produce this difference in value of $7.63, it seems evident that it paid to feed this grain when the lambs are marketed at weaning time. In another trial with the same number of ewes and lambs the conditions were made different, in so far as the ewes in all instances had only pasture. In this trial the grain-fed lambs in ten weeks gained 450.51 lbs., while the fourteen that had no grain gained 395.75; a difference to the credit of the grain-fed lambs of 54.75 lbs. At the same market valuation as in the other instance, the grain-fed lambs returned a difference of $9.06 more than the lambs that had no grain. The 488.75 lbs. of grain that these lambs consumed account for this difference in the value, and the grain only cost $3.50, so that the balance is again much in favor of grain feeding the lambs. These figures make clear the fact that it pays to feed young lambs all the grain that they will eat, whether they are in the sheds or running with their dams on good pasture.

Feeding Early Lambs for Market.

Constant Reader: What is the best method of forcing lambs for the butcher that are dropped in March and April?

As a means toward this end the ewes should be fed so as to induce a free flow of milk. At such a time the ewes have not been put on pasture, and, consequently, some succulent food should be a part of their ration. Turnips or mangels, or, if these are not available, corn silage, should be fed as liberally as possible as soon as the ewes have lambed. Then, with this, while the ewes are yet in the sheds, bran should be given with a free hand. A ewe, suckling twins, will eat from two to three pounds of bran, depending on the way that she is milking and making economical use of it. When the ewes first go to pasture the grain should be continued until the grass becomes somewhat matured. As soon as that time arrives it will be best to withhold the grain from the ewes and feed as much as possible directly to the lambs. When the lambs are about two weeks old they will usually begin to eat grain at the trough with their mothers; and then, when they have done this for a few days, they should have an apartment fixed for them in which they may be fed by themselves. This apartment is easily made by taking two narrow strips and nailing them about three feet apart across a corner of the shed. Upright strips of light material are nailed to these far enough apart to permit the lambs to go through, but yet keep out the ewes. The lambs will soon learn to frequent this apartment, and they will readily eat grain to their liking. In the field, when the sheep are turned to pasture, a similar plan may be resorted to by using the same construction at places where the sheep are in the habit of congregating, about the water-trough or in the shade. The most fattening ration that may be fed to young lambs is likely cracked corn, but the difficulty is to get them to relish it. It has been found in experiments in this direction that crushed corn will return the most economical gain, but it is hard to maintain the appetites of the lambs on it. Next to this will rank cracked peas. But the best of all rations will be found to be a mixture of ground peas and corn, which may be fed to such lambs in as large quantities as they will eat. The lambs are very fond of peas, and it seems to balance the corn part of the ration. Next to either of these foods for feeding lambs before weaning the Wisconsin Experiment Station places oats and bran. At that station eighteen lambs were fed, in different lots, rations of oats, cornmeal, and bran, and the most satisfactory result, considering only the cost of the grain, was obtained from the cornmeal before and after weaning, while the oats ranked next. It is the common supposition in feeding young lambs that the grain should be ground as fine as possible for them. It will be found that lambs will prefer cracked peas to ground peas, and cracked corn to cornmeal, and they seemingly make better use of whole oats than they do of those that are ground fine.

A QUEER pig story is told by the London *Telegraph*. A sow that had lost her tail by accident had a litter of ten little pigs, but, seeing that they all had tails, she placed them in a row and bit off the tails one by one.

WE have always been unable to understand why such a prejudice exists among farmers against using old boars. An aged boar that has been tried and proven to be a sure and good breeder is, in our opinion, as a general thing, a better investment than a young untried pig, provided, of course, that the former is still vigorous.

ONE of the very best substitutes for wood ashes for hogs is charred corn cobs, says a writer in the *Breeder's Gazette*. The cobs may be broken into pieces; then set fire to them in the hog lots, and, when they are thoroughly charred, scatter them, thus putting the fire out. After this, let the hogs eat all they want of them. The benefit is not merely in the ash element, but in the charcoal, which is an excellent aid to digestion.

IF you can possibly manage it, be sure to provide a good pasture lot for your pigs this summer, and do not forget that the better the pasture the better it will pay you. If you have not got a really good piece of natural pasture near the hog-pen, and have neglected to sow a patch of clover and orchard grass for the purpose, do not be afraid to fence off a couple of acres of new seeds, and you will be astonished to find how well your hogs will do on it if there is a fair catch of clover. Try it, and compare the results with those from the same amount mown and put up as hay.

NO animal suffers more frequently from thirst than does the hog, especially when it is fattening. If it is fed milk and swill, the latter made salty by the addition of the brine made from salt pork while it is being freshened, its case is so much the worse. Milk contains some water, but it is so mixed with fat and casein that it cannot serve as a substitute for water, as anyone may see by placing fresh water where the hogs can get at it at will. They will not drink large amounts. The hog's stomach is not large enough to hold a great bulk, either of food or drink. But the hogs that have fresh water will have better digestions, and, if fattening, will be more free from fever for having pure water. On many farms so much salt meat is freshened, and the water used in doing this is saved for the swill barrel, that the hogs fed swill are constantly suffering intense thirst, making them unhealthy, and diminishing their ability to make the best use of the food they eat.

Feeding Whey.

Of the various by-products of our immense dairy industry probably nothing is utilized to as little advantage as the whey that is produced at the countless cheese factories throughout the Dominion.

Large quantities of this valuable waste product of the dairy are allowed annually to sour and become not only useless as a food, but even in some cases a positive menace to health, while a great part of what is fed sweet is not used to its best advantage by any means, owing to a lack of knowledge of the most suitable feeds to combine with it.

An average sample of whey contains from .6 to 1.0 per cent. of albuminoids, from .2 to .6 per cent. of fat, and from 4.0 to 5.0 per cent. of sugar. From this it will easily be seen that whey alone is a highly improper food for young pigs, as it is very deficient in the foods necessary for the production of bone and muscle, as well as in oil or fat; in fact, the only circumstances under which whey can be profitably fed alone to pigs is when we have pigs to fatten that are fully grown and well developed as to muscle and bone, but which require to be fattened; and, in our opinion, in these days of early maturity and increasing demand for lean bacon hogs of medium weights, such feeding will not return by any means such a profit as might be obtained by feeding the whey in combination with other foods.

It is hardly necessary to point out that the foods that should be fed in combination with sweet whey to produce the best results should contain a large proportion of both albuminoids and fats,

and one of the best foods for this purpose is oil meal, which contains about 28 per cent. of albuminoids and 6 to 8 per cent. of fat; but in feeding for the production of choice bacon care must be exercised in feeding any quantity of oil meal, as it will be found somewhat liable to make the bacon soft and greasy, and the best results may be expected from a mixture of oil meal, peameal, oatmeal, bran, and shorts fed with about four times its weight of sweet whey, while if the whey can be fed in connection with a good pasture still smaller quantities of grain will give good results. A well-known English feeder, in writing on the subject of feeding whey, gives the following ration, which strikes us as being a very good one:

"1 lb. linseed meal, 2 lb. oatmeal, 3 lb. bran, and 3 lb. shorts. This mixture represents a nutritive ratio of 1 to 4. Mix carefully together. Add 2 lbs. of this mixture to a gallon of whey. This gives us a nutritive ration of 1 to 5. Phosphate of lime is supplied by the bran, and shorts would, therefore, perform a fair share of work by supplying bone-forming material. It must be left to the feeder's judgment to decide how much his pigs require. If the whey be sour, it should be boiled thoroughly before mixing with other food. This will destroy fermentation and help to sweeten it. If thought necessary, double the quantity of whey may be given to the proportion of food above mentioned, but I have always found my pigs progress most satisfactorily on the ration mentioned. To place the above mixture in parallel columns we have the following result:

	Albuminoids.	Carbohydrates.	Fat.
	lb.	lb.	lb.
8 lb. good whey contains....	.08	.41	.05
2 lb. meal mixture contains..	.25	.90	.06
Total.....	.33	1.31	11

It is seen that for each gallon of whey ⅓ lb. albumincids, 1⅓ lb. carbohydrates, and .11 lb. fat is fed to each pig. The average gain on such a ration as this I have found to be about 1 lb. per day."

Value of Purebred Hogs.

Referring to this subject lately, a writer in one of our exchanges makes the following very sensible remarks:

The value of the purebred sow lies in her power to transmit vigor, digestion, and assimilative capacity that will enable her get to make more fat out of a bushel of corn and a given amount of other kinds of grain or grass than the common hogs of the country. This is the ultimate test of her value. Some individuals are rarely gifted in this way, and, in addition, transmit a style and finish that renders every pound more valuable.

Hogs of this kind are worth many times the value of an ordinary thoroughbred. A hog of this kind at the head of a noted herd may be worth what seems a fabulous sum—actually worth it in cold cash. His service fee alone may be well worth the price of a good many ordinary purebred hogs, while in the herds of the common farmer he may be worth only the increased value he may put in the candidates for the pork barrel on that farm.

In this way a hog may be worth many times as much to one man as he is to another. If these facts are borne in mind there is not much danger in going wild in purchasing hogs, provided, of course, they are paid for in cash, and not bought on speculation and on credit.

Young Pigs Coughing.

Cough may come from sore throat or bronchitis in young pigs as in other animals, and may be chargeable to exposure to cold and damp, says Prof. Law. With sore throat the open mouth may show the throat red, inflamed, and swollen. With bronchitis the cough is at first hard and barking, and later soft and gurgling. Both may be treated by a clean, warm, dry, well-littered pen; in the case of weaned pigs by warm, soft food, and by five-grain doses of muriate of ammonia four or five times a day. A woollen rag tied round the throat or chest, as the case may demand, will often do good, and a teaspoonful of strong ammonia inside this cloth will usually prove valuable as a counter irritant. In other cases the cough is due to worms in the bronchial tubes of the lungs, and in such a case the affection is likely to attack successive litters in the same pen, irrespective of weather or exposure. The temperature of the body, too, rarely rises above the normal (103° F.). The cough is wheezing or rattling, and masses of mucus are sometimes expelled by the mouth. These masses should be carefully examined for the worms, one to two inches long and the thickness of a fine white thread, which will give the certainty of their presence in the lungs. These cases should be treated by fumigations with burning sulphur in a close building, the administrator staying with the animals, and letting the air in or the pigs out whenever he finds it too concentrated for his own breathing. This should be done daily for half an.

hour for a week, and repeated again for the same length of time after an interval of a week. Advantage may also be had from using 15 drops of spirits of turpentine in one-half an ounce of sweet oil daily for a few days.

The "X" Rays in Agriculture.

What is probably the first application of the Roentgen rays to the elucidation of an agricultural problem has been effected at Munich by Dr. Graetz, who has obtained, by the agency of the "X" rays, the "photograph" of a pig one day old. The outline of the skeletal system is clearly shown, and an illustration of it is given in the *Journal d'Agriculture Pratique.* M. Grandeau, in an article on the subject, directs attention to the value of the process in adding to our information on the development of osseous structures up to the time of birth—knowledge such as could only previously be acquired by laborious and protracted dissection. The "long" bones, in particular, show how ossification begins at several points simultaneously, and gradually extends by the accumulation of mineral salts, notably phosphate of lime, in the gelatinous framework. An examination of the image of the skeleton of this young pig makes much more intelligible than would a long dissertation the necessity of a diet rich in phosphatic matter, and its effect upon the perfect development of the osseous system. As M. Grandeau points out, the young animal, of which the bony tissues are so imperfectly constituted at the time of birth, finds in the maternal milk the nitrogenous and phosphatic ingredients essential to the formation of bone. After it is weaned, such food as is afforded in cereal grains furnishes it with the phosphoric acid, the lime, and the magnesia required for the completion of its osseous structures. In the solution of many problems which still remain to be attacked in the domain of animal nutrition the application of the new method promises to be fruitful in results, whilst its value in affording a means of verifying conclusions which are already regarded as established must be apparent to all who have engaged in the study of this branch of animal physiology. —*London Times.*

Cuts of Bacon.

The different cuts of bacon as named in the market quotations are not generally understood by the majority of persons, except by those engaged in the bacon trade. We have, therefore, through the kindness of Mr. Wilson, manager of the J. L. Grant Packing Co., Ingersoll, Ont., obtained photographs of the principal cuts of bacon, and give illustrations of them on the opposite page, so that our readers may have a better idea of what the market calls for at the present time.

English Breeds.

"THE LARGE WHITE" OR "IMPROVED YORKSHIRE."

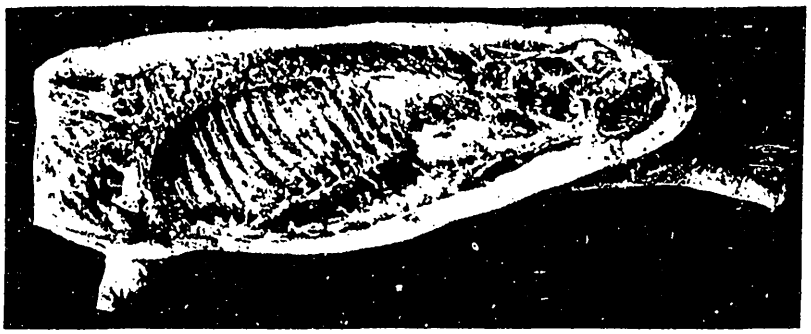
Prof. James Long, in his excellent work, "The Book of the Pig," remarks that there is no doubt that the Large White breed has contributed more to the popularity of English breeds than any other, for it is largely sought by continental as well as by home breeders for the improvement of local varieties. Although pedigreed Large Whites have only been introduced into Canada within the last decade, they have, under the name of Improved Yorkshires, become very popular both with farmers and bacon-curers, while of recent years they have begun to push their way gradually through the States.

Although white pigs of large size have existed almost from time immemorial throughout the northern counties of England, they were, as a general thing, remarkable chiefly for their lack of symmetry, their flat sides and narrow backs, together with their enormous size and extremely coarse, heavy bone, and, although in some districts they were somewhat improved both in quality and fattening properties by crossing with the Chinese, it was not until 1851 that attention was drawn to the breed in the show ring.

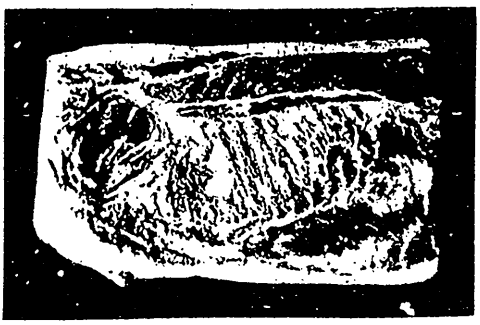
In that year the Royal Show was held at Windsor, and the attention of all who were at all interested in live stock was drawn to the Large White pigs exhibited by a weaver from Keighley, in Yorkshire, named Joseph Tuley. This man had, by his skill and judgment in breeding, produced a family of Large Whites immeasurably superior to any that had ever been seen previously in the country, and from this strain came the foundation of the present race of Large Whites.

Joseph Tuley sold his pigs at large prices, and among the heaviest purchasers was Mr. Wm. Wainman, of Carhead, who soon became known as the most celebrated breeder and exhibitor in the kingdom. In the hands of his manager, Mr. John Fisher, the fame of the Carhead pigs soon spread, and from this herd, we are safe in saying, almost all the successful breeders of earlier days made draughts.

As an instance of the weights which these pigs were capable of attaining at an early age, we find

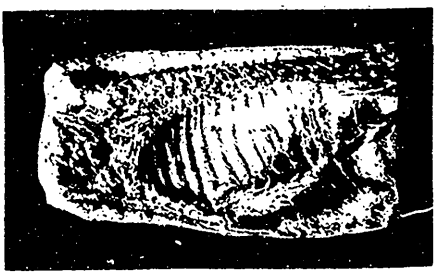


WILTSHIRE

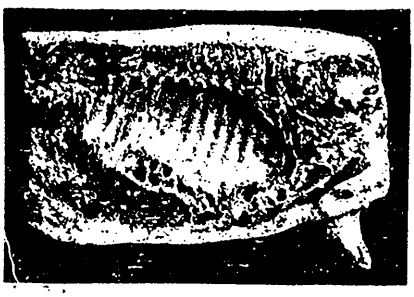


STAFFORD MIDDLE.

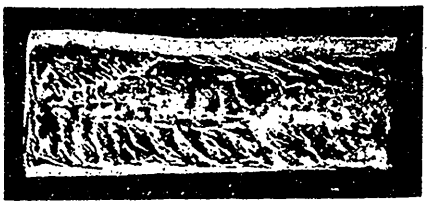
RIB BELLY.



LONG RIB.



CUMBERLAND.



SHORT CLEAR BACK.

CLEAR BELLY.

PRINCIPAL BACON CUTS.

it stated in Prof. Long's book, already referred to, that by judicious feeding Mr. Fisher made choice pigs weigh up to 490 pounds at twelve months old, while March litters would easily weigh 280 to 336 pounds by Christmas.

Following in the footsteps of Messrs. Wainman and Fisher came such breeders as the late James Howard, M.P., the Earl of Ellesmere, Mr. Sanders Spencer, Mr. F. Walker Jones, Mr. C. Duckering, the late Peter Eden, Messrs. Barron and Strickland, the two last named, together with Mr. Spencer, being still among the leading breeders in England.

Although Yorkshires had existed for many years in Canada previous to 1886, they were of a more or less unimproved type, and lacked the quality and early-maturing proclivities of the Improved Large White. In that year an importation of a boar and two sows from the herd of Mr. Sanders Spencer was made by Mr. J. Y. Ormsby, of Oakville, Ont., and this was followed by another from the same herd the following year. It did not take the Large Whites long to make friends for themselves, and soon the demand for young breeding pigs was far in excess of the supply, and, accordingly, further importations were made by Messrs. Ormsby & Chapman, Messrs. Green Bros. and Brethour, Mr. Joseph Featherston, Mr. R. Gibson, Mr. John G. Mair, and others.

In 1887 a record for Improved Yorkshires was commenced by the Agriculture and Arts Association, with Mr. Henry Wade as editor. Soon after this the breed was given a separate class at all the leading shows, and to-day the exhibits of these pigs are fully equal to those of any other breed.

In our next issue we shall give a scale of points for Large Whites, together with the opinions of some leading breeders.

(To be continued.)

Turning Pigs into Gold.

By Sanders Spencer.

Various opinions are held as to the best time at which to begin to mate breeding pigs. We believe in early maturity and this shows itself in the ability of certain strains to reproduce their species early in life; a well-kept boar, or yelt, should be fit to be mated at eight months old, so that the first litter may arrive when the dam is about a year old. It is a good plan, if the litter is large and the sow a heavy milker, to allow the pigs to remain on her till they are ten weeks old, feeding the sow well the whole time, or, if it be more convenient to wean the pigs, to allow the first period to pass; this will usually be observable three or four days after weaning. It is a good plan to wean gradually by allowing the sow to stay away from her pigs a longer time each day. The milk will gradually become less, and the pigs will not miss the sow at all when finally weaned. Some persons advise the taking away of one or two of the pigs at a time, but this is troublesome, and sometimes leads to injury of the sow's udder, as the milk in the teats not sucked is liable to cause garget. If the pigs are being gradually weaned, the sow will sometimes receive the boar whilst the pigs are still sucking her; she may be mated, and, if successfully, the milk will speedily dry up. Some sows evince a desire for the boar when the pigs are not more than three or four weeks old, but it is not then advisable to have her mated, as should she become in pig the little pigs will suffer from a restriction and early cessation of the flow of milk; besides this, nothing is gained from working the sow so hard—the pigs come weakly, and the sow will soon be worn out. For suckling sows, during the first five or six weeks, nothing is better than shorts and broad bran, in the proportion of about five to one. It is the practice with some breeders to give the sows, after farrowing, a good deal of physic, stout treacle, etc. If the sow be properly fed, the less of these nostrums the better; nature has ordered that the sow be so constituted that the arrival of the family is attended with little risk.

As soon as the pigs have arrived, it is desirable to give the sow about a gallon of thin slop, in which is mixed one ounce of sulphur, and one-sixth of an ounce of nitre. In cold weather this should be given warm, and, if the sow appears exhausted or weakened, a little milk stirred in the slop will often tempt her appetite. The sow should be walked about when she has farrowed twelve hours, and kept gently moving until she has relieved both the bowels and the bladder; this natural motion is far better than if it is the result of medicine. Sometimes the teeth of the newly-dropped pigs are abnormally long; this is generally the case when the pigs are carried over the usual period of sixteen weeks; it is then advisable to break off the teeth with pincers; if the sow is excited by the squealing of the little pigs, place them in a hamper and carry them out of hearing. One person can easily break off the teeth. The pig is tucked under the left arm, its mouth opened with the left hand, and the teeth broken off with the pincers held in the right. There will then be no danger of the sow's teats being bitten, nor of the little pigs biting each other in the fight for their own particular teat.

(To be continued.)

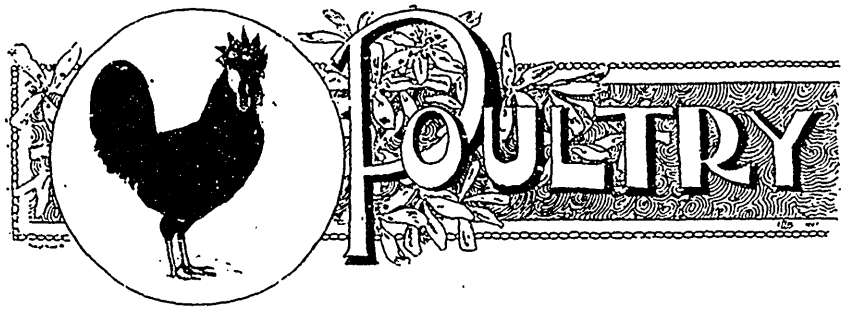
Brood Sows.

This subject is brought to mind by the oft recurrence in the papers of complaints of sows destroying their pigs, says a correspondent in an exchange. We wonder if it ever comes to the minds of these parties that the old-time razor-back or woods hog was never known, where she had the liberty of woodlands, to destroy her pigs? When we consider this matter, we must conclude that she had the kind of food necessary to keep her system in proper condition; hence we come to the subject in consideration. Now, we believe that the kind of food consumed, and the kind of flesh laid on, have much to do with the value of the litter. For want of room we cannot give our brood sows the range of our pasture fields during the winter months, and it is of these months that we want to speak now. Nor have we a timber range for them. Being thus limited, we have for years kept our sows during the winter months in the large feed lot at the barn, where we feed the horses and cows fodder, and often clover hay, during the day. This lot is so small in area that the horses cannot turn it into a racing park when they feel like running. We have never had a sow injured by the horses or cows. If the lot was large enough for the horses to take a run when they wish, we would expect them to run over the sows and injure them. The cows are fed one feed each day, of whole corn, and have for the other feed bran, and for roughage clover hay and fodder; they have the run of the barn lot during the day. The sows glean from all their droppings, and, besides the undigested corn, they get much good from the other food fed the cows. When we feed clover hay in the racks in the lot, the sows eat many of the leaves and heads of the clover, and, besides, they eat fodder and chew the juices out of the cornstalks, refusing the coarse fibre. Last winter we had no clover hay to feed in the lot, and the sows were deprived of this very necessary roughage, which, on account of the high per cent. of albuminoids it contains, is a very necessary article of food while they are in farrow. While they relish and consume large quantities of fodder, it does not contain the necessary food properties to properly nourish the system. To meet this want, we fed our same brood sows about one-half bushel of ship stuff and middlings once a day. They also got a part ration of whole corn.

The best way to feed the corn is to shell it over the stalks about the feed racks. There are two objects in this—we want them to eat the corn slowly, masticating each grain, which they must do when they gather it out of the stalks. If fed ear corn, in their greed for the lion's share, they will swallow many grains without chewing them, and they are voided unbroken, and as a result the filthy habit of working over their own droppings is soon developed.

When the corn is shelled they are compelled to take much more exercise in gathering up the grains than they do when eating ear corn. We do not ring them while in the lot. With their noses free they save us much hard work when they search among the stalks for their corn by breaking up the stalks and fining the manure. And the exercise while doing this would equal their efforts in gathering roots and nuts in the wood lot, had they such privileges.

We could feed corn in such quantities that they would not care to exercise to get every grain, and a whole corn ration would be cheaper than the mill food, and much less trouble to feed, but in this matter the money value of food is not the only point to be considered. Their systems demand more than is found in the corn; hence we find it profitable to buy and feed the bran and middlings. We like to have a sow in high flesh when she feeds her pigs, but we want to know what kind of flesh it is. We do not want corn fat, for from it we should only expect disaster. But we do want a muscular flesh, such as a sow will lay on when she has a variety of food. The corn fat tends to develop obesity and sluggishness, while a healthy flesh developed from properly compounded rations tends to sprightliness and exercise. When they come to farrow we like to have them in high flesh, what most farmers would call fat, too fat. With the treatment outlined our sows give us no trouble at farrowing time, and save plenty of pigs.



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

Poultry Illustrations.

This month we supplement the Barred Plymouth Rock illustrations given in our last issue by a cut of Mr. Duff's cockerel, first at the last "Ontario."

We also have a cut of a Rose-Comb Brown Leghorn cock, owned by one of America's foremost breeders, Mr. W. W. Kulp, Pottstown, Pa. This certainly presents a very nice type of bird. In addition, we give a half-tone of Mr. Kulp.

Mr. W. W. Kulp.

The remaining illustration is a half-tone of probably the best Rose-Comb White Leghorn cock in America. This bird was bred by Mr. W. J. Bell, Angus, Ont., and has won first at New York, Cleveland, Kansas City, and more than once at the Toronto Industrial and the "Ontario."

For FARMING.

Poultry on the Farm.

Seeing you take an interest in the hen, I thought an account of how I feed and care for my fowl might be of interest to your readers.

On January 1st, 1896, I took charge of the hens, and was anxious to know whether they could be made profitable or not. I had 66 hens and 4 roosters. I fed them daily:

2½ lbs. of cut clover at	$ 8 00	per ton	=	1	c.
5 " shorts at	16 00	"	=	2½	c.
5 " roots at	18	bush	=	1	c.
5 " oats at	30	"	=	4	c.
5 " ensilage at	2 00	ton	=	2	c.
Meat scraps.....				½	c.
Total cost of feeding 70 fowls.....				11	c. per day.

I allowed full market prices for everything, and it costs exactly eleven cents a day to feed my seventy fowls.

The way I feed is as follows: I get the men to put the shortest cut on the straw-cutter, and when they are cutting feed for the cattle they cut a small quantity of clover for the hens. I take for breakfast 2½ lbs. of clover, put it in a pot with ½ gallon of water, then cover the pot and set it on the stove; let it come to a boil, then lift it off and allow it to steam for half an hour; put 5 lbs. of shorts into a large pail, empty the clover on to the shorts, and mix them together so that they will be moist, but not wet. At half-past nine I feed them 5 lbs. of roots. I prefer carrots cut into squares about the size of dice. At noon I feed them 5 lbs. of ensilage, and all the water they will take. In cold weather I warm the water. At four o'clock I give them 5 lbs. of oats. In autumn, when we kill our pigs, we boil the livers, lungs, and other refuse parts in a large kettle, using a large quantity of water; when it is well boiled we thicken it with peas, oats, and barley, ground fine. It is then put into barrels, and allowed to freeze solid; then the barrels are rolled into the poultry house. We break a few staves out of each barrel. The hens will work away all winter at it. I allow one-half cent per day for this feed. I also lay in a good supply of lime, sand, and wood ashes. I find that lime which has been exposed for a year is better than old plaster.

I have a small door on my henhouse through which the hens pass going out and in. I have a small muslin bag filled with sulphur over this door on the inside, so that the hen has to touch it with her back every time she passes out or in. This keeps her free from vermin.

Fowl should have a good supply of fresh water every day. I believe there is more loss to the farmer with his hens from the want of fresh water than from anything else. When a soft day comes the water from the roof drops on the manure; the hens being thirsty drink this liquid manure, and this is sure to cause scouring. I let my hens out for an hour or two every day during winter.

The breed of fowl we have is the Barred Plymouth Rock, although I prefer the White Plymouth Rock, not that they are any better fowl, but on account of their being white they are more easily cleaned for market.

We generally raise two hundred chickens every year. The chances are that one-half of them will be cockerels. As soon as they are large enough we commence killing them, and selling them to private customers at 8c. per lb. They are of a marketable size at 4 months old. When all the cockerels have been sold, we kill off all the old hens. We never keep a hen over the second winter, except a few for mothers.

Barred Plymouth Rock Cockerel.

We get a setting of eggs from the Central Experimental Farm, at Ottawa, and keep our supply of males for the next year out of them.

I find the best way to stop hens sitting is to have a box about 3 ft. wide by 6 ft. long, with a sparred bottom, so that the hen will have no place to sit down, except on a bar. Set the box, say, 6 in. from the ground to allow a current of fresh air to pass in under the box. Give her plenty of feed and water, and in three days she will have given up sitting, and will start to lay.

About the 1st of January, a public-spirited man named David Moir undertook to collect eggs, and to ship them to Ottawa, Montreal, and other large centres. He started paying 20 cents a dozen, but would not take eggs over one week old, so that he could have them on the market by the time they were ten days old. But, alas, when the returns of his first shipment of 55 dozen came back, it was found that they contained nine dozen old eggs. The second shipment proved very little better than the first. So he made up his mind that the dealers must be acting dishonestly with him, because he did not think that any farmer's wife would persist in giving him old eggs for new ones. He, therefore, went to Ottawa with the next shipment, and, on examining the eggs, found that the dealers were perfectly correct.

When Mr. Moir told me about getting the old eggs, I thought I was as likely to get the blame as any one else. Having a stamp in the house with our name and address on it, which we used for stamping our butter paper, I stamped our name and address on every egg. I found it did not take much time to do this. After the first shipment of these stamped eggs went to Ottawa, one of the dealers wrote to me, and offered me five cents per dozen more than I was getting from Mr. Moir. I did not accept the offer, as I considered it my duty to help Mr. Moir to work up a good business. There is no date on our stamp, but I have ordered one with the date on it, so that I can stamp on each egg the date on which it is laid.

There are other advantages in stamping eggs. If an egg has a weak shell, or if it has been slightly cracked with frost, it will break in the process of stamping, and is not lost, while if it was shipped in that condition it might give way and be lost, and also spoil several other eggs.

In the month of January I sold thirty dozen of eggs at 20 cents per dozen, and 10 dozen at 18 cents per dozen, making $7.80. In the month of February I sold 29 dozen at 18 cents, and 28 dozen and one egg at 16 cents, making $9.71.

It cost $3.41 to feed my fowl in January, leaving a balance in favor of the hens of $4.39. It cost $3.19 to feed them in February, leaving a balance of $6.52.

Mr. Moir would have been able to pay 20 cents per dozen had it not been for the bad eggs which he got. In January I lost 20 cents, and in February $1.70. Had it not been for dishonest farmers' wives, in selling bad eggs, we should have been getting 20 cents per dozen. In addition to those who do sell bad eggs being the losers, those who sell good eggs also lose by reason of the dishonest practices of others.

I think eggs should be sold by weight, and any eggs that do not weigh 1 pound 12 ounces to the dozen should be used on the farm.

Our hens have the coldest house of any live stock on the farm. In the coldest weather water will be frozen in two hours after it is placed in the house.

Seeing there is so much profit in fowls, our men have drawn brick, and we expect to have a brick poultry house by another winter.

MRS. JOSEPH YUILL,

Carleton Place, Ont.

[Mrs. Yuill's experience with poultry should prove very serviceable to our readers, who, I trust, will carefully read this article. Does Mrs. Yuill allow the males to run with the hens at all times, or only during the breeding season? I would recommend the feeding of good wheat or buckwheat instead of oats at night, as an experiment. I think you would find much better results. Try feeding the oats at noon instead of ensilage, and note the result, which you might favor us with again. I am glad you have adopted the dating of eggs, for the reasons given in my address at Carleton Place.—ED.]

For FARMING.

Feeding Geese and Ducks.

I see a subscriber's enquiry in the April issue with reference to the best food for laying geese, kind of building to keep them in while setting; also where to keep the eggs of geese and ducks while both are laying. Another breeder asks you to give the best diet so that duck eggs may be fertile and hatch strong ducklings. Although I do not claim to be a professional at poultry-raising, I have generally had good hatches and strong chicks, and I will give you my plan. If it will help you or any of our brother fanciers, I shall consider myself amply repaid for my trouble. My feed for laying geese and ducks has for years been principally whole peas and what grass they can pick in early spring, as I always let my geese run at liberty, and they always have access to plenty of fresh water. I consider plenty of exercise has as much to do with making eggs fertile and chicks healthy as the food. I never try to get my geese or ducks to lay too early, as, unless you are on hand as soon as an egg is dropped, it is very apt to get chilled, and the consequence is a poor hatch, and if we have not a suitable place for the young chicks they are sure to get stunted by the cold damp weather of early spring. The house need not be an extra warm one, unless early eggs are wanted, and then you must make your house to meet your wants. I always set geese on the ground, as that is following nature as much as possible. I would always set duck eggs the same if possible, but it is not always convenient. I always hatch our ducks with hens and seldom fail to get 75 or 80 per cent. of good strong ducklings, and have sometimes hatched every egg; but some seasons are not so favorable, as, for instance, last year. I always keep my eggs in the cellar. Fill a pan or box with bran deep enough to cover the eggs when they are placed on end. Every day, as I add fresh eggs, I turn every egg previously laid. I would like if the gentleman whom you refer to at your meeting in Glengarry would give us his figures in reference to the cost of keep of his seven cows and ninety hens, and the amount of butter and eggs produced.

W. J. HAYCRAFT.

Agincourt, Ont.

[We are indebted to Mr. Haycraft for giving us his methods of managing his geese and ducks, and are sure that the enquirer in the April issue will appreciate his kindness.—ED.]

For FARMING.

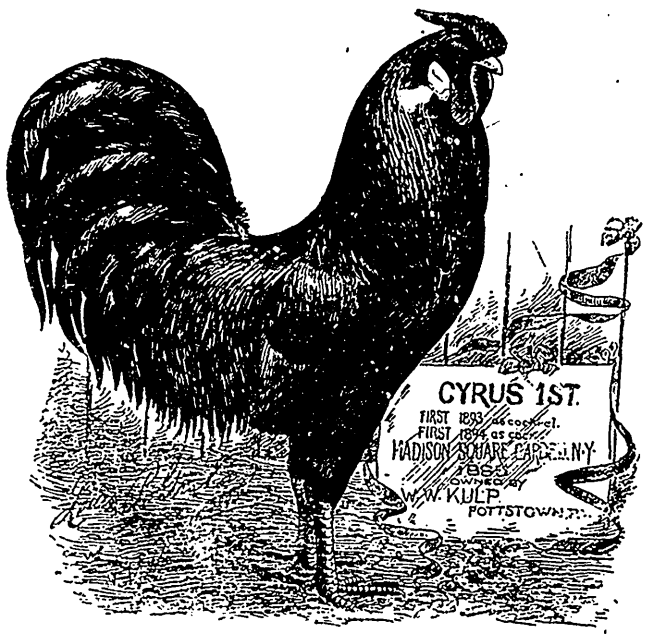
Derbyshire Red Caps.

This variety of fowl derives its name from Derbyshire, in England, where they originated, or were bred extensively for a great many years, and also from the bright red cap-shaped comb which adorns their head, and which, in cocks, grows to a large size. They have never under-

gone any of the processes of breeding strictly for fancy points, utility being placed first, fancy coming in as an after consideration. It is hard to find a handsomer fowl than the Derbyshire Red Cap. The male is a fine upstanding bird of handsome appearance, of broad, full breast, wide across the shoulders, and of good length of limb; the comb should be large, erect, full in the centre, and nicely shaped with spike. In color the cock is a rich, dark red on the back, black on the breast, has a large black tail, large flowing black neck hackle with reddish yellow stripe in the upper part; the saddle hackles are long and owing, and of a reddish yellow color, and the fluff dark. The comb of the hen is similar to that of the male, only smaller. The feathers on the breast, back, saddle, shoulders, and under parts are a rich nut-brown, each feather being tipped with a bluish black spangle. I have been breeding these valuable fowls for the last 4 years. I find them very hardy, and great layers of a fair-sized egg. They are non-sitters, and will lay as many eggs as any other breed, and more than any other for the amount of feed they consume, being very small eaters. Pullets mature early, and have been known to lay when four months old. The cockerels dress up well for the table, and are nice juicy eating. Their standard weights are: cock, 7½ lbs.; hen, 6½ lbs.; cockerel, 6½ lbs.; pullet, 5½ lbs.; although they generally average about one-half a pound lighter. They stand confinement well, being very gentle and docile, often jumping up on my hand and eating out of the dish when I go to feed them. They are my pets. The longer I have them the better I like them. Given a free range they will hunt their living the whole summer through.

W. H. KIRBY.

Oshawa, Ont.



Rose Comb Brown Leghorn.

For FARMING.

Rose Comb Brown Leghorns.

I do not know of any variety of purebred poultry so deserving, and at the same time so well adapted to the artistic breeder, as the Rose Comb Brown Leghorn. I have yet to find the breed that shows more beautiful coloring, more lustrous shading and markings, and more exquisite pencilling on the plumage than the Brown Leghorn. Show me the variety of improved fowls that excels them as layers. The organism of the Brown Leghorn is united with beauty, so that the average fancier or farmer cannot but become attached to them, from the fact that they show an inherent capacity for laying, and in this line they have more than demonstrated their worth. All lovers of fowls must admire the Rose Comb Brown Leghorns, with their low rose comb, terminating in a beautifully arched spike; pendulous wattles, well rounded, free from folds and wrinkles, and smooth and fine in texture; ear lobes pure white, and not too large, and having a velvety appearance; a well-shaped head; a beautifully arched neck, covered with an abundance of hackle feathers (each feather having a well-defined black metallic stripe, running its entire length), free from mottling, and having a distinct border of brilliant red. The breast should be round and full, and carried well forward, and covered with a jet black plum.

age; the wings full, tail large, and sickles heavy, extending well over the main tail feathers, and having no inclination to curl over the back; legs and beak yellow, and the eye clear and lustrous, together with the back and middle of a brilliant red, and tail green-black, making in itself a picture of beauty.

The female is not far behind the male in external beauty. The beautiful salmon-colored breast, shading lighter under the body; the small and evenly corrugated comb, similar to that of the males; pure white ear lobes, fitting close to the head, it being small and well-proportioned; the feathers on the neck having a beautiful and fascinating golden hue, each feather having a metallic black centre. These things, combined with a neat and compact body, make a form in itself that is not easily forgotten. I observe vast changes taking place in the Leghorn of to-day from those of ten years ago; breeders have made extensive strides towards perfection in shape and coloring. However, there are a few obstacles to overcome yet. One is, how to obtain the long-sought-for black metallic stripe in the saddle and hackle; more especially in the saddle. This it is hard to accomplish, but the true fancier is a persistent fellow, and will labor long to obtain what he desires. Lovers of the Leghorn will see in a few years a perfect hackle, free from any mottling, and having a deep slate undercolor extending to the skin. The most difficult problem is how to obtain the above on males and females of a rich brown color, pencilled with darker brown, without too large a percentage of brick coloring in the wings and a fading of the salmon coloring of the breast. As near as I can learn, the first importation of Leghorns was in 1853. They were of the single comb variety. Since that date they have been bred and improved, till to-day we have the world's famous egg-machines' Rose Comb Brown Leghorns. No farmer will err in breeding them, for in cold climates they are not susceptible to frost. If they do not come up to my praises, there must be something wrong with their management, for in my own estimation there is no class of improved fowls to-day that will give the yield of eggs that Rose Comb Brown Leghorns will. They will lay eggs the year round, even when Jack Frost is forcing the mercury down to eight and ten below zero. They are lively birds, and are always on the alert; good foragers, and when at liberty they will find sufficient grain, seeds, grubs, and worms to supply their needs. They also stand confinement well, are not subject to disease, and are rapid growers from the time they leave the shell till they reach maturity. Pullets often lay at four months old. I speak from experience, having several pens of the purest blood obtainable. I have one pen of which I kept a record for eighty-four days, beginning on December 1st, 1895, and ending February 22nd, 1896. This pen consisted of ten pullets and three yearling hens, which were kept in a pen 14 x 16 feet, and they never touched mother earth for ninety-two days. The number of eggs gathered was 781, and the temperature of the outdoor weather registered ten to twelve degrees below zero. I did not have a sick hen, or one troubled in any way, or a bird with feathers pulled out by others. I think this record hard to beat, considering the conditions.

S. CHAMPION,
Proprietor Tuscola Poultry Yards.
Cass City, Mich.

For FARMING.

Notes on Poultry Raising.

In making a choice of fowls, it is well to remember that some breeds are harder to keep within bounds than others, which are not so fond of a wide range. A quiet sort of a hen one usually finds very deep astern, with a large eye, large comb, power to eat, digest, and assimilate a large amount of food.

After careful consideration choose the breed which you like best and can manage to the best advantage, and keep it until you can improve on it. A large part of the profit in the poultry business is in the early egg; and if one provides a snug, well-built house, where neither water nor eggs will freeze, with windows both south and west, fitted with outside storm windows for the winter, and gives plenty of egg-making food, which means meat, milk, clover, bran, and vegetables, along with corn and other grain, winter eggs will be the rule.

A well-built and well-lighted hen house is much better than one which requires artificial heat. If it is not well built, colds, roup, and hosts of other ills come in through the cracks. Good food and plenty of exercise will keep the fowls sufficiently warm. Then there is no danger of their taking cold when exposed to outside air. Give them a covered run, if possible, for wet weather, and a good range for fine weather. A piece of ground that can be plowed up occasionally is excellent. Plum or other trees might be grown in it to advantage.

Keep a plentiful supply of fresh drinking water in clean vessels always at hand. The automatic fountains, having small drinking cups, are best, especially for long-wattled fowls. Water enters largely into the composition of eggs. Conse-

quently, unless hens have a plentiful supply they cannot lay. Gravel, pulverized eggshells, and oyster shells are also required. These things the hen must have to enable her to provide a shell for her egg.

Eggs are a result of health and thrift; and fresh air, clean water, varied food with plenty of range, are essential to the health and thrift of fowls.

Above all things, gather the eggs every day, twice a day if necessary; half the annoyance of stale eggs would be avoided if this rule were observed. Don't market eggs from a stolen-away nest as fresh-laid; they cannot possibly be so; leave them for home use. If you would have good-keeping eggs, don't allow the males to run with the hens. It ought not to be necessary to add this, as so much has been said upon the subject, but so few carry out this rule. Precept upon precept, and line upon line, is the only way to impress these things upon one's mind.

Rose Comb White Leghorn Cock.
Bred by Mr. W. J. Bell, Angus.

MARGERY BROWN.

[It certainly does take a sledge hammer to drive into the heads of some people the benefit derived from keeping the males separate from the hens.—ED.]

STRAY FEATHERS

BONES fed to poultry should be ground while green or raw; if you burn them and then crush them you destroy the animal matter which they contain, and which is very nutritious and beneficial, provided it is fresh.

A POUND of poultry can be produced by the farmer as cheaply as a pound of beef, mutton, or pork, and there is no good reason why poultry should not be found very often on the farmer's table. It is just as profitable to eat the poultry and sell the pork, and a great deal more wholesome, for, as a people, we eat entirely too much pork for the general good. The most of the pork eaten is principally fat, and this does not add to the health and strength of the consumer nearly as much as the consumption of an equal amount of poultry.

IT is a progressive farmer who can succeed in making one acre support a cow, and he is then perfectly satisfied with a profit of $50 from her. If an acre of land can be made to yield any kind of crop that will pay a profit of $50, the success attending such a result will be considered worthy of notice. Profit means, of course, all that portion of the gross receipts which remains after the full expenses are paid, and a profit of $50 an acre is very large. It is easy to figure (on paper) the possibilities of an acre of land, but there are facts abundant to demonstrate that $50 is but a small sum to derive from one acre of land devoted to poultry. It is rare to find a case where a large flock of poultry has been given the space of one acre that the hens did not pay well, although due credit is not always allowed for the "home" market, which calls for poultry and eggs, accounts not being kept with the family table.

A WOMAN is the best poultryman. On account of her inherited nature, she seems to be best adapted to the business. She is considered a success as a financier, and in conducting a large poultry business. At answering correspondence and doing hard work she may not be a success, but just give her a hen to set, or a hen with a lot of little chickens, and her apron stands her in good stead, and a man's hat stands no show whatever. When it comes to feed and care, putting them through pip, gapes, roup, cholera, and other ailings, she is at home. This is the position which she fills upon the field of chicken action, and we could not do without her at all.—*Poultry Tribune.*

Ground Bone: Oyster Shells.

Mrs. H. M., Fulton's Mills, Ont.: In your January issue I notice a description of "Egg Essentials," by "Bessie Brown." I wish to ask where, how, and at what cost I could procure a supply of ground dried meal, or ground dried fish, as mentioned in that article; also where and at what cost I could secure ground oyster shells.

ANS.—The best article to use is green cut bone. It would pay anyone who has two dozen hens to purchase a bone-cutter. I do not know where, in Canada, you can get ground dried fish. The Freeman Fertilizer Co., of Hamilton, one of our advertisers, formerly sold, I think, green cut bone and dried ground meal. Very likely they do so yet. You might write to them. J. A. Simmers, Toronto, another of our advertisers, sells ground oyster shells. The highest price the writer ever paid was $2 per 100 lbs., but he has recently bought them for $1.50 per 100 lbs.

Retaining Moisture in the Soil.

For crops that are sown in June it is greatly important that moisture be retained in the soil. If the land has to be plowed late in May or in June, it may be a difficult matter to retain plenty of moisture in the same. In such instances make a free use of the roller and harrow. Let the land be rolled, if possible, the evening of the day that it has been plowed. Then let it be harrowed soon after. The stiffer the soil the greater the necessity for treating it thus. And if it is to lie some little time before seed is planted, let it be harrowed again. Take two pieces of soil and plow them on the same day. Let one of them go without rolling and harrowing, and treat the other as indicated, and what will be the difference? Why, the one piece of land will lose all its moisture, or nearly all of it, in the absence of rain, and the other piece will increase its moisture. It arrests and holds that moisture which comes up from below. These different ways of treating the land may mean the difference between marked success and complete failure in the crop that follows.

The Maiden Month.

The month of June, the maiden month, should bring balm to every wound and healing to every sore. While everybody enjoys it, who should enjoy it so much as the farmer? The crops have been planted, the supplies for the season are fast growing onward and upward, and, though these want some attention, the anxiety of the spring-time is gone, and it is admissible to take a day for conference on things pertaining to the farm. Let there be a picnic here and there, and let it be attended. It will take only a day or two at the most. It may be made a day of relaxation and a day of interchange of profitable thought. If suitable speakers are secured, much good seed may be sown on such occasions. The young folks of the farm, however, will get the most out of those public gatherings. Let them have the chance. The work of to-morrow will then be all the easier because of the rest of to-day. And life will have more of June in it because of the pleasant little outing. These social gatherings in the woodland or in the public hall are all too few; we ought to have more of them. The summer meeting of the farmers' institute may partake of the picnic character, and it may well be held in June.

Don't Forget the Fodder Corn.

The season of 1895 will not soon be forgotten by the farmers in some sections of the country. At least, it should not soon be forgotten by them. The prices paid for hay were abnormally high, at a time when the prices of grain were so low, and more especially when the finished product was so cheap in nearly every line. From five to ten acres of fodder corn, last season, would have made a great difference in the revenue of many a farmer. And it would have made a great difference in the condition in which his stock went out into the fields a month ago. Lean stock and lean purses go together; hence those who want to avoid both conditions named should use every effort to grow food. But it cannot be said that every effort has been used to grow food where no fodder corn has been planted. It can be grown in any part of the province, and it should be so grown. If the season should prove unusually good for hay, that is a product that will keep, and the corn can be used in its stead. The grower of live stock should never allow himself to be taken off his guard in the matter of food production, for when the supplies of food are scant and the prices of stock and stock products are low he labors at a tremendous disadvantage. Be wary, then, farmers, and don't allow yourselves to be thus caught napping if you can avoid it.

The Turnip Crop.

The turnip crop of Ontario is one of its best crops. It was thought at one time that corn ensilage would drive it to the wall; at least, it was so thought by some persons. But of that realization there is not much likelihood now. It

furnishes so healthy a food for live stock that, in truth, it may be said it has no superior. The tonic and health-giving properties which it possesses render it very valuable as a food for any kind of live stock on the farm, and it grows to great perfection in many parts of our province. Then let it be grown. Oil meal can also be grown by us, but not so cheaply as by our Northwest farmers. They can, it may be, grow flax so cheaply that in that land of low winter temperatures they do not need so much the help of turnips, for the oil cake can be used as a substitute. As the season has now arrived for sowing turnips, may a large acreage be sown. June seems to be the favorite month for sowing the turnip crop in all parts of the province, and after the middle of the month rather than before, though to this there may be some exceptions. Of course, in some parts of the country turnips will not ordinarily produce well, and in these the attempt should not be made to grow them.

Rape Broadcast or in Drills.

This question is one of no little importance, hence it is worthy of more than a passing notice. Some persons claim that it is better to sow the rape broadcast. Others are very decided in the view that it should be drilled and cultivated. And just here it may be proper to state that these opinions which differ so widely, and which would seem so directly antagonistic, may both be based on experience. The difference in opinion has arisen from a difference in conditions. Both opinions are right under certain conditions, and both are wrong under certain other conditions.

When soils are exactly suited to growing rape, when they are fairly clean, and when the season is moist, clearly the best plan would be to sow broadcast, for when all these conditions were present we could be sure of an excellent yield at a minimum expenditure of labor. Of course we could not be quite sure that the weather would be favorable, but we could be certain as to the richness of the land, and as to its cleanliness. If the soil were stirred now and then on the surface after the spring opened until the time had come to sow the rape, the weeds would sprout to such an extent that the soil ought to be, at least, measurably clean. The labor of cultivating the rape would thereby be obviated. To be sure, this would be partially offset by the harrowings given to the ground from the opening of spring until the time came to sow the rape. But cleaning the ground with the harrow is a much less expensive process than cleaning it with the one-horse cultivator. But if the soil is only medium good, and, if it is weedy, undoubtedly the rape should be sowed in drills and cultivated. Unless the same is done it will not grow well. The plants will be delicate, the weeds will smother them, and the whole crop will be a vexation rather than a joy. And this condition of affairs will be aggravated if the season should prove dry.

In Ontario and eastward it would be well, in a majority of instances, to sow in drills, and cultivate. The exceptions would include new lands and mucky soils, newly brought under cultivation. In Manitoba either plan will do, but if the lands are being summerfallowed there, as they often are to clean them, the rape could be sown broadcast with advantage, as the soil could be partially cleaned before the sowing of the rape.

Some experiments have been made as to whether growing rape broadcast or in drills will give the best yields. These will only determine this question for limited areas. In the dry regions where rainfall is greatly deficient, the drill system with cultivation will be far ahead of the other. On the other hand, where there is usually plenty of rain, the broadcast method may be the best. The advantages and disadvantages of the two methods have been pointed out in part at least, as also the conditions which affect both systems, and it must be left for each individual to decide which method will be the best for him to adopt.

The Millet Crop.

The millet crop is worthy of attention in this country, but it is not so important relatively in Canada as in some other countries where grasses do not grow as well as they do with us. And it is not so important in Ontario and the provinces of the Dominion to the east as in those to the west, where clover cannot be successfully grown. But yet it is worthy of attention, more especially in seasons when "a catch" of grass has failed the year previously, or where a meadow, from some cause or causes, has failed in the winter.

Millet, with us, therefore, is to be looked upon not exactly as a catch crop, but more as a supplementary or resource crop. We can sow it on land where meadow has given way as already intimated. We can sow it on a field or a part of a field where grain has been eaten out with wire worms or with grubs, where it may have been drowned with wet, or where it may have failed to germinate properly from too dry conditions. A crop can thus be reaped on those lands the same season, as there is time enough to grow the same after it has become manifest that the crop which previously occupied the land has failed.

But a greater yield can be got from some other crops than from millet. About five tons of green food per acre may be set down as an approximate average for millet, and with the common varieties probably four tons would be nearer the mark. That would mean from one to one and a quarter tons of dry food, but if properly cured it would be food of an excellent quality. From seven to nine or ten tons of green food can be got from an acre of peas and oats grown together, but, of course, the peas and oats used for seed are more costly. From ten to twenty tons of green corn can be grown per acre, but here, again, the corn entails more cost to grow it. The strong point about the millet consists in its supplementary character. It can be edged in here and there where nothing else can be successfully grown with so little labor.

The common varieties usually sown are known simply as common millet and Hungarian grass, but some new varieties, more recently introduced, would seem to produce larger crops, and so much larger as to make them worthy of attention. The Golden Wonder, for instance, and Salzer's Dakota are proving themselves worthy of very general introduction. They are prolific in seed, more especially the former. But some of the later introductions, as California and Japanese millet, would seem to be very prolific in seed.

Millet is sown at the rate of one-half bushel to one bushel of seed per acre. On well-prepared soil the first-named amount would seem to be enough. The seed should be covered with the harrow, and rolled at once after the harrowing is completed, to keep in the moisture. In millet-growing countries, the seed is frequently put in with what is termed the "press drill," and when thus planted it comes up evenly and grows prettily. When millet is well cured, it furnishes delightful hay. When ill cured, it is oftentimes a heartache, owing to its lack of palatability and to the ills which it produces in live stock fed upon it.

Distances for Thinning Turnips.

This much-disputed question has not yet been settled, and probably it never will be to the satisfaction of everyone. Much depends on the soil, the season, and the distance between the rows. Something also depends on the variety. It is evident that when the soil is very rich, the plants should be thinned to greater distances than where it is not so fertile, since it will grow larger tubers. The same is true with a large-growing variety of turnips, and when the seasons are favorable the distance between the plants should be greater than when it is less favorable. The less the distance between the rows also, up to a certain point, the wider apart should be the plants in the row.

And quantity alone is not the only consideration. The dry matter is also an important factor, and the same is true of the average size of the tubers. The greatest bulk or weight per acre does not mean the greatest amount of dry matter per acre, nor the greatest feeding value, nor are turnips under a certain size desirable, since they involve more labor in handling them.

It is evident, therefore, that the problem is a very complex one. But it may be simplified somewhat by remembering that turnips are pretty generally grown at a distance from twenty-six to thirty inches between the rows. The question of distance then becomes mainly one that relates to the space that should be left between the plants in the line of the row. But the influencing factors of soil, season, and the kind of the tuber remain.

In experiments that have been made it has been found that turnips thinned to eight inches in the line of the row and sown with twenty-seven inches between the rows have given larger yields per acre than those thinned to wider distances. The latter were much larger, but they did not produce so much bulk, nor so much weight per acre. But what is even more surprising, the turnips (which were of one of the Swede varieties) gave considerably more dry matter per acre. In fact, the per cent. of dry matter decreased with the increased size of the turnips in every instance. And the weight of the roots thinned to eight inches was about two pounds, which gave them sufficient size for easy handling.

These results are not in the line of the popular idea, but they are significant. Usually it is advocated that turnips should be thinned to twelve inches in the line of the row, and many growers thin them to even a greater distance. Unquestionably, they get larger turnips, but it is almost certain that by thinning them so severely they lose in quantity and also in feeding value. This question is worthy of consideration, for if we lessen our yields by over-severe thinning we alone are responsible.

Farming and Working at Farming.

There is a vast difference between farming in the true sense of the term and working at farming in a sort of half-hearted, aimless way. The man who takes hold of his work in a systematic, painstaking, and energetic manner is sure to make a success of it, whereas the one who simply works at it as a sort of necessity will always be behind in his work, and will accomplish but little.

The first will find true pleasure in his work, and the second will look upon it as distasteful drudgery.

While it is certainly true that, man for man, those engaged in other callings make less money than the average farmer, it is also true that the earnings of the average farmer are far below what they ought to be, and much below what they would be if the same thought and vigor were brought to bear upon farming that is called into exercise by the ordinary business man in the furtherance of whatever he may be engaged in. There is no saying how much wealth in the aggregate would be accumulated by the farming community if all work were done energetically and under the direction of intelligent calculation.

The great lack, farmers, with many of us in our training, is a lack of system and promptness in doing our work. When the bell calls a man to begin his work at six o'clock or seven o'clock, as the case may be, and when he knows that being a few minutes late will mean the loss of a quarter of a day, he is under different training from the man who can get up when he pleases, and can begin and end his day according to the dictates of his own feelings or inclinations. In the latter instance, unless peculiarly constituted, he is apt to do like the cats, which lie at their ease when they ought to be looking for mice.

I do not mean to say that farmers are not, as a rule, hard-working men. There is no class of men who work so hard, physically. But one trouble is that too little hard work is done mentally. Mental work is harder than physical, and that is one reason why more of it is not done. A second mistake arises from the unsystematic way in which work is done, as, for instance, doing a little here and a little there and a little somewhere else, without perfecting anything. A third mistake arises from a want of timeliness in doing work. Just a little behind means increased labor, and a loss of crop more or less through all the season. And a fourth mistake arises from not giving attention to matters in the order of their importance. Things are done that are congenial to the inclinations rather than because of their financial importance.

I am certainly of the opinion that some of us, at least, need to put a little more iron into ourselves. We want a little more starch. Some of us require a little more quicksilver in our composition. How shall we get these things, farmers? Why, we must get them ourselves. Our mothers cannot give them to us after we have grown up. We alone can acquire them now, and, though acquiring them may cost us some pain and toilsome effort, when we get them they will do us good. We may not like to take such medicine, but, if taken, it will prove to us an exhilarating tonic all through life.

It has been said that the military training given to the young men of Germany serves to make them more exact business men or farmers when they take up the one or the other of these branches as their life work. Heaven save us from such a despotism as the military system of Germany; but it is true, at the same time, that if there was any way of teaching our young men order and system in doing their work, we should have more successful farmers. In the absence of such special training, the young man can discipline himself, if he will; but will he do so?

Give heed to these things, young men. They mean a great deal. They will exercise a most important influence on your future, a great deal more than you anticipate. And the self-discipline referred to can never be got so easily as now. The sapling can be bent at will, but only a tempest can bend the grown and gnarled and twisted tree. Farming is a grand calling. It is worthy of all the brains and energy that a man can put into it, and of all the system that he can bring to bear upon it.

Roots as Soiling Food.

Roots are but seldom grown as soiling food, chiefly for the reason that the labor of growing them thus is very considerable. So it has been in the past. But there is another way by which they may be grown without great labor. One of the chief items of labor in growing roots ordinarily is that of thinning them. Now, when grown for soiling uses, the item of thinning may be very largely dispensed with, if not, indeed, altogether. Many are of the opinion that if roots are not thinned they will not grow to any size. This is, in part at least, a mistake; for, while many of them remain small, some will grow up quite large, on the principle of the survival of the fittest. Notably is this true in regard to carrots.

Mangels, Swede turnips, and fall turnips would all answer for such a use, but probably fall turnips would answer better than the other classes named. They grow more quickly and they produce large quantities of food. Some varieties are better than others, but the Jersey Naval would be a good variety to grow. It not only grows freely, but has a large amount of dry matter to the total bulk.

The seed may be sown a little thinly, more especially if the conditions are all suitable. The plants will not then crowd so much. It would be a good plan to have the weeds pretty well out

of the ground before sowing the turnips, that is to say, out of the upper section of the soil. This would be the case if the ground had been plowed the fall previously, and then stirred occasionally with the harrow until the sowing of the seed.

It could be sown on the level, as in the absence of the process of thinning the same necessity would not exist for putting the roots in drills. They could then be cultivated without any thinning. It would be important to have the rows straight, that the cultivator could come close up to the line of the row. It has been demonstrated that roots thus grown have yielded in tops and roots nearly as many tons of food per acre as where the roots have been thinned, and some classes of roots, as mangels, for instance, have produced larger total yields from the roots unthinned. In fact, it is remarkable how nearly in weight the total yields are from a crop unthinned and thinned. But of course the tops, pound for pound, would not be worth so much for food as the roots. However, they make good food.

Such soiling food would come in nicely for cattle, more especially cows, and it would be a nice thing for swine. It would come handy also for sheep, and more especially for those that want a food to push them on, and it would be timely. It would come late after the corn had been nipped with the frost. In this way soiling food could be furnished until nearly freezing-up time; and fully thirty tons of it could be grown per acre.

A Western Farm Steading.

The accompanying sketch represents a farm home in a forest region of the west. The sketch is not typical of the real prairie home, as the forest represented in the rear of the buildings is natural, while on the prairie the protection furnished by trees is from groves that have been planted, except where the location is on the bank of a stream or lake. And on the prairie a bank barn is very seldom erected. The contrast in the growth of the orchard trees is somewhat striking when compared with those in our favorite fruit regions in Ontario. Nor has the forest that majestic growth which characterizes the trees of the land of the maple leaf. The cows are feeding on what is termed prairie land, but it is not the level prairie which characterizes the treeless regions of the west. The drifts have been carried down during the glacial period, for there lie the boulders, as they have lain through the departed centuries, sullen and silent. There is seldom more than one large barn erected upon a northwestern farm home where timber is plentiful. The dry autumns have made it possible to secure the crop easily through stacking.

Sweet Potatoes.

Sweet potatoes are not much grown in our country, but doubtless there are locations where we can grow them, at least to a limited extent. In the United States they are grown extensively. In 1890 the crop amounted to 44,000,000 bushels. The culture of that crop in the United States has been deemed sufficiently important to justify the issuing of a bulletin on the subject by the Department of Agriculture at Washington. It was written by J. F. Duggar, and much of the information given in this paper has been taken from the said bulletin.

The sweet potato is usually propagated by means of buds or shoots from the roots. The roots are planted in hotbeds, and the buds or shoots which develop are then removed and transplanted to the field. It is possible to obtain plants from the true seed, or by planting portions of the roots, but the sweet potato seldom matures seed in the United States. The sprouts or shoots from the parent root are usually spoken of as sets. To obtain these sets, the eyes or buds on the sweet potato must be sprouted. The sets are ready for transplanting by the time they have got from three to five inches above the surface of the ground. And about ninety days are required after transplanting to mature the crop. The number of plants used per acre varies from 5,000 to 10,000.

The soils on which this tuber may be grown vary. Warm sandy soils are excellent, provided they have some loam in them, and are well stored with plant food. Cold clays are very unsuitable for growing this plant. Sweet potatoes should not be planted in any soil which adheres to or discolors the roots. In states where sweet potatoes are most freely grown, they are often made to follow a crop of crimson clover. Deep plowing in preparing the soil increases the yield of the potatoes, but it does not usually produce the most marketable tubers.

Sometimes the ground is made into low ridges on which the sets are planted. The rows should not be less than three and a half feet apart, and sometimes they are four feet, and the plants should not be nearer than fifteen to eighteen inches in the line of the row. In other instances they are planted in squares, and at a distance of not less than thirty inches each way.

The cultivation consists simply of stirring the soil occasionally and keeping it free from weeds.

A Western Farm Home.

The stirring of the soil should be done frequently. Shallow cultivation only is necessary. Some of the cultivators used have vine-lifting attachments. These lift the vines so that the cultivator does not break them, and, in consequence, the cultivation can come closer to the line of the rows than would be possible without such attachments. The vines must not at any time be covered with earth. The vines are prone to root at the joints in moist weather, and sometimes this condition may so prevail as to interfere with the full development of the tubers. Because of this some growers have adopted the plan of lifting the vines occasionally to prevent them from thus rooting, but, generally speaking, it is considered that the benefit will not repay the additional outlay. The yield per acre will probably average not more than 150 bushels, but much larger crops are obtained.

The tubers may be used before they are matured. They are often dug early to secure higher market values than can be obtained later, but when the digging is delayed as far as the season will admit much larger yields are usually obtained. When sweet potatoes are mature they will maintain their color when broken and exposed to the air. But if immature the flesh at the broken parts turns to a dark or a greenish color.

It is common to dig sweet potatoes only in the forenoon, that they may have several hours of exposure before they are lifted. They should be dug only when the ground is dry. It is common to cut the vines with a sharp hoe, and to draw them aside from the row, before the potatoes are dug. The hoe and the plow are the implements most frequently used in digging. As the skin of the tubers is very tender, and as the bruised roots are pretty certain to decay, much care must needs be exercised in handling them. Much care is necessary to prevent the potatoes from spoiling in the cellar. They are very susceptible to the influences of cold and damp surroundings.

Wild Animals in the Northwestern States.

In this age it would seem almost superfluous to say anything about wild animals in an agricultural country. But in the extent to which these prevail we have an index of the extent of the country as yet unoccupied, or, at least, as but sparsely settled. One would think it scarcely credible that in any part of the State of Minnesota the coyote, or, indeed, any other wild animal, would be a menace to agriculture, and yet such is the fact in some localities.

The coyote, a species of wolf, prevails to the extent of seriously menacing the sheep industry in some of the counties If the question is put to the farmers, "Why don't you raise sheep?" the answer most commonly given would be, "We cannot raise them here on account of the wolves." Even in the southeastern part of the State of Minnesota, where settlement is comparatively old, the wolves, which take shelter in the bluffs and groves which grow around them, seriously harass the flockmasters of that region, at least in some localities. They can be fenced against in this age of barb wire fences, but to do this effectively the fence should be high, or they will vault over it.

The writer, when visiting Mora, in Kanabec county, with the Farmers' Institute corps, walked out a mile from the village with a young man, and was shown a wood quite close to the home of the said young man in which bears were still frequently shot.

In the northern part of Minnesota moose are still found in considerable numbers, other species of deer are plentiful, wild-cats are still found in the forest, the wild lynx still prowls around in search of prey, and rabbits are abundant in the groves to the extent of being troublesome to many engaged in growing garden truck. These things are mentioned to show the almost illimitable extent of the lands that have yet to be tilled. For it is a fact that in any country put under careful tillage wild animals will almost entirely disappear unless they are in some way protected, as in Great Britain.

Fox and wolf hunts are common in some portions of the state. There are localities where hunting clubs exist, properly equipped with a complete hunting outfit. The animals more commonly sought in the chase are the fox and the wolf, but sometimes rabbits are the victims, when only some of the members of the hunt clubs are present.

To show the veneration which the real American citizen has for trees, it may here be stated that the natural groves of oak in all St. Anthony Park have been preserved, and in the absence of pasturage, hazel brush and other shrubs, grow up thickly amid the little oak trees that lend a charm to the place. This underwood forms a protection for some kinds of wild animals. Oftentimes, at certain seasons, we can look out from our dwelling and see the wild rabbits at play not fifty yards distant. And it is a very common sight indeed to see the little gopher standing on its hind legs and looking around not fifty feet away.

The gophers of the west are, in some instances, a serious menace to agriculture. They prevail to such an extent that a bounty has been offered by the municipalities for gopher hides, or for a portion of the same, in many parts of the Northwest. And to so great an extent has the bounty been claimed in some instances as to almost impoverish the treasury. Various other means have been resorted to with a view of lessening the numbers of those quaint little workers, which do not diminish with settlement as other wild animals usually do. They multiply rapidly. They honeycomb the ground where they burrow in the earth. They push the earth out of the hole when at work; hence the ground infested by them soon becomes covered with little mounds of earth.

Gophers have, no doubt, inhabited the prairies from the remotest ages. The prairie fires which annually swept over the prairies did not seriously harm them. They were secure in their underground cabins. Their presence has, without any

doubt, been an important factor in reducing the soils of the prairie, and in rendering them fertile as we find them to-day. During the long centuries of the past they have been turning over and over again the soil of the treeless plains, and in consequence of the exposure thus presented to the various reducing elements, as air, and sun, and rain, the further decay of the components of prairie soils has been much hastened.

In addition to the bounties offered for the skins of gophers, the other means adopted of reducing their numbers are such as trapping, poisoning, and suffocation by the use of sulphide of carbon. The latter mode is the most effective, and also probably the cheapest. In some sections gophers do an immense amount of damage to the growing crop. They will move, as it were, in a colony, from a broken sod field to a field of grain growing near by, and destroy a large portion of the same in supplying their wants. But it is with gophers as with chinch bugs, they cannot very well withstand diversified farming. As soon as immense fields of corn are grown all over the prairies of this western country, the gophers must rapidly diminish, since the cutting off the food supplies by the cultivation given to hoed crops must drive them to seek other quarters, where they will be less disturbed.

THOMAS SHAW.

University Experiment Farm,
St. Anthony Park, Minn.

Give the Boys a Chance.

Editor FARMING:

In the spring of 1895, a farmer living on the bank of the St. Francis River, Que., gave his son a chance to plant a plot of potatoes for his own use. The lad was often seen by people passing his father's place with his shirt sleeves rolled up and hoe in hand, working diligently, hilling up and tending his little patch. When fair time came round and his father was sampling his vegetables and preparing them for the exhibition, the son told his father that his potatoes were better than his father's. He then paid his entrance fee of $1 in his own name, and was successful in winning first prize over his father. Another competitor, who for many years had carried off the first prize on his potatoes and pumpkins, got very angry at being beaten by a boy, and, instead of waiting for another year and trying conclusions with the boy a second time, he came before the Board of Directors and demanded that the boy should not be allowed to exhibit potatoes for the future until he became of age and owned land himself. The board passed a resolution to that effect. Now, as Sam Slick would say, I think this is very "small potatoes." How do you manage country fairs in Ontario? I would like to hear from someone on the subject. It may be said that a father and son should not make two exhibits in the same department and carry off all the prizes; but what does it matter, so long as theirs is the best exhibit and each one pays his entrance fees? I say, give the boys an interest in the farm.

EXHIBITOR.

Rye for Hay.

P. M., Mennona: Will winter rye make hay if cut before it comes out in head, and what would its quality be if properly cured?

ANS.—See reply below.

Rye for Ensilage.

J. J. C., Morewood: (1) At what stage should winter rye be cut for ensilage? (2) Is it a profitable crop to grow for summer feeding? (3) At what stage should it be cut when cured for dry fodder?

ANS.—(1) Winter rye should be cut for ensilage when it is all nicely out in head. Experiments in making ensilage of rye are reported by Prof. Thomas Shaw in the Ontario Agricultural College reports of 1890 and 1891. It is there stated that rye should be very well tramped when putting it into the silo. The further difficulty was found that when the ensilage was being fed, unless it was in a very small silo, the surface exposed dried too quickly; in fact, so quickly that it measurably destroyed the relish for it by the stock. But when fed fresh and moist from the silo they ate it fairly well. On the whole, it is not to be regarded as a very excellent crop for the silo.

(2) One of the best ways of using rye is to pasture it. When thus used it should be sown early. It should be sown at the rate of 2 to 2½ bushels per acre late in August. If too much top is made in the fall have it pastured off. In the spring it furnishes excellent pasture, and lots of it. Clay land is least adapted for growing such pasture, for it is apt to poach and become hard. On sandy land or loam soils such a result does not follow. When thus pastured another crop may follow the rye, as, for instance, corn, rape, or even turnips. The same is true when the rye is cut for hay, and such a process is also very helpful in destroying weeds.

(3) When cured as dry fodder rye should not get further than the bursting or shooting of the ear. It should not be allowed to get out in head, for then it will get too woody for good feeding. It may be cut with the binder when small sheaves are made; but, of course, it will dry much more quickly when cut with the mower. One difficulty in the way of curing it thus arises from the trouble found in drying it at that season if the weather is showery.

THE healthfulness of milk is of more consequence to public health than adulterations. Milk receivers should use every care in keeping the surroundings of the milk room free from decaying germs and other offal matter. Refrigerators, sinks, and all utensils should be kept thoroughly clean.

GOOD feeding should not be governed by the price of dairy products. Neither should the enthusiasm of the dairyman fluctuate with the market. Constancy is needed in both cases, and the dairyman who is going to succeed must pursue a definite system of feeding, regardless of fluctuations in the prices.

YOUNG cows with their first calves, and some cows when their calves have been taken away after having been allowed to suck for a few days, are prone to tantalize their owners by holding up their milk. The remedy is not to allow the calves to suck at all when the cows calve, but to remove them and feed by hand.

THE season for grass cheese opened about two weeks earlier than usual this year. We may count on not having any fodder cheese to dispose of after May 1st. In that case May goods ought to have the qualities of the June makes of other years, and should possess, in a large measure, the keeping qualities which characterize our well made June cheese.

OUT of 593 analyses of butter from as many dairies in Denmark, only five showed more than 16 per cent. of water, the maximum amount being 16.51 per cent., while more than 90 per cent. of the total number of dairies made butter with an amount of water between 12 and 15 per cent The minimum amount of water was between 10 and 11 per cent.

AN emulsion made of kerosene and common soap, in equal parts, will kill lice and other vermin on calves. To make the emulsion, dissolve some common soap in hot water, then add an equal quantity of kerosene; shake thoroughly, and put away in bottles for future use. When wanted, warm water is added to four times the quantity of the mixture, and the whole is well beaten together. It is brushed into the hair where the lice are to be found, as along the back, on the flanks and brisket.

THE "wooden cow," or the tree that gives milk, is one of the curiosities of some of the warmer climes. It is described as a tree from thirty to forty feet in height, with a diameter, at the base, of nearly eighteen inches. It occurs plentifully in the forests of British Guiana, and its bark and pith are so rich in milk that a moderately sized stem, which was felled into a stream, in the course of an hour colored the water quite white and milky. The milk is thicker and richer than cow's milk, and of a perfect flavor, the natives using it as a refreshing drink, and in all respects as animal milk.

A GREAT many calves are now reared on separated milk, and when care is employed no unusual percentage of deaths occurs. Everything depends upon the condition of the milk. If the milk is sour it should not be given to young calves. Linseed makes a good mixture to feed with skim-milk. When milk is heated for separating it becomes sour quickly unless it is cooled immediately after separation. In the best creameries in Denmark and Sweden the separated milk is heated to about 150° F. and then cooled very rapidly, with the result that it remains sweet for a considerable time, and forms an excellent and safe food for calves.

Winter Dairying.

The success which has attended the winter creameries during the past winter is very gratifying, and should induce more of our large factories to keep their factories in operation all the year round. Though the prices obtained have not been very high—ranging from 21 to 23 cents per pound net—they have been high enough to return a good profit to the man who makes a business of dairying, and has the proper food for his cows

during the winter months. The cows have to be fed during the winter, in any case, and should be well fed and cared for if they are expected to do their duty during the summer, and if by giving them a little extra feed they can be made to pay for their board their owner will have money in pocket. Of course winter dairying cannot be carried on successfully unless adequate preparation is made for it. Good warm stables must be provided, and suitable food, such as corn ensilage, etc., if the largest profit is to be derived from the business.

One of the encouraging features of last winter's butter business was that considerable butter was shipped to the British market, and netted as much, if not more, than it would do on the local market, which has not been the case since winter dairying was first inaugurated. There is no reason why the old country market for our winter butter cannot be further developed, if the right kind of stuff is sent across and put up so that it will suit the consumer. The experience of the past year or two will have taught our butter men the kind of goods required, and what kind of package is needed to get it across in the most suitable shape.

There was one drawback which winter dairymen had to contend with last year, and that was scarcity of feed. In some of the districts where winter dairying is largely carried on the effects of the drouth were very severe, and left many farmers with scarcely enough feed to keep their cows alive, let alone keeping them in condition for producing much milk. This scarcity of feed is also having a serious effect upon the cheese business in many places. A great many farmers had to sell their cows, or dispose of them for beef early in the winter, owing to a scarcity of feed. This is another factor which should cause us to look for higher prices later on in the season.

The Sour-Whey Question.

In discussing the importance of quality, returning the sour whey in the milk cans must necessarily be considered. This practice is the cause of many bad taints and flavors in our cheese. About three-fourths of the factories in Ontario return the whey to the patrons, and if the practice is to be continued it should be caried on in the very best way possible. All whey tanks at the factories should be elevated and kept thoroughly clean. The whey can then be pumped up by means of an ejector that will heat it to from 130 to 140 degrees. Such a temperature will tend to prevent the growth of germ life, and to cause the whey to keep sweet longer. Then, if the whey is all taken away every day and no sediment is allowed to accumulate in the bottom of the tank, the quality of the whey will be improved. As soon as the whey is returned to the patron, it should be dumped out and the milk can washed with lukewarm water and thoroughly scalded, and then placed where it can get the fresh air and the sunlight, which is an antidote for all kinds of germ life.

One of the great difficulties in regard to returning the whey is that patrons are neglectful. We have frequently seen sour whey in the milk cans at 6 p.m., and we have also seen the whey dumped out just before milking in the evening, the can given a half wash, and the new milk put into it. It is practically impossible to preserve the milk in good condition under such circumstances. The trouble with this sour-whey business is the neglect of a few patrons. Where fifty patrons are particular, and will dump the whey out and clean the cans well, five may neglect it, and their neglect will injure the quality of the whole product. If every patron would give this question the strictest attention, there would not be any cause for the present strong agitation against returning the whey. But as it is difficult to get every patron to do his duty in this matter, some other plan should be adopted.

Everything considered, the factories where the whey is not returned get the highest price for their product, and have the highest reputation for the quality of their goods. By selling or disposing of the whey at the factories, there is no risk run of having the milk contaminated by the sour-whey flavor through the neglect of some careless patron. Of course it is taken for granted that the whey, if sold, will not be fed near the factory. By the elevated tank it can be run to any distance; and the hog yard should be at least thirty rods from the factory, and, if possible, to the north, as the prevailing winds are not from that direction during the summer.

Taking everything into account, patrons will receive as good, if not better, returns for their whey if sold than if it is returned. In some factories where the whey is sold enough is received from it to pay for hauling the milk. This is quite an item. Besides, it costs on an average about 20 per cent. more to haul milk where the whey has to be returned than when it is not returned. It is also to be noted that the sweeter the whey the more feeding value it has. Under the very best conditions, it is almost impossible for the patron to get it without its being so sour that nearly all the feeding value is gone. It would, therefore, be as profitable, if not more so, for the patron, and much better for the quality of the cheese pro-

duced, if all our factories would dispose of the whey by some other method than that of returning it in the milk cans. The cheese exporters are condemning the practice very strongly, and in view of this it may be necessary for our factories to sell or dispose of the whey at the factory, if they wish to get the highest price for their cheese.

Caring for Milk for Cheesemaking.

In our remarks about keeping up the quality of our dairy products, we drew attention to the importance of each factor in our co-operative cheese system giving particular attention to the little details of the business. A great many of these little details are connected with the care of milk, and are, therefore, connected with the duties that the patron has to perform. The patron's duties are important, because he has control of the cow which produces the milk, and of her feed, and also control of the milk from the time it is taken from the cow till it is placed on the milk wagon to be taken to the factory; or, in other words, at a time when that milk is most susceptible to taints or foul odors. Therefore, his duties are important, and the success of the factory to which he belongs will depend very largely upon how he performs them. Too many of our patrons look upon the maker as the only responsible party in the concern. True, he is the only one in the concern who is held responsible according to agreement. But, if he does not get a good quality of milk from the patrons, they have no right to demand a good quality of cheese. Of course, the maker has the privilege of rejecting any milk he may consider unfit for making fine cheese, but the difficulty is that he cannot always tell when taking in the milk in the weighing porch whether it is going to have a bad flavor or not. Very often a can of milk may seem all right when taken, but after it is heated up and the cheesemaking process has begun a bad flavor may develop that will prevent a really fine cheese from being made. Such flavors are due to some forms of germ life getting into the milk at an early stage when under the patron's control, which are not sufficiently developed when the milk is taken in for this particular flavor to be recognized. This is something the maker cannot control.

The majority of bad taints in milk are caused by some foul flavor coming in contact with the milk after it is taken from the cow. Taints caused from the feed a cow eats, or from drinking bad water, are, as a rule, more readily detected immediately after milking, while those caused by some forms of germ life getting into the milk may not be detected for a considerable time after, until the milk is heated in the factory and when the process of cheesemaking has begun.

The chief sources from which bad taints get into the milk, or where germs producing bad taints are found, are unclean milk cans, or milk pails; filthiness in the milking; badly ventilated stables; decayed animal or vegetable matter; stagnant pools of water; hog yards; barnyards; manure heaps; swill barrels; whey tanks; places where hogs are fed, and any place whence there is a foul odor. The patron's duties will therefore be to preserve the milk in the very best way possible, and to prevent it from coming in contact with any of these sources of germ life. This can be done and the effects of the germ life overcome by giving attention to the following:

(1) Cleanliness should be observed in every particular. All milk pails and milk cans should be washed first with lukewarm water, and then thoroughly sterilized by boiling water. Never wipe a pail or can after using boiling water. It is better to let the surplus water dry off. After sterilizing, place all milking utensils where they can get the direct sunlight.

(2) Before beginning to milk, the udders should be brushed clean. It is better to milk with dry hands.

(3) Do not leave the milk standing in pails in the stables or near manure heaps for any time after milking, as it will become contaminated with the peculiar odor of the stables. This odor is generally known to dairymen as the cowy odor, and is very objectionable for cheese or butter making.

(4) Strain the milk as soon as the milking is done. If any specks of dirt or other impurities have got into the milk, they should be taken out immediately. An ordinary wire strainer with a clean cloth over or underneath it will give the best results.

(5) *All milk for cheesemaking should be thoroughly aerated as soon as it is taken from the cow.* This can best be done by stirring with a long-handled dipper for from fifteen to thirty mintes, or till it is as cool as the atmosphere; the time required depending largely upon the quantity of milk, and whether it has any bad odor or not. The morning's milk should be aerated as well as the evening's, and it should be as thoroughly aired in cold weather as in warm. A thorough aeration of milk will improve the quality, and increase the quantity of cheese that can be made out of it. There are certain forms of germ life that are desirable to have in the milk for cheesemaking; these, as a rule, will grow better in the presence of oxygen. The forms of germ life that cause bad taints in milk as a rule will not thrive in the presence of pure oxygen. Therefore,

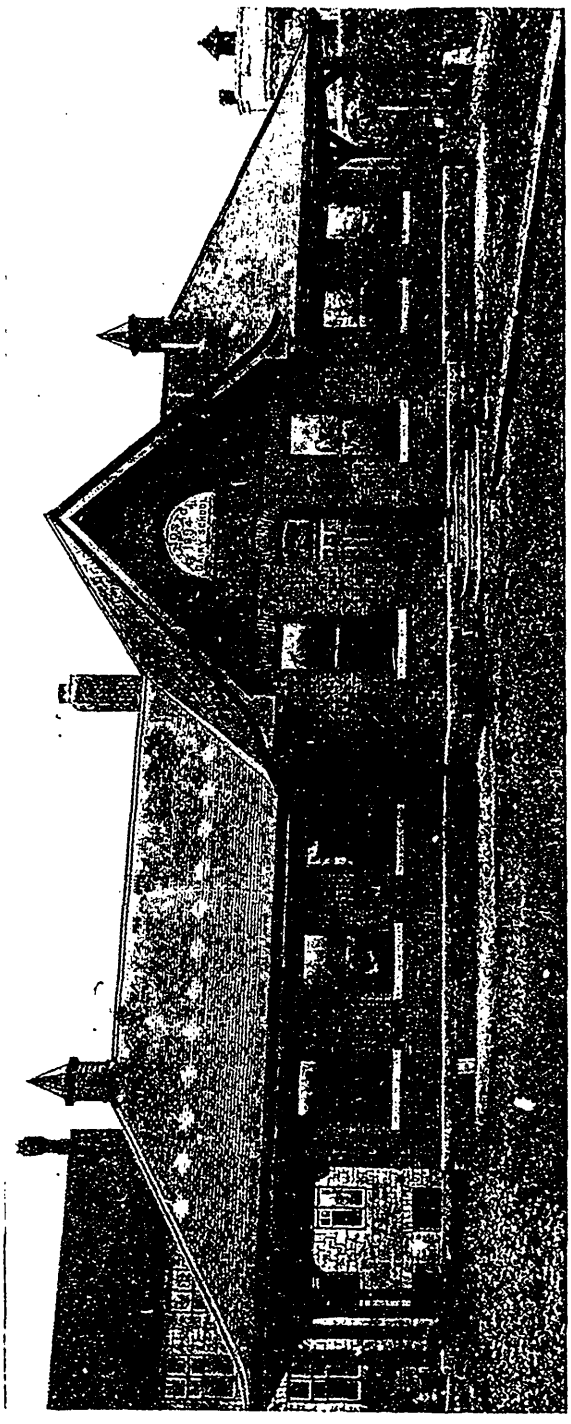
if milk is exposed to a pure atmosphere, the presence of the oxygen in the air will tend to promote the growth of those bacteria that are desirable to have in the milk, and at the same time will tend to counteract the growth of the undesirable forms. Milk should also be aerated in order to get rid of the animal heat. This will also help to get rid of any taint caused by the food a cow eats.

(6) In keeping milk overnight for cheesemaking, if it is thoroughly aerated, there will be no need of putting it in cold water, excepting possibly on a very hot, muggy night, or when keeping Saturday's milk till Monday. After aeration the milk can should be placed in a pure atmosphere. A good plan is to leave the milk in pails and hang them on a pole several feet from the ground, out of reach of cats or dogs; then, if a covering is arranged over them to keep the rain off, the milk will keep till the next day in good condition. Some recommend covering the milk can tight when aired. This would be advisable if the surrounding air is not the best.

Kingston Dairy School.

The Kingston Dairy School is located almost in the centre of the city, adjoining the city park. The building is of red brick, of neat and attractive appearance externally, while inside everything is finished in the best of style, and presents a model of cleanliness and order.

The school is divided into two main departments, viz., "cheesemaking" and "buttermaking." Each part is so arranged as to represent a model factory, both in construction and equipment, in order that students may work, as nearly possible, under the conditions existing in factories. The con-



Outside View of Kingston Dairy School.

veniences for receiving and weighing milk are of the most approved kind, each department being provided independently. In the butter room there are three of the best and most commonly used centrifugal cream separators, known as the "Alexandra," the "Alpha de Laval," and the "Russian." A "Mason" power butter worker and a square churn, "Trunk" style, with the usual small utensils, complete the apparatus.

Off the butter room is a first-class refrigerator for storage of butter.

The cheese room contains two cheese vats of 2,000 pounds capacity each for regular practical work, while a number of smaller ones furnish the means for demonstrating experimentally certain features of the process of cheesemaking.

One room is devoted to milk testing, where here are several kinds of Babcock milk testers, lactometers, etc., for determining the purity or value of milk.

Power is supplied by a 20 horse-power boiler and a 12 horse-power engine.

The woodwork of all machinery and apparatus is finished in the natural wood. The steam fittings and piping are all of galvanized iron, which prevents rust and is a great improvement on the usual plain iron. The fitting up of the school was all done under the personal supervision of the superintendent, Mr. Ruddick, who introduced many ideas of his own, suggested to him by his long and varied experience.

The staff consists of a superintendent and a lecturer, and instructors in buttermaking, cheesemaking and milk testing, with the necessary assistants. In addition to those named there is also a lecturer on bacteriology.

Since the opening of the school Mr. J. A. Ruddick has been superintendent; Mr. L. A. Zufelt, instructor in buttermaking; Mr. G. G. Publow, instructor in cheesemaking; and W. T. Connell, M.D., M.R.C.S. Eng., professor of pathology and bacteriology at the Royal Medical College, lecturer on bacteriology.

Mr. J. A. Ruddick, superintendent and lecturer, received his first general experience in the dairy business, after learning cheesemaking as superintendent of the Allen Grove cheese combination, owned by Mr. D. M. McPherson, M.P.P., of Glengarry. This position he held for seven years, and for two years afterwards he was employed as instructor to the Eastern Dairymen's Association. In 1891 he was appointed to his present position on the Dominion Dairy Commissioner's staff. During this period his experience was of a wide and varied nature, and his work has taken him to every part of Canada and has given him an experience of which few men in Canada can boast. He was connected with the Dominion dairy exhibit at the World's Fair.

Mr. J. A. Zufelt, instructor in buttermaking, is a thoroughly practical buttermaker and cheesemaker. He took a course at the Guelph Dairy School the first year it was open, and was instructor in milk testing in that institution during its second term. Since then he has been employed on the Dairy Commissioner's staff, and has been in Manitoba in the interest of the business. He was appointed here when the Kingston school was opened, and has given entire satisfaction ever since.

Mr. G. G. Publow, instructor in cheesemaking, though a young looking man, has been engaged in cheesemaking for twenty-three years, and has been one of the most successful cheesemakers in Eastern Ontario. His work as instructor to the Dairymen's Association for the past seven years is too well known among cheesemakers to call for any comment. It is safe to say that no man has ever filled a similar position with more credit to himself and greater satisfaction to those he has instructed.

The day's work in the school begins at nine o'clock, at which hour a lecture is given by either Superintendent Ruddick or his assistant on some subject relating to the manufacture of butter or cheese, or the management of factory or dairy farm.

After the lecture the practical work begins. The students are put to work manufacturing butter and cheese from the milk which has been received, under the direction of the several instructors. A sample of each lot of milk received every day is taken and tested by the instructors, assisted by the students, thus giving the latter ample practice to become proficient in this sort of work. Great stress is laid upon the importance of cleanliness in and about the factories.

The courses provide practical instruction in cheesemaking, buttermaking, and milk testing, and the lectures cover such subjects as "Business Management," "Composition of Milk," "Preparation of Milk for Cheesemaking," "Principles of Cheesemaking," "Practical Cheesemaking," "Separation of Cream from Milk," "Buttermaking," "Creamery and Cheese Factory Machinery," "Care of Engine and Boiler"—in short, every subject upon which a thoroughly competent, up-to-date cheesemaker or dairy farmer should be informed.

Plans are now under consideration for the enlargement of the building to accommodate the increased attendance, which comprised over one hundred students this last term.

For the past two seasons the school has been

Officers and Students in Special Course in Cheesemaking, Kingston Dairy School, 1890.

conducted by the dairying service branch of the Department of Agriculture, Ottawa. In future the Ontario Government will assume control of the school.

Cheese Factory Syndicates.

We give below the outline of the syndicate scheme proposed by the Western Dairymen's Association, and sent out by the secretary. Though the scheme may not be adopted by many of the factories this season, it will be well for dairymen to consider it, as it will undoubtedly be the means of bringing about a more uniform quality of cheese at comparatively little cost. The better the quality and the more uniform it is, the better the price will be. A few poor factories in any locality will injure the sale of the product from the good factories. So it will be in the interest of the more advanced as well as the backward factories to take up some such scheme as the one proposed.

It has been heartily endorsed by the leading cheese exporters in the west, who strongly recommend its adoption by our factorymen as a definite, systematic scheme for bringing about more uniformity in the quality of Western Ontario cheese.

(1) To secure a uniform quality of cheese there must be uniform methods of making, and to secure uniformity in making there must be a uniform system of instruction.

(2) There are about 350 cheese factories in Western Ontario. It is proposed to organize these into syndicates of from fifteen to twenty-five each.

(3) A thoroughly competent instructor and inspector will be placed over each syndicate, who will visit each factory at least once a month.

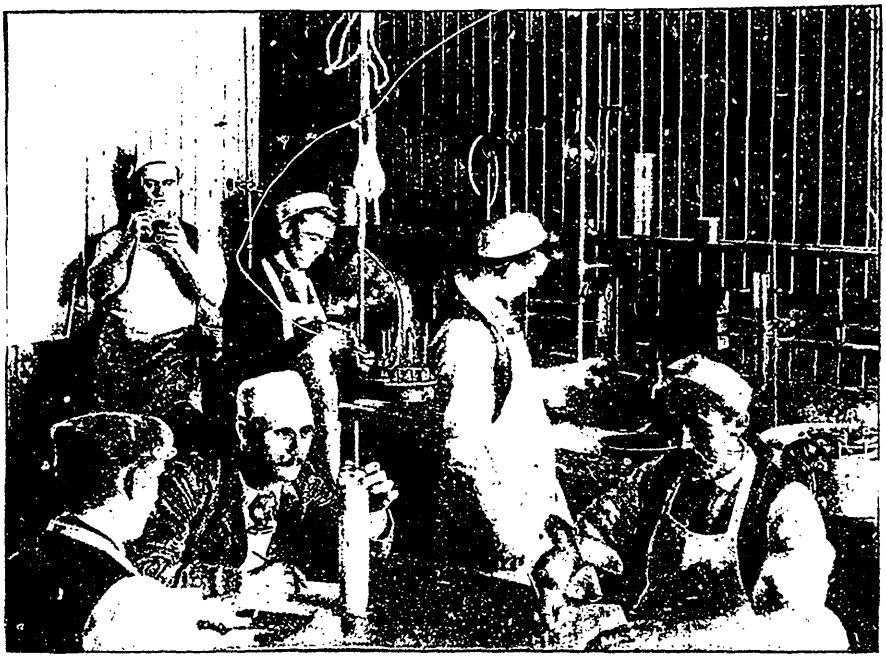
(4) An inspector or inspector-general will be employed by the association to look after and direct the syndicate instructors.

(5) All instructors will be responsible to the association for the work done in their various spheres.

(6) A fair division of the cost would be for the factories to pay the salary and expenses of the instructor over their respective syndicates, and the association to pay the salary and expenses of the inspector-general, and to manage the finances and control the work throughout.

(7) The salary and expenses of syndicate instructors are estimated to cost from $500 to $700 per annum.

(8) This would require an average of from $20 to $27.50 from each factory in syndicates of twenty-five, and from $35.33 to $46.50 from each



Kingston Dairy School—Students Testing Milk.

factory in syndicates of fifteen factories, and proportionate amounts according to the number of factories in a syndicate.

(9) Two schemes are proposed for fixing the amount each factory should pay; a certain rate per ton of cheese, or to guarantee a certain number of members for the association according to the size of the factory.

(10) The average quantity of cheese made in each factory is estimated to be 60 tons. At this estimate, a rate of about 40c. per ton would be needed from the factories. If a sliding scale were preferable, the following would meet the requirements: When the make is under 50 tons, 50c.; from 50 to 75 tons, 45c.; from 75 to 100 tons, 40c.; from 100 to 125 tons, 35c.; from 125 to 150 tons, 30c.; and over 150 tons, 25c.

(11) If each factory in a syndicate will guarantee 55 members for the association at 50 cents each, or from 50 to 90 members, according to the size of the factory, the association will undertake to pay the cost of syndicate instructors and to manage the whole scheme. A tax of 25 cents per patron paid into the association would also enable it to pay the total cost of the scheme proposed.

(12) The membership scheme seems to be the more favorable one for the factories to adopt, as each patron who becomes a member will receive reports and agricultural literature worth ten times the admission fee, thus leaving the cost of instruction free.

Western Dairymen's Association.

Mr. J. W. Wheaton, secretary of the Dairymen's Association of Western Ontario, has issued the "Annual Prospectus," giving an account of the work of that organization for the present season. The following are some of the important points drawn attention to:

"There is a constantly increasing demand for improvement in quality, which will require the best efforts of the maker in making and the patron in caring for the milk to meet successfully. It should be specially noted by dairymen, that the lower the price of dairy products is the better the quality demanded; or, in other words, it is more difficult to dispose of inferior goods when the price is low.

"We would draw special attention at this juncture to the practice of returning the sour whey to the patrons in the milk cans. If you have not already decided to discontinue the practice this season, we would strongly urge upon you the absolute necessity of having the whey tanks

Kingston Dairy School—Students Making Butter.

thoroughly cleaned at least twice a week, and that you insist upon every patron dumping the sour whey out as soon as the milk wagon returns from the factory, and washing the can immediately, first, with lukewarm water, and then scalding with boiling hot water before placing the can where it can get the direct sunlight. Unless every patron gives this the strictest attention, it is hard to estimate the injury that will result to our cheese trade by this pernicious practice.

"We would urge upon factorymen the necessity of coming to some understanding whereby a patron's milk, if rejected at one factory, will not be taken in by a neighboring factory. Were this done, and strictly adhered to, outlying patrons would give better attention to their milk.

"There have been many complaints from shippers as to the slovenly and careless manner in which cheese are boxed and delivered at the shipping points. Stong, well-made boxes only should be used, and made just high enough and of the right size to fit the cheese snugly. Where it is necessary to deliver cheese during wet weather, a tarpaulin or suitable covering should be provided to protect each load on its way from the factory to the station."

Ropy Milk.

This condition is caused by slight derangement of the system, the liver generally being the organ chiefly affected. Give a fair dose of Epsom salts (¾ lb.) to each cow, and follow this with a dose each alternate day of the following: Bicarbonate of soda, 1 ounce; extract of taraxacum, 4 drachms; extract of gentian, 4 drachms; water, 3 quarts. Dissolve the taraxacum and the gentian with 1½ pints of the water (hot), and the bicarbonate of soda in the remaining half pint. Mix the whole, and give when sufficiently cool. Allow your cows to have access to rock salt.

The Yellow Color in Butter.

According to Dr. Luigi Careano, the fact of butter being colored yellow when the cattle are consuming green fodder, and pale or white when they are living on dry food, is probably due to the decomposition of chlorophyll in the organism of the cow, brought about by sulphuretted hydrogen. He made experiments in connection with this phenomenon upon extracts from green grasses, chiefly of the Poa tribe, also of dried samples of the same kinds, and found that not only the alcoholic extracts obtained after treating them with alcoholized and acidulated water, but also the chlorophyll remaining after evaporation of the spirit, presented different appearances in the spectroscope; while chlorophyll obtained from fresh grass showed an absorption line in the red, that extracted from dried grass presented no such line. Further, the chlorophyll from fresh grass was converted to a yellow color by sulphuretted hydrogen in diffused daylight. The investigator's further deductions, based upon the constitution and operation of the digestive organs of the ruminants, lead him to conclude that, probably, the modification of the chlorophyll by sulphuretted hydrogen takes place, and the product passes into the milk; at least, that there is no physiological objection to this theory, which receives additional support from the fact that hens that have access to grass lay eggs with yolks of a deep yellow. The eggs of those, on the contrary, that consume exclusively dry food show a much paler colour in the yolks. The author suggests that a bolus containing chlorophyll should be administered to milch cows fed exclusively on dry fodder, and the coloration of butter obtained in this way.—*Milch Zeitung.*

Milking with Wet Hands.

Editor FARMING:

SIR,—I saw, in the April issue, an article on milking with wet hands. This should never be allowed. I have been manager of a large herd of Jersey cattle, and I never countenanced such a practice. In wintry weather it causes the teats and udder to crack, and the scales that form fall out between the fingers of the milker and make a dirty mess. I always brush the cows' udders with a "Dandy" brush till they are clean. Then, as most milkers hold the milk pail under the cow and sit close to their work, there is no danger of dirt falling into the pail. The writer of the article I am referring to says: "Let us look to nature. The calf does not dry-milk." No more does it use hands, but it leaves a salve on the teats and udder that is very healing. Some persons milk by stripping. Such should never be allowed.

The writer further says: "What is the difference between wetting the scales and letting them fall into the pail and get wet there?" The scales that are wet on the udder fall into the pail in a softened or liquid form and are mixed with the milk, while those that fall in dry float and remain on top, and are caught in the strainer.

Toronto. A YOUNG SUBSCRIBER.

REMOVE old, withered fruit from the tree, if you can conveniently reach it.

A GOOD artificial fertilizer for an acre of apple orchard: 100 lbs. of nitrate of soda; 600 lbs. of bone meal; 200 lbs. of muriate of potash.

GIVE pigs and sheep the range of the old apple orchard. They will eat up the fallen fruit, and destroy many worms which would otherwise produce a second brood.

ALL varieties of fruit, except Crawford and kindred varieties of peaches, promise well. Unless something untoward happens, we shall have abundance of fruit this year.

ANY soil that will grow weeds and hold moisture, and that can be cultivated, can produce strawberries. Matted rows are more easily kept than hills, and do not need mulching, and, as a rule, will yield more per acre.

WATCH for worms on the currant and gooseberry bushes. It is astonishing how much mischief they can do in a day. Have hellebore and a powder bellows ready. Apply the dust early in the morning, while the dew is still on the bushes; the moisture catches and holds the poison till the worm is ready for breakfast.

IF you notice gum exuding from the bark of a tree you may infer that there is something wrong. Either an insect is or has been attacking the tree, or some accidental injury has been sustained. Look to the wound of a tree as carefully as you would to a sore on one of the farm animals.

DON'T spray while there is any bloom on the trees. It will kill the bees, and even the brood of young bees that is being fed at the time may be destroyed. There is no insect or fungus that cannot be destroyed as well before as after the time of blossoming. It is also, in Ontario at least, an offence punishable by law.

THE soil of the orchard should be frequently stirred in the summer months. Two valuable results are produced by frequent cultivation. The food material in the soil is made available for the use of the trees, and moisture is kept in the ground. Weeds are, in a way, one of the best friends the fruit-grower has, for in removing them the soil is cultivated.

FOR insects that suck the juices of trees the kerosene emulsion is the popular poison. It is not a poison in the ordinary sense of the term, but it does the work just as well. If you let fall a tiny drop of kerosene on an insect—a fly or a cicada, for instance—you will see that the insect will quickly perish. The oil is very fine and penetrating, and stops up the breathing pores of the insect, so that it is quickly choked to death. The aphis is best combated by the kerosene emulsion. This creature multiplies with extraordinary rapidity, and infests the tender shoots at the extremities of the branches of the peach and pear. It is one of the worst enemies, and at the same time one of the most interesting, that we have to fight. The kerosene emulsion is made as follows: Take two ounces of hard soap and dissolve it in a quart of hot water; add half a pint of kerosene. Mix them thoroughly by violently churning or shaking. Then dilute with three quarts more of water, and stir again briskly. Apply to infested limbs with a syringe.

The Month of June.

"What as rare as a day in June?"
—*Lowell.*

The leafy month of June is again with us. Nature is in its season of fullest freshness and vigor. The moisture of the spring and the warmth of summer combine to give all vegetation luxuriant growth. Forest and field, orchard and garden, lawn and meadow are covered with green. The air is filled with the singing of birds and the fragrant odor of flowers. Everything that has life and liberty is rejoicing in its existence.

Now is the season of the year when our homes,

whether in town or country, should appear in their greatest beauty. How much more attractive they are when surrounded by trees and vines and bushes! How unlovely they are when bare and lonely! The outward appearance of a home indicates unmistakably the character and quality of its occupants. If it is untidy and slovenly, so are they. But if there is refinement and taste shown in the environment of the home, the people have the same qualities of mind. When one sees a farm on which the most conspicuous objects of view are the barnyard, or hogpen, or poultry yard, one cannot but form conclusions

Boston Ivy.

unfavorable to the owners. These objects should not be obtruded; they should be in the background, concealed from view as much as possible by a decent protection of buildings, by hedges, fences, shrubs, or trees.

It seems to me that it should be a matter of discussion and study in each household, and an object of ambition as well, how to make the home surroundings beautiful. What portion of land about the house to allot for this purpose, where to construct the walks, here and there a flower bed of graceful design, an ivy or other climbing plant, converting an unsightly wall into verdant beauty, or giving shade to a veranda, a clump of shrubs or ornamental trees, and again an open lawn—these are questions for every farmer's family to consider. Of course, there are many difficulties in the way. Stern necessity often makes other matters more important. Work has to be directed into other channels, and time devoted to the ornamentation of the house is begrudged as profitless. Again, the process is, at the best, a slow one. It requires years for trees and even shrubs to attain any considerable size, and who knows, one says, what changes may take place in the meantime? Yet, after all, when one comes to think of it, how little time and work is really required, and how small, comparatively speaking, is the cost? Nature does by far the greatest portion of the work. The most that one has to do is to prepare the soil and location, plant the seed or the trees, and then watch and wait. The returns in the enhanced value of the farmstead, to say nothing of the satisfaction of having a beautiful home, will repay a hundredfold all the money and time spent in the work.

The shrubs that may be planted for the purposes of ornament are very numerous. The lilacs are universal favorites on account of their early bloom, their fragrance, and their freshness of beauty. The Persian varieties bear flowers that are more delicately and variously tinted than those of the ordinary kind, and the clusters are more graceful in form. The Wistaria is a climbing plant that twines along veranda railings, throwing out abundant foliage, and dropping gorgeous clusters of fragrant flowers, white or blue. It appears in bloom shortly after the lilac. The Japanese Snowball becomes a mass of exquisite whiteness. The Japonica, the Syringa, the Japan Ivy, the Althea, the Deutsia, the Wiegela, the Tamarisk, not to mention the Virgin's Bower and the Bridal Wreath, utterly exhaust my vocabulary of praise and admiration. The Hydrangea deserves mention by itself; it blooms in summer, when other flowers are scarce, and remains in bloom a long time. It is considered by many to be the handsomest of all the hardy ornamental shrubs. These are but a few of the vines and shrubs that might be used to ornament the house and the lawn.

A homestead may also be made much more attractive by having trees planted about it. Trees are, of course, much slower in their growth than shrubs, and many years elapse before the full effect of their symmetry is attained. But year by

year they add more and more to the appearance of the home and require but little care. There is no tree of the forest but has its own peculiar beauty. There are some trees, however, that serve the purposes of ornamentation better than others; they accord better with certain surroundings. The spruce, maple, birch, willow, horse-chestnut, elm, catalpa, each has its proper place in the plan of ornament according to the particular form required.

Roses.

June is pre-eminently the month of roses. Its breezes are rendered balmy in no small measure by the fragrance of its favorite flower. By common consent the rose is entitled the queen of flowers. Some flowers, such as tulip, or the lily, excel in gorgeousness or purity of coloring. Others, again, like the jessamine or the lily of the valley, are exquisitely fragrant. All flowers are more or less beautiful in the symmetry of their outlines; but in form, in coloring, and in fragrance, the rose yields to no other flower, and in the combination of all qualities that please the senses it has no rival in the kingdom of flowers. There is no flower that unfolds its petals so gracefully or shows such delicate shading. Its color varies from white to crimson through all the intermediate tints of pink and rose, and again from crimson to black. Shades of blue seem to be the only colors that are not to be found in the rose. Those described as blue are merely white roses of a quality not quite pure.

There are many varieties of roses, and the number of kinds belonging to each variety is legion. The tea roses, so-called because the earliest specimens coming from China had a perfume suggesting that of tea, are perhaps the most beautiful of all. In all the qualities that make flowers attractive they excel. Not many of them, however, are hardy enough for open-air cultivation in our northern climate. They must be taken indoors, in the winter at least. To this class belongs the famous Maréchal Niel. The Gloire de Dijon is another celebrated rose. The tea roses and the Noisettes bloom all the year. They are of Chinese and Indian origin, and are the most popular and most easily propagated of roses. Among the hardy kinds that bloom more than once in the year are the General Jacqueminot, Mrs. John Laing, and Baron Prevost. They are large, brilliant, and fragrant. There are many excellent and suitable kinds of similar habits of growth and bloom. The best time to plant these is in the fall, though they are frequently and with good success also planted in the spring. When the plants are received they should be cut to within a foot of the ground, and generally but one stalk should be left. Set them deeper in the soils into which they are transplanted than they were set originally. The soil should be packed down firmly about the roots and well watered. Good soil for roses consists of clay intermixed with a little sand and enriched in nearly equal proportions with well-rotted manure and decayed vegetable matter from the base of trees. In the spring of the year they should be pruned by cutting off a third or more

Roses.

of the previous year's growth, and the ground under the bushes should be mulched. The time for the hardy varieties to bloom is the month of June. Many of them will also bear flowers again later in the season, but not so profusely. To ensure this later bloom all the buds that did not mature, as well as the decayed ones, should be plucked from the bush.

Many semi-hardy varieties may be grown out of doors if properly protected during the winter. All kinds are none the worse of some covering of straw over the ground in which they grow. Such varieties as La France, American Beauty, and Clothilde require in this climate protection for

the stalk as well. This may be secured by laying the rose down and covering it with straw, hay, cornstalks, cedar boughs, or whatever else is convenient ; or the plant may be attached to a stake by suitable wrapping material, or an empty barrel may be inverted over it. Many of the more delicate varieties are taken up in the fall, placed in the cellar, and set out again in the spring.

Winter-blooming roses, such as the Chinese and Bourbon varieties, should be kept all summer in a box in a well-shaded place, and their buds should be picked off from time to time, so that the full strength of the plant may be preserved for the winter.

A sketch of roses, however brief, would be incomplete without a reference to the climbing varieties. They come mainly from the wild prairie rose. They are very showy, but scentless, and have been much improved by being crossed with foreign varieties. The Baltimore Belle and the Queen of the Prairie are the best known.

The rose has many insect enemies. The aphis, slug, rose-bug, and red spider are the worst. The usual insecticides are effective—hellebore for insects that chew, kerosene emulsion for those that suck. Be careful not to make the latter strong, or it will injure the foliage.

The Bordeaux Mixture.

In the April number of FARMING I recommended. as the formula for the Bordeaux mixture, 6 lbs. of copper sulphate and 4 lbs. of lime, with 50 gallons of water. This is the proportion which is given in the Cornell spraying calendar for 1896, and was also the proportion which I used last year myself, without noticeable damage. The improved nozzles now coming into general use scatter a much finer spray over all the tree, and there is less danger of the foliage being hurt. The following letter from Professor Craig, of the Ottawa Experimental Farm, cautions against an excess of copper sulphate :

"DEAR SIR,—In looking over the last number of FARMING, I notice that you have very opportunely inserted a spraying calendar to cover work of this kind for the year. In glancing through this I notice that you have given the following formula for Bordeaux mixture, viz., 6 pounds of copper sulphate and 4 pounds of lime to a barrel of water.

"I write now to draw your attention to the fact that all the publications from Canadian experiment stations recommend using 4 pounds of copper sulphate instead of 6 pounds. Mr. A. H. Pettit, superintendent of spraying experiments for the province, is using this formula, and is recommending it generally. The 4-4 formula is also the one which I recommended three years ago, after testing Bordeaux mixture of different strengths alongside of other fungicides. I think it important in this work, in order to encourage the practice of spraying so that it may become more general, that uniformity in formulæ should be recommended by newspapers and agricultural periodicals. In my experience, the 6-4 formula has given no better results in preventing the diseases which attack fruits than the weaker formula —4 pounds each of copper sulphate and lime— and in the case of plums and peaches it is quite unsafe to use the first-mentioned formula. With the exception of Cornell Experiment Station, nearly all experimenters are now using and recommending the 4-4 formula.

"JOHN CRAIG,
"Horticulturist."

Notes on Horticulture.

By JAMES SHEPPARD, Queenston.

No man that tills the soil can afford to sell or waste his ashes. There can be no better application for fruit trees than half a bushel of ashes spread over the ground, but not heaped against the root.

Did you ever notice that the apple trees that the hens and turkeys roost in through the summer always have fine fruit and plenty of it ? Take the hint, and spread your hen manure under the trees. It will pay well.

I should like to hear through FARMING, from fruit-growers who have used artificial fertilizers on their orchards, what has been the effect on the trees since; also, on the size of the fruit as compared with stable manure. This is a matter well worth considering.

Taking into consideration how much satisfaction can be got out of a small bed of strawberries and their easy cultivation, it is strange how many farmers get along without this wholesome luxury. A hundred plants of some good bearing variety, costing only twenty-five cents, will give all the berries that a family can use, and produce as well enough plants for the next year's planting. Do not fool with fancy varieties. Wilson or Williams, preferably the latter, are good enough. Plant a few every year, and plow up the old bed after one or two crops.

APIARY

LAST fall the subject of amalgamating the North American Beekeepers' Association with the Beekeepers' Union was discussed at the N. A. Convention in Toronto. A scheme has been submitted for amalgamation, but the indications from the writings of beekeepers in various bee journals would go to show that there will be no amalgamation.

HOUSE apiaries are coming more into use, at least the subject is receiving greater attention in bee papers. Those that use these claim that bees, if properly packed, will winter better in them than in the cellar, and there are better results in surplus honey. Robbing when opening hives, cross bees flying about, wet grass, hot sun, and other "nuisances" are unknown in the house. The claims made look reasonable.

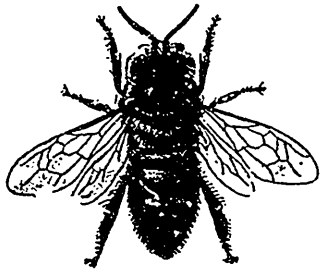
G. M. DOOLITTLE writes in the *American Bee Journal* upon the "Past and Present of Beekeeping." In speaking of the price of honey, and comparing it with the price years ago, he appears to ascribe the depreciation in price largely to overproduction. He says that in 1874 the price of honey was 28c. to 30c. per lb.; at the present time it is about 14c per lb. Of course, we all know that in those days beekeeping was in that stage where those who were quick to grasp new ideas and saw the profits in beekeeping reaped the reward of their shrewdness, and made money rapidly. We have the same thing illustrated in new lines to-day; a man reaps the reward of shrewdness and enterprise, but competition brings the business down to something like an ordinary profit, and the cost of production is diminished, as is also the selling price, by cheaper and better methods of production. The depreciation in the price of honey can be attributed to several things, such as the natural decrease to what might be called a legitimate margin of profit, also cheaper and better methods of production; then there is the adulteration, or suspicion of adulteration, and the fact that there are no laws which give the public confidence in the purity of the article. There is, top, little or no effort to increase and develop our markets. Production and development of markets should go hand in hand.

Age of Bees.

For the benefit of anyone contemplating the keeping of bees, and for the benefit of some of those keeping bees who do not know to what age bees will live, a few words will not be out of place.

WORKER BEES.

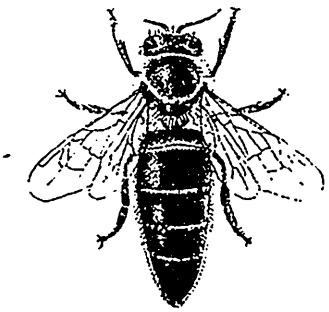
The age of the worker bee is very uncertain in one sense. The lifetime varies from six or eight weeks in summer to six or eight months during



Worker Bee.
Twice its natural size.

the winter and early spring. During the season of hard work and honey-gathering the vitality of the bee soon becomes exhausted, and it soon comes to the end of its career. During the season of the year when the worker bees remain quiet, and during the winter when they even almost hibernate, there is but little wear and tear of muscle and but little vitality exhausted, and they live long enough in the spring to care for and rear a batch of young bees, which help to perpetuate the colony. There is a very beautiful balancing in the economy of the hive. When honey is being gathered rapidly, the queen takes a fair portion of the good things going, and is stimulated to egg production, and young bees are produced. Under these conditions these young bees are necessary, as, owing to honey-gathering,

the older bees become exhausted and die off, when the young are required to take their place. When the honey crop ceases the queen is fed less freely, and egg production is diminished, and few, if any, young bees are produced. Under these circumstances the bees quiet down and retain their vitality. This quiet state remains, under proper conditions, for the entire winter. If, however, through improper conditions, the vitality of the bees becomes exhausted; if, for instance, they have poor stores, improper temperatures, or foul air in the hive, which they attempt to remedy by ventilation, the bees lose vitality, become restless, and consume stores, and, to make up for this loss of vitality, begin to rear brood, and often before that brood hatches the bees perish, and so does the colony. The worker bees remain three days in the egg, and in twenty-one days from the time of depositing the egg by the queen the perfect bee emerges from



Queen Bee.
Twice its natural size.

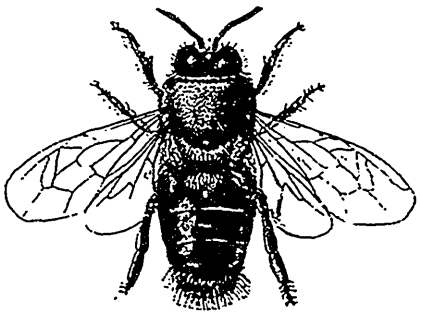
the cell. For about two weeks the young bees do the work of the hive, and after that time they are ready to gather honey. Many persons fail to obtain a good crop of honey because they do not get bees old enough to gather honey in time for the crop.

THE QUEEN.

The queen lives much longer than the worker bee. Very many live for three years and some four, and pretty good instances are on record where a queen has lived into the fifth year. Many make it a practice not to keep queens over two years; some even keep them for only one year, claiming that after that time they are not as prolific as they should be. Quite a large number of good beekeepers, however, allow the colony to regulate this matter. When a queen begins to lose vitality, the worker bees, as a rule, supersede her, that is, they rear another queen which takes the place of the defective one. Queens that are shipped long distances by mail rarely live as long as those which have never been sent through the mail or for only a day's journey. The queen takes fifteen to sixteen days from the time of the deposit of the egg till she becomes a mature insect. She is generally impregnated and begins to lay within twelve days more.

DRONES.

The drone takes twenty-four days from the depositing of the egg until it emerges from the cell. Drones are destroyed in normal colonies shortly after the honey-flow ceases. The length of their life is very uncertain. They rarely die a natural death. When the hive begins to show signs of crowding in the distant future the queen begins to deposit eggs in drone cells. These drones are tolerated until from the honey-flow the bees judge that it is likely that there will be no



Drone.
Twice its natural size.

more swarms, when they are forced out of the hive, and soon perish from exposure and lack of food. If a hive is queenless the worker bees will not destroy the drones. The same is the case with a queen which has not been impregnated, and under such circumstances the drones have been known to live over the entire winter or until the colony perished.

The principle on which the worker bees act is simply this: Either when the swarming inclination is on or when queenless, the bees look forward to having an impregnated queen which will require fertilization, and the drones are kept. When there is no feeling towards swarming and the colony has a fertile queen, the drones will not be required and are destroyed. If the novice will bear this in mind he will be able to detect many a queenless colony. After the honey-flow has passed, the presence of drones is an indication of something wrong.

RECENT INVESTIGATIONS

Commercial Fertilizers.

Bulletin 49 of the Wisconsin Experiment Station deals with the maintenance of soil fertility and commercial fertilizers. The following table of equivalents may be of value to those who practise mixing fertilizers:

For	May be substituted any one of these materials.		
100 lbs. nitrate of soda.	76 lbs. sulphate of ammonia.	141 lbs. dried blood.	235 lbs. cotton-seed meal.
100 lbs. sulphate of ammonia.	132 lbs. nitrate of soda.	186 lbs. dried blood.	311 lbs. cotton-seed meal.
100 lbs. dried blood.	71 lbs. nitrate of soda.	54 lbs. sulphate of ammonia.	167 lbs. cotton-seed meal.
100 lbs. cotton-seed meal.	43 lbs. nitrate of soda.	32 lbs. sulphate of ammonia.	60 lbs. dried blood.
100 lbs. dissolved phosphate rock.	76 lbs dissolved bone black.	33 lbs. superphosphate.	
100 lbs. dissolved bone black.	131 lbs. dissolved phosphate rock.	43 lbs. superphosphate.	
100 lbs. superphosphate.	308 lbs. dissolved phosphate rock.	235 lbs. dissolved bone black.	

For	May be substituted any one of these materials.
100 lbs. tankage.	39 lbs. nitrate of soda and 38 lbs. phosphate rock. 29 lbs. sulphate of ammonia and 38 lbs. phosphate rock. 55 lbs. dried blood and 38 lbs. phosphate rock. 91 lbs. cotton-seed meal and 38 lbs. phosphate rock. 80 lbs. dry ground fish and 14 lbs. phosphate rock. 33 lbs. nitrate of soda and 4.5 lbs. fine ground bone.
100 lbs. dry ground fish.	48 lbs. nitrate of soda and 31 lbs. dissolved phosphate rock, 37 lbs. sulphate of ammonia and 31 lbs. dissolved phosphate rock. 68 lbs. dried blood and 31 lbs. dissolved phosphate rock. 113 lbs. cotton-seed meal and 31 lbs. dissolved phosphate rock. 80 lbs. tankage and 17 lbs. nitrate of soda. 36 lbs. fine ground bone and 44 lbs. nitrate of soda.
100 lbs, fine ground bone.	13 lbs. nitrate of soda and 85 lbs. dissolved phosphate rock. 10 lbs. sulphate of ammonia and 85 lbs. dissolved phosphate rock. 18 lbs. dried blood and 85 lbs. dissolved phosphate rock. 30 lbs. cotton-seed meal and 85 lbs. dissolved phosphate rock. 33 lbs. tankage and 72 lbs. dissolved phosphate rock. 27 lbs. dry ground fish and 76 lbs. dissolved phosphate rock.

Black Knot.

Bulletin 37 of the Massachusetts Agricultural College reports experiments in the treatment of plum trees for black knot. The treatment has been carried out through 1892, 1893, 1894, and 1895.

On all the trees the knots were painted with kerosene and mineral pigment during the summer, and were removed during the early part of winter. When found on small twigs, the knot and branch were removed; but when found on large limbs and strong shoots, the knots were sliced off and the wounds painted with lead and oil. In addition to the above treatment, one-half of the trees were sprayed with copper sulphate solution, Bordeaux mixture, and ammoniacal carbonate of copper.

In 1895 the spraying was as follows:

April 5th, Bordeaux mixture.

May 3rd, Bordeaux mixture and Paris green 1 pound to 100 gallons.

May 20th and June 6th, the same as on May 3rd.

August 8th, ammoniacal carbonate of copper.

The results have been very satisfactory. On the unsprayed trees the number of knots has decreased to one-half the number in 1891, while on sprayed trees the number of knots has decreased to $\frac{1}{12}$ of the numbers found four years ago. That is to say, where one knot has been destroyed by painting and cutting, twenty-six have been destroyed by combining this treatment with spraying. One tree which contained 78 knots in 1891 is now entirely free from them as the result of cutting and spraying.

The spraying was also found beneficial in preventing rot and the attacks of the curculio.

Corn Silage for Milch Cows.

Bulletin 97 of the Geneva, N.Y., Experiment Station, reports the results of a number of feeding trials with corn silage for milk production. The results are summarized as follows:

I. When corn silage replaced some other food, or the amount of silage in the ration was increased—

(1) There followed, in seven instances, a decrease in the cost of milk, once an increase, and in one instance little change in cost.

(2) There followed an increase of the yield of

milk in six instances, and in three instances a decrease.

(3) There followed a decrease in the cost of fat in six instances, an increase twice, and little change once.

(4) There followed an increase in the amount of fat in five instances, a decrease in one, and little change in three instances.

(5) There followed an increase in the percentage of fat in the milk in six instances, a decrease in two instances, and little change once.

II. When the change was from a ration containing corn silage to one containing less silage, or not any—

(1) There followed an increase in the cost of milk in four instances, and little change in one.

(2) There followed a decrease in the milk yield in four instances, and little change once.

(3) There followed an increase in the cost of fat in five instances.

(4) There followed a decrease in the amount of fat in three instances, and little change in two.

(5) There followed a decrease in the percentage of fat in the milk in two instances, an increase in two instances, and little change once.

III. In general, there was found an increase in milk flow accompanying the use of corn silage in the ration, and at the same time an increase in the amount of fat produced, the percentage of fat in the milk not diminishing.

IV. At the relative prices ordinarily holding for different foods, milk was generally produced at lower cost, and the cost of fat production was lower when corn silage constituted part of the ration than when many other rations were fed.

Fattening Steers.

In Bulletin 44, Minnesota Experiment Station, Prof. Shaw reports an experiment in steer feeding. The steers used consisted of three each of Shorthorn, Hereford, and Galloway grades. They were divided into three lots, one steer of each breed in a lot, thus making three steers in each lot. They were fed a ration of meal, corn ensilage, and hay, the meal consisting of bran, ground wheat, and ground corn, in the proportions of 1, 2, and 1 parts respectively, but during the last period some oil-cake was added. The time of the experiment was divided into five periods of twenty-eight days each. During the first period the steers in lot 1 received 5 lbs. of meal per day per head, those in lot 2, 7 lbs., and and those in lot 3, 9 lbs. This quantity was increased by 1 lb. per day per steer at the end of each feeding period of twenty-eight days, so that during the last twenty-eight days the steers in lot 1 received 9 lbs. per day per head, those in lot 2, 11 lbs., and those in lot 3, 13 lbs. Thus the average amount of meal per day per head for the whole fattening period of 140 days was 7 lbs. for lot 1, 9 lbs. for lot 2, and 11 lbs. for lot 3. The object was also to feed 25 lbs. of ensilage per steer per day, *though some of the steers would* not take this amount. Of hay they consumed an average of 8.34 lbs. per day per head.

Results. At the beginning of the experiment lot 1 weighed 2,701 lbs.; lot 2, 2,830 lbs.: and lot 3, 2,651½ lbs. At the end of the experiment lot 1 weighed 3,492½ lbs.; lot 2, 3,612 lbs.; and lot 3, 3,512½ lbs. Thus lot 1 gained 791½ lbs., lot 2 gained 782 lbs,, and lot 3 gained 861 lbs.; or, lot 1, on the light meal ration, gained 9½ lbs. more than lot 2, but 69½ lbs. less than lot 3 on the heavy meal ration.

Valuing wheat bran at $11 per ton, ground wheat at $15.86 per ton, ensilage at $2 per ton, hay at $6 per ton, and oil-cake at $26 per ton, the cost of the food fed to the steers in lot 2 was $6.46 more than of that fed to the steers in lot 1, while the gain was 9 lbs. less. The cost of the food fed to the steers in lot 3 was $9.71 more than that fed to lot 1, and the gain was only 69½ lbs. greater; therefore in this experiment the light meal ration was considerably more economical than the heavier ones. The average cost of making one pound of gain was as follows: Lot 1, 5.52c.; lot 2, 6.36c.; lot 3, 6.19c.

It is commonly recommended to give fattening steers one pound of meal per day for every hundred pounds of live weight, this being counted only moderately heavy feeding. The experiment just noted, however, goes to show that even less meal will prove more economical, since the average weight of the steers in lot 1 for the whole fattening period, was about 1,03. lbs., while the average amount of meal per day was 9 lbs. It was further noted that the larger amount of meal fed in lots 2 and 3 did not appear to reduce the amount of ensilage and hay consumed by these lots.

Publishers Desk

FARMING

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

Succeeding *The Canadian Live Stock and Farm Journal.*

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It should be sent by each subscriber direct to this office. We do not request agents to collect money for renewals.

Communications—

All business communications should be addressed to "FARMING, 20 Bay Street, Toronto, Canada."
Communications for the Editor-in-Chief should be addressed to "The Editorial Department," FARMING, 20 Bay Street, Toronto, Canada."

Communications for any particular editorial department should be sent to the Editor of that department.
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.

Jottings.

Wisconsin Dairymen's Association.—We are in receipt of a bound volume of the twenty-third annual report of the above association for 1895, which contains much useful information.

Suffolk Sheep Flock Book.—Vol. 10 of the English Suffolk Sheep Flock Book is to hand with a frontispiece of the president, the Marquess of Bristol. The registered numbers of rams are carried from 3622 to 4020.

Guernsey Herd Register.—The last number of the Herd Register of the American Guernsey Cattle Club has come to hand in an increased size. It contains an interesting sketch of the island of Guernsey and its cattle, by Mr. F. S. Peer, Mt. Morris, N.Y.

Journal of the R.A.S.E.—We are in receipt of Part 1, Volume 6, of the Journal of the Royal Agricultural Society of England. It contains an article on Sir John Sinclair, the founder of the first board of agriculture in Great Britain, and other suitable topics receive due attention.

Suffolk Stud Book.—Volume 10 of the Suffolk Stud Book, to hand, contains a fine engraving of Warrior 1938, the property of Mr. William Everitt, Levington, Suffolk, and a prize-winner at Saxmundham Show in 1895. It is an extremely good illustration of the present type of Suffolk horse.

National Pig Breeders' Herdbook.—We are in receipt of Vol. 12 of the herdbook of the National Pig Breeders' Association. Among other valuable features in this volume are the standards of excellence for all the breeds recorded therein. Boars are carried from 3843 to 4271, and sows from 6454 to 7204.

Animal Photography.—Mr. J. J. Kenyon, Palmerston, Ont., who has for some years been prominent as an animal painter, has made a specialty of photographing live stock of all descriptions. His advertisement will be found in our columns. He photographed a number of the prize animals at the Horse Show for FARMING, and we can commend him to our readers for thoroughly good work.

North American Review.—The fifth of the series of sketches on "Wild Traits in Tame Animals," by Dr. Louis Robinson, is given in the May *North American Review.* It is devoted to a study of "Domestic Cattle," which Dr. Robinson says should be of especial interest to us, they having undoubtedly occupied, in our ancestral history, a more important place than any other species of animal.

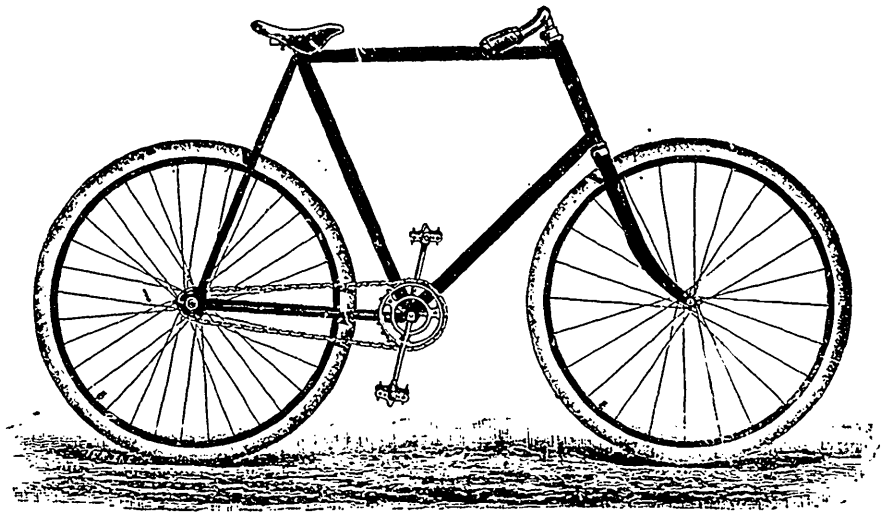
THIS YEAR EVERY ONE IS RIDING A BICYCLE

When you think of what a marvel in simplicity, strength, and speed the modern bicycle has been made, and find what a pleasure it is to feel yourself mounted on one and see the ease and rapidity with which it is possible to travel, it is not at all strange that people should become so enthusiastic in its use.

There is nothing to compare for pleasure with "wheeling," and people are finding this out. The number of wheels being sold this year is enormous. Manufacturers are working night and day to supply the demand.

No doubt many of the readers of FARMING would like to have a bicycle, and could use one to very good advantage, but do not exactly see the way clear to laying out the amount of money required to buy one.

Now, we have been fortunate enough to make a very favorable connection with one of the largest and most reliable bicycle manufacturing concerns in the Dominion, namely, MESSRS. HYSLOP, SON & MCBURNEY, and are thereby enabled to offer to our readers *a High Grade Wheel at a Very Small Cost.* The name of this wheel is the **Fleet No. 1**, and you will be able to get from the following engraving a fair idea of its general outlines.



FLEET NO. 1

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THIS WHEEL IS DESIGNED FOR ROAD USE.

SPECIFICATIONS

Latest model frame; highest grade English weldless steel tubing of large diameter; steel connections, reinforced at each joint; 28-inch wheels; wood rims; tangent spokes, tied at crossing; dust-proof bearings; detachable front and rear sprockets; square cranks, 6¼-inch throw, tread 5½ inches; L seat post; Perry's chain; rat-trap pedals; Harrison's saddle; New York tires, unless otherwise specified. Height of frame, 23 or 24 inches; wheel base, 43½ inches, gear 64, 68, or 72.

Weight—25 lbs.

FINISH—Black enamel, highly polished, nickel spokes and fittings.

PRICE, - - $75.

We will send this wheel complete fitted, as ordered, and with tool bag and tools—inflater, oil can, tire repair outfit, etc.—to anyone who sends us

133 new yearly paid-in-advance subscribers to FARMING; or

100 new yearly paid-in-advance subscribers to FARMING at $1 and $17 cash; or

50 new yearly paid-in-advance subscribers to FARMING at $1 and $48 cash.

Three trial subscribers at 30 cents each will count as one new yearly subscriber at $1.

The *Fleet No. 1* is a thoroughly good wheel, and is guaranteed by the manufacturers for one year. Anyone who wants to get a wheel, and can devote a little spare time to canvassing for FARMING, should take advantage of this opportunity.

We often hear people remark: "Bicycles are too expensive. There is not the money in them." Well, under present conditions, they cannot be sold at prices any lower. We will not attempt to explain these conditions here, as we have not the space to spare; but whether prices are too high or not, you may rest assured that there will be no reduction in them this year, as the demand is too great.

Now let us hear from all who want wheels. Canvassing for FARMING will be found easy work. All like it when they have looked through it. Write for a few samples and forms, and begin canvassing at once.

FARMING,

20 Bay Street, TORONTO.

Jottings—*Continued.*

Book on Potatoes.—A little pamphlet by T. B. Terry on potato raising in the island of Jersey has been received at this office. In that island intensive potato raising for the Liverpool and London markets has been carried to a greater state of perfection, probably, than anywhere else, and the system followed is well described by Mr. Terry. The book is published by the A. J. Root Co., Medina, O.

Fair Secretaries, Please Comply.—Secretaries of all state and county fairs are requested to apply to us for copy for insertions in premium lists of a special premium we intend to present to every winner of a sheep premium at all the 1896 fairs. The special premiums will only be given where officially referred to in the premium list of the fair.

WILLIAM COOPER & NEPHEWS,
Galveston, Texas.

The Key to Health.—This is the title of a little work by Dr. A. G. Hinkley, which describes the well-known Salisbury system of treatment of diseases. This treatment, which has effected a large number of cures, is by no means a hard one to carry out; and can be followed by persons at their own homes. The book can be obtained from Messrs. Williamson & Co., 466 Yonge street, Toronto. Price 25c., post free.

Ontario Veterinary College.—The closing exercises of this institution were held on March 28th. An able address was delivered by the principal, Dr. Smith, in which he commented on the success of the college, and the number of students present from other countries. The prizes were presented by the Lieutenant-Governor. Mr. G. R. C. Merriam, from Jamaica, was the gold medallist for the year, and Mr. J. F. J. Black winner of the gold medal for dissecting. Prof. Smith was presented with a fine picture of the graduating class.

Poultry.—We are in receipt of a copy of the illustrated catalogue of the Tuscola Poultry Yards, Cass City, Mich., of which Mr. S. Champion (who sometimes contributes to our columns) is the proprietor. It consists of forty-four pages, of about the same size as the pages of FARMING. The catalogue is very nicely illustrated, and, in addition to describing the stock kept, it contains a very considerable amount of valuable information upon diseases, care of stock, etc. We have no doubt a copy would be sent to any reader of FARMING who applied for it.

Cooper's Sheep Dip.—Hon. John Dryden says: "I continue to use your dip regularly, and desire to say two things: First, your preparation is a perfect tick destroyer. Second, it is a powerful cleanser of the wool. I lately sent to New York State two yearling ewes, and the purchaser expressed his delight with them, and wished to learn by what process I kept the wool so beautifully white. The ewes had been dipped some months before, and were running night and day in the field. My answer to his question was: 'I use Cooper's Dip.'"

Macdougall's Sheep Dip.—Since the death of the late Mr. W. F. Stone, of Guelph, the agency for this dip has been in the hands of Miss S. E. Stone, Guelph. This dip has been and is now being used by a great many of the most successful sheep-breeders, such as Messrs. J. C. Snell and J. G. Snell & Bro. This dip has not been much advertised, and, consequently, the trade has been somewhat local, but those who have used it have found it excellent for its purpose, and worthy of a more extensive sale.

Davis Cream Separators.—The John Abell Engine and Machine Works Co., Toronto, have issued a very attractive catalogue containing plentiful information about the Davis Hand and Power Separators, of which they are the sole manufacturers for Canada. A great many illustrations are given, including three of the Davis combination steam separator and feed cooker. We notice that this firm can also supply tread powers, to be operated by two dogs or goats, which will run a separator, churn, corn-sheller, fanning mill, etc., as well as the larger tread powers for horses. They will be pleased to send catalogues to all writing for them.

Biggle Farm Library.—There have been many books written on various agricultural subjects, which have treated of these more or less excellently. We have recently, however, had the pleasure of inspecting three books on horses, berries, and poultry, by Jacob Biggle, which are not only distinguished for their good common sense, but are concise and to the point as well, a feature not always found in such works. The illustrations are also very good, and the whole style and binding make them very useful adjuncts to the farmer's library. These books are sold by the Wilmer Atkinson Co., Philadelphia, at 50 cents apiece, and we can recommend them.

Dominion Shorthorn Herd Book.—Vol. 11 of the above-mentioned herdbook has come to hand in smaller size than usual. This volume was all ready for the printer a year ago, when the fire took place which destroyed the office. At that time there were recorded 1,873 bulls and 1,340 cows. Of these about 807 bulls and as many females are missing in the present volume, but the pedigrees are being sent in by degrees, and will be published in future volumes. The gaps in the numbers can be found all through the book. A new and valuable feature is the insertion in this volume of the premiums at the Toronto exhibitions from 1890 to 1894 inclusive. The book presents its usual neat appearance under the careful editorship of Mr. Wade.

The Delineator.—The June number of *The Delineator*, which is called the summer number, contains a choice representation of the reigning modes

and materials, and, in addition, a special article on "Wedding Attire and Customs." Mrs. Witherspoon's Tea-table Chat is this month especially interesting. Mrs. Charles Sprague Smith tells about "Illustrating as a Profession for Women," and "Frances Leeds" continues her exposition of household decoration by describing the doing over of a commonplace parlor into a blue and ivory boudoir. Especially attractive to women is the first of a series of "Talks on Beauty," by Dr. F. J. Leviseur, who treats of the care and treatment of the skin. Of like practical utility is the third and last paper on the "Care of the Teeth," by a well-known New York dentist, and Mrs. Buchanan's contribution on "Improved Methods of Household Sanitation." A chapter on "Seasonable Cookery," notices of new books, and the latest ideas in knitting, lace-making, and crocheting, are among the other features of this number of *The Delineator*. Published by The Delineator Publishing Co., 33 Richmond street west, Toronto. Price $1 per year.

Gombault's Caustic Balsam.—The Chatham Field Farm, Chicago, is under the personal charge of Manager T. B. Frith, a horseman by nature, whose keen instincts have been thoroughly trained by life-long handling of horses. In recently looking over the somewhat variegated collection now wintering at Chatham Field, and noting the many evidences of the wear and tear of our city streets, we asked Mr. Frith what he used in reducing swellings and curing lameness. He replied: "For more than fifteen years I have used, almost exclusively, Gombault's Caustic Balsam. It is great stuff. With it I have removed splints, curbs, windpuffs, and the like, speedily and surely, and cured sprains and soreness. It can be used as a mild liniment or a blister, and I consider it the best blister I ever used. You may be sure that we have plenty of use for such a remedy on the horses that come here for temporary keeping, and it is the only thing of the sort I have constantly on hand. My long experience with it justifies me in relying upon it to do the work." This is not a "testimonial" given at the request of the manufacturers of Gombault's Caustic Balsam. It is the direct answer of Mr. Frith to the writer, who was curious to know what remedy was in favor at this establishment, where few horses are sent that do not need some little attention to cuts, bruises, blemishes, or lameness. It is, however, only one of the many commendations of this veterinary remedy which have been given to the public by experienced horsemen.

Stock Notes.

Cattle.

MESSRS. WHITESIDE BROS., The Glen Farm, Innerkip, Ont., have some choice young Ayrshire cattle of both sexes for sale at tempting prices.

HON. A. T. DUNN, a member of the Executive Council of New Brunswick, has been in Kent county lately, where he purchased some fifty head of pedigreed swine for the use of agricultural societies in New Brunswick. The government of that province recently made a grant of money for the purchase of stock. Some horses and cattle will be bought in the fall.

MR. JOHN H. DOUGLAS, Warkworth, Ont., has decided to offer for sale the balance of his Ayrshire herd, as he is about to import a number of cattle from Scotland. They are all in fine condition, and the young things are beautifully marked. He has lately sold six head to go to British Columbia, among them being the sweepstakes cow, Amy, and all his young bulls are sold. Mr. Douglas says that he owes nearly every sale to his advertisement in FARMING.

MR. J. W. BARNETT, manager for Messrs. W. C. Edwards & Co., Rockland, Ont., writes: Bulls are moving briskly of late. We have just sold a bull to Mr. John McCallum, Cumberland, Ont.; one to Messrs. Gormaly & Lynch, Douglas, Ont.; and one to Mr. Gaspard Massie, Butte Aux Vents, P.Q. Any person wanting a bull would do well to write to us for prices, or come and see us. Cattle have wintered well, and calves and lambs are coming strong.

MR. C. M. SIMMONS, Ivan, Ont., writes: Cattle have wintered well, and I never had as many enquiries for young bulls for show stock. I have sold all but three choice mellow reds, two sired by Barmpton M. and one by Royal Saxon, which can be got at a bargain. The bull, Barmpton M., and the females shown last fall have gone on nicely. The Golden Drop bull, shown as a yearling at Toronto, Montreal, and Ottawa, and which took first at the two latter shows, I have sold to Mr. Wm. Young, Coldbrook, N.S., who reports that he is doing well. The spring has been cold and backward. Clover and late winter wheat have heaved out badly.

MR. W. J. BIGGINS, Elmhurst Farm, Clinton, Ont., writes: Sales of Shorthorns have been fairly good this season, but prices are lower on account of the great scarcity of feed. We have recently sold three, the extortionate rates for railway shipment having been a great drawback to the sale of young bulls. We have yet on hand for sale two very fine bull calves over ten months old—one from an imported Cruickshank cow, the other a Matchless. They are both sired by imported General Booth (54353) =6365=. We have four beautiful young calves from the imported silver medal bull, Royal Don (64717) =17105=.

MR. F. MARTINDALE, York, Ont., writes: My Shorthorn dairy cow, Waterloo Daisy =19853=, a

winner in the dairy tests at the World's Fair, Chicago, has, in a two weeks' test trial, beginning March 16th and ending on March 29th, beaten the record she made there. The first week she gave 355 lbs. of milk and 13 lbs. 9 oz. of butter, and the second week 371 lbs. of milk, an average of 53 lbs. per day, and 13 lbs. 8 oz. of butter. She produced a red-roan heifer calf on the 10th of March, which makes seven females of that family in the Plaster Hill herd. She is also a fine show cow, having won three first prizes in 1895 and two firsts and a second in 1894 at the local shows.

MESSRS. R. REID & Co., Hintonburg, Ont., send in the following report: Our stock have wintered well, and sales this spring have been very good; but we have still three young bulls for sale. They are an extra good lot, and in good condition. Most of our sows have farrowed, and we shall have a fine lot of young things for sale next month. At the last Government analysis of milk, taken last fall, a sample from our dairy stood the highest, compared with 23 samples taken in Ottawa, and fourth highest compared with 251 samples taken throughout Canada. The sample tested 5.14 butter-fat, and 14.42 total solids; not a bad standing for the Maple Cliff Dairy.

MR. JAS. S. SMITH, Maple Lodge, Ont., writes: Our sale, on March 25th, was quite successful. We had a large crowd of buyers; and, though prices were not as high as we got at previous sales, yet we found ready sale for all, and prices compare favorably with those for other farm products. As the stock sold were an exceptionally good lot, every buyer seemed well pleased with his purchase. We have an exceptionally handsome young bull for sale yet, and equally good heifers. Besides the cattle sold, we made satisfactory sales of Leicester sheep on the day of our sale; and, as they were in very fine shape, they seemed to prove as attractive as the cattle sold.

MR. A. JOHNSTON, Greenwood, Ont., writes: Our cattle, owing to the uncommonly early appearance of the grass, left us a considerable amount of feed in the barns. They were all at grass on May 6th, and some much sooner. The cows and calves, numbering about thirty pair, are beginning to take on the real grass bloom, which in course of time, no doubt, the horn-fly will proceed to take off. In fact, the little pests are at it already. The calves are an even lot; in fact, as beautiful a lot as we ever saw in one herd. We have a number of young bulls fit for service yet, Indian Brave and the white Duchess of Gloster bull being among them. Indian Brave is improving in all respects, and the white bull is going to do a good turn for his color. The color is doing him one now.

MESSRS. H. CARGILL & SON, Cargill, Ont., write: Our cattle have wintered well in spite of the scarcity of feed. They are now in fine form. Our stock bulls, Royal Member and Rantin Robin, both imported, are doing well. They are the best stock bulls we ever had. We have disposed of all our young bulls. They were a fine lot, and realized good prices for the times. Our stock of young calves are doing well. We have twenty-one in all, and have sold two of them. A number are from imported cows, and all are from imported bulls. They are an extra good lot of calves. Our flock of Oxford Downs are doing splendidly; lambs are coming strong, and are a grand lot, the best we have had for years. We have a number of good cows and heifers for sale.

MR. G. W. CLEMONS, St. George, Ont., writes: Sales are very satisfactory, and cattle in fine shape. I have recently added to my herd the great show cow and performer, Cornelia Tensen, probably the best known cow of the breed in Canada; also that excellent show bull, Count Mink Mercedes, formerly at the head of the Collinson herd. My well-known Jacob Wit cow, Kaatje DeBoer, one of the best butter cows in Canada, has just dropped a fine heifer calf, sired by Sir Pietertje Josephine Mechthilde. This calf is almost an exact counterpart of her dam in form and markings, and with such breeding should make a great performer. My two-year-old heifer, Mountain's Daisy Barrington, has completed a four months' record of 6,193½ lbs. of milk, an average of over fifty pounds per day for the entire period of 122 days. This record has never been equalled, so far as I am aware, by any heifer of her age in Canada.

MESSRS. JOHN MILLER & SONS, Brougham, Ont., write: We were never before so short of straw and hay as we were during the winter now past. We have for a great many years held over from one hundred to one hundred and fifty tons of hay to provide against a shortage; but we were short last year, and had a heavy stock, so it was fed then. We fed straw until late, and let the cattle lie on the barn boards, and we had plenty of hay for everything until grass grew. We have 72 cattle, young and old; 200 sheep and 100 lambs; and 48 horses and ponies. All are in good condition, and all purebred except four milch cows and a few work horses. Nineteen cows have 20 living calves, and several cows are about due. Our young bulls are something grand.

MESSRS. MCNISH BROS., Lyn, Ont., report: In spite of the shortage of crops in this section and the very severe winter, our Guernseys have come through

in fine condition, and we are highly pleased with our crop of calves in one day—Ada of Eastview 4374 A.G.C.C., winner of first prize and silver medal at the Industrial, first at Ottawa, and first at the Dairy Show, and Balinda of Eastview 6289 A.G.C.C., winner of first prizes at the Industrial, Toronto, Montreal, Ottawa, and the Dairy Show, gave us each grand heifer calves, and they are doing nobly at the pail. The more we see of the excellent qualities of the Guernseys the better we like them, and when their good qualities are better known they will be in great demand. We are receiving enquiries for them from all parts of the Dominion. We had a half-bred heifer calve some time ago, and it is surprising to see the results of the first cross, as this is the most promising business heifer we ever owned. She is giving thirty pounds of 4 per cent. milk on dry feed. We are offering two bulls fit for service, and two bull calves.

MR. A. C. HALLMAN, New Dundee, Ont., reports: My herd of Holsteins has come through the winter in far better shape than I anticipated last fall. I was almost in despair at the shortage of coarse fodder, but, thanks to a plentiful supply of good, rich ensilage, they are now in a fine, thrifty state. My young bulls ready for the trade are a thrifty lot, full of vigor, and their fine ancestry makes them worth looking after. I sold a very nice young bull to Mr. W. T. Whale, Goldstone. This young bull is a son of Princess Medina 2nd; she is a daughter of Princess Medina, a first-prize winner at Toronto as a calf and a two-year-old. The latter is a daughter of the old cow, Princess Margaret, with a butter record of 20 lbs. 1 oz. in a week as a four-year-old. The dam of this bull tested over 4 per cent. The sire is the prize-winning Netherland Aaggie Eden, a son of the cow, Princess Margaret. The young bull is a grand combination of line breeding, and individually he is just as good. This is the second purchase Mr. Whale has made out of this herd. A very fine heifer goes to Mr. Dougherty, Beechwood, Ont. This heifer is a full sister to the one that took first and diploma at London last fall, and second prize at Toronto. She is a promising heifer, and will make a grand record for Holsteins. She is a daughter of my old silver medal bull, Netherland Statesman's Cornelius. My Tamworths are also in good shape. The spring litters are a strong lot, and my young brood sows are good.

MR. R. E. WHITE, Perth, Ont., writes: My Ayrshires came through the winter in good condition. Feed in these parts was plentiful, but it found ready sale to farmers about twenty miles distant, who, last year, had very little hay. My stock bull, Grand Duke, has grown to a large size, and is proving himself a grand stock bull, his calves coming of the right dairy type, well marked and large. Grand Duke was bred by the well-known breeder, Messrs. James McCormack & Son, Rockton. He is sired by Sir Laughlin, who won 1st and sweepstakes at Toronto in 1894, and stood 3rd in a class of eight at the same show in 1895, and his dam is the prize-winning cow, Primrose. Primrose won in 1894 1st for cow and two of her progeny while in her seventeenth year. She was also dam of the first-prize cow, and was grandam of two and dam of the other two cows in the first-prize herd. Brownie of Burnside, bred by Mr. R. Robertson, Howick, Quebec, has grown into a fine dairy animal, and is proving herself to be no mean performer at the pail. We have a fine heifer calf from Brownie, sired by Duke, which promises well. Lady Albion is a very promising heifer; and, if breeding has anything to do with it, should be a good one, as her sire is Albion Chief, a son of Royal Chief (imported), and she is out of Maggie Brown one of Mr. Morton's best cows. She is due to calve in a short time, and is developing a very fine udder. Almonte Lass, bred by Mr. Joseph Yuill, has just dropped a fine heifer calf. Almonte Lass is sired by Sultan, a great prize-winner in his day. She is a very heavy milker, having given as high as fifty pounds of milk on grass alone. Lottie, a deep milking cow, bred by Messrs. Yuill and sired by Jock, has just dropped a bull calf sired by Duke. We have also a number of other calves, among which is an extra fine heifer calf from Nellie, a daughter of Almonte Lass. all of which we will sell cheap. The young heifer we purchased from Messrs. Robertson & Ness is growing into an extra fine animal of true dairy type; her dam is out of Jessie of Burnside, winner of 1st prize at the World's Fair as a three-year-old.

Sheep.

MR. JOHN CAMPBELL, Woodville, Ont., writes: Because of the scarcity of some suitable feeds for the flock during the winter, it is a relief to see it once more enjoying the luxury of grass. But the shortage has not prevented fine growth of frame and muscle, while hardship has seemingly added vigor. I am well pleased with the present condition of old and young, as not a lamb died, nor has there been so much as a sick ewe with a ewe. The shearling rams have developed beyond my highest expectation. Several of them are out of my best show ewes and sired by Newton Lord. They will, with this season's lambs, add to the old champion's fame as a getter of first-class stock.

MESSRS. TURNER & JULL, Burford, Ont., send in the following: Feed was very scarce last winter, and stock, as a rule, are thinner than usual; but they look better than one would expect, considering the scarcity of feed. Our Oxfords have done remarkably well. We had a little experiment in feeding last winter. No. 1 lot of 22 ewes were fed pea straw, 1 bushel of turnips, and 22 lbs. of oats per day. Lot No. 2, consisting of 13 ewes, got pea straw, 3 bushels of turnips per day, and no grain.

The lot No. 1, 21 ewes, had 35 lambs, all strong and lively, with one ewe yet to lamb. Lot No. 2, 13 ewes, dropped 20 lambs; but two were dead when found. All other things were about equal with the two lots. The experiment showed a little in favor of grain feeding. Our imported ewes have done well. Their lambs are a fine lot; in fact, all our lambs are growing very fast.

MESSRS. JAMES COOPER & SON, Kippen, Ont., write: Shropshires are surely and steadily in demand. Although only paying prices are realized, it is encouraging to be able to say that they go. There have been despatched from our flock recently some thirty-nine head of rams to the very extensive dealer, Mr. A. A. Bates, Erwin, Ohio. These were a very fine, strong lot of rams. The buyer was greatly pleased with them; and they will, no doubt, be heard from later on. All the surplus is now gone from our flock, we having disposed of all our ewe lambs earlier on in the winter indirectly to a Virginia buyer. These, along with other smaller and single sales, constitute the extent of our dealings for the past few months. The young stock of the rising generation are doing well, and are very promising. They number now about sixty young lambs by good sires, and out of well-bred, imported ewes. A number of the lambs are now three months old, and will be ready for the lively demand of next fall's trade.

Swine.

MR. F. RUSNELL, Cedarville, Ont., writes: I have a good l:rd of Berkshire and of Yorkshire pigs. My Berkshire sows were purchased from Mr. Snell, Snelgrove, and my stock boar from Mr. C. Garbutt, Claremont, Ont.

MR. J. J. IMRIE, Romney, writes: Stock have come through the winter in fine condition, and I have a fine lot of young pigs on hand. I have just received a pair from Messrs. J. G. Snell & Bro., sired by their noted Baron Lee and Lord Ross, out of show-ring sows. Purchasers, in future, can depend on getting something choice.

Mr. C. J. WRIGHT, Dixville, Ont., writes: About the first of May I received a very fine Poland-China sow from Capt. A. W. Young, Tupperville, Ont., which farrowed, a few days after being received, nine very fine pigs, which she is now suckling, and which are doing well. I have had dealings with Capt. Young for three years, both with pigs and poultry, and am well pleased with the stock he has sent me.

Mr. James H. Shaw, Simcoe, Ont., has a number of Berkshires and Chester Whites on hand ready for shipment. On a recent visit we had the pleasure of looking over this head, and hardly needed to read the numerous letters which Mr. Shaw had received from customers, all of which expressed satisfaction with the stock received, to convince us that Mr. Shaw was breeding the right class of stock. A large proportion of these letters mentioned that they had seen the advertisement in FARMING, which shows that this magazine goes to the class of men that breeders of swine desire to meet.

MR. C. R. DECKER, Chesterfield, Ont., reports: My Berkshires have come through the winter in splendid shape, and I have several fine litters doing well from my large sows and Major Graham, the boar that won first last fall over everything he met He weighs 700 lbs., and Star 500 lbs., at less than two years old, and not fitted up. Their young stock are turning out well. I have six sows yet to farrow, none of them related. The following are some of my recent sales: To Mr. A. M. Zoeller, New Hamburg, one boar; to Mr. James Gatten, Drumbo, one boar; to Mr. William Amacher, Mildmay, one boar and sow; to Mr. Alex. Nahrgang, one boar; to Messrs. A. J. Shaw & Sons, Thamesville, one sow in farrow; to Mr. R. J. Logan, North Glanford, one sow in farrow; to Mr. A. M. McRitchie, Sarnia, one boar; to Mr. John Boyes, jr., Churchill, one sow in farrow.

Poultry.

MR. J. L. MARGACH, Port Hope, is breeding some very choice fowls, which he offers for sale.

Stock Notes—*Continued.*

MR. CHAS. MASSIE, Port Hope, has an exceedingly fine lot of White Wyandottes on hand which, for quality and breeding, are hard to be beaten.

MR. F. J. MACKLIN, Green Valley Farm, Fenella, Ont., is a well-known poultry fancier. Among his specialties are Wyandottes and Golden Polands. A Wyandotté cock of his scored 92 at Port Hope in 1895, and was first at Cobourg this year. His mate took first both at Port Hope in 1895, and at Cobourg this year, scoring 93. The Golden Poland at the head of the breeding pen of this variety won the highest honors at Toronto in 1895, and was also a winner at Cobourg this year. Mr. Macklin is making arrangements to secure several high-class Light Brahmas from Winnipeg, which have won at the big shows in Manitoba. He is also interested in Jerseys, and is getting together a fine herd.

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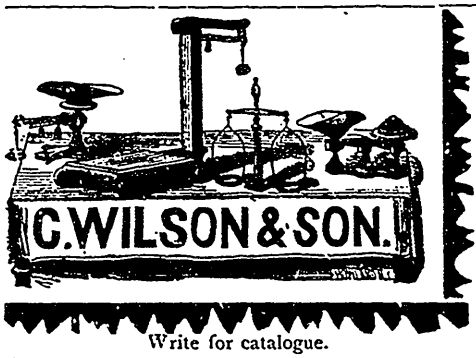

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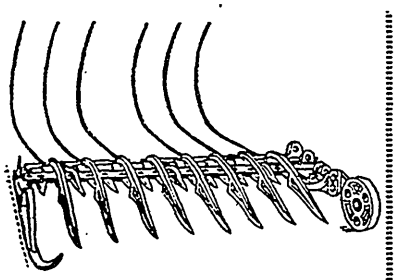

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September 21, 1893; July 17, 1894.

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And at less than **one-half** the price of the nearest competitor. The **Spramotor Co.** wishes their friends to understand they have no rush of blood to the head, although **"Blood will tell,"** and the Spramotor is the best blood in the land. If you will read their catalogue, you will find they stated the facts strictly as they are. This they will continue to do and use their best endeavor to hold the confidence of their friends, the fruit-growers, to sustain their reputation as makers of **high class** spraying appliances at reasonable prices, and make good their statement that all apparatus sold under the name of **"Spramotor"** will be the very best of their kind, and always **reliable, high grade,** and **"up-to-date."**

Just note the progress they have made and the time in which it was done.

AWARDS IN 1895.

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Medal at Western Fair, London
Diploma at Great Southwestern Fair, Essex
Diploma at Howard Fair, Ridgetown
Diploma at Norfolk Fair, Simcoe
Diploma at East Lambton Fair, Watford
Diploma at Malahide Fair, Aylmer
Diploma at Great Northwestern Fair, Goderich
Diploma at Huron County Fair, Seaforth
Diploma at Huron Centre Fair, Blyth

AWARDS IN 1896.

HIGHEST AWARDS at GRIMSBY, April 2nd, under the Judges appointed by the Fruit-Growers of Canada.

Write to the Department of Agriculture of Ontario for a copy of the judges' report.

OUR No. 1 Spramotor will be found large enough for two nozzles, for apple spraying, and three nozzles for bush work. Our No. 2 Spramotor is satisfactory for four Spramotor nozzles, or six of the vermorel. All goods made by us are fully warranted. If you are interested in the subject of spraying, keep your eyes open, and watch the progress of this company's goods, for when they can, in one year, rise to the top with the world against them (for as far as spraying pumps are concerned, the world was represented at Grimsby, and competed, and was found wanting), you can judge what the future will show.

TESTIMONIALS.

Windsor, April 20th, 1896.

Spramotor Co., London, Ont.

Dear Sirs,—We have finished spraying for the first time, and your pump gives entire satisfaction.

Yours very truly,
A. McNEIL.

Round Hill, N.S., April 15th, 1896.

Spramotor Co., London, Ont.

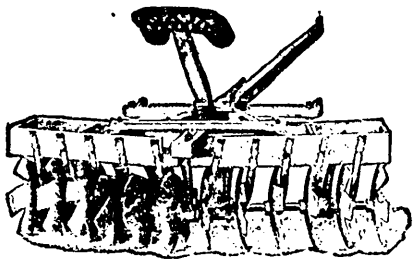
Dear Sirs,—My first outfit arrived yesterday, and I am greatly pleased with it. It is as nearly perfect as it possibly can be. Enclosed please find Post Office Order for another outfit same as you shipped me last, and oblige,

Yours faithfully,
R. J. BISHOP.

These are a few of the users of the Spramotor:

A. H. Pettit, Grimsby.
A. Bogart, Newmarket.
J. L. Hilborn, Leamington.
Thos. Plunkett, Meaford.
A. C. Attwood, Vanneck.
John Davidson, Thedford.

Clark's Cutaway Harrow



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Makes a Perfect Seed Bed.

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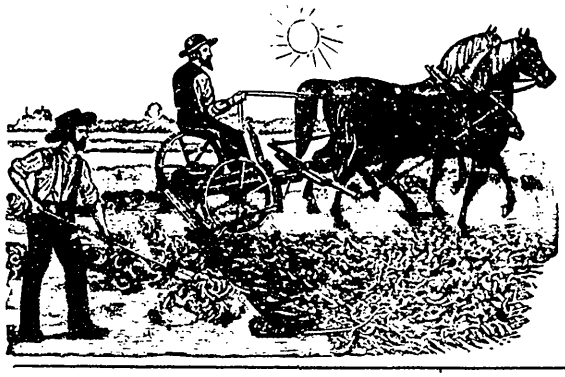

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If the coming season finds you in need of a Disc Harrow, Pea Harvester, Clover Table Binder, Mower, Sulky Rake, Spring Tooth Cultivator, Combined Drill, Double or Single Furrow Plows, Garden Plows, or Corn Cultivator, and you buy a SYLVESTER, you will be well pleased with your selection. Now, then, this we confidently predict: You will bear testimony to the superiority of our machines. Remember, we guarantee the successful operation of every machine leaving our works. It is in the actual work of the machines themselves in the field that the right to claim them the best in the market is exemplified.

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LINDSAY, ONT.

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Can be used on any steel beam plough.

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