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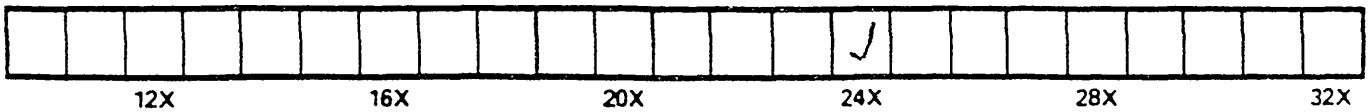


Vol. XIII., No. 12. $1.00 per year.

FARMING

AUGUST 1896

Published by THE BRYANT PRESS, TORONTO CANADA.

Tastes Vary in Stoves

The same as in other things. Some like the peculiar characteristics of one stove, some of another. No one make of stoves can suit everybody, but

Souvenir Ranges

Have gained a larger measure of popularity in proportion to the years they have been on the market than any other line of ranges in the world.

THEY ARE A

MARVEL OF BEAUTY,
ECONOMY and CONVENIENCE

and are finished with that same degree of excellence and style which characterizes all the productions of

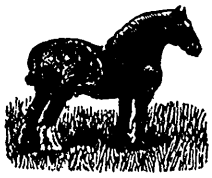
The Gurney-Tilden Co. (Ltd.), - - - Hamilton.
The Gurney Stove and Range Co. (Ltd.), Winnipeg.

SOUVENIRS... { ARE EASY TO BUY
ARE SOLD EVERYWHERE
ONE WILL LAST A LIFETIME

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.

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,

483 **Hillhurst Station, Que.**

SHORTHORNS.

SHORTHORNS

Young bulls and heifers of finest Booth breeding always on hand at reasonable prices. Write for particulars.

D. ALEXANDER,
Brigden, Ont.

SCOTCH SHORTHORN CATTLE AND BERKSHIRE PIGS

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

- 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.

"THE BRIARS"

SUTTON WEST, ONT.

I have a number of exceedingly well-bred horses and colts on hand of Norland, Veteran, Clear Grit, Royal Revenge, and other blood, which can be bought on advantageous terms. If you want really good registered Shorthorns, I can supply these as well. Now is the time to buy.

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

SIMMONS & QUIRIE

Shorthorns and Berkshires.

The herd is headed by the Matchless bull, Royal Saxon =10537=, by Excelsior (imp.) =2693=(51233), with Barmpton M. =18240=, sired by Barmpton Hero=324=, as reserve. Among the females are representatives of the Strathallans, Minas, Golden Drops, Mysies, Elviras—all pure Scotch breeding, except the Elviras, which are Scotch crosses.

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

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

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

Shorthorn Bull.....

One Year Old. Fit For Service.

Was awarded first prize as a calf at Markham Fall Fair, 1895, beating the third-prize calf at Toronto.

Several Young Heifers

FOR SALE CHEAP

JOHN MILLER,
MARKHAM, ONT.

FOR SALE

CHOICE Shorthorn BULL CALVES

By same sire as

SCOTTISH LEADER, Winner of First Prizes

Toronto, Montreal, and Ottawa. If you want a really fine animal, good color, fit for service, see these.

JOHN DAVIDSON,
699 **ASHBURN, ONTARIO**

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.**

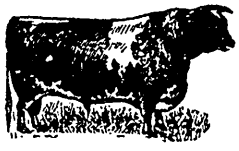
LAURENTIAN STOCK and DAIRY FARM,
North Nation Mills, Que.

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

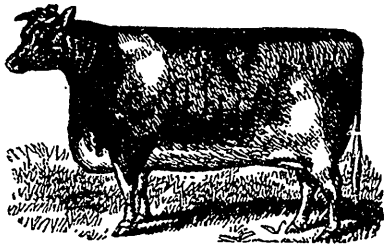
H. CARGILL & SON, Cargill, Ont.

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.**

ARTHUR JOHNSTON
GREENWOOD, ONT.



Offers for sale a very choicely bred lot of prime young

Shorthorn Bulls

and heifers in the finest show form; also Registered Berkshire pigs of the best 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. 696

FOR SALE, 3 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.

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.

H. I. ELLIOTT
Breeder of Scotch Shorthorns and Southdown Sheep
Imported King James at the head of herd.
704 **Riverview Farm, Danville, Que.**

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 purebred 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.**

FOR SALE.

FOR SALE.

A first-class Jersey Bull bred from Mrs. E. M. Jones' butter herd. Registered in A. J. C. C., No. 6473, 16 months old, for only $50. Also a few choice Duroc-Jerseys and Chester White boars now ready for service. Write for particulars.

WM. BUTLER & SON,
382 DEREHAM CENTRE, 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.
598

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

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

John Sandilands, Williamstown, Ont.

FOR SALE

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

DANIEL DRUMMOND
388 **Petite Cote, Que.**

Isaleigh Grange Stock Farm

OUR STOCK OF PUREBRED

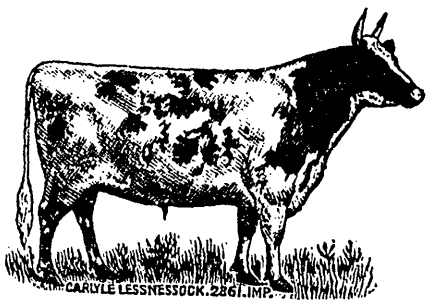
AYRSHIRE AND GUERNSEY CATTLE, SHROPSHIRE SHEEP, AND IMPROVED YORKSHIRE SWINE

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.

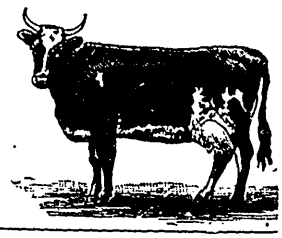
Imp. Clip, stud fee..... $15 00
Bisley, " 25 00
Of most noted champion Scotch perfection strains.
For further particulars address,

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

JOHN NEWMAN & SONS

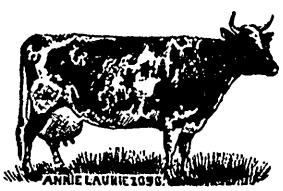
LACHINE, QUE.

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

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

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.**

Choice Ayrshires.

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

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

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 yearlings, and a fine lot of calves, also females of all ages. Shropshire sheep, and a fine lot of young Berkshire pairs not akin. Prices to suit the times. Give us a call before buying. 725

J. YUILL & SONS,
Carleton Place, Ont.

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.

954 **R. E. WHITE, Perth, Ont.**

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,
506 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.

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, including some choice young bulls and heifers. 707

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.
710

AYRSHIRES

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

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

HOLSTEINS.

PUREBRED HOLSTEINS AND TAMWORTHS

Carmen Sylvia, the sweepstakes cow over all breeds in milk tests at Toronto and Gananoque, was bred by me. Pietertje, Jewel, Sir Henry of Maplewood, and Mercedes strains. Catholine 5th's Sir Aggie Clothilde at the head of the herd. Tamworths from imported stock.

Brockville, on G.T.R. and C.P.R. — THOS. DAVIDSON, 177 Spring Valley, Ont.

HELBON STOCK FARM

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

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

J. W. LEE, 430 **Simcoe, Ont.**

Holstein - Friesians

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

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

HOLSTEIN-FRIESIANS.

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

519 JOHN McGREGOR, Constance, Ont.
Londesboro Stn.

GEM HOLSTEIN HERD.

SNAP, $75 CASH Sir Archibald Mascot, 353, C.H.F.H.B., four years old, Oct. 8th, 1895, was never sick a day, is a splendid stock-getter, and is in every respect a first quality bull. We have used him as our stock bull with the very best results, only part with him to change breeding. Was a prize-winner three years in succession at Toronto Industrial Exhibition.

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

HOLSTEINS WIN IN THE PUBLIC TEST

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

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

A. & G. RICE,
490 Brookbank Stock Farm,
Currie's Crossing, Ontario, Canada

MAPLE HILL
HOLSTEIN-FRIESIANS

DeKOLS MECHTHILDES TIRANIAS
ABBEKERKS PIETERTJES MERCEDES
INKAS AAGGIES NETHERLANDS
ARTIS TENSENS BARRINGTONS
AKKRUMS EMPRESS JOSEPHINES

Young stock of both sexes for sale. 550

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

HOLSTEINS.

THE GROVE HILL HERD OF HOLSTEINS

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

B. MALLORY, Prop.,
Frankford, Ont.

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

Four excellent young bulls, ready for service. Breeding unsurpassed. Come or write at once for bargains. Also a fine lot of Tamworths on hand of all ages.

A. C. HALLMAN,
Waterloo Co. 413 New Dundee, Ont.

GUERNSEYS.

GUERNSEYS

THE GRANDEST OF ALL DAIRY BREEDS

2 BULLS FIT FOR SERVICE 2

Prize-winners at the leading shows last fall.
Also calves of both sexes.

W. H. & C. H. McNish
Elm Grove Farm, 311 - LYN, ONT.

SHEEP.

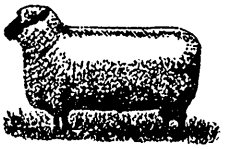
LINCOLNS.

The Largest Flock in Canada!

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

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

OXFORD DOWNS



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

SMITH EVANS,
491 GOUROCK, ONT.
BREEDER and IMPORTER

"MINNIE MILES," twice winner over all breeds.

The oldest established flock of Oxford-Down Sheep in Canada. Won many honors at World's Fair. Animals of all ages and sexes for sale reasonably at all times.

HENRY ARKELL,
403 **ARKELL, ONT.**

ON account of the Death of R. L. BURGESS, his entire stock of registerred Southdown Sheep and Berkshire Swine will be sold. Apply early. MRS. R. L. BURGESS, Burgessville, Ont.

SHEEP.

FAIRVIEW SHROPSHIRES.

As my yearling rams and ewes have wintered remarkably well, I am now ready to book orders, guaranteeing to fill them from the best all-round lot ever offered by me.
My rams are specially good, and with the excellent breeding of their sires and dams will not fail to prove valuable heading flocks.
Inspection and correspondence invited.

JOHN CAMPBELL,
606 Fairview Farm. WOODVILLE, Ont.

OXFORD DOWNS.

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

TURNER & JULL,
BURFORD.

E. TURNER, Burford, Ont. J. H. JULL, Mt. Vernon, Ont.

44

Oxfords

Fine rams, shearling and 2 shears and ram lambs. Yorkshire sows due to farrow in a few weeks. Also Plymouth Rocks. We can suit you. Send card for particulars and prices. John Cousins & Sons,
693 HARRISTON, ONT.

SHROPSHIRES

Our flock, one of the oldest established Shropshire flocks in Canada, was founded in 1881. Importations arrive from time to time, selected in person from best English flocks. Imported stock of both sexes for sale. Homebred January and February lambs by the typical Mountford Exile and English-bred ewes are also offered.
JAMES COOPER & SON,
492 Kippen, Ont.

COOPER DIP

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Over 50 young pigs of both the above breeds now on hand, for sale at moderate prices.
AYRSHIRE BULLS fit for service and bull calves.
Also LIGHT BRAHMAS, S. L. WYANDOTTES, and B. P. ROCK **FOWLS EGGS** for hatching, $1 per setting. 669

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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.
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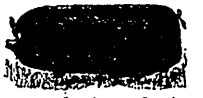
Importer and Breeder of Large English Berkshires.



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.

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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.

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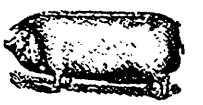

For a boar or sow of any age, that are right in quality, right in breeding, right in price, and guaranteed to be all right. Address,

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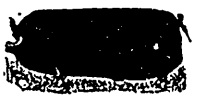

Herd took 21 firsts, 10 seconds, and 4 third prizes in 1895. I have a number of pigs farrowed this spring, good length, and large bone, and fine quality. Registered pedigrees. Satisfaction guaranteed. Write for prices.
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Sows in farrow, and
Mammoth Bronze Turkeys,
AT ROCK-BOTTOM PRICES.

Jersey Bull Calves very cheap if taken at once.

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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.

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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. 649

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Selected from the herds of J. G. SNELL & BRO., Snelgrove, 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

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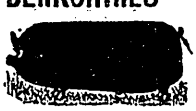

Young boars and sows of fall litters, bred straight from imported stock. Sires weigh from 650 to 840 lbs. Size and quality combined. Orders booked for spring pigs at eight weeks old. Jersey cows, heifers, and calves for sale.

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The sweepstakes herd at the Western Fair, London, 1895. Headed by my famous boar, Bright Prince, assisted by two grand yearling boars. Two yearling sows fit for show, and three grand September cows; also March and April boars and sows for sale. Write me for prices before you order. My motto, "A good pig at a fair price." Also choice Shropshire sheep and Silver-Laced Wyandottes for sale

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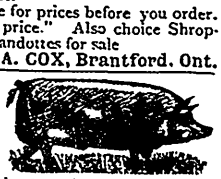
TAMWORTHS



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

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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.

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Improved Yorkshire Pigs

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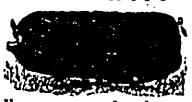

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Large th pigs are my type, that is the ...y I breed them. All ages now on hand.

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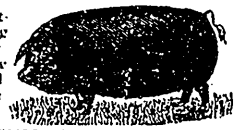
Duroc-Jersey SWINE



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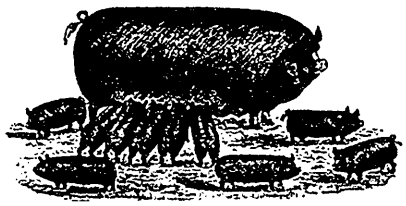

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Is what I breed, and if you order Eggs or Fowls of GOLDEN, SILVER, or WHITE WYANDOTTES, WHITE P. ROCKS, BLACK HAMBURGS, or BRONZE TURKEYS, you will not get something for nothing, but you will get exactly what you buy. Don't give me your order if you expect disappointment in its filling.

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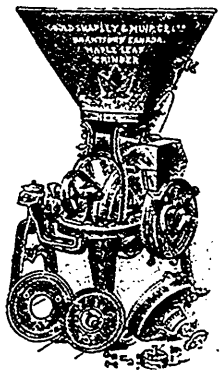

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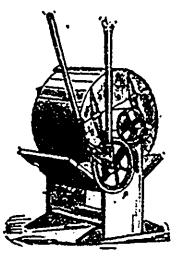

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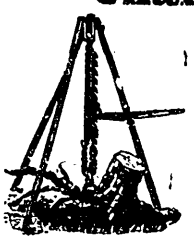

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WALTER HALL, Washington, Ont., Breeder of registered Polled Angus Cattle of the choicest strains. 562

WILLIAM STEWART & SONS, Willow Grove Farm, Lucasville, Ont., Breeders of Polled Angus Cattle. Young stock for sale. 537

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FARMING

Vol. XIII. AUGUST, 1896. No. 12

The Progress of Scientific Agriculture.

The man who, even ten years ago, would have ventured to prophesy that the science of agriculture would have reached the stage of progress that it has to-day would have been ridiculed by the majority of his neighbors, even as to-day the progressive farmer is sneered at by the laggards who think that no one can teach them anything. And yet, when we look back over even that short space of time, what an amount of progress has been made! Taking dairying alone, one of the most important branches of agriculture, see how general the spread of information concerning it has become. It is not so long ago that the Babcock tester, the cream separator, and other now well-known dairy appliances, were, so to speak, "foreign languages" to most dairymen, while to-day there are thousands of those interested in dairying who have all the particulars about these appliances at their fingers' ends. And the limit of knowledge in these matters is not yet reached. There are new discoveries constantly being made, all of which have an important bearing on the many phases of dairying.

And while in this one branch of farming knowledge has progressed so much, the same is the case with all the other branches, even though, in some, the advance made is not so pronounced. It would be strange, indeed, if it were otherwise. We farmers of to-day have many advantages over our predecessors. Our experiment stations are excellent centres for the diffusion of knowledge, and that of the very latest kind. Then there are the Farmers' Institutes, which bring knowledge right to the very homes, so to speak, of those who care to attend them. The many agricultural conventions, too, of various kinds do much to diffuse knowledge, and last, but not least, there is the agricultural press.

With all these aids to give information to the farmer, it would be strange indeed if we had not made a considerable advance in our methods of farming. Some of us, it is true, fight against progression, and ridicule it, thinking that "we know better how to farm than these professors can teach us," but one by one we gradually accept their information at second hand and incorporate it into our systems of farming; although the fact that we do so does not prevent our opposing any further information that they may give us, until, finding it generally accepted by our neighbors, we feel bound to accept it also.

One of the most important reasons why we should keep ourselves posted with the latest information as to new methods of farming in all branches is the advantage that such knowledge gives us in competing with other nations in the markets of the world. It has come to be a recognized fact that the nation whose producers are best equipped with information about the best and cheapest ways of raising and preparing their produce for market in the most tasty and satisfactory manner has a great advantage over other nations that have not that knowledge. Take, for instance, Denmark, and see how large a share of the British markets she has captured for her butter and pork simply because her farmers have carefully studied the situation, and used the most improved methods to gain for their products the entry into that market. So must we do. We have already outstripped other nations in exporting cheese to great Britain. Let us try to do the same in other lines by studying and utilizing, in the production of our goods, everything that is likely to help us in improving their quality and attractiveness.

Co-operation as Regards the Farmer's Table.

Co-operation among farmers is a subject that is very often brought forward at agricultural meetings, and very properly so, because it is only by means of co-operation that farmers can hope to succeed in some of the branches of their calling.

Take dairying, for instance. Although there are many dairymen who are carrying on single-handed a profitable business in one or the other subdivisions of dairying, yet the majority of dairymen find the co-operative system the most profitable and the one best suited to their needs.

When we see the success that attends co-operation in certain branches of farming, we often

wonder why it cannot be extended to other branches. Take the farmer's table. To maintain the human system sufficiently to stand the wear and tear of farm life a supply of meat is required. During the hot weather very little fresh meat is used on many farm tables, the greater proportion found thereon being salt pork—a very good food in its way, but a continuous succession of it is apt to be monotonous, as well as not too wholesome. In the winter time there is more variety, as a rule. A fat animal can be killed, and, if the family is not too small, a good part can be kept for the use of the house, and the balance readily sold to the neighbors. In this way fresh meat is obtained more cheaply than it can be bought from the butcher.

In the summer time this cannot be done, but there is another plan, which has been tried in some parts, whereby a weekly stock of fresh meat can be obtained very cheaply even in hot weather. This is for a number of neighbors to co-operate, and each one of the company to fatten one or more animals for killing during the whole or part of the year. A certain price is put on the various portions of the carcass; the owner of the animal killed during any one week keeps what he requires of the meat, and the rest of the company take the balance between them at the fixed prices. In this way butchers' bills are saved, none of the company are dependent on the whims of the cattle buyer, a plentiful supply of fresh meat is ensured throughout the year, and none of the meat is left on the owner's hands to spoil. The plan is a most commendable one, and should be carried out all over the country wherever possible.

Fire at the Central Experimental Farm, Ottawa.

We have to chronicle, with much regret, the destruction by fire of the chemical laboratories of the Dominion Experimental Farms at Ottawa. On Monday, the 6th inst., about 6 o'clock, a flask containing boiling sulphuric acid (one stage in the process for the determination of nitrogen) burst, setting fire to the fume chamber in which the operation was being conducted. Owing to the presence of much inflammable material and escaping gas the flames spread very rapidly, and it was found impossible to confine the flames to the inner laboratory, where the accident took place. Before the fire could be got under hand, the walls and ceiling of the laboratories, as well as such apparatus and chemicals as were not in drawers and cupboards, were destroyed. Fortunately, the farm men were just leaving work, and all turned in with a will to extinguish the fire. Their efforts were successful in preventing the flames from reaching the offices and museum. In battling with the flames at the outset, Mr. Taylor, foreman of the horticultural division, most unfortunately, was severely burned about the hands, and his face was badly scorched. The attending doctor, however, we are glad to say, pronounces the case as progressing satisfactorily.

Though the fire was a most disastrous one—the laboratory being the finest of its kind in Canada—we learn that many of the valuable records were saved. Temporary accommodation is being fitted up, and the chemist reports that he expects to be at analytical work again very soon.

Crops in the Northwest.

The outlook for crops in the Canadian Northwest is excellent in most places. Some few districts report damage from too much rain, but these are a small minority. In response to enquiries made by Prof. Saunders, director of experimental farms, as to the condition of the crops, the following particulars have been obtained from the superintendents of the farms at Brandon and Indian Head:

MANITOBA.

Mr. S. A. Bedford, superintendent of the Experimental Farm at Brandon, under date of July 4th, says:

"All grain crops on the farm are about one week later than usual. The wheat is just coming into head; in height it is above the average; the growth is rank and of a good dark color; I have never seen it more promising. Six-rowed barley is just coming into head and promises to be a large crop; the two-rowed varieties are later. The oats are not in head yet, but they are quite rank and a good color. Peas are thinner than usual, but are quite promising, and the earlier varieties are in bloom. The growth of flax is excellent.

"Grasses of all kinds are much better than usual; this applies to the grasses sown this year as well as to the older fields. Mangels and carrots are in excellent condition; they have been thinned, and are growing well. The turnip crop is not quite so promising, for the reason that the first leaves were attacked by a fungus.

"Garden vegetables are better than usual, and quite as early. Potatoes are coming into bloom, and promise a large crop. From some unknown cause, red currants have dropped about one-fourth of the fruit from the ends of the branches; but they are still well loaded with large fruit, which

is yet green. Raspberries and gooseberries are heavily laden with fruit. With the exception of Saskatoon berries, all wild fruits will be plentiful.

"Trees, shrubs, and flowers have all made unusual growth and blossom, and seed is exceptionally abundant.

"I have driven over the district south of this for forty miles, and the crops are very promising, fully equal to those on the experimental farm; and I am informed that the crops are also promising on every side of Brandon.

"In some parts of the Red River Valley the crops are not so good, for the reason that it has been too wet; the grain is thinner, and where drainage is insufficient it is more or less yellow in color."

NORTHWEST TERRITORIES.

Mr. A. Mackay, superintendent of the Experimental Farm at Indian Head, under date of July 3rd, writes as follows:

"The crops on the experimental farm are very promising, indeed. At this time of the year we have never had better prospects for a large yield of wheat, barley, oats, peas, flax, hay, corn, Brome grass, and root crops of all sorts.

"Trees and shrubs are doing extra well. The box elders have already made more growth than they have in some previous years for the entire season; and never before were the lilies, caraganas, honeysuckles, spiræas, etc., so covered with bloom and now loaded with seeds. The currant trees and raspberry bushes are breaking down under the weight of fruit; and gooseberries and strawberries are also heavily laden. Native fruits are very abundant all over the country.

"The crops in the Indian Head district are all looking well, although grain in some places, late sown, is short in growth, and may not escape autumn frosts. As far as I have been able to learn, the crops in Assiniboia promise well everywhere, also in Saskatchewan; but are said to be not so good in some parts of Alberta. Early sown wheat and six-rowed barley are now coming out in head."

The New Dominion Minister of Agriculture.

In selecting Mr. Sydney Arthur Fisher, of Knowlton, Que., to be Minister of Agriculture in his government, just formed, the Hon. Mr. Laurier has shown his recognition of the necessity of appointing to that important post a gentleman who is not only a successful farmer himself, but who is thoroughly cognizant of the needs of agriculture at the present time. Under his guidance we shall, no doubt, see many necessary changes made in the interests of agriculture in general, and we have Mr. Fisher's assurance that he will do all he can to promote the welfare of our farmers.

Mr. Fisher is a son of Dr. Arthur Fisher, of Montreal, whose grandfather came to Canada from Dunkeld, Scotland. He was born in Montreal, June 12th, 1850, and educated at the High School and McGill University. He afterwards went to Trinity College, Cambridge, where he obtained the degree of B.A. In his first attempt at parliamentary honors, in 1880, he was defeated, but he was a successful candidate for Brome

Hon. Sydney A. Fisher,
Minister of Agriculture for the Dominion.

county in the general elections of 1882, and was re-elected in 1887. In the general elections of 1891 he was defeated, but was returned again by a large majority at the recent election.

Mr. Fisher is well known as a breeder of Guernsey cattle, and is a practical farmer, owning and working Alva Farm, on which he lives. This farm is one of the best in the Eastern Townships, having been brought to a high state of culture through its owner's knowledge of the best methods of agriculture, and the practical application he has made of it. Owing to his long residence and his active interest in the affairs of the county he was made a Justice of the Peace for the District of Bedford. Mr. Fisher is also an earnest

advocate of temperance, and for years has been associated with the prohibition movement, being now vice-president for Quebec of the Dominion Alliance.

The Royal Show.

(By Our Special Correspondent.)

The Leicester meeting of the Royal Agricultural Society of England will rank amongst the most successful of the shows held by this great society, not only in the matter of attendance, which has only been beaten twice during the period that has elapsed since the society's annual meeting was started, but also as one of the best exhibitions, both of stock and machinery, ever held by it.

We had the pleasure of finding at the show some few Canadian buyers, amongst them Dr. E. D. Morton, of Barrie, who secured a very capital lot of sheep selected from the well-known Pagham Harbor flock ; Mr. R. Miller, who amongst other selections secured leading pens or selections therefrom in Southdowns from Mr. E. Ellis and the Pagham Harbor Co. ; in Cotswolds, from Mr. Hulbert's unbeaten ewes ; in Hampshires, from Mr. T. F. Buxton's well-known flock; in Dorset Horns, from Mr. Flower's unbeaten pen of ewes; Mr. J. Campbell, Woodville, secured a very good selection of Shropshire sheep from Mrs. Barr's grand reserve pen of shearling ewes, Mr. Ramsden's third-prize ewe lambs, the choice of ram lambs from Mr. P. L. Mills' third-prize pen, a pair of ewes out of the highly recommended pen of Mr. Mills, besides other good ones. The Argentine buyers were also present in full force, and many transactions are reported, including the sale of the Prince of Wales' first-prize bull, Celt, for 1,000 guineas, besides a great many other sales of bulls. Lincoln sheep came in for a very large amount of attention, and from 50 to 300 guineas were frequently heard asked.

HORSES.

Hunters were shown in full force and were very strongly represented. The whole of the classes were well filled throughout.

Cleveland Bay and coach horses were shown together with not a satisfactory result, for there were only nineteen entries in the four classes. Individually, however, we found some very capital specimens.

Hackneys had eleven classes, and as a breed they were of quite good average, and many excellent specimens were shown. Sir Walter Gilbey took the Hackney champion gold medal for best stallion with Royal Danegeli, and the Hackney champion medal for best mare with Lady Keyingham.

The first prize for stallion foaled in 1893, above 15 hands, went to Mr. C. Ruping's grand horse, Bradford, beating Sir W. Gilbey's May Royal, who came in first at the London show.

For stallion foaled in 1893, between 14 and 15 hands, Mr. H. Moore's grand-shouldered colt, Clarionet, came first, with Mr. S. Brunton's Manifred next. Stallions foaled in 1894 were headed by Sir Walter Gilbey's well-known Royal Danegelt. Next to him came Mr. Binnington's Prince Edward.

Mares with foal at foot and over 15 hands were a grand class, headed for the third year in succession by Mr. J. Temple's Lady Dereham. Next in order came Sir Walter Gilbey's Caprice.

Mares with foal at foot, up to 15 hands, were headed by Sir Walter Gilbey's grand old mare, Lady Keyingham. Next to her was Mr. C. E. Galbraith's Lady Ulrica.

In the class for fillies foaled in 1894, Mr. W.S. Forster's Activity was rightly placed in the premier position, the Prince of Wales being a close second with Golden Rose.

Fillies foaled in 1895 were a very level class. Mr. C. E. Galbraith was to the fore with a very promising filly, next being Mr. John Barker's entry.

Shires made one of the best Royal exhibits we have seen for some time. Mr. A. Henderson won with that grand horse, Markeaton Royal Harold, the champion gold medal for stallions, and Mr. Grandage's Queen of the Shires took that for mares. Want of space alone prevents our giving fuller particulars.

Clydesdales were not strong in numbers, but were of good quality. Among the prize-winners in this class were Messrs. A. & W. Montgomery, with Prince Shapely, bred by Col. Holloway, and other entries, and Lords A. & L. Cecil.

Suffolks made only a small show, but there were some good horses present, notably in the female classes.

CATTLE.

Seven classes of Shorthorns were filled by 127 entries, which were not, in many people's opinion, equal to the grand exhibitions of the last three or four years.

Bulls calved 1891-3 were a good class, and the judges rightly placed at the head not only of the class, but of the bull section of the Shorthorns, Lord Polwarth's grand old bull, Royal Herald, by awarding him the champion prize as best bull in the show. Mr. G. Harrison's Champion Cup came next.

Bulls calved in 1894 were a class in which

were several bulls which will certainly improve with increased age. The Prince of Wales had the winner in Celt, who was afterwards sold for 1,000 guineas, and to whom also went the reserve for championship. Mr. Harrison was second with Wiltshire Count.

Bulls calved in 1895 found a capital bull from the Queen's herd to the fore, Marmion by name. Next came Mr. G. Harrison's Bright Archer.

Cows in calf born before 1893 were a moderate class. Mr. G. Harrison's well-known Warfare went easily to the top, and to her also went the reserve for the championship of the cow s ction. Next came Mr. Brierley's Rosedale Cowslip.

Cows calved in 1893 were a capital class. Mr. C. W. Brierley won first and third with a capital pair, Jewel 2nd and Queen of Hearts, Earl Percy's St. Ursula being placed between them.

Heifers calved in 1894 were also a very good class. Messrs. Law's Aggie Grace won, to whom went also the female championship of the show. Mr. P. L. Mills came in second, with Scottish Blanche, a capital all-round heifer. Mr. J. Deane Willis was third with Seraph.

Heifers calved in 1895 were of good merit. Mr. F. Platt's Dewy Morn 2nd was placed first, and Mr. J. Deane Willis' Bapton Daisy second.

There were 49 entries of Herefords, most of which were of very good quality. In the bull classes Messrs. J. H. Arkwright, E. Yeld, and Lord Coventry were the principal winners, while in the cow sections Messrs. R. Green, J. Tudge, R. Edwards, E. W. Caddick, E. Yeld, and A. E. Hughes were to the fore.

Four classes of Devons contained 26 entries, which made a creditable display. In the bull classes, Sir W. R. Williams, Messrs. J. C. Williams, and A. C. Skinner were the winners, while Mr. Skinner had it to himself in most of the female classes.

There were 21 entries of Sussex, and they were well shown. Lord Derby, Mr. C. J. Lucas, and Mr. W. S. Foster were the principal prize-winners.

Red Polls and Welsh cattle were of good merit, and the display of Aberdeen-Angus was also remarkably fine. Mr. J. W. Earle was first for old bulls with Fairy King of Kirkbridge, Mr. G. C. W. Fitzwilliam being a good second with Jolt. In a grand class of young bulls, Mr. W. B. Greenfield was the premier winner, with Black Prince of Ardingly, the Rev. C. Bolden being second and third with Prophet and Eglamore.

Cows were a very strong lot, as a whole. Mr. C. Stephenson won first and the championship with Radiant, the Marquis of Huntly being next with St. Barbara, who also was reserve for the championship. In the younger female class, Mr. J. W. Earle was first, with Mr. C. Stephenson a close second.

Galloways were well shown, and certainly made a capital exhibit. Highland cattle and Ayrshires also made a good show, and their classes were well filled. Jerseys were, as usual, largely shown, and both Guernseys and Dexters and Kerries were also shown to advantage, a capital collection of these breeds being present.

SHEEP.

The display of Leicesters was very good; in fact, seldom of late years have these sheep made as good a show. Old rams were a capital class, in which Mr. T. H. Hutchinson secured a great victory with two meritorious sheep, which not only took first and second premiums, but were awarded also the champion medal for best Leicester ram and reserve for the same. Mr. E. F. Jordan made a close third.

Shearling rams were a capital class. Here Mr. E. F. Jordan went first, being closely pressed by Mr. T. H. Hutchinson's ram, another of Mr. Jordan's being third.

Five shearling rams formed a class of very good merit, Mr. E. F. Jordan again taking premier position, Mr. J. J. Simpson being second. Mr. T. H. Hutchinson went to the fore for ram lambs, Mr. E. F. Jordan being close up for second honors.

Shearling ewes were a large class, in which Mr. E. F. Jordan took first and second with a couple of grand pens of ewes.

Ewe lambs were, as in ram lambs, headed by Mr. T. H. Hutchinson's well-matched pen, Mr. E. F. Jordan being second.

Cotswolds were good, but few in number, and there was not much competition. Mr. R. Garne's well-known flock was first and second for old rams, first and third for shearling rams, first for ram lambs, and second for ewe lambs. Mr. T. R. Hulbert took first and second for two excellent pens of ewes. Mr. R. Swanwick came in second for shearling rams, and Mr. W. Thomas, a new exhibitor, first for ewe lambs, and second for ram lambs.

Lincolns were a fine class. Mr. Henry Dudding took the lead in old rams, with a grandly-fleeced sheep. Messrs. Wright came in for second honors.

Shearling rams were a very strong class all through. Messrs. Wright were first, Mr. John Pears second, Mr. H. Dudding third. Messrs. Wright's shearling was also selected for the championship of the breed, with Mr. Dudding's old sheep as reserve.

Five shearling rams were headed by a capital pen of rams from Messrs. Wright's well-known flock, for whom, we understand, a bid of $2,500 was made, Mr. John Pears being a good second, and Messrs. S. E. Dean & Sons third. Mr. H. Dudding led the way with a pen of excellent ram lambs. Mr. John Pears came in second, whilst Messrs. Wright secured third.

Shearling ewes were good all round, but we consider the judges did not award the premiums as they ought to have done. We think that Mr. H. Dudding ought to have been first. The judges put Mr. Pears first and Mr. Dudding second, whilst another pen of Mr. Dudding's came third.

Ewe lambs were a small class. Mr. J. Pears had the winning pen of lambs, while Messrs. Wright were close up and took second place.

Oxford Downs were one of the weakest sections of the show. Mr. A. Brassey, who made one entry in four classes, was first, Mr. J. C. Eady being first for old rams and second for shearling rams and second and third for shearling ewes, the other winners being from Mr. H. W. Stilgoe's and Mr. James T. Green's flocks.

Shropshires made up an entry of one hundred and twenty-seven, and were, as they always are, a capital lot. Old rams were headed by a grand and typical sheep of Mr. J. Bowen-Jones' flock, to whom also went the champion prize for best ram, Mr. A. S. Berry being second with another grand ram of Mr. J. Bowen-Jones' breeding.

For shearling rams Mrs. Barrs was first with the sheep that won at the Bath and West of England show, Mr. J. Bowen-Jones coming second, as at the aforenamed shows, with the ram that since then was shown at the Royal Counties Show, where he took the championship over all breeds. Mr. A. E. Mansell came in third.

Five shearling rams were a great class, and the winning pen of Mr. A. E. Mansell may best be described as being a pen all breeders desire to breed, but which few ever succeed in doing. Mr. John Harding came second, whils. Mr. W. F. Inge was a close third. Mrs. Barrs was first for ram lambs with a capital pen, Mr. A. E. Mansell being a good second, and Mr. P. L. Mills third.

Shearling ewes were a class of particularly uniform merit. Mr. W. F. Inge came to the fore with a pen of well-matched ewes, Mr. Bowen-Jones being second, and Mr. J. L. Naper third.

Mr. P. L. Mills' excellent pen of ewe lambs came in an easy first, Mr. John Harding being second, and Mr. R. Ramsden third.

Southdowns were fairly well shown, although we have seen better and stronger competition. Old rams were headed by an entry from the Prince of Wales' flock, Mr. J. J. Colman's ram being placed second, and the Duke of Richmond's third. Sir James Blyth's champion Eastbourne ram fully deserved his position at the head of the shearling rams, Sir W. Throckmorton's ram being second, and Mr. C. W. Adams' third. The Pagham Harbor Co.'s pen of ram lambs was first in that class, Mr. A. Heasman coming next, and Mr. E. Ellis third.

In the class for shearling ewes Sir James Blyth's exhibit secured the premier position. The second pen came from Mr. J. J. Colman's flock, and third prize went to Mr. E. Ellis' well-known flock. Ewe lambs were another class of great merit, which were rightly headed by a pen from Mr. E. Ellis' flock. Next came a pen from the Pagham Harbor Co., while Mr. J. J. Colman's was placed third.

Hampshire Downs were fully up to the average of late years. The principal prize-winners were Mr. Twidell, Mr. T. F. Buxton, Lord Rothschild, Prof. Wrightson, Messrs. Palmer, Mr. James Flower, and Mr. Whalley-Tooker.

Kent, or Romney Marsh, sheep turned out well. Messrs. Millen and Finn divided most of the honors, the former being the principal winner.

Suffolks were fairly well represented. Lord Ellesmere and Mr. J. Smith won nearly all the prizes. Other breeds had a good representative number of entries.

PIGS.

There was a fair entry of swine. In the class for Large Whites the principal prizes were taken by Sir Gilbert Greenall, who took the medal for the best white boar or sow with Walton Topsman; Mr. E. F. Pogson, Mr. John Barron, Mr. E. Buss, Mr. Allmand, and Mr. Denston Gibson. For Middle Whites, Mr. Sanders Spencer, General Dyott, Sir Gilbert Greenall, Mr. Denston Gibson, and Mr. Twentyman held the honors. Small Whites were few in number, but good.

Berkshires turned out well, and were of very even quality. There were fifteen entries of old boars, while the sow classes were even better than those of the boars. For boars the chief honors went to Colonel Blandy Jenkins, Mr. W. Pinnock, Mr. J. A. Caird, and Sir H. de Trafford, and for sows to Mr. E. Hayter, Mr. E. Buss, Col. Jenkins, and Sir H. de Trafford.

Tamworths were shown by Mr. H. D. Philip, Sir H. de Trafford, Mr. T. Tompson, and Mr. R. Ibbotson. Though not present in large numbers they made an excellent display. Mr. Geo. Pettit had three entries of Black Suffolks.

Wheat-growing in Argentina.

In growing wheat for export to Great Britain and other countries, Canada need fear no competitor, either for quality or quantity, so long as the conditions under which both countries stand are similar; as, for instance, the cost of raising, price of labor, etc. It is, however, when we have to compete with other countries where a like condition of affairs does not exist, as with India and Egypt, with their cheap labor, or with the Argentine Republic, with its cheap labor and, in addition, the advantage its wheat growers have of the premium on gold, that we feel the pinch of competition, a competition, too, that seems to grow keener every year.

A representative of the *Dundee Courier* has been in Argentina investigating the state of affairs there. It seems that the largest proportion of the immigrants to that country are of Italian origin. These Italians can live on very little, and there is a proverb in Argentina that "an Italian can live on a few cooked vegetables and the smell of an oil rag." Their household expenses, too, are trifling. The majority of them become farmers, and, thanks to their penurious habits, manage to make a good living out of growing wheat. The correspondent gives an instance of a "chacrero" (Italian wheat farmer) who worked on the "share" system one hundred and twenty acres, half being in wheat and half in corn. On entry he received from the proprietor mud, posts, and corrugated iron for roofing, to build rancho and galpon, together with bullocks with their food and implements to work the land. The proprietor received one-third of the produce, and the tenant the other two-thirds (less seed) for cultivation, thrashing, and delivering, extra hands at harvest being paid mutually. The sixty acres of wheat produced 11 bushels, or 3 kintals of 220 lbs. per acre. The sixty acres of corn, which was just being husked, would, the proprietor reckoned, give 50 bushels to the acre, or 818 kintals, after deducting seed. Here, then, is a "chacrero's" balance sheet, calculating gold at 205 premium, which makes the paper dollar equal to about 32 cents:

RECEIPTS.

	Paper.	Gold.
180 kintals wheat at $7.50	$1350 00	$432 00
818 kintals corn at $3.30	2700 00	858 00
	4050 00	1290 00
Less one-third for proprietor's share	$1350 00	430 00
	2700 00	860 00
Received for poultry, etc.	100 00	32 00
Total receipts	$2800 00	$892 00

EXPENSES.

	Paper.	Gold.
1 peon (3 months' seedtime and 3 months' harvest), at $40.00 per month	$240 00	$76 80
One-half of the peon's wages, 16 days' harvest, at $3	24 00	7 68
One-half of the peon's wages, 20 days' corn harvest, at $3	30 00	9 60
Board of peon, 6 months, at $8 per month	48 00	15 36
Board of peon at harvest, say	12 00	3 84
Hail insurance	100 00	32 00
Thrashing 180 kintals wheat, at $1.10	198 00	63 36
Thrashing 818 kintals corn, at 20 cents	163 60	52 16
Bags for 666 kintals wheat and corn, at 40 cents	266 00	85 12
Proportion of wheat tax per kintal, 10 cents	12 00	3 84
Proportion of corn tax per kintal, 8 cents	43 00	13 76
Railway carriage on 656 kintals—per 10 kintals, $7	466 00	149 12
Total outlay	$1602 60	$513 64
Total balance	$1198 40	$378 .6

HOUSEHOLD EXPENSES.

Food and clothing for family for 12 months at $45 per month	540 00	172 80
Profit	$658 00	$210 56

The following figures represent the first outlay necessary for installing a family of Italians with all the necessaries for cultivating a farm of 250 acres, calculating gold at 205 premium, and the paper dollar at about 32 cents:

Rancho (mud hut), material and labor for erection, including digging well, necessary household fittings and utensils	Paper. $300	Gold. $ 96 00
3 single Argentine plows	80	25 60
2 sets harrows	70	22 40
1 wagon	150	48 00
1 wagon	250	80 00
Reaping machine (binder)	960	307 20
12 bullocks	480	153 60
6 horses	180	57 60
Cows, pigs, poultry	300	96 00
	$2770	$886 40

We will now suppose that a "chacrero," who, with his family, through parsimonious living, has managed to scrape together $3,000 paper, anxious to increase his holding and to get off the "share" system, rents 250 acres of land at, say, $2.25 paper per acre. This acreage, as will be seen from the above table, can be stocked with his savings, leaving a small balance to the good in case of emergencies. Entering the farm in the beginning of 1895, with the assistance of one peon and his family of one son and one or two daughters, he might do without any outside labor, even in harvest, and reap, say, 175 acres of wheat in December last. With the exception of a few acres of corn for feeding his horses, poultry, etc., and part of which would be cooked for the family

food, the remainder of the ground is in grass for consumption by the bullocks, cows, and horses. The crop, which is generally marketed as soon as it can be thrashed, produced, we will suppose, 10½ bushels to the acre, which is not only a full average crop for 1895, but, as far as the correspondent could gather, a fair average for any season, although many put it much higher, owing to the exceptionally large crop of 1893. This is, then, the "renter's" balance-sheet, calculating gold at 215 premium (the average rate during the last week of January, the very busiest period for the delivery of wheat), which makes the paper dollar equal to about 30 cents.

RECEIPTS.

	Paper.	Gold.
175 acres wheat (10½ bushels per acre), 501 kintals, but, for easy calculation, say 500 kintals, at $7.50	$3750	$1125 00
Profit on poultry, etc.	150	45 00
Total receipts	$3900	$1170 00

EXPENSES.

1 peon (3 months seedtime), at $35 per month	$ 105	$ 31 50
1 peon (3 months' harvest), at $45 per month	135	40 50
Peon's 6 months' food, at $7	42	12 60
Seed wheat—80 kintals, at $6	480	144 00
Hail insurance	100	30 00
Thrashing 500 kintals, at $1	500	150 00
Cost of sacks, 500 kintals, at $0.40	200	60 00
Wheat tax per kintal, at $0.10	50	15 00
Railway carriage, per 10 kintals, at $6	300	90 00
Depreciation and repair of plant	300	90 00
Rent, 250 acres at $2.25	562	168 60
Cost to produce and deliver, f.o.b. 500 kintals	$2774	$832 20
	$1126	$337 80

BALANCE.

Food and clothing for family for 12 months, at $45 per month	$ 540	$162 00
Net profit for year	$586	$175 80

Canada's Great Fair.

Before the next issue of FARMING the fall fairs will be in full swing. First and foremost comes the great Exhibition in Toronto, which is to be held this year a trifle earlier than usual, the dates being from August 31st to September 12th.

There is every promise that this year's exhibition will excel in nearly every department those of former years. While the entries already received prove that their number will be as large as in previous years, if not larger, the general attractions will be upon a scale well above any seen before.

There is one thing that we desire most of all to impress upon our readers, and that is that entries must be made on or before Saturday, August 8th. While that is positively the last day on which entries of live stock, dairy products, ladies' work, fine arts, honey, and all classes of manufactures will be received, it is desirable that as many entries as possible shall be sent in before that day, in order to facilitate the work of the office.

Grain, field roots, and horticultural products must be entered on or before Saturday, August 15th; poultry on or before August 22nd; and dogs on or before August 27th.

For the trotting races, entries close on Wednesday, August 26th, and for the running races either on September 3rd, 9th, or 10th.

This year a special effort is to be made to make the first week as interesting as the second, so that there will be no object in intending visitors putting off their coming until the second week. All the live stock must be on the grounds not later than noon on Thursday, September 3rd, otherwise they will not be received. Exhibitors, however, can send in their exhibits earlier if they please; in fact, they can have them there on the opening day, Monday, August 31st.

Possibly never before has so much time and pains been expended in securing judges as this year. Correspondence has been in progress for a long time with gentlemen eminent in their respective lines, with most satisfactory results. As an illustration, we might mention that Mr. T. S. Cooper, of Coopersburg, Pa., has consented to judge Jerseys and Guernseys. He was to have acted in that position last year, but a disastrous fire prevented his coming. Mr. Cooper, who is noted as the first of authorities in the classes mentioned, only comes now because he disappointed the exhibition management last year, having refused several other pressing invitations to act at other shows. In his letter to Manager Hill, he says that Toronto's exhibition comes nearer to the great World's Fair at Chicago than any he has ever been at, and he has been a regular attendant at all the best.

For the horses, judges have been specially selected for the different classes. Among them will be found few who have figured in former years. One gentleman, who will be welcomed most warmly, and will probably be here, is Mr. Aurel Batonyi, of New York, who created such a furore by his expert driving at Toronto's first horse show in the new Armories. Mr. Batonyi will judge four-in-hands, tandems, and fancy driving, and give exhibitions himself.

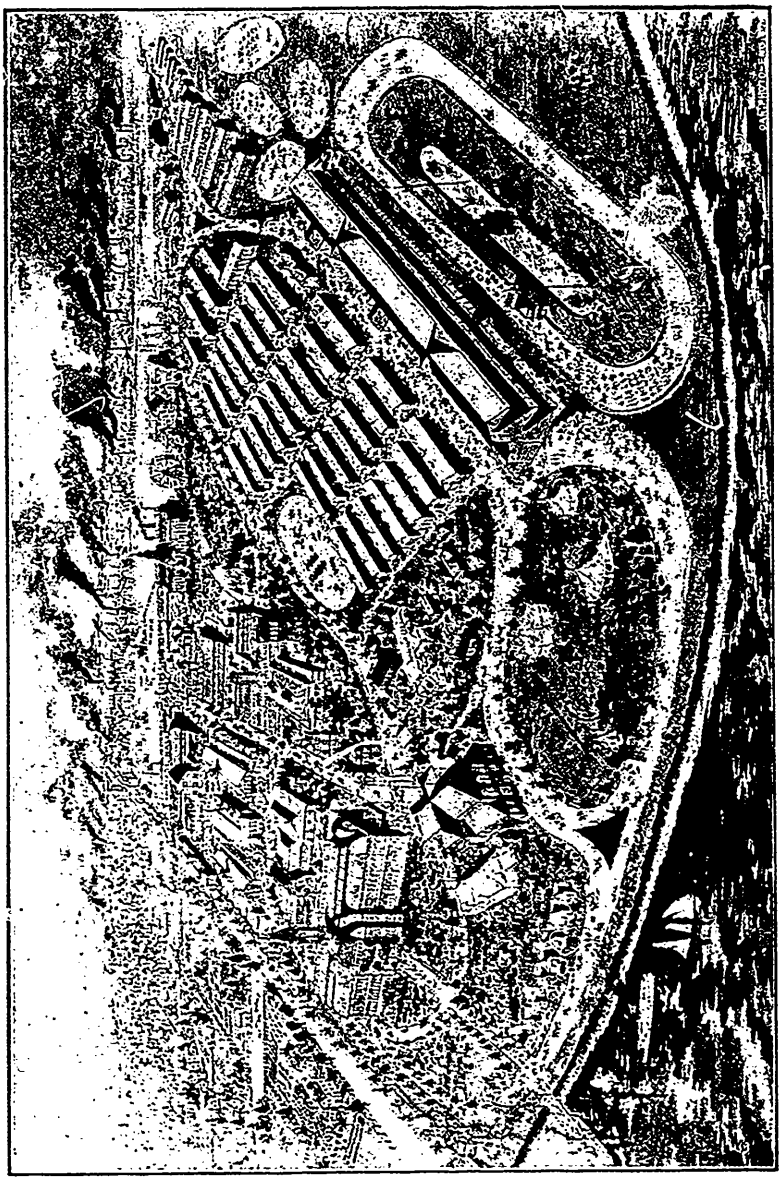
In dairy products, an expert has been secured for both cheese and butter.

Judging of live stock commences the first

week, the dairy breeds and grades being judged on Friday and Saturday. The beef breeds will be taken on Monday and Tuesday of the second week.

In the arrangement of the rings this year special efforts will be made to have all occupied with something during the entire day. The big ring will be available for the exercise and private exhibition of horses during the morning, certain hours which will be specified later on being set apart for each class.

But the one thing for our readers to remember at present is that entries close on Saturday, August 8th. Mr. H. J. Hill, the manager, Toronto, will promptly forward prize lists and entry forms on receipt of application.



Toronto Exhibition, August 31st to September 12th, 1896. View of the Grounds and Buildings.

JOHN F. PECK recently shipped to Europe several good trotters, among them being Maggie Sherman (cost $4,000), Sorceress, Nellie W., and Nellie Chatterton.

MR. C. J. HAMLIN, who has been for so many years one of the prominent figures at the head of trotting affairs at Buffalo, now retires, and will take no active part in them this year.

AZOTE, 2.04¾, the champion gelding, has been very unwell, and will not be likely to do anything this year. William Penn, 2.07¼, and Bouncer, 2.10¼, are both likely to be heard from during the season.

THE pacer, Johnston, 2.06¼, is now 19 years old. He held the world's pacing record from 1883 to 1891. He is owned by Mr. Dunbar, Buffalo, who gives him a good home—a comfortable stable in winter and a grassy paddock for summer.

AT Nice, France, the trotting is done on a grass track rolled every day for weeks before the races with a big heavy steam roller. The track is hard and firm, and it makes a pretty scene to see the trotters skimming over the green.

THE rules of the National Saddle Horse Breeders' Association require that the animals must show five distinct gaits, viz., first, walk; second, trot; third, rack; fourth, canter; fifth, running-walk, fox-trot, or slow pace. There is an increasing demand for saddle horses of this style.

The Nebraska stallion, Pat L., has been making fast time as a four-year-old. He has rather a short pedigree, but a good burst of speed. He is expected to be away below 2.10 before the season is through. At Omaha he won a heat in 2.12½. He is expected to be in the lot for the stallion championship.

ENGLAND'S big race was this year won by Persimmon, by St. Simon, owned by the Prince of Wales. The result of the race was very popular with the public. His Royal Highness led the horse after the race, and was loudly cheered The Prince of Wales has done much for horse-breeding, and has well deserved the honors he has won.

THE most promising trotter for the season seems to be Beuzetta, 2.06¾. Last year, as a four-year-old, she did very well, being steady and reliable. She was wintered in California, and is now at Columbus, Ohio, in the care of Orrin Hickock. Onoqua, 2.08¼, another of last year's four-year-olds, is promising well. She was lately bought by Frank Ellis, Philadelphia, for $12,000.

THE three young mares, Beuzetta, Fantasy, and Onoqua, will very likely be close to the record before the end of the season if one of them does not lower it. At the close of 1893 Alix had a record of 2.07¾, and in 1894 it came down to 2.03¾, where it still stands. During the season she pulled it down 4 seconds. Very likely in the coming season one of the three may get down as low.

NOW that we have the warm, dusty days of summer, horsemen should be specially careful in watering their driving horses. When driving, let the horse have two or three sips of water, just enough to moisten his throat, when you stop to water, and when starting give about six quarts or more as the occasion demands. Never give much water when the horse is overheated—give a small quantity, followed by moderate exercise.

MR. SEWARD CARY is this season running a coach from Buffalo, where it leaves the Iroquois Hotel, calls at the Genesee, then drives out on Delaware Ave., and crosses the ferry into Canada. The drive along the Canadian side of the Niagara River is one of the finest in America. The coach passes Dufferin Island, Table Rock, and the Horse Shoe Falls, winds through the Victoria Park and crosses the Upper Suspension Bridge, returning to Buffalo by the American side of the river.

IN giving reasons why chestnut-colored horses are so often hot-tempered, Dr. Louis Robinson says: "It seems probable that the chestnut

horses with white markings, and showing white in the sclerotic of the eye, get their hot disposition from some ancient strain, either of wild desert steeds or of Eastern war horses, all of which were colored in this way, and whose surroundings made a courageous and impatient temper a necessity. There are various peculiarities among horses of this class which further support such a view."

THE burning of Grand's American Horse Exchange, on 50th street and Broadway, New York, was a memorable event. The fire began in the early evening and at a time when there were 268 horses in the building. The most of these were rescued, though in getting them out one man lost his life. Fully 5,000 people gathered to see the fire. The *Rider and Driver* says: "The glare and soaring of the flames, the neighing and shrieking of the horses, and the trampling of hundreds of hoofs, joined to the shouts of the men and the thundering of the engines, combined to make the scene one long to be remembered in the fire annals of New York."

IT is a wonder that more attention is not paid to raising high class, reliable, family horses. They are difficult to find, are in constant demand, and bring a good price. For a family horse the animal must not only be sound and good looking, but must be thoroughly broken and quite safe in every sense of the word. He must be afraid of nothing, must not shy at any time, and must have sense enough to keep steady under circumstances that would cause the average horse to misbehave. He must be safe for a woman to drive, and, if an accident happens, must stop and remain still. Many women know little about driving, and few know what to do in case of accident. Horses well broken and always to be depended upon are, therefore, valuable, and it is not to be wondered at that they are worth a good price.

THE horse's eyelids are liable to be torn by getting caught in nails about the stall or manger, or in the fields on fences or rails. Barbed wire fences are especially dangerous. If neglected, tears from any of these causes may make an ugly wound, and it may remain unsightly owing to puckering of the skin and rough healing. As soon as it is noticed the wound should be examined, and washed clean with a weak solution of carbolic acid or other disinfectant. Bring the edges of the wound carefully together, and secure by means of sharp pins moderately close together, and firmly held by thread passed over each end like a figure 8, and carried from pin to pin so as to prevent gaping of the edges of the wound. Do not have the pins too far apart. When the wound has been nicely closed cut off the sharp ends of the pins with a strong pair of scissors. Bathe the wound twice a day with the disinfectant solution. Other similar wounds may be treated in like manner.

IN November, 1845, there was on exhibition at the Egyptian Hall, London, England, the biggest horse of the century. He was bred in the United States, named General Washington, and bought by Carter, the "Lion Trainer," who was at one time attached to Wombwell's Menagerie. From the ground to the top of the withers this horse measured six feet nine inches, twenty hands one inch. His weight is not known, but, looked at from above, his back was like that of an elephant. He was active and handy, perfectly quiet, and trotted about for inspection. About ten days after his first appearance he was being led round for inspection when one of his hind legs went through the floor. Carter rushed to his assistance, and succeeded in getting the leg out somewhat bruised. The apartment under the hall was tenanted by the porter and his family. Just as the leg came through the ceiling the man's wife was having tea. She was naturally frightened, and jumped out of the window while the intruding leg knocked over and smashed the family clock.

Rules for Driving.

Hiram Woodruff, in his rules for driving, gives the following directions for driving with a rein in each hand: "Take first the right hand rein. This, coming from the bit, passes between the little finger and the third finger, over the little finger, then under the other three fingers, and up over the thumb. The left hand rein is held in the left hand exactly in the same way, but the bight of the slack of the rein is also held between the thumb and forefinger of the left hand, or it may be dropped altogether. A firm grasp on each rein with the backs of the hands up and without any wrap is thus obtained. It is a great point in driving to be able to shift the reach—that is, the length of the hold you take—without for an instant letting go of the horse's head. With this way of holding the reins it is easily done. If I want to shorten the hold of the left hand rein I take hold of that rein just behind the left thumb with the thumb and forefinger of the right hand and steady it. This is easily done, and does not interfere with the off rein in the right hand. The near rein being thus steadied behind the left hand, I slide that hand forward

on the rein, which is kept over the little finger, under the other three fingers, and over the thumb all the time, and then shut the grasp again on the new reach. A shift with the right hand is made in the same way, by taking hold and steadying the rein behind that hand with the thumb and forefinger of the left hand."

This may be considered the best method for two-handed driving of trotting horses. For ordinary driving it is usual to hold the reins in the left hand, the near side rein above the first finger and the off rein below the second finger, the ends of both held firmly in the hand. The right hand holds the whip and assists in shortening the reins in pulling up or sharp turning.

An Australian Trotter.

They claim to have a good trotter in Australia, and a challenge has been issued to any American horse to go over and race for a $10,000 stake. This Australian horse, named Fritz, was sired by an American horse named Vanclere, by Harold, from the famous Woodburn stud. Fritz was bred back on a ranch, several hundred miles from Sydney. As a three-year-old he trotted in 2.30, and kept steadily improving under the care of his owner. The best racers in this line were the trotter, Osterley, and a pacing mare, Mystery, both with records of 2.25. Some time ago a big purse was offered for a trotting match at the Sydney races, and Fritz was entered. From the ranch he hauled all the traps of his owner thirty miles to the nearest railway. An ordinary freight car held them the next thirty-six hours going the six hundred and fifty miles to Sydney. There were only two days for a rest, and to try the track, and the race came on. Fritz trotted away from the champions, winning the first heat easily in 2.19, the second in 2.16, and the third in 2.14. The track was poor, with weeds and sand-holes, and the pace was very fast considering the conditions. Fritz is a big, racy-looking gelding, not at all handsome, but he must have a wonderful burst of speed, and may make an interesting race for any American who accepts the challenge and crosses the Pacific to try a race with him.

Moon Blindness.

Recurrent ophthalmia—or moon blindness, as it is sometimes called—has nothing to do with the moon, but is a disease found among horses on damp clays, marshy grounds, and overflowed river bottoms. The symptoms vary. In some cases there is marked fever, the pupil of the eye is contracted and does not expand much in darkness, there is hardness of the eyeball from effusion into its cavity, and more or less blindness. As the attack passes off the eye clears up in ten or fifteen days.

The characteristic of the disease is its recurrence time and again in the same eye. The attacks may follow at intervals of a month, more or less. From five to seven attacks usually result in total blindness, and then the other eye is liable to be attacked in the same way. After the first attack there is a bluish ring around the cornea. The eye seems smaller than the other, at first because it is liable to be drawn back into its socket, and afterwards by actual shrinkage.

When once contracted, this disease appears to be liable to be hereditary. A mare may have a number of sound foals, then she contracts the disease, and all following foals have it. So with the stallion. It is said by some that it may skip a generation and appear in the next. Horses or mares having the disease should not be used for breeding. Not much can be done towards curing the disease. Prevention is to be aimed at, by careful breeding, feeding, and general management.

The Patchen-Gentry Race.

The *Breeder's Gazette* very graphically describes the race at Washington Park between Joe Patchen and John R. Gentry, which had been expected to lower the pacing record. The week before, at Red Oak, John R. Gentry brought down his record to 2.03½, but this time Joe Patchen was winner in 2.05½ and 2.06¼. The gait of the horses is thus described: Both horses looked in far too heavy flesh. The contrast is great. Patchen is a big, lathy, rugged, strong-framed horse, with a slouching, shambling jog-trot, and a careless, indifferent way of carrying himself. He jogs up the stretch to score in a most loose-jointed, lazy fashion, but the instant he turns he is transformed. His indifference vanishes, his jog turns to a pace of tremendous stride, and, poking his nose out straight in front, he simply follows it without a bobble. The length of his stride is remarkable; of course, his gather is not so quick as Gentry's, and he does not seem to be moving so swiftly, but his stride has less of friction and more reach, and the big black fellow seemed doing it easily, while Gentry was fairly tearing up the sod in a fierce endeavor to catch up. Gentry is as handsome as a picture. An apple is not rounder; he is made just about right; his finish is attractive, and if he trotted he would be trappy-gaited.

His stride is shorter than Patchen's, but his gather is much quicker, and he rushes like a very whirlwind, with head in air, instead of extended nose. He is far more attractive than Patchen, who seems, when jogging, to be utterly ambitionless. The man who bets on either of these horses when they come together is a gambler, pure and simple. It depends on which horse's day it happens to be."

The First Derby.

The precise period at which horseracing began to be practised at Epsom is a matter of uncertainty, says a writer in *Public Opinion*, but it dates as far back as the reign of James I., who was at times a resident of the place and occupied the palace of Nonsuch. The pastime must have been practised before 1648, as about this date the place was evidently becoming somewhat celebrated for the sport, as we find Pepys lamenting his inability to attend a "Derby" of the day The year 1780, however, is generally accepted as the year when the first Derby was run for. The following is the "full report" of the Derby race of 1780, as published by the London *Evening Post* of May 8th in that year:

THURSDAY.

The Derby stakes of 50 guineas each, h. ft., colts and fillies, the last mile of the course.

Sir C. Bunbury's ch. c..... 1
Mr. O'Kelly's b. c..... 2
Mr. Walker's f..... 3
Sir F. Evelyn's br. c..... 4

The winning horse was named Diomed; the distance run was a mile; there were thirty-six subscribers, out of which nine started. So slight was the public interest in the matter that, although the *Public Advertiser* could find room to record the breakdown of a one-horse chaise on the road home, it had not a corner to spare for the race itself. On that occasion, as on the last, the race was watched by the Prince of Wales (afterwards George IV.) and by his brother, the Duke of York.

Breeds of Horses.

THE HACKNEY.

The term Hackney was formerly employed to denote a kind of horse fitted for general services. They were understood to be of moderate size, possessing action, strength, and temper. Of stouter build than the Thoroughbred and the Hunter, they were used largely for the saddle, but are now become the type for the showy harness horse. The eastern counties of England—especially Norfolk—have been noted for their strains of Hackneys, and this section, with Yorkshire, has the honor of breeding the best Hackneys in England. The Hackneys of the present day are of lighter form than those of long ago, when they were required to carry heavy, burly Englishmen over hard roads or across country where there were no roads at all. The modern Hackney was for many years in the hands of the Yorkshire or Norfolk farmer, where the breed has been indigenous for a long period. To the care and intelligence of these farmers we owe the very existence of the breed. In the earlier years of this century some thoroughbred blood was used, but generally the farmer kept to the old-fashioned style and carefully handed down by word of mouth the details of many unwritten pedigrees.

In 1803 Mr. Taplin published in his "Sporting Dictionary" the following account of this breed: "Hackney, in the general acceptance of the word, is a horse superior to all others upon the score of utility, being rendered subservient to every office of exertion, speed, and perseverance. It is the peculiar province of the Hackney to carry his master twelve or fifteen miles an hour to covert. His constitution should be excellent and his spirit invincible. He must be able to go twenty-five or thirty miles at a stage without drawing bit, and without the least respect to the depth of the roads or the dreary state of the weather." This was the riding hack which had to gallop to covert or take a turn in the gig at the trot if needed. The Hackney was the trotter of England, and a good one was required to be able to walk nearly or quite five miles an hour and trot three miles in nine minutes, stand at the stone and start. One of the old and most celebrated sires of the breed called Marshland Shales trotted seventeen miles with four minutes to spare within the hour, and this under the saddle with 182 lbs. up, while Wroot's Pretender, sire of Ramsdale's Performer, one of the old-time Yorkshire Hackneys, carried 224 lbs. sixteen miles within the hour. Speed, endurance, and ability to trot were more appreciated in those days than the modern style of high knee action which is now characteristic of the breed.

Bellfounder, foaled in 1816, before he left England for the United States in 1822 trotted two miles in six minutes. He afterwards won a match for $1,000 by trotting nine miles in less than half an hour. This horse from Norfolk did much in America to improve the trotting stock on this side of the water. But even in those days Stonehenge says of the Hackney: "Action is

the main point; not too high, so as to throw time and space away, but a fast, stealing-away kind of style, which gets over the ground without distressing either horse or rider." Many of these Hackneys are "well topped"—that is, well-formed about the head, neck, and body.

Of late years the advance in Hackney breeding has been well-marked; perhaps this will be clearer if we compare the last London Hackney Horse Show with that of ten years ago. In 1886 there were shown 42 mares and 95 stallions, 137 in all; in 1896 there were forward 180 mares, 229 stallions, and 33 geldings, 442 in all, more than three times the number shown in 1886. There has been a steady advance every year, both in the number and the quality of the exhibits. Perhaps the greatest improvement is in the hock action of the animals shown, which has very much improved in late years.

Of the celebrated sires represented at the last show, Danegelt headed the list with sixty entries of this stock, and he was, besi the sie of twenty dams of animals shown. Lord Derby II. had only eight of his get, but was the sire of no less than fifty of the dams; while Confidence had twenty entries and was sire of eleven dams. Of the others well to the front were Ganymede and Agility, each with fifteen, and Grand Fashion II. with eleven, entries. One feature of the last show was the great abundance of chestnuts, which bids fair to be in the near future the color of the Hackney. Danegelt is of this color, and most of the leading sires of the day. Some, like Ganymede, have white stockings, and white markings are quite common.

The only horse of another color that has won a championship recently was Mr. Flanders brown horse, Reality, first winner of the Elsenham Challenge Cup.

The two leading strains in Yorkshire are the Denmarks and the Fireaways. These latter never had the showyard finish of the former, but they are a good lot, with size, bone, courage, and fine temper. Of late years the Yorkshire horses have had much the best of it in the showyards. They have had quality, true shapes, good bone below the knee, and are generally thick through the heart. The Norfolk horses have had higher knee action and good hocks, just where more than one Yorkshire strain is deficient. Many of the Hackneys are 'rather small; 15.2 is the standard at present, but breeders are aiming at 15.3. More size is needed; in fact, the three points to be kept in mind by the Hackney breeder are size, quality, and action. They are most popular as a city harness horse, and on this continent have been very successful as sires when crossed with half-bred or shapely standard-bred mares. In fact, the Hackney trotter cross is admitted to be the shortest and surest way to produce the highest type of handsome carriage and park horses. This class of horse is the one in great demand for the pleasure equipage of the city, and nothing in the horse line can excel them for good solid style.

A Hackney should be a powerful little horse, with a good, thick, well-developed body on short legs. He should have weight and moderate height, with powerful, muscular legs, large hocks and knees, and strong bone below the knee, which must be short and flat. A good Hackney never has a long cannon bone. Large and deep-set pastern joints, the pasterns not very long, but broad, powerful, and well set back, and medium-sized feet, rather deep in the hoof, are required. On moving they must go straight; any twisting of one foot over the other is a grave defect. They should have good action both of the knee and hock, going with a style showing nerve force, dash, and electric fire. The body should be well ribbed, the back short, the muscles strong along the backbone, forming a hollow along the centre. The shoulders should be deep and the back well sloped; the hind quarters broad and muscular, but not too long; the thighs well let down to the hock, with a gentle droop to the tail, which is carried right out; the neck well sprung from the shoulder, not long, but light and fine as it nears the head; the head not too small, and broad between the eyes, which are full and bright; the ears not long, but very active.

The Hackney must have style, plenty of dash, and excellent manners. High knee action should have with it a graceful throw and a near poise before the foot touches the ground. This, with corresponding hock action, with the hind foot coming down well under the body, is very attractive.

Life of a London 'Bus Horse.

It is well known that a good number of the horses shipped from this country to Great Britain are purchased as 'bus horses, for which purpose they are found very satisfactory. In an interview with Mr. Tilling, a large jobmaster of London, England, a correspondent of a London paper obtained from that gentleman the following information as to the life of a 'bus horse, in which, it will be seen, he speaks very highly of Canadian horses.

"It might be thought," said Mr. Tilling, "that 'bus horses would be bred especially for the

purpose; but such is not the case. I get my horses from various sources. Some of the best come from Canada. Omnibuses have increased in numbers to such an enormous extent during the last few years that the supply of omnibus horses from England is nothing like equal to the demand; in fact, an English-bred 'bus horse is becoming rather a rarity. The horses that run in 'buses are usually light cart horses, and perhaps one of the reasons of their being so scarce is that they are exceedingly useful horses from the farmer's point of view. They are the kind of horse that a farmer would use in his trap to drive to market on Saturdays. Such a horse is very handy, as he can be used for almost any work. He must, of course, be considerably lighter than a cart horse, or he would never do the pace required of him in a 'bus.

"From £35 to £40 is what we usually give for a 'bus horse, and, of course, we buy many at a time. They come up to town when they are about five years of age. Occasionally we have one at four, but a horse of that age is seldom up to the hard work of dragging a 'bus.

"They go through what we call the 'hardening' process first. This takes about four months. A horse accustomed all its life to soft food must be weaned, as it were, on to a stronger diet. It may interest you to know that we give our 'bus horses 28 lb. of food each per day. This is divided into 18 lb. of grain, consisting of oats and maize, and 10 lb. of chopped hay. We occasionally give a little bran. Unfortunately, we find that, although we accustom the horses to this hard food very gradually, we occasionally lose one, owing to the change of diet.

"We usually start them with an occasional half-journey; then we give them the whole journey; then the whole journey once a week, and so on, until they are capable of doing all the work we require from a 'bus horse, which is about eleven miles a day. As a matter of fact they do a little more than the eleven miles; but it averages out to that, as they have a rest one day in seven. Taking it all round, our 'bus horses are in the stables for twenty hours out of every twenty-four. You wouldn't think that was very hard work, would you? Yet a horse is seldom much good after he has worked for five years in a 'bus. That is the time we reckon upon, but sometimes a horse is physically incapable of doing the work, and knocks under after six months of it. The worst of it is we aren't able to discover a horse's weakness until we have started working him.

"The reason why a 'bus horse does not last longer than five years is, to put it in one word, asphalt. I should like to see every inch of that stuff taken up. It is absolutely the worst kind of road for horses that could possibly be invented. Its one merit is that it can be easily kept clean, and so down it goes.

"The wood pavement is 50 per cent. better for the horses, but it's a long way from being the most comfortable kind of road for them. If you want to see how a 'bus horse likes the asphalt and the wood pavement, watch them as they get from one on to the other. On macadam they go along in their natural stride; coming on to the wood, they pick themselves up just a little shorter; but in trotting on the asphalt they just pitter-patter along. The horses become nervous; they know the danger of one little slip; and so they trot in such a way that, if one leg makes a mistake, they have another ready at once, so that they can pull themselves up. But, apart from the danger of the asphalt, there is the actual harm it does the horses' legs. It's such a hard, unyielding road that I really wonder the horses' legs stand it as they do. Of course, a 'bus horse is a little better off than a cab horse, as the pole helps him tremendously.

"The constant startings and stoppings affect the horses to a considerable extent, but things are not nearly so bad now as when there were no brakes on the 'buses. It makes all the difference to a horse at the end of a journey what kind of a driver he has. There are too many 'drivers' and too few 'coachmen.' Anyone can hold the reins and thrash the horses along till they are tired out. I call that kind of man a 'driver.' A real coachman thinks of his horses' comfort. A number of little things may account for a horse not doing his best. A trace may be too long or too short, or his bit may not be quite comfortable. A 'coachman' sees to all these little things himself.

"When horses are too old to run in 'buses they are sold, some of them going into tradesmen's carts, or into the heavy carting business. When they get unfit for town work, they go back into the country and are used for plowing and farm work. If we have a horse that has worked well for us we turn him out on a farm which we have in connection with our stables, and do not sell him for other people to work to death. Some 'bus horses, when very lame, but otherwise healthy, are sold to go to Holland, where they are used for human food."

MR. JAMES M. CODMAN, Brookline, Mass., has been chosen as acting president of the American Guernsey Cattle Club until the next annual meeting, in the place of the late Mr. Silas Betts.

THE diseases of animals bill which provides for the exclusion of live foreign cattle from Great Britain, save for the purposes of slaughtering at the port of entry, passed its third reading on June 21st in the Imperial House of Commons by a vote of 232 to 75, and passed the House of Lords on July 7th. It comes into force on January 1st, 1897.

ON a farm near Kendal, in the north of England, occupied by a Mr. Barber, there has been a severe outbreak of anthrax. Out of thirteen valuable steers in the field where the disease appeared seven have died since June 1st. There had been no disease previously in the herd and the outbreak cannot be satisfactorily accounted for.

THE Prince of Wales has sold the two-year-old bull Celt, which won 1st at the Royal Show at Leicester, for 1,000 guineas, to go to South America. The first-prize yearling bull Marmion, the property of Her Majesty, has also been sold, to go to Buenos Ayres, as has Mr. Harrison's Champion Cup, a winner at the last Bath and West of England Show, and several others.

FOOT-AND-MOUTH disease seems to be very prevalent in Germany at the present time, judging from the German official report on the subject. The whole of Germany, with the single exception of the kingdom of Saxony, is more or less affected. In this connection it may be mentioned that one of the latest outbreaks of foot-and-mouth disease in Great Britain was caused by the use of foreign straw as bedding in the cowshed in which that outbreak occurred. This straw had been used as packing for goods forwarded from a certain district in Europe where the disease was prevalent at the time.

The success that attended Galloway cattle at the "block test" at the Smithfield show last year, has given a great impetus to the preparation of Galloway cattle for this year's Smithfield. Mr. Parkin Moore, Whitehall, a very successful exhibitor last year, has half a dozen feeding for the occasion; Sir Robert Jardine has four; Mr. Murray Stewart, of Cally, has several, and Lord Antrim and Messrs. Biggar are also among those who intend exhibiting Galloways at Smithfield.

THE first consignment of live cattle from Canada to the new cattle lairs belonging to the Manchester corporation, built alongside the Manchester ship canal, arrived on June 13th. They were brought over on the *Feliciana*, one of the Furness line, from Montreal. The cattle, which numbered 202 in all, were mostly good young animals of Shorthorn, Devon, and Hereford blood, and arrived in good shape. Regular shipments will now be sent, as the lairages are complete.

THE cattle imports into Great Britain from the United States for the first four months of the present year were 142,760 as against 86,439 in the corresponding months last year. From the Argentine Republic they were 33,236 as against 8,371. The total number imported from all countries was 184,493 as compared with 96,100 a year ago. The total number of sheep imported was 301,996, an increase of 16,652 over 1895. Of dead meat the total import for the four months was 4,381,924 cwt. an increase of 520, 708 cwt. over the imports of 1895 and of over 1,000,000, cwt. over those in 1894.

THE butchers in the Isle of Man have unanimously agreed that after a certain date "any animal or animals purchased by any member or members of the Isle of Man Butchers' Association, either by public or private sale, at a fair commercial value, shall be guaranteed by the farmer or vendor free from any infectious or contagious disease, and they shall warrant the said animal or animals to pass the inspection of the medical officer or officers of health in the Isle of Man after being slaughtered." This action has been taken in order to protect themselves against loss, as a number of carcasses have been lately condemned by the inspectors, the total loss of which fell on the butchers, and now these latter intend to shift the loss on to the shoulders of the feeder or seller.

Light Weights in Demand.

All over the world the change in the taste of the meat-eating part of the population in favor of animals of light weight seems to be very pronounced. The small, plump, juicy steer or heifer, the lamb or hog of light weight and early matured, are now the general favorites, although in the United States the popular taste has not yet got so pronounced in favor of light-weight hogs as in Canada and other countries. Still the current is strong in that direction, and it will not be long before the lean-bacon hog reigns supreme there as it does here.

It does not follow, because animals of light weight are in demand, that *anything* of that kind will do. To sell readily, animals must be nicely fattened, and they must be well bred. Steers that weigh 1,000 to 1,100 lbs. are the ones sought for, but no half-fatted or scrub stock can be disposed of to advantage even if they scale those weights. It is here where early maturity comes in, enabling feeders to put on the market, in the form best calculated to get the best prices, choice, well-grown animals of the age required.

There are several explanations of the change in the taste of the public in regard to the meats they prefer. One is that people have got tired of eating the big, overfat beef, mutton, and pork that was once so popular. This is, probably, very true; but it is not the only reason. It is, we believe, due, in a very large measure, to the depressed condition of trade. In big joints of meat there is always more or less waste; while in those from younger animals this waste is reduced to a minimum. Housekeepers have found this out; and hence the present call for lighter weights.

Whether the demand for heavy weights will ever return is, of course, uncertain. It may be that, when trade gets brisker, such animals may again sell readily, but we doubt it. In the Western States, it is probable that heavy-weight steers will be raised for some time to come, especially when corn is plentiful, as it is always a temptation to the feeder to market his corn, as much as possible, in the shape of beef or pork; but in this country, at any rate, it is likely that well-fed, light-weight animals will always secure the best prices.

The Rinderpest in South Africa.

In spite of the great efforts made and the vast sums of money spent by the various colonies and states in South Africa to prevent the spread of the cattle plague, the dreaded disease continues to advance, and prevails over large districts in Rhodesia, Bechuanaland and the Transvaal. According to Dr. Edington, the Cape Government bacteriologist, the disease is the real rinderpest, which has been known for hundreds of years past, and he states that, unless it is stamped out, all the cattle in the country will be swept out of existence. It costs the Cape Colony £3,000 a day to guard its borders. The disease spreads very rapidly and is now devastating the Transvaal.

The authorities in the different colonies and states recognize the gravity of the situation, and are doing all in their power to fight the disease. Cattle can now only be moved from one district to another under the strictest regulations, the penalty for breaking which is a heavy fine, or, in default, imprisonment.

In Bechuanaland the natives have lost nearly every head of cattle, and have themselves killed the remainder and made them into "dried beef." In the district under the chief, Khama, over 100,000 head have died. Thousands of carcasses lie rotting on the ground, and the smell is awful. Even the birds of prey and wild beasts refuse to touch these carcasses, and near Buluwayo men are paid ten shillings a day to bury them.

As to the origin of the present outbreak of the disease in South Africa, there is good reason for supposing that it first made its appearance among some cattle imported from Germany into German East Africa, whence it eventually worked its way into Rhodesia. In Rhodesia the disease has been identified with that known locally as the "Zambesi cattle fever," and it is beyond all doubt the same disease which has for five or six years past devastated other regions in Central and Eastern Africa. Time after time, travellers have sent home accounts of its ravages, and Captain Lugard himself, in his published account of his travels, confirms the story of desolation. As far back as 1892, indeed, Captain Lugard advocated a scientific inquiry into the nature of the disease and the necessity of attempting to find some method of recovery. Unfortunately, nothing came of the suggestion, and when, a short time back, the disease reached Rhodesia in all its virulence, no one knew exactly how to deal with it.

Mexican Cattle.

There is plenty of room for improvement in Mexican cattle, apparently. As will be remembered, Secretary Morton, of the United States Department of Agriculture, issued an order some time ago allowing Mexican cattle to come in free to Texas, in order to combat a supposed combin-

ation of the dressed-meat men to raise beef prices. A number of these cattle arrived at Amarillo, Texas, a short time ago, and a local paper thus hits off their salient points:

"A very large herd, 2,300 head, of Mexican cattle are now on the range north of town. The age of the cattle is from two years to the antediluvian period. They are mostly purebred pedigreed steers weighing from 150 to 400 pounds, adorned with the map of Chi-wah-wah. The herd shows its high breeding of pure-blooded Castillian fighting stock, the prevailing colors being a dirty fawn or dun color and blue to bluebrindle, with black points, mealy mouth and horns of such ample size that cars with extra wide doors will have to be furnished for their transportation. This is the first first-class herd of pure Mexican cattle ever brought to this market, and from another such may the good Lord deliver us."

Cross-breeding to Found a Breed.

GILBERT MURRAY, in Bath and West of England Society's Journal.

Somewhere about the early fifties, the late John Beasley, of Chapel Brampton, Northampton—than whom there was no better judge of a Shorthorn—endeavored to lay the foundation of and build up a new and improved race of cattle of robust constitution, possessing all the leading characteristics of the Shorthorn, including its original disposition to fatten, but combining with it a greater quantity of lean. After mature consideration, and a close study of the chief characteristics of the different breeds, the West Highland breed was selected, as possessing, in a marked degree, the desirable and essential characteristics in view, namely, a hardy constitution, superlative hair, a compact, well-balanced frame on short legs, and, more important still to the mind of the experienced and practical breeder, a purity of descent unapproached by any other breed in the kingdom. Twenty cows and heifers, the best which the counties of Argyle, Inverness, and Sutherland could produce, were selected with care and judgment; they were all either dun or red in color, any animal with a speck of black on the nose being rejected. They were put to a first-class Shorthorn bull, and the male calves were grazed on good pastures, and finished in the stalls at the age of about three years; they were kindly feeders, were popular with the butchers, and commanded the best price in the London market. Several of the steers were prize-winners; one, in particular, having a second cross of the Shorthorn, was successful not only at many local shows in open class competition with all breeds, but also won the first prize and breeder's medal in the crossbred classes both at the Birmingham and London Christmas shows. Bulls of the Bates and Knightly strains were those chiefly used. All the female calves were reared, and were put to the bull at about eighteen to twenty months old. The first crosses were remarkably uniform in type and character; with every succeeding cross the uniformity of type and symmetrical character became less marked and more uncertain.

A Sussex Heifer.

In our last issue a subscriber made enquiries about Sussex cattle. The engraving on the next page of the Sussex heifer, Maud, reproduced from the *Farmer and Stockbreeder*, will give him a good idea of what a well-bred one looks like. This heifer was bred, and is owned, by Mr. P. Salliard, Beecham Hill, Crawley, Sussex, and is a perfect and symmetrical type of the breed. She won first in her class and the champion female prize at Eastbourne this year, and first at the Bath and West of England and St. Alban's shows. She is said to be one of the best Sussex heifers seen at the shows for some time.

Guernseys in their Native Home.

Editor FARMING:

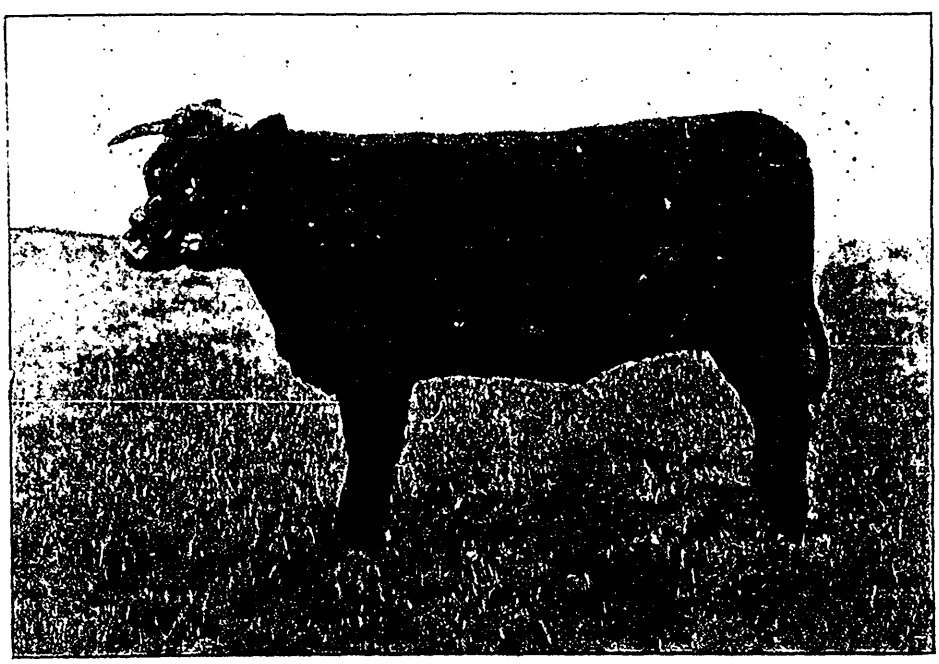
SIR,—In the interesting article on "Guernseys in their Native Home," in FARMING for June, Mr. F. S. Peer says: "There are no special families on the islands. Nearly every farmer has some two or three grand old cows, the descendants of some favorites that have come down from father to son. One or two of these cows are crossed with the best bull in the neighborhood, with the 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."

(1) Does Mr. Peer mean by this that random-breeding gives the best results, or that only the qualities of the sire and dam should be taken account of in breeding, and not those of their ancestors? (2) If not, what is the system he condemns? (3) What would he recommend, and what has been his practice in his own herd? (4) How would he advise a person who was starting a herd of Channel Islands or other dairy cattle to proceed in the matter of choosing stock and breeding them, and as to the introduction of fresh blood from time to time? (5) What has been the method of breeding pursued in the finest herds of America and England? (6) Does Mr. Peer consider the Guernsey and Jersey cattle of America inferior to those of the Islands? and, if so, in what way, and does he think this degeneration due to mistakes in management, or inevitable outside of their native islands without frequent infusions of island blood? (8) Are not Guernsey heifers in America usually bred at an earlier age than in the island, and does Mr. Peer consider this harmful? (9) Is this why the average weight of the Guernsey cows at the "Battle of the Breeds" was less than that of the Jerseys, although, in the Islands, the latter are the smaller breed? (10) How do the breeders of Guernsey Island determine which is "the best bull in the neighborhood"? By conformation, or by his dam's record as a producer, or both?

INQUIRER.

ANSWER, BY MR. PEER.—The limit of a newspaper article is much too short to accommodate a full and lucid reply, as the questions involve a discussion of nearly every principle of breeding and feeding and management of dairy cattle. They are reasonable questions, however, and I will attempt to answer them.

(1) Yes, I mean that random breeding as to pedigree produces better results, providing the selection is made on account of individual merit of the dam and sire's dam. In other words, I place individual merit above and before pedigree. (2) I condemn in-and-in breeding for pedigree. For instance, in someone's herd there is produced a phenomenal cow, say an Alphea. It is the tendency of breeders to rush for that particular blood, and the strife is to see who will be able to produce a bull or a cow that is a pure Alphea. That such pedigrees are high-sounding, and, in a tabulated form, are most attractive, and that they have had a high commercial value, cannot be denied. From that point of view they have been a great success, but in the majority of cases the success has been one of an inflated value, and little or nothing



The Sussex Heifer, Maud.
The property of Mr. P. Salliard, Crawley, Sussex.

has been accomplished in elevating the standard of excellence at the pail, or in conformation, or in constitutional vigor.

It is, perhaps, safe to say that from seventy-five to ninety per cent. of Jerseys and Guernseys (especially the former) have been bought and sold on pedigree during the last ten or fifteen years. Before that time anything that was recorded was marketable. Of late years fashionable pedigree has been the attraction, and, although there are twenty or twenty-five Jerseys now to one fifteen years ago, there were more great cows in proportion then than now. I believe this pedigree craze has done more harm than good, and many a breeder has lost sight of the true aim in breeding and become a pedigree jockey, instead of attempting to develop a great family in in his own herd.

For over one hundred years no new blood has been introduced into the Island cattle. Of course, every animal has long since become related to every other animal. The island farmers' practice of selecting from individual merit comes as nearly as possible to the law of "the survival of the fittest," as practised by animals in their wild state. This sort of selection, or in-and-in breeding, as we know, can and does go on generation after generation, and it is a positive fact that the Island cattle have improved wonderfully (for they must have been very common animals to begin with). They have not only improved in butter qualities, but in constitution and in conformation.

In-and-in breeding from pedigree develops the faults as fast as the values, and, in fact, a good deal faster, as when animals of a certain family are bred together for any time they degenerate to the level of their common ancestors, *i.e.*, a very common animal. The effect is similar to crossbreeding. Crossing two distinct breeds like the Jersey and Shorthorn, for instance, has in many cases produced a very superior animal in the first cross, in which the acquired characteristics of both breeds seemed to unite; but the second cross—or third, at most—invariably produces nothing but scrubs; the blood the two breeds have in common, *i.e.*, their common origin and common parents, prevails, and down the progeny go to that level. A similar tendency prevails where breeding to pedigree is practised, but, of course, it does not manifest itself in such a marked degree as in crossbreeding.

It must be constantly borne in mind that these cattle were originally very inferior animals, and that whatever proficiency they have attained above their native acquirements is artificial. They have *acquired* characteristics, and, as these can only be maintained by most constant vigilance and care on the part of the breeder, they must be continually propped and bolstered up and strengthened, or they revert to their natural level.

The best individual animals you can secure are poor and weak enough; but what can be expected when you breed a cow to an inferior bull that has nothing but a pedigree to recommend him, when faults magnify faster and become dominant characteristics more easily than virtues, and a faulty animal that is 100 per cent. Alphea is who shall say how many times more dangerous in a herd than an animal whose faults are less firmly established?

(3) Breed together animals of individual merit, and look up their pedigrees afterwards. There is not so much money perhaps in this style of breeding, as an inferior animal of fashionable pedigree will sell twice as quickly as an animal of individual merit whose pedigree is not known.

Several years ago I advised a young Jersey breeder as above; he followed my advice, and was getting on beautifully, but when he had some young stock to sell no one wanted them. His neighbor meanwhile was selling culls of a fashionable strain at paying prices. This discouraged the first breeder, and the first thing I knew he was in the swim. He said he "could not afford to wait; that everybody wanted a certain pedigree, and that life was too short for him to try to convince a lot of fools; if they wanted fashionable pedigrees he was going to give them to them." It must be admitted that he is making sales all the time at good prices, while, as he says, a lifetime is too short to convince the pedigree lunatics that individual merit is superior to pedigree without it.

(4) I would recommend a breeder to buy animals of individual worth at the pail and animals of the highest degree of perfection in conformation, and a bull from a cow of the same sort; and to make, or try to make, a great family on his own hook. I believe that phenomenal cows are liable to spring up in any man's herd, unless he is a pedigree crank, and then his chances are less, and that there would be many more developed did not so many breeders lose sight of the true conditions of things, and chase after some will o' the wisp of a worn-out pedigree.

One thing is certain, Jersey and Guernsey peasant farmers have, by their methods of selection, produced two of the greatest butter breeds in the world; they have constantly improved their cattle in dairy qualities, in conformation, and in constitutional vigor. The Guernsey farmers, however, are of late years neglecting their cattle since the hothouse business has developed to such a great extent on the Island. The Jersey farmers,

on the other hand, have made wonderful improvements.

Another thing is certain, that Island cattle, Jerseys more especially than Guernseys, perhaps, have in this country lost many of their native characteristics, and have steadily become coarser.

This is, no doubt, owing to the desire for size. Some men want a big milker, a big buttermaker, and a big animal all in one. This has led them to select size, and with it has come plenty of coarseness. If that style of a Jersey, as some claim, is better than the Island cattle, then the would-be breeder can easily be supplied in the States or Canada. If, on the other hand, he likes animals of the highest quality, style, and form, I would advise him, in the introduction of fresh blood, to go to the Islands for his sires at least.

(5) The owners—mostly wealthy men—have usually bought the best animals and most fashionably bred ones that could be got, and then killed their descendants with kindness, either by feeding the dam on fattening food before the calf was born, or the calf after it was born, so that by the time it came to maturity they have fed the dairy qualities out of it and the beef qualities into it; they (the English breeders or fanciers) must continually keep going to the Island farmers when they want to get a show animal, and pay them big prices for cows and heifers that grew up on skim-milk and roots.

(6) Yes, I do think—conformation and all considered—that the Island cattle are better as a rule. However, they are made to produce much more milk and butter here than there. The Islanders are so afraid of milk fever that they will not feed a cow up to her capacity. The disease is very much more prevalent there than here. I say they are better because they are better handled. If they were not better, English farmers would not be obliged to keep going there every year for their show animals.

(7) The English are too good feeders; no farmers in the world can equal them in producing beef and mutton breeds, which they do to perfection; but this very thing is ruinous when applied to dairy cows. If you want to find the highest development of dairy qualities in cattle go to the peasant farmers of Jersey, Guernsey, Holland, Denmark, or, in Canada, look to the French Canadians. Why? Simply because they haven't the money to buy rich concentrated food for their calves, but bring them up on skim-milk and roots. I think, therefore, that the degeneration of Island cattle in the States and England is largely due to mismanagement and a mistaken notion as to proper methods of feeding to produce dairy qualities.

(8) They are usually bred to come in when two years old, on the Island. Some breeders in the States wait until they are two before breeding—the idea is to obtain greater size. I believe a heifer should have her first calf soon after she is two years old. They usually make better dairy cows than if they calve when they are three, especially if well fed. Keep them on the lean side up to within three or four months of calving. When they begin to "spring" then begin to feed them bran and oats, *no corn*, and help the udder to develop when it is trying to develop itself.

(9) I presume it may be the desire for size in the States that has brought the Jerseys to a greater weight than the Guernseys, although I do not think it is so in the States as a rule.

(10) By conformation, or by his dam's record as a producer, the bull that is saved is usually from some great cow—the best in the herd. It is saved on account of the superiority of its dam the others, as a rule, go to the butcher—pedigree or no pedigree. I was a breeder of Jerseys for eleven years, which ended in 1886. During that time I brought out the Garfield family. Mollie Garfield gave me a butter record of 22.12 oz. in seven days, 163 lbs. in sixty days, etc. I spoilt her daughters for dairy purposes by too high feeding, as thousands of others have done and are still doing. Mollie Garfield was a great cow. Her son sired some of the prize-winners at Chicago, both in the butter and ring classes; but I now see how I ruined her daughters. They might never have equalled her, but I am sure that they would have been better had they been brought up on skim-milk and roots instead of corn meal and the best that money could buy in quality and all in quantity they could consume. Since 1886 I have been called upon yearly to judge dairy cattle at the large fairs in the Eastern States and Canada, and have visited many of the principal breeds in England, and made several importations of Jerseys and Guernseys from the Islands, where I have spent much time among the farmers. The observations of the last ten years, together with my own experience and mistakes, have led me at the present time to see those questions as above stated. They are not what I wanted to see, but are such convictions as experience and observation have forced upon me. I make this statement so that your subscriber may take these answers for just what they are worth. It is the way they appear to me at the present time. Ten years later I may not agree with all I have said to-day. Some of the ideas advanced are, I believe, entirely new. F. S. PEER.

In Switzerland and other mountain countries the goat leads long strings of animals daily to and from the mountains, but it is in South Africa that it is regularly kept and employed as a leader of flocks of sheep. Should a blinding storm of rain or hail drive the silly sheep before it, or cause them to huddle together in a corner so as to suffocate each other, the trained goat will take them up, and, by a method best known to himself, will induce them to follow him to a place of safety.

The Weaning Period.

The weaning period is sometimes very trying to the lambs, more especially when the pastures are scarce. And too often they are scarce at such a time. Happy are those who have nice clover pastures on which they may turn their lambs when they are weaned. And more happy are the farmers who have a field of rape. In the absence of both, nice fresh pastures amid the stubbles will serve an excellent purpose. But to wean lambs and then turn them on a pasture dry and dead would certainly mean stagnation of growth. Even though the pastures are good they should be supplemented with some grain. But the grain portion need not, of necessity, be large. A moderate amount will suffice. It should, of course, be of a character to promote growth. Oats and bran will answer very nicely, mixed in equal proportions by bulk. A little of this fed once a day will render great service to the lambs. And, if on dry food, see to it that they have water abundant and good. On a rape pasture they will probably not take much water, but on ordinary pastures they need more or less. When lambs are thus fed and thus cared for after being weaned, they go right along on the highway of development.

Quality, not Numbers.

We are much prone to measure the value of our flocks by numbers, rather than by quality. But there is no comparison between the relative value of the two standards. Numbers only may point to expense without profit. Quality usually points to increased profits and reduced expenses. But we set our mark at a certain number, and we are impatient to bring it up to that number, and in doing so we forget that numbers may count for nought when we are striking a balance sheet at the end of the season. A flock of ten sheep which bring in a revenue is certainly better than a flock of one hundred which bring no return. Let quality, therefore, be sought first, and when it is obtained increase the flock as fast as it can be done without lowering the standard of quality. The average of quality with us stands high. Were it not so we could never market so many of our lambs in the United States. In that country, where, in the west at least, foods are so cheap, we could never compete with the growers of mutton were it not that our sheep are possessed of superior quality. But, good as our average is, it ought to be much better. We are only going toward the heights; we do not yet stand upon them.

Abundance of Food and Rest.

The great value of abundance of food and ample rest for a flock of sheep is far too little considered. Those who have observed the habits of the sheep very closely cannot fail to have noticed that, when on ample pastures, they spend much of their time lying down. They will take what food they want in a couple of hours, and then they are much prone to lie down for several hours if not disturbed. When thus taking rest they will chew the cud for long periods. They are thus working over the food taken into the stomach, and preparing it for digestion. If the pastures are scant they will wander over them the greater portion of the day, searching for food. They are thus wasting their energies to no purpose. They are also injuring the pastures by treading upon them more than would be necessary if the food were abundant. And particularly is this true when they pasture upon food that has been sown purposely to provide summer pastures. Every flockmaster, therefore, should try to make abundant provision for his flocks by way of summer pastures. The sheep may then spend in ruminating and building up the frame the time that would otherwise be spent in searching for food.

Don't Spare the Knife.

When purebred lambs are weaned there will certainly be some among them possessed of inferior development where the flock is even of medium size. Those below the standard should be castrated. They should not be kept in the hope of getting more for them than meat price, for, if they are, they will certainly be no credit to the breeder wherever they go. They may sell for more than meat price in the meantime, but what of that if they injure the reputation of the producer? In the end they may be costly lambs to him. And they will certainly bring no credit to the breed. Have them castrated, therefore, not later than the weaning season, and made into meat at some time subsequently, as may seem advisable. And ewe lambs of inferior development should also go to the shambles. By thus constantly culling, the average of the flock in quality will be raised, and the profits accruing will also increase. The natural agencies at work in the direction of deterioration are enough without any assistance by way of a careless selection. Every breeder may in a sense set his own standard, and he should set it high, for he will never in his work get higher than his standard.

Take Care of the Udders.

The writer once bought a ewe which seemed to be all right. The udder looked as though there was nothing wrong with it, although it was not handled at the time of purchase. In due time the ewe brought forth a good strong lamb. As the weather was warm no special attention was given to the lamb, as both seemed on the best of terms. The next morning the lamb was dead. This led to an examination of the udder of the dam, when it was found that no milk could be drawn from either side of it. The lamb had been starved. The udder had evidently been spoiled in consequence of neglect when the lamb or lambs which the ewe had nursed previously had been weaned. And so it frequently happens, especially if the ewes are free milkers. And when they run on succulent pastures the danger is further aggravated. When a dairy cow loses the use of one portion of her udder her value is greatly discounted as a milker, but not more so relatively than the sheep whose udder has been similarly affected. A little attention after the lambs have been taken away will prevent injury from the source named. And when the ewes are put on dry pastures until the milk flow has ceased they will dry up all the more quickly.

Refuge from the Flies.

Sheep suffer much from flies, and also from heat, in the late summer months, and this is more especially true of the lambs. If they can have a refuge, therefore, that will reasonably shield them from both they will make more gain on a given quantity of food than if not so protected. The shade of a grove will furnish protection from the heat of the sun's rays, but it will not shield from flies. A shed with windows darkened will effect both purposes if properly ventilated. The ventilation may be admitted through open windows covered with some coarse cloth, as, for instance, coarse sacking, and in such sheds a ground floor is excellent. The sheep prefer lying upon it to lying upon grass even. When they are thus allowed access to a shed in the heat of the day, they will soon learn to wend their way to it, and will find much comfort in the darkened chamber or chambers of the same. When animals must fight flies all the while when trying to take rest, they will not do so well as when they are at ease. It is not reasonable to suppose that they would. The aim should be, therefore, to put them in the way of well doing, so far as this may be practicable.

Mending Broken Limbs.

Occasionally some of our farm animals have the misfortune to break a leg. It then becomes a question whether it is feasible to mend the fractured limb and make a complete cure. In many cases the break is too bad a one, or is in too inaccessible a place to permit of its being mended. In the case of horses, it is then expedient to put the animal out of misery at once, while fat cattle and hogs can be immediately killed and their meat made use of. With small animals, such as sheep, the case is different, and a plaster of Paris bandage applied to the fracture will oftentimes in a few weeks make the limb as good as new. A writer in *The Country Gentleman*, writing on this question, says that he has come across several instances where the plaster bandage brought about a complete cure. A pet lamb had its leg broken. Instead of killing it a quantity of plaster was wet up with cold water, the leg well greased to prevent the plaster sticking to it when the time came to remove the bandage, and a thick coating was applied directly to the leg, first straightening it as well as possible. Cloth bandages were then wound around it and securely tied. After the plaster had set the lamb was given its liberty. After a few days it began

to use the limb a little, and at the end of a month the bandage was removed and the limb found to be perfectly sound. A hen was found with its leg broken in a trap. As it was a choice one, it was treated as above, and, although the fracture was longer in healing, it finally did so, and the hen has shown no sign of lameness since. To apply the plaster, it should be spread upon a strip of cloth, after being wet, as otherwise it could not be made to stay in place while the bandage was being applied.

Pasturing Cattle and Sheep Together.

We do not think that it is advisable, as a rule, to keep cattle and sheep in the same pasture, In the first place, sheep do better by themselves, and there is no risk of their being injured by young and sportive cattle, and, in the second place, they require a different kind of pasture from that which is most suitable for cattle. It sometimes happens, however, that, owing to shortness of pasture, they have to be put in the same field. When this is the case it is advisable, if posible, to put them in with the older cattle and to keep the younger cattle in a separate pasture.

Writing on this subject in the *Prairie Farmer*, Mr. George W. Franklin, Atlantic, Iowa, a well-known breeder and importer of Suffolk sheep, says: "It has been said by a staid old farmer, who is quoted as very good authority, that a pasture which will keep a certain number of cattle will also keep two sheep for every head of cattle, and there will be but little loss of pasture for the cows.

"This may be true of certain kinds of pasture, but if cattle and sheep are to be pastured together, the pasture should be of the very best kind. Sheep will do better on pasture with cattle than the cattle, because they can bite closer and they graze the sweeter sorts, while the cattle may want for a full bite, or be compelled to work harder to get sufficient, while the pasture affords sufficient for the sheep.

"There is some gain in pasturing sheep with cattle in some places and on some kinds of pasture, and while this is true, it may also be said that there is often some loss. Sheep will graze close, and will also graze where cows have voided, but they are slow to graze after their own voidings if these are distributed in profusion.

"When sheep are kept with cattle, they become accustomed to staying with them and will not try a fence as much as if they were alone. Cattle will keep dogs and wolves from sheep, and especially is this the case where there are cows with calves.

"There is one danger in pasturing horned cattle with sheep—they often cause abortion by hooking or bunting the ewes when they are heavy with lamb. This would seem to be fallacious, but it should be remembered that the sheep soon become accustomed to the cattle, and they will not get out of their way as they would do if they were placed together only occasionally.

"Sheep prefer pasturage that is short and sweet rather than long and luxuriant. Cattle thrive best where a full bite can be had at all times. Cattle do very well on clover. Sheep do not do so well on clover as they do on bluegrass. Cattle will hoove on clover, and so will sheep, and there is greater danger with sheep than with cattle. So there is only one condition in which cattle and sheep should be pastured together, and that is when they have plenty of pasture.

"There is not so much danger of the cattle starving the sheep out as there is of the sheep starving the cattle out. There have been bloody battles between sheep and cattle owners on the plains where sheep have pastured over the short and scanty pastures, utterly starving out herds of cattle. On the tame grasses this is not always the case, except in overstocking. Sheep are supposed to be poison to pasture, but this is not the case. They are great feeders, and they are also noted for industry, and they will get enough to eat if they have to keep 'picking' all the time.

"There is room for a few sheep on every farm, and they may be pastured with the cattle to a very good advantage. If not pastured too closely, I believe the pasture will be improved by the sheep being there."

Sheep Corral on a Western Farm.

The accompanying picture represents a sheep corral in the Northwestern States. The sheep in that country have, as a rule, to be corralled at night, owing to the ravages of dogs and wolves. Dogs are numerous because of the abundance of the hunting grounds in unoccupied territory, and, as everyone knows, some dogs are not careful to distinguish between sheep and rabbits when they are out bent on having a good time. The coyotes and wolves are so numerous in some localities that sheep cannot be kept without being corralled at night. It is really surprising the extent to which wolves have increased rather than decreased with the settlement of some of the counties, more especially on bluff lands by the borders of rivers, and on such lands as are found covered with hazel and other brush. The farms are usually large,

Sheep Corral on a Western Farm.

hence in many places such land is plentiful. And with the settling of the land other enemies of the wolf have probably become less active. It may be that they are less hunted now than when the red man dwelt in the regions referred to.

The corral in the picture also shows a shed to provide summer shade. It will be noticed that there are openings in the sides of the shed, that is to say, there are cracks in the boards, and through these the wind circulates. The ends of the shed are also open. Such a shed with the apertures closed is also used for winter feeding.

The sheep have to be driven to these corrals at the first, but after a time they will come to them at nightfall with unfailing regularity when the shades are gathering in the west. When the flock is large and is feeding out on the open prairie it is usually attended by a herder, and some of these herders are very young inmates of the home. They ride on a pony and spend nearly all the day in the saddle. But when the flocks are not large, and fencing is used, of course herders are not a necessity.

Sheep Husbandry in the North Western States.

This great industry is yet in its infancy, but it is developing with no little rapidity. The major portion of the sheep reared are grown upon the ranges. And many of those not so grown are reared upon the range plan, that is to say, they are reared upon unoccupied lands. The majority of those grown are sent directly to the market from their pastures, and, in consequence, they, as a rule, reach the markets in the autumn, when sheep sell cheaply. But a good many are nevertheless winter-fed on the way eastward. And yet the proportion of those thus fed to the whole number of animals reared is not very large.

When they are so fed it is usually on screenings and hay. The screenings are a very variable commodity. Sometimes they consist largely of small wheat, but more frequently screenings are composed of some small wheat, the balance being made up almost entirely of the seeds of such weeds as summer grass, that is to say, foxtail and other varieties that grow luxuriantly on those western plains. It is no uncommon sight to see 7,000 sheep in one flock being thus finished in the winter. Shed room enough is provided to protect them from falling storms, which are not frequent, and they are given yard room in addition. The food, that is the screenings, is put into self-feeding boxes, and the sheep help themselves at will. They are given hay, usually in cheaply made racks, and have also access to water. Sometimes corn is added to the mixture of grain, and usually the sheep are not fed for more than three to four months and sometimes for a shorter period.

More commonly full-grown wethers are bought for feeding, and when finished they nearly all find their way to Chicago, but a goodly number during recent years have been sold in Britain. The feeding of good grade lambs is only in its infancy, for the reason, first, that these are not very plentiful as yet of the mutton breeds; and, second, that they are oftentimes not pushed on with sufficient quickness to attain the requisite weights at the proper age for selling. But their day is coming, and as soon as it does come these lambs will be shipped in large numbers directly to Great Britain, and in the living form. The sheep sent over now from the west are largely of the Merino types.

The Merino is not a bad foundation on which to build up good grade flocks of the mutton types. To be sure the Merino form is not the typical mutton form, but Merino grades and even pure-bred Merinos are hardy. They are a rugged race, which put up with plain fare, and where rams of the mutton breeds are crossed upon them the progeny do wonderfully well, that is to say, they answer well not only for feeding, but they meet the demands of the market.

The chief obstacle in the way of rearing sheep in the Northwest on arable farms is the lack of fences and of fencing material. Because of this, farm after farm may be found without any sheep. But, fortunately, with the aid of woven wire, fences may be built without great cost. The posts may be bought or grown; of course, the latter process would be a slow one. But the day is coming when fences will be common on those prairie farms, and when sheep will be kept upon them in large numbers.

As the weather is dry in autumn, the pastures in all the Northwest are oftentimes burned and dead. But we must not judge of the value of prairie pastures when dead by the value of grasses in Ontario when in the same condition. In some parts of South Dakota the sheep live on such pastures practically all the winter, and they come through the winter wonderfully well, all things considered; of course, they are not in such good shape as ewes well fed on foods fed out by the hand of man, but the fact that they live on such grasses, which cure, as it were, where they grew, is one of much significance.

But the day is at hand when sheep-owners in all this western country, except on the ranges, will grow food for their sheep to be feed off during the

dry months. This can be done with great ease on those western plains. Of this I feel assured from my own personal experience. Corn, rape, oats, peas, and other foods may be grown in the finest form. They may be so grown that they can be eaten off by the sheep from time to time, and where a judicious use of the harrow is made the process, while it pushes the sheep on rapidly, also frees the land from weeds, and it leaves the soil in grand condition for growing a crop the next year without having to be plowed. This work has engaged much of my attention since coming west, and I am satisfied that the system will soon be extensively adopted. On June 1st, 1895, we had sheep pasturing on rape which was fully a foot high. It had been sown broadcast. Of course, the season was an unusually early one. But when thus grown rape will afford an immense amount of food in a single season.

The sheep industry, therefore, may be indefinitely extended. Sheep enough may be reared on those western plains to supply, in a great measure, the wants of the British market, and they can be grown in admirable form by those who do the work as it may be done. And then the winters are so admirably adapted to the fattening of sheep. The air is so pure and the skies are so filled with sunshine that disease is almost unknown among sheep in the west when properly cared for.

THOS. SHAW.

University Experiment Station,
St. Anthony Park, Minn.

Hampshire Downs.

Though the Hampshire Down is one of the modern breeds of British sheep, the origin of the variety is not clearly known. It was formed towards the end of the last century by a number of farmers living in Hampshire, in the endeavor to improve the ancient race of the district. That the Southdown was an important factor in effecting this improvement there cannot be a doubt. Mr. W. C. Spooner, who wrote in 1850, says the original breed of Hampshire sheep was a large, longhorned, blackfaced sheep, with tolerably fine and short wool, hardy, and a good milker. It resembled the old Wiltshire, being unthrifty and coarse in the bone, particularly about the head. He says: "This sheep had probably existed on the downs of Hampshire for ages, and no doubt furnished the principal supply of wool to the manufactory at Winchester established by the Romans. . . . Soon after the improvements in the Sussex sheep were effected the Hampshire farmers used to purchase at the annual sales, some say, the largest and coarsest animals they could find, and cross them with their native sheep, and also the Berkshire ewe." These crosses were carried on for years until a distinct type of sheep was established. In effecting this change some farmers believed that Leicester blood was employed. The short wool of the old breed has been considerably lengthened, though it is believed at the loss of some of its quality. Mr. Spooner narrates that a Mr. Twynham near Whitchurch, employed rams of a New Leicester-Cotswold cross, and thereby greatly increased the size and weight of fleece, besides hastening the maturity of his sheep.

The Hampshire Downs have always been held in great estimation by British farmers for their hardihood and their early maturity. For raising lambs for market, or for furnishing a good carcass of mutton at an early age, they have no superior. —*Bruni, in The Australasian.*

Sheep in Russia.

The management of the flocks in Russia (with the exception of some of the large estates) seems to be in very primitive condition. Owing to the severity of the climate during the winter months, the sheep require a store of fodder to carry them over the time while the snow is on the ground. This is very rarely done, and when any provision is made for feeding the flock the fodder is invariably of the most coarse and innutritious character. The nomads who own a large proportion of the sheep wander from the winter to the summer pastures at stated intervals. Every winter the pastures are covered with snow, and when this is frozen hard the stock die in large numbers from starvation. On the farms all that the sheep get is a little dry straw. During the summer the stock are not much better off, for the heat dries up the pastures and water is often very scarce. A great drawback to the industry is the want of established markets. In the west, where good markets are available, a better system of sheep husbandry prevails, but over the eastern and central portion of the country the outlet for surplus stock is very uncertain. The nomadic population of the southeastern portion of the country, though they make their living by their flocks and herds, are singularly improvident, and as a result they lose large numbers of sheep and cattle in a severe winter. With a better system of management there is no doubt that the number of sheep and cattle in European Russia could be enormously increased, and most of the breeds could be improved by the introduction of good stock from other countries.

THE sow's udder should be developed well forward, and show at least twelve well-placed teats. These are considered evidence of milking tendency and prolificacy. The value of the brood sow is sadly impaired if she is a shy breeder and poor suckler. The pig for profit must grow from the start, and this he cannot do if the dam fails to supply abundant and wholesome milk. The quantity and quality of the milk will depend mainly on the method of feeding. The milking trait, like any other, can be developed or restrained. But a delicate young thing cannot be expected to furnish vigorous, lusty offspring, or the milk supply which they may demand. If sows are bred too young their growth is checked and vigor overtaxed. If not bred until a year or more of age and are highly fed, they are apt to fix the tendency to lay on fat rather than that of milk-giving. So there is a happy mean that may well be sought to insure the greatest vigor and ability to support the litter.

Corncob Charcoal.

Every farmer who has had much experience with hogs knows of the avidity with which they consume charred corncobs, and many of the best farmers make a practice of raking up the corncobs, burning them partially, and then allowing the hogs to eat them. Where they lie around in such great abundance as they do on so many farms, this is probably as good a way as any. A better way, where the supply is in any way scant, is to dig a hole in the ground, start a fire, fill it up with cobs, and when they are quite well burnt or charred cover them up with a sheet iron plate, which can be sealed with dirt. This makes a complete job, and furnishes a better quality of cob charcoal than can be obtained in any other way.

Fattening Pigs on Parsnips.

In looking over a copy of the *Farmer's Review* (Eng.) of fifty years ago, we found the following statement by the editor in answer to a query as to the value of parsnips for fattening pigs :

" In answer to this question, we beg to state that at our farm at Oatlands, Ringmer, we have been in the habit of employing parsnips for that purpose for some time. Upon reference to our books we find that upon the 11th of October, 1847, we put up two shoats of eleven weeks old and fed them on parsnips and skim-milk for three months, when they were killed, weighing 16½ and 17 stones. They were well fattened, firm in flesh and the meat of excellent flavor. The quantity of parsnips consumed by them was nine bushels each.

" This plan of fattening we think well adapted for the cottager."

Three Rights.

A writer in one of our exchanges comes out with the following remarks on hog breeding and feeding in general :

The right sort of hogs will be of no use to the farmer unless they have the right sort of care. There is a sort in care as well as in breeding, and the two must go together. The better the sort the better care it requires to bring out what is in it, for the sort, that is, the quality or the breed, was first developed by the right kind of feed and care, and in breeding we are simply perpetuating by using the law of heredity that has been established by the right sort of feed and care. To get the right sort of hogs and give them the right sort of care requires the right sort of man, and sometimes we think that the place to begin to breed and feed is in the brain of the man who owns the hogs. This can be done only by himself. Books will help, breeders' meetings will help, public sales will help, and agricultural papers will help, but the main force of the movement toward getting the right sort of hogs and taking the right sort of care of them must come from within, of the farmer's own motion. In the language of the law, it must be his " voluntary act and deed."

This is vigorous and to the point, and it might be well to add that the right kind of hogs in the right man's hands, where they get the right kind of care, may usually be depended on to give the right kind of returns ; we have yet to see the man

who, having stuck steadily to hogs through ups and downs, has not been satisfied with the result.

Pork is low now, it is true, but so is feed, and even to-day the *right* kind of bacon is by no means a drug on the market.

The Value of Different Cuts of Pork.

In a comparatively recent issue of the *Rural New Yorker* an interesting comparison between the value of different portions of a carcass of pork is made. To arrive at the results which we give below, the total live weight is taken at $5.10 per 100 pounds, and after deducting the shrinkage occasioned by loss in offal the cost of the carcass is found to amount to 6 cents per pound, which is distributed so as to give the following relative values:

	Pounds.	Value
Live weight, at 5.10 cents	273	$13.92
Dressed weight (24 hours after killing), at 6 cents	232	13.92

Loss in offal, including liver, heart, and lungs, 15 per cent., or 41 pounds.

Different parts.	Pounds.	Value.
Offal, including liver and lungs	41	$00.00
Waste bones, ribs, etc	28	00.00
Waste meat for sausages, at 4 cents	18	0.72
Jowls, two pieces, at 4 cents	8	0.32
Leaf lard fat, at 4 cents	14	0.56
Two back pieces for salting, at 6 cents	23½	1.41
Four side pieces for bacon, at 7½ cents	44½	3.35
Two shoulders, at 7½ cents	48	3.60
Two hams, at 8½ cents	48	3.96
Total weight alive, at 5.10 cents	273	$13.92
Total weight dressed, at 6 cents	232	13.92

To Breeders.

The following pointers from an address given by a Berkshire breeder at a West Virginia Institute meeting are worth remembering:

When you sell a pig, don't make the purchaser write several letters before you send the pedigree.

Remember that satisfied customers are the rays of bright light which make and illuminate the reputation. Dissatisfied customers are the black clouds which hover over our reputation, and one black cloud will darken your entire reputation, no matter how long it has been established.

Never club or bang your stock around; remember that if they have not the sense you wish them to have that intelligence is never communicated through a club.

See that your hogs always have fresh, clean water.

Never allow the premiums won by the sire and dam to dazzle your eyes when looking at the pig. Size up the pig first, then his pedigree, then the reputation of the ancestry last.

If you can't keep stock comfortably, don't keep them at all; warmth and feed develop points; the ancestry can only originate them.

If you are a farmer, always use a thoroughbred boar. Remember, you don't know it all, and always listen to good advice.

Some men are flighty or variable in the treatment of their pigs. When they note that the pigs are running down, they rush off to the mill and buy a little mill feed, or else have a grist of corn ground to make mush or raw cornmeal slop. Well, for a time the pigs improve at a good rate, when the farmer concludes they are costing him too much, or else the extra corn is too much trouble, and the pigs are again neglected till they show their neglect so much that the owner feels that they must have better care for he will lose them, and again the feast is on for a time. These men sometimes complain of "bad luck."

How to Get the Most Out of the Hog.

"I want to say to every man who is engaged in the hog industry, or any other industry on the farm, don't keep any kind of animals unless you like them; if you have a white hog and don't like him, kick him out and keep the black one, if you like him. I don't believe any man can succeed in any business unless he has a love for it."

In these words in his address to the Wisconsin Institute our old friend, S. H. Todd, strikes the keynote of success not only in the hog business, but, as he says, in any business.

You may "like feeding hogs as well as any other work," but if that is the way you look at it take a friend's advice and do not go into the business of breeding pedigreed pigs. To make a thorough success of that it must not be looked upon as work, it must have enough interest for you to make it more of a pleasure.

The man who curses his luck at having to stay at home from a 1st of July picnic or horserace because "that confounded sow is due to farrow that day" is not the man who is going to make a reputation for himself as a hog-breeder.

Turning Pigs into Gold.

By SANDERS SPENCER.

(Concluded.)

The manner of feeding pigs has also altered of late years. We can remember when almost everyone fatted pigs on barley meal; a few farmers who had grown peas and beans would sometimes

use the latter, and generally the former, but the pork was usuall hard, and not so saleable. Then we had the maize period; the enormous quantities of Indian corn appeared to be so cheap that pig-feeders used it so largely as to injure the quality of the pork, which was soft, yellow, and oily. At the present time pig-keepers have a great choice of food at a lower price than ever known—barley meal at 7d., wheat meal at 8d., peas and beans at 7d., rice meal at 6d., and shorts and bran at 6d. and 5d. per stone, respectively. Surely pork can be made at a profit even if it realizes only 5s. to 6s. per stone.

We are strongly in favor of a mixed meal; wheat, barley, and rice meal, in the proportion of 3, 2, and 1, is, perhaps, the most economical and best. At the present time five to six pounds of this mixture should make one pound of pork, and as this weight of meal should not cost any more than 3d. a profit must result if the produce is sold for 4½d., leaving the manure to pay for attendance.

There may be many points missed on which information is sought. A book entirely on pigs would scarcely suffice to discuss every point, but we would impress on our readers that the best and most expensive of styes, foods, etc., are as nothing compared to attention; boiling up the little potatoes and giving the food warm to the pigs in cold weather; the frequent and regular feeding on just as much food as the pig will clear up; and the few leaves, bracken, or straw to make a dry bed on which to rest and grow fat may be simple matters, but they often determine the question of loss or profit in connection with pig-keeping.

Pig-Feeding in Denmark.

Several very important experiments have been conducted for some years past in Denmark with a view to elucidating the true relationship between the nutritive values of separated milk-whey and grain. These experiments are of such importance to pig-feeders that Messrs. C. and T. Harris & Co., Limited, the well-known Wiltshire bacon-curers, have issued an exhaustive report of them. The translation is the work of Mr. Beamish, who points out in very concise form one or two of the leading points which have been established. Denmark is competing strongly in the bacon-curing industry, and the important researches conducted in that country are of the utmost importance to us.

These experiments were carried out upon some of the best farms in Denmark, and we are, consequently, able to derive considerable insight into the method adopted in Denmark of feeding pigs; and, as the Danes have proved themselves to be our successful rivals, their manner of feeding pigs ought not to be ignored.

We may observe that the practical results derived from these trials are divided into three parts:

(*a*) 1 lb. of separated milk is equal to 2 lb. of whey.

(*b*) 1 lb. of barley can be substituted for 1 lb. of rye.

(*c*) 1 lb. of barley can be substituted for 6 lb. of separated milk or 12 lb. of whey.

That is to say, that 1 gallon of separated milk is equal to 1¾ lb. of barley or rye. By another form of comparison the same facts may be rendered somewhat more intelligible.

						Per gal.
Barley at 4s.	per cwt.	is	equal to	separated	milk	@ ½d.
" 5s.	5d.	"	"	"	"	1d
" 8s.	1d.	"	"	"	"	1½d.
" 5s.	10d.	"	"	"	"	2d.

At the same time, it must be observed that evidently the Danes do not depend upon the exclusive use of either milk or grain, but feed them in combination. During these experiments the animals were given from 1 to 1½ gallons of separated milk combined with from 2½ to 5 lb. of grain, according to the size of the pigs and the period of fattening.

Barley is the principal form of grain in use, though wheat, corn, and rye are also given.

The average increase of weight from the combination of separated milk and grain has varied between ¾ and 1 lb. per diem.—*Farmer and Stockbreeder.*

[According to the above results barley at 40c. per bushel of 48 lbs. is equivalent to skim-milk (separator) at 16c. per 100 lbs., or whey at 8c. per 100 lbs., but it must be remembered that to get these values both skim-milk and whey must be fresh.—ED. SWINE DEPARTMENT.]

Old Middlesex Pigs in 1850.

The following description of a pen of three of the old Middlesex breed of pigs, winners of first prize and the champion gold medal at the Smithfield Club Show in 1848, appears in the *Farmer's Review* for 1850:

"These pigs were farrowed on the 18th of June, 1848, and were fed from five weeks old on middlings, boiled potatoes, and peas up to eleven weeks old, when they had barley and peameal and boiled potatoes mixed with water. They consumed in thirteen weeks twenty-eight bushels of meal and four bushels of potatoes. They were

tried on milk, but did not thrive so well on it as on water. In consequence of their great propensity to fatten they were blind with fat at sixteen weeks old, and when exhibited their eyes were buried two inches in fat which came over their forehead and lay on the top of their noses full three inches.

"The following is a statement of their weight and age while fattening :

DATE.	Weeks Old.	Stones Weight of Each. (8 lbs. to the Stone.)		
		First.	Second.	Third.
July 23.....	5	3	3	2½
Aug. 13.....	8	6½	5½	5
Sept. 3.....	11	10	9	8
" 24.....	14	13	12	11
Oct. 15.....	17	19	18	17
Nov. 5.....	20	25	24	24
" 26.....	23	29	28	28
Dec. 6.....	24 and 3 days	28	28	28

"This breed of pig has been very much improved by Mr. Barker (the exhibitor) in the last seven years. They are of a pure white color, of great substance and propensity to fatten. They keep in excellent condition, while stores, on grass, turnips, offal from the barns or garden, and when put up to fat in two or three weeks make excellent porkers.

"They are fine in the bone and head and have small upright ears which point a little forward.

"They are of a small size, have good litters, varying from seven to fourteen in number, being very fat while sucking and thus making very good roasters."

[There being no record of a distinct white breed known as Middlesex, we fancy these pigs belonged to what is now known in England as the Small White breed.—ED. SWINE DEPARTMENT.]

How They Do in England.

CALNE.—Present prices for prime pigs, in lots of not less than 10, on rail within 100 miles of Calne :

Prime stores.	Thickness of fat in any part of the back.	Price per sc.
6 sc. 10 lbs. to 9 sc. 10 lbs.	2¼ in. and under	7s. 0d.
Under 10 sc. 10 lbs.....	Not over 2½ inches	6s. 6d.
Under 11 sc. 10 lbs.....	Not over 2¾ inches	6s. 0d.
Under 12 sc.....	Not over 3 inches	

Any pigs outside these limits at their value. Half truck—12 pigs. Whole truck—25.—C. & T. HARRIS & Co., LIMITED, Calne, Wilts.

The above quotation, taken from the *Farmer and Stockbreeder*, of London, England, shows the practice pursued in buying hogs at the famous bacon-curing establishment of Messrs. Harris & Co., Calne, Wiltshire, and the following extract from an article in one of our American exchanges bears so pertinently on the subject that we feel justified in drawing the attention of all hog buyers, as well as breeders and feeders, to it:

"The *Drover's Journal* states that, while the cellars and storehouses are crowded with fat pork, the result of our big corn crop, the packers cannot supply the demand for bacon and cuts of pork made from light hogs, and at considerably higher prices than the Board of Trade quotations. We are not surprised at this, because it is to be expected. Now, let the packers pay a sufficient premium for light hogs over heavy ones, and they will get them. We have no tears to shed over their stores of fat bacon. They have forced the farmer to furnish them with hogs overfat by making too little difference between the prices of bacon hogs and lard hogs. It is a heap cheaper for the farmer to produce fat pork than lean because his carbohydrates are cheaper than albuminoids. If they will but pay the difference in cost, the farmers of the West will soon give them all the bacon hogs they need."

Bravo! Brother Wallace. The very same applies to our trade here in Canada. The packers have been preaching *lean* and *light* hogs to our feeders for the past ten years, but when a mixed car lot comes in everything goes at the same figure, and generally about the figure the heavy hogs should fetch. We have been loyally backing up the packers in their endeavor to get hogs to suit the trade, but we have over and over again remonstrated with them on their not discriminating, on a fair basis, between the hogs they need and the hogs they don't need.

From the above market quotations it can be seen that where 130 to 190-lb. hogs, with not over 2¼ inches of fat on the back, fetch $8.50 per 100 lbs., 190 to 210-lb. hogs, with 2½ inches and under of fat, sell for $7.90 per 100 lbs., and 210 to 230-lb. hogs, with 2¾ inches or under of fat, only fetch $7.30 per 100 lbs.

Why cannot we have a similar scale in Canada? We venture to say it would do more towards producing a full supply of bacon hogs than all the newspaper articles that ever were written.

Extra Feed for Young Pigs.

Under this heading a writer in a contemporary makes the following remarks :

"There are comparatively few large milkers among sows, though there is considerable difference in this respect. The sows that were set to breeding early, and in the intervals of breeding were kept growing and not fattened, gave much more milk than those that were already fat when set to breeding. It is, however, hardly worth

while to encourage the breeding of sows to be extra large milkers, as the pigs can easily be satisfied with other feed that is equally good for them. Skim-milk from the dairy is the best, with the addition of some cooked wheat middlings, of which a very small quantity will thicken when cooked so as to fill a large pail. If one or two tablespoonfuls of linseed meal are cooked with the middlings, the feed will be nearly or quite as good for the pigs as that which the sow furnishes, and there is no limit to the amount that can be made. There is, therefore, no excuse for letting young pigs grow unthrifty because their dam does not furnish a proper supply of milk."

Now, while we are not disposed to make excuses for the breeder who allows his young pigs to become unthrifty because the dam is a poor milker, we cannot by any means agree with the above statements that there are very few large milkers among sows and that it is not a point worth encouraging in a brood sow.

In our experience, with a herd containing from thirty to forty brood sows, we have not only found that some of our sows were capable of producing a large quantity of milk, but we have found this capability to exist more especially in certain families, and we have always considered it a most necessary point about a brood sow, as we have always obtained far the best results at the least expense from litters that were well nourished by their dams from start to finish.

Exhibitors, Judges, and Judging.

Nothing is more natural than that a breeder who has invested his money in animals of high cost, exercised his best skill in their mating and care, and performs the very arduous labors incident to a proper exhibition at perhaps a distant fair or fairs, with the expectation of making or maintaining a reputation in the show ring, is considerably less than human if not somewhat anxious as to the manner of man or men who, as judges for the time being, hold him and his in the hollows of their hands. Fortunate he is if as the hour of the contest arrives he can say to his superintendent, "I am satisfied with your judge; for he knows the points of superiority and the characteristics of the breed; he is an honest man who respects his manhood, and has the courage of his convictions, regardless of consequences. I will cheerfully abide by his decisions."

The exhibitor who comes into the ring in this frame of mind and adheres to it even when most of the prizes go to others; who wears a smiling front, answers questions politely with few words, refrains from trying to fill the judge with information not asked for as to the excellence, pedigree, and previous prizes of the animals now on view, has his stock in blooming, but not overdone, condition, brings it forward promptly under good control, and is not too persistently fussy with lampblack and spit-curls, is very likely to find a share of the ribbons coming his way. I have never known an exhibitor, at any fair or under any circumstances, who was not the gainer there and afterwards by being a gentleman. He at once wins consideration by it from the judges and officials, and reputation that has a money value, and more later on, because purchasers will seek him out from the mere fact that he is recognized as a self-respecting gentleman, rather than a small bore boor whose highest ambition is a blue ribbon, and to "beat" somebody by being "sharp." As I now recall my show-ring experience at many county fairs, various state and two world's fairs, the great prizes and enduring victories have been won by men who kept their mouths shut and never "kicked"; men who, if defeated (and all encounter defeat at one time or another), wasted none of their precious time in whining, cursing the managers, or belittling the judges, but went home to renewed efforts for better deserving the next year's prizes. It is these that are the leaders in the business to-day, possessing the most friends and the widest trade. On the other hand, no exhibitor who is always suspicious, always being wronged by judges and managers, constantly afflicted with abdominal pains, and always sure some unseen but very improper influence is depriving him of a fair deal, so far as I know, ever attained any considerable eminence or permanent success among the stockmen.

I will say, further, I have seen very little of the rascality so freely talked about in connection with many shows, and the alleged corrupt practices have never come under my observation. I have never seen a board of managers who did not seem to do the best they knew; I have never had actual knowledge of any exhibitor's seriously attempting to tamper with a judge, nor have I seen a judge work (when all the responsibility was his) who I did not believe did the very best he was capable of. There are, to be sure, what others regard as more or less glaring mistakes made on every fair ground, but I am satisfied that in the main they are errors of the head and not of the heart. Judges are sometimes chosen who, from one cause or another, may not be well qualified, and they make erroneous awards—not necessarily because the judges are bad, but because, like those who selected them, they are human. This

is likely to continue until human nature is very materially modified.

It should be borne in mind that the competition is often very close; that there may be in a a ring two or half a dozen animals so evenly matched as to make it a very trying task to determine which possesses the little shade of superiority entitling it to the prize as against others which an exhibitor, a bystander, or even another judge with somewhat differing ideas and ideals, would give preference. In fact, the same judge with the same exhibits before him the next day, upon a more deliberate and extended examination, under but slightly variant conditions, might conscientiously reverse himself, and yet render no more substantial justice than was done in the first instance.

As a rule, fair managers would, if equity permitted, be glad to have the prizes quite generally distributed among as many exhibitors as possible, and occasionally those making awards are given a hint to bear such an outcome in mind, but I think no one is of the right material for a judge if not courageous enough to give every prize to one exhibitor if he is satisfied that exhibitor is entitled to it, and cheerfully take the consequences.

The ideal judge needs many and varied qualifications, but among the greatest of these is backbone that will stand alone.—*F. D. Coburn, in The Iowa Homestead.*

Feeding Values and Chemical Values.

"Every once in a while some one is trying to convince feeders of the little feeding value there is in skim-milk, comparing it to different food articles, as roots, corn, etc.," writes Theo. Lewis in *Hoard's Dairyman.* "With all due respect to chemists, who have given us considerable light on many subjects and been a great help to the art of feeding, it seems to me that some of them forget that the pig gets out of skim-milk what chemistry cannot. If they had served a term of years as practical pig-feeders they would have found that nature's food—milk—cannot be replaced or duplicated for health, thrift, or growth, when used in combination with other food material. Any experienced feeder will bear me out in this. Its true value is owing to time and condition and how fed, and age of animals, and could not fairly be computed with prices of pork. It is well known that not any one kind of food will give satisfactory results for a full and healthy development, and, since it is true in all experience that where milk enters into the combination the results are invariably better, its value could hardly be determined by chemical test.

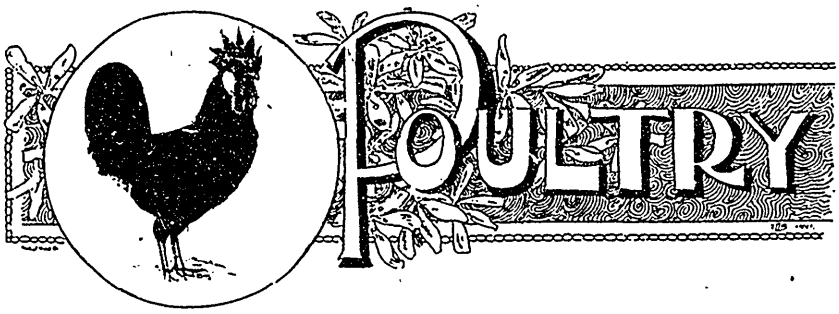
"It is too woefully true that comparison of values of butter, cheese, or pork with the products out of which they are manufactured, and not knowing how to do it intelligently, is the cause of many failures which make men give it up in disgust and return to the old routine of selling grain and with it the fertility of the soil on which it grows. I have never met as yet a dairyman or hog-raiser, or a combination of the two, who has entered into the business to stay, and arranged buildings and farm in all parts suited to this side business, but that were prosperous because they have learned that not in singleness but in the combination of the whole is their success.

"Therefore some men could value milk, like friend Everett, at 35 cents per 100 pounds, and get the value out of it, while it would be dear to some other men at 10 cents per 100 pounds. We have fifteen sows and over 100 pigs in ten acres of clover, and they could not, if they would, eat one-half of it in time. Before long someone will come and tell us the chemical value of that clover, and that it is not a paying investment with pork at $3.50. He will figure interest on investment of fence and land, and will want to know how much live weight we are getting out of that clover, not thinking of the combination of things. In spite of such non-paying investments and high and low estimates of feeding values, where the animals found something that the chemist did not, we have risen from nothing to prosperity. It is not always what we feed, but how we feed it, and the how must receive as close attention and observation as chemistry. But then the cow and the hog are partial to some men. Some men seem endowed with a faculty to make them do their best."

Broken Leg.

Subscriber, Yelverton: A yearling boar of mine has broken his leg. Can I get it set?

ANS.—Swine are proverbially hard animals to doctor, and we do not think that you could succeed. With a very young pig you might have been successful, but your boar is too heavy, we fear, to operate on. It is quite feasible to set the broken leg of a horse, cow, or sheep, provided the fracture is not too complicated, and it is in an accessible place. In cases of this sort it is always best to consult a veterinary surgeon, if one lives near by, as no time should be lost in attending to fractures of the kind mentioned.



Poultry Illustrations.

We present our readers this month with two illustrations of that grand breed — White Plymouth Rocks. They represent the cock, winner of 1st prize, and pullet, also winner of 1st prize, at Washington, D.C., last winter. Both are owned by Messrs. C. W. Jerome & Co., Fabius, N.Y. The firm is one of the foremost breeders of White Plymouth Rocks and White Minorcas in America. The writer has had extensive dealings with them, and knows them to be reliable.

Toulouse Geese.

The Toulouse is the heaviest of all our varieties of purebred geese and will sometimes reach fifty pounds per pair, though forty to forty-two pounds, when in good condition, is plenty heavy enough for good breeding stock. They vary in color from dark slate on the neck and back to a light gray on breast and front part of the body, with stern and under part of body white. They are very massive in appearance.

Some of our German friends, the *Poultry Tribune* says, who are raising these geese (either purebred or crossed with the common goose) for the home market, tell that they frequently have them to weigh fifteen pounds dressed at Thanksgiving or a little later, and usually receive ten cents per pound for them, besides having the feathers left, which are worth about 75 cents per pound.

There is always a good demand for well-fatted young geese in towns of 8,000 and upward, Jewish people being especially good customers for them, as they can utilize the fat in making pastries, etc., instead of lard, which their religious belief will not allow them to use.

Goose-farming is a branch of poultry-keeping that has been much neglected, and offers good returns to those who will turn their attention to it. The popular opinion, *i.e.*, that they are a filthy, greedy, and noisy nuisance, is not a correct one, if they are properly provided for. They should be provided with a pasture for their especial use, just as is provided by many farmers for their hogs, though both could be kept in the same lot, we believe, without any trouble, a fence three and one-half to four feet high being sufficient to confine the Toulouse. If provided with a good pasture lot and plenty of water to drink, the adult geese will require no grain food from the time the grass comes in the spring until late in the fall, and they are not excessive eaters of grain even during the winter. They seem to crave more bulky food, and will eat quantities of corn leaves and fine clover hay if allowed access to it.

Goslings require some grain food until six or eight weeks old, after which they will make rapid growth on grass alone, but will require a good grain ration for some weeks in the fall if they are to be dressed and sold.

We have had a good opportunity to observe a large flock of these geese for some years, and we firmly believe them to be the least expensive to raise and keep of any of our domestic fowls, while their product (dressed carcass and feathers) is always in good demand in the market at very good prices, which do not fluctuate like those for any other kind of fowl products.

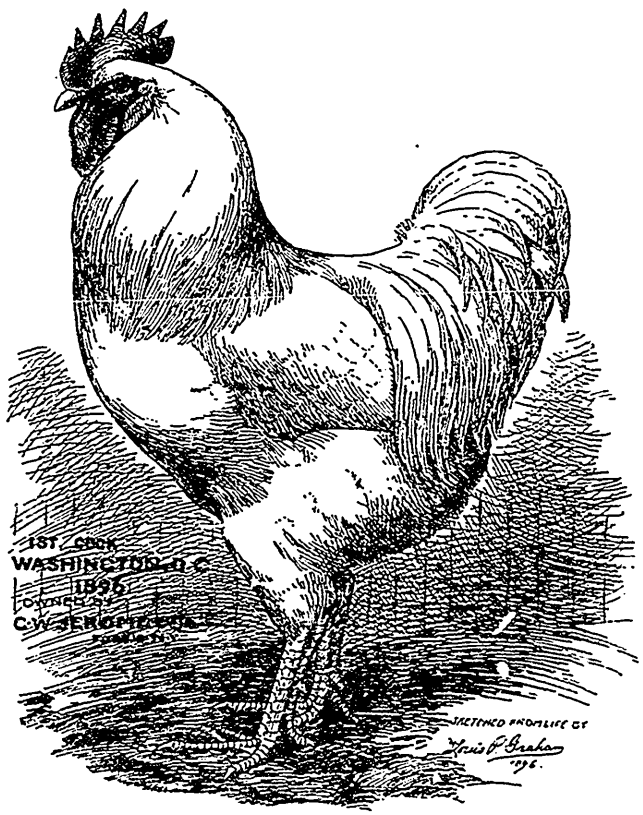
Not a Matter of Chance.

There are a great many disputed points in poultry culture, and some people seem to distress themselves a good deal over this fact. One person will tell you that the laying qualities of hens cannot be brought to the highest development in confinement—that they must have free range to attain their best in this respect. Another says he gets the most eggs when his hens are confined in yards and fed according to a system which experience has taught him is the best that can be devised. One man will advise you to keep pullets if you want to obtain the most eggs, another is ready to prove to you that pullets will not lay any more eggs than one and two-year-old hens. It is believed by some that there is no

getting along without ventilators to the houses, while others affirm that they are not only unnecessary, but are positively injurious. And, lastly, one breeder favors the feeding of corn freely, while another is of the opinion that the feeding of corn, except in the most sparing manner, leads to the sum of all evils in the poultry yards.

But all this does not prove that poultry-keeping is a haphazard business, or that the results which are sought after are a mere matter of chance. It simply shows that all people cannot reach the same ends by the same means. No two farmers will perfectly agree as to the best manner of growing a crop of wheat or oats, though both are working the same kind of soil, and are subject to the same conditions of climate. The difference in methods will increase in proportion to the distance which separates them, and it would argue a poor acquaintance with their business for two people working under widely different conditions to try to agree upon a system which could be adopted with equal success by both. The same thing is true of stock farming of whatever kind.

Poultry-keeping is not the same in the north and south, in the mountainous country of the east and the prairie region of the west. The plan of management must be varied to meet the conditions peculiar to the different localities. Each of these will have certain methods most suitable for itself. When we consider, in connection with this, the individual tastes, education, habit of mind, and personal surroundings of breeders, we can easily find an explanation of the lack of agreement as to methods.



White Plymouth Rock Cock.

The Barnyard Refuse.

The pickings of the voidings of horses and cattle, with the waste grains, hayseed, and broken leaves of clover hay, which the hens secure, amount to a large quantity, and also afford a variety. That is the reason why a common hen sometimes lays more eggs than the pure breds. The latter are overfed, get but little exercise, and as all writers teach — "feed heavily to purebreds," the common hen is compelled to work, while the purebred hen has nothing to do but patiently wait for her

meals. But nearly all farmers feed corn, which keeps the hens warm, and, though the supposition is that the common hen receives only corn, yet no estimate is made of the varied food she picks up in the barnyard. The fact is that the common hen has better feed, so far as variety is concerned, than the purebred, but she must seek it, which she does, and in an industrious manner, her very industry keeping her in excellent laying condition. It pays to keep a few hens in the barnyard in order to utilize the waste that occurs. The farmer may not notice the loss from waste, but the alert hen, with her keen eyes, does not let a single grain escape her.

A Paying Business.

Mr. C. H. Wyckoff, of New York State, devotes his small farm of seventy-five acres to raising eggs. The breed he uses is White Leghorns. Here is an account for one year:

Hens, average number	600
Eggs each, average	168
Price per doz., average	12½ cents
Eggs, net	$1,800 00
Stock sold	70 00
Manure, at 20 cents per bushel	270 00
	$2,140 00
Cost of feed	$ 660 00
Labor 12 months at $30	360 00
Interest, 5 per cent. on $1,000	50 00
Net profit	1,070 00
	$2,140 00

A business that pays $30 a month and 105 per cent interest on investment cannot be called a side issue. There is no "patent" on the means to success. Only the carefulness, regularity, and thought necessary for success in other branches are required.

A Sick Turkey.

Editor FARMING:

I have to thank you for your prompt answer to my question concerning a sick turkey. My gobbler died; he broke out all behind and died in a sad state. I had a hen which I found with her eye full of white. I gave her a dose of castor oil. She seemed better next day. I examined her a few days later and found the disease there just the same as the gobbler had. Of course I killed her, and buried her deep down. So far I see no more signs of it. As you are to give me more information next month, I may benefit by it.

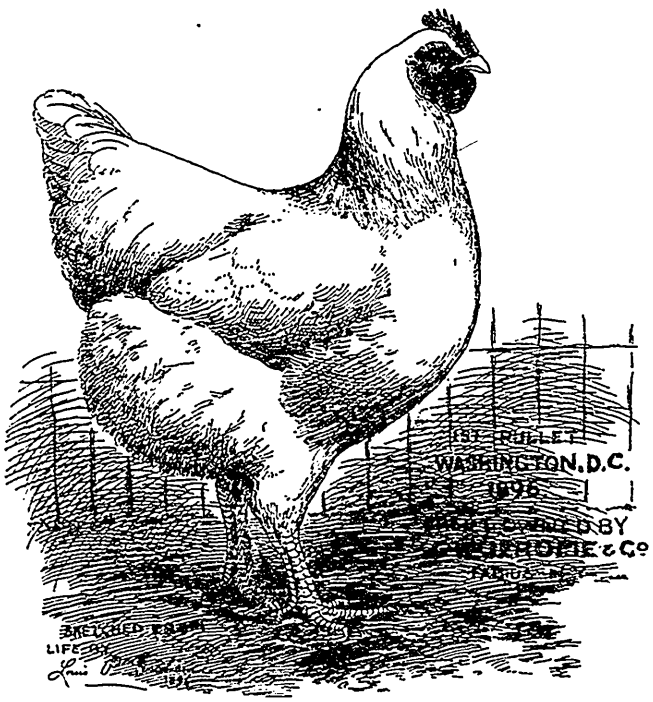
A market for poultry is one thing that we are in great want of. I have a lot of Plymouth Rock chicks just the right weight. Some pairs weigh six pounds. A buyer was round a month ago; looked at them; some were ready then, but he could get none elsewhere. He was back last week. My young ones were ready then, but he told me to keep them two weeks and he would give me thirty cents a pair for all I had. Now I blame the farmer's wife for that. If all the neighbors had chicks like mine we should have got the price a month ago for all that were ready. I got rid of the remainder one week ago for more than we will get in the fall and thirty-five cents is the most I ever got. When I get thirty-five cents my neighbors get twenty and twenty-five cents, some thirty. The difference is all I get for keeping mine until theirs are ready to kill, as my man says he cannot ship until he can gather a certain number. I should be only too glad to try the experiment of shipping myself if I knew where to send my stock. Could you help me to find a market? If I only got a start this season I could be ready for another time. I have also a few very fine last year's pullets I wanted to sell. My man would give me thirty cents a pair for them too. I am killing them to eat and can recommend them to any one. All my stock is pure bred. They are Plymouth Rocks and Wyandottes. I have also Bronze turkeys, and Rouen ducks. I have a few ducklings ready and my turkeys are coming on.

Your invitation is so courteous that I fear I have taken too much of your valuable time. You would confer a great favor on me if you could in any way find a better market for my produce. SUBSCRIBER.

[I regret to hear of the death of your turkeys. I submitted your question to some of the best turkey breeders in Ontario, and they were unanimously of the opinion that the bird had roup. All but one advised the hatchet, and all agreed that it would be unsafe to breed from him again. You did quite right in killing the hen. None of those to whom I wrote volunteered a cure. Apparently they think that once a turkey gets a disease it is better to kill it.

I am pleased to get your enquiry as to poultry for market. The prices mentioned for chicks of the weights given is ridiculously low. I inquired from some dealers here what spring chickens were worth on June 1st. They stated that they would gladly pay from seventy to eighty cents per pair for them, provided they went four pounds. They then have to sell them again. For chickens of the weight given by you, they state that on July 1st they would gladly have paid from seventy to

eighty cents, and at the present time (July 23) they would pay from fifty to sixty-five cents per pair. You will thus see the force of my arguments in favor of getting out early chickens and marketing them when from three and one-half to four and one-half pounds per pair. It is surely much easier to keep chickens until they weigh four pounds than until they weigh six, and if you could get them up to this weight by June first dealers would gladly take all you could send at from seventy to eighty cents per pair, and perhaps give a little more for something extra choice. If you could get them on the market by the 20th of May, weighing three and one-half pounds, you could readily get $1 per pair. I shall be very glad indeed to assist you in obtaining a market for your poultry. I presume it is too late to do anything this year, but we might try it next.—ED.]



White Plymouth Rock Pullet.

For FARMING.

Cornish Indian Games.

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

The Indian Game is a variety of fowls fast gaining favor and friends on American soil. Where they are once introduced they are invariably maintained. They are one of the best general purpose fowls we have to-day, which is one grand point in their favor. They present to the human mind a bird of power, majesty, and courage, although very tame and docile. They are light feeders, fast growers, and mature early, chicks often weighing from three to four pounds at twelve weeks old.

The male bird is a picture of beauty, having a proud, aristocratic carriage, looking a "monarch of all he surveys." His organism is composed of strength and endurance. He is broad across the back, very full in the breast, and very deep through the chest. His entire body is covered with a very short, close-fitting plumage of a green, glossy black. He is supported by legs of heavy bone, long in length, and bright yellow in color.

The head should be large, with a full red face, and a pea comb, of medium size, not beefy, but evenly balanced on the head. Ear lobes are pure red, free from white or any discoloration. The neck should be thick and straight, covered with a short, glossy, green-black hackle, having a brown crimson shaft. The wings should be carried close to the body and be composed of chestnut brown feathers, having metallic, glossy black wing bars. The tail is long, carried close and

very low, being on an angle with the head when the bird is standing erect. The tail is of a lustrous green black.

Games are a very deceiving fowl in appearance, their actual weight not being perceptible. The average weight of a male bird is eleven pounds when they reach maturity, although some specimens have reached fourteen pounds.

The female does not lose any of the male's beauty in symmetry or style. She differs only in color of plumage, which is a chestnut brown with a beautiful double lacing of metallic black. She has a small pea comb, red face and wattles, and red ear lobes.

They are good layers of medium-sized eggs, light brown in color. They are excellent sitters and mothers, tending to their little charges with untiring efforts. The chicks mature rapidly, making excellent broilers, the flesh being fine in grain, very juicy, and of an exquisite flavor. As they are a short-feathered race, the food given them goes into flesh instead of feathers. For caponizing, the males are superior to other varieties. A chick hatched in May, caponized in August, and properly fed and not stinted till the following March, will weigh from fourteen to fifteen pounds.

Those who desire a market bird, as well as an egg producer, will not err in breeding Indian Games, and will find them money-makers. They stand confinement as well as any of the American breeds of fowls, a low fence being sufficient to harbor them. They are of an affectionate nature, being very tame when not abused.

They are not inclined to disease, and are one of the hardiest fowls we have. Lice do not harbor in their short plumage like they do in that of some of our heavier classes of fowls. When they are at liberty the farm is made merry with their cackle from morning till night. They are very quick and sprightly, and the males will defend their mates against all comers, although they are not quarrelsome, and are not considered a pit bird. One grand use made of the males by several large broiler raisers is to cross them with purebred females of some other variety to produce a first-class broiler. The short feathers, heavy breast meat, and quick maturing qualities make them for the market or broiler raiser a choice bird to meet his desired wants.

I have one pen of Games this season that have laid remarkably well. They have been confined in a 75 x 12 foot run, with house attached, since last January; and they have never shewn a desire to eat feathers, and have always been ready for their meals. Eggs from this pen have hatched, on an average, ninety per cent.

Males in Laying Pens.

The advice is very commonly given by modern poultry writers that where eggs are wanted for the table simply, and not for breeding purposes, keeping a male in the flock is not only useless, but a positive disadvantage, the reason assigned usually being that the eggs will keep longer if no male is kept in the pen. The reason is doubtless a good one, but is not the only one. A series of experiments covering the point, undertaken at the New York Experiment Station, made it very conclusively appear that where hens were kept without males, eggs were produced at about 30 per cent. less cost than in exactly similar pens where cocks and cockerels were kept. In some pens, too, the production of eggs was nearly a third larger in pens where no males were kept than in others of precisely the same kind, and managed in the same way, except that the presence of the male was permitted. Keeping males in laying pens, therefore, except where fertile eggs are wanted for setting, is a mistake in a variety of ways. Eggs are produced less economically, they are liable to be fewer in number, and their keeping qualities are not so good.—*Homestead.*

The Fowl and the Horse.

The following article by H. B. Greer, which appeared in the *Poultry Herald*, is certainly worth publishing in our columns. There are far too many farmers who lose sight altogether of utility in their desire to breed exhibition stock. Both should be combined. Mr. Greer says:

"Aside from its intrinsic value, or to the extent in which it is superior to the dunghill as a layer or market fowl, the purebred fowl ranks with the racehorse, of which we have so many down here in Dixie.

"The racehorse is a pretty thing to look at, a handy thing to gamble on at the race-track, but when that is said all is said. So be it also with the exhibition fowl. It is fair to eye and a good thing to have in the showroom, if it be a 95 pointer. But let's knock the bark off. Its beauty is only feather deep, and, stripped of its plumage, the finest bird in the show is levelled to the dunghill—unless, mark you, it be of a breed that is a better layer, or of one that is first in the race from the nest to the skillet.

"Utility is what counts. We must not go daft about fine feathers, and lose sight of the main chance—the economic value of the fowl we invest in fine plumage.

"There are some breeds that are beautiful, and

it may be granted that in that feature alone they rank high above the mongrel, and, therefore, are worth more money. Granted that they are to those who buy for the sake of ornamentation. Such buyers class with others who buy high-priced, finely-marked birds to gamble on, to win with in the showroom, just the same as the southerner of a certain class will breed or buy the fleet-footed southern racehorse, that he may win with him at the track.

"But, in either case, such a course is not in line with practical, everyday affairs. It is not in keeping with the ideas of the man who raises or buys horses to work, or fowls to lay and raise chickens for the market.

"The practical side of the question should be turned up oftener, and more often discussed. Our efforts should be trained more directly in the line of utility. We should watch our flocks, and, while keeping beauty of plumage, shape, and style always in sight, breed from the best layers. Breed to establish a strain of fowls that will lay more eggs, and still more eggs.

"This should some do, while others should cultivate in their birds rapid growth, weight, and early maturity. Breed with a view to producing that which will make it but a short race from the shell to the griddle.

"We would not decry fancy points and show birds; they are well enough in their way. So is the racehorse. But the egg basket would often go empty, the frying-pan fry dry, and the plow cease to move, if we raised only show birds and racehorses. Someone must keep an eye on the practical side."

Wheat From the Start.

The best lot of chickens we ever raised were fed on dry grain feed from the very start. They were in a brooder house, and side by side with other broods fed on mashes and mixtures of all kinds. This particular lot had the end brooder, and were allowed full liberty to roam over a large patch of woodland. The feed was placed in covered troughs, and consisted of a mixture of cracked corn, cracked rice, rolled oats, and bran the first two weeks; after that cracked corn and rice and whole wheat were the only grain feed used. The chickens, having unlimited range and plenty of shade, picked up all the animal and vegetable feed they required, and "tackled" the grain feed when they felt inclined that way. They grew like weeds and beat the other pens decisively, although during the first three weeks little or no difference could be detected in the different broods. The unnatural system of feeding and yarding them began to tell, and the natural method triumphed.—*American Fancier.*

STRAY FEATHERS

THERE is no doubt that in the more northerly latitudes the long cold winters affect the vigor of the breeding stock so that eggs laid in February and March are not likely to give as good results in hatching as those produced in April and May. Some fanciers do not like to furnish eggs early for this reason.

WHEN eggs are sold off the farm, it is simply a change of the form of the food consumed. A bushel of wheat, which may not sell at a profitable price in market, may be converted into eggs that are in demand. It is, after all, but the selling of the wheat in another shape, the hens being the medium, or agents, for manufacturing eggs from other substances. If the farmer can get a higher price for one article than he can for another, he gains the difference; but it will not pay him to keep stock that does not give good returns for the food consumed.—*Poultry Keeper.*

DID you ever notice that certain hens in the flock always seemed more alert and active than others? See how perhaps half a dozen out of thirty or forty are always running around, singing, perking their heads up in a "Don't you see I'm a rustler" kind of way, and doing more work in an hour than the rest of the flock in four. Take care of these. Separate them from the rest of the flock. Look after them with great care, and by breeding them carefully to choice males you can raise up a strain of fowls that will be phenomenal layers. Now, don't sneer at this idea. It is fact, and one that is worthy of your looking into —*National Stockman.*

Chicken-Pox.

H.H., Alpena, Mich.: I have some hens which, I suppose, have the chicken-pox. The indications are sores on the comb, like warts. This gradually gets over the face and closes the eye. Can you give me a cure?

ANS.—Your birds certainly have chicken-pox. Take the scab off with the finger-nail, and you will find a lot of white roots which will bleed. Take an ordinary caustic pencil and rub each sore with it. You will find this a sure cure. See that your fowl always have fresh, clean water. I think foul quarters cause the disease. Unless it is speedily checked it will turn to canker.

About four or five years ago a fungous growth showed itself on pea vines in the township of Hillier, Prince Edward county, Ontario. It has spread over a larger area every year, and has become so serious that a number of pea fields were plowed up this year, as the pea vines were all spoiled. Prof. Craig, of the Central Experimental Farm, Ottawa, and Prof. Panton, of the Ontario Agricultural College, Guelph, have been investigating the cause of the fungus; and it is to be hoped that they can suggest a remedy for it, as our pea crop is too valuable a one to be destroyed.

Going to the Fairs.

The season of the fairs will soon begin, and if we are to attend them with profit and without loss we must look well ahead. As every farmer knows, work seems to increase on the farm as the season advances until the time of freezing up. But there is the difference that it is not so important after harvest that work shall be done just at such a time. Some of it can afford to wait. It is possible to plow a field a week after harvest without loss, but it would not be possible to delay cutting ripe grain for a week without the most serious loss. Lay your plans then, farmers, to go to some fair, or even to more than one. The period of recreation thus taken has been well earned. But beware of going to too many fairs. It would be easy to turn fair-going into a kind of dissipation. But to attend the fairs without loss the house should be put well in order. That farmer has no business at a fair whose fall wheat will be delayed unduly in being sown in consequence of his going, and when a cornfield would get overripe if left until a certain fair had been attended it should not be allowed to get overripe. If there is no other way to harvest it, the grower should stay home from the fair and harvest the corn. By looking ahead, however, these things can be arranged so that those who want to can go to the fair.

The Agricultural College.

Young men, don't forget about our Agricultural College at Guelph. When you are planning as to where you will go to school next winter, don't overlook the claims of this institution. It has done much for the agriculture of this country, and it will doubtless do more. . has helped many a farmer's son to be a more useful man, and it will doubtless help a still larger number relatively in the future. Our agriculture now stands well compared with that of other lands on either side of the Atlantic, but we cannot afford to rest on our oars. Some of the American colleges are making gigantic strides. Texas has a large number of students attending the agricultural classes. Ohio is forging ahead. But Minnesota is leading in the race. So far as we can learn that college has been running only eight or nine years, and last year there were fully 400 students in attendance in the agricultural classes. This includes both sexes. If, then, we are to retain the vantage ground that we now have, we must not forget to avail ourselves of the aid which our college of agriculture can bring to us. Then, young men, think carefully over the advisability of taking a course at this institution.

Binding Sandy Soils.

To bind light sands, that is to say, to keep them from blowing, we must try to make them heavier. This we can do if we can get vegetable matter put into them in any form. Manure put upon such soils will cause them to blow less; so will green matter plowed in. The difficulty is to get the green matter to plow under. Such lands are generally poor. But some plants have much power to gather food. They will grow fairly well where other soils would starve. Winter rye, for instance, will grow on light sands where winter wheat would make no showing. When the rye is thus grown it could be plowed under, and then sweet clover sown next. This plant has power not only to bind the sand by its

roots, but it will also bring nitrogen to it, and since it produces a mass of stalk and leaves it will make a good crop to plow under. The sand can thus be made heavier. Its power to hold moisture will also be increased. If such lands are tilled at all, it should be on the principle of enriching them by occasionally turning under vegetable matter in some form.

Troublesome Animals.

Troublesome animals are generally made so through somebody's neglect. They have been kept in fields where the fences have been unduly low, or they have been kept on scant fare. It may be that the untaught have learned to jump or to break down an enclosure through companions who have previously learned such tricks, and who should, in consequence, have been restrained. But there is no influence so potent in causing animals to break over or through fences as short supplies of food. Give them all they will eat and they will be contented. Put them on short supplies and they become restless. The law of self-preservation leads them to take, if they can get it, what will supply the wants of hunger. It is in the autumn that the crops not yet reaped are most liable to suffer from such depredations, as then it is that grass is likely to be scarce. It is in the autumn, therefore, that supplemental foods are most wanted. Are you without them, reader, and are your live stock troubling you? Then do not blame the animals; blame yourself. Try to have it different next year. We have reached the era in Ontario when we cannot any more afford to be without supplemental crops for our stock.

Winter Wheat.

Some winter wheat should be sown in localities where it will grow well. It is a staple crop in some parts of the country. The low prices that rule will not be a sufficient justification for discarding the crop altogether. A good crop of winter wheat is worth more than it represents in the value of the grain. The straw for litter is of much account. If not well supplied with litter we lose fertility, and we lose in other ways, and the loss is serious. Again, we may get a good crop of winter wheat in a year when spring cereals may be under an average. It is safer, then, to grow wheat than to be without it, and it also tends to distribute labor more evenly over the whole of the season. It is a matter of no little importance as to the variety that shall be sown. No doubt some varieties will prove very satisfactory in circumscribed sections which may not do well over the province generally. There are some varieties, however, which seem to have proved their suitability to all parts of the province where winter wheat will grow. Prominent among these are Dawson's Golden Chaff and the Surprise.

Winter Rye as Pasture.

Winter rye is a safe and sure crop to grow as pasture. When sown in August it can usually be pastured to some extent the same autumn. And in the early spring it will furnish a great growth of pasture if rightly handled. Where grass pastures are not abundant these may be spared until they get a good start if the rye is pastured in the meantime. When rye is pastured it should not be allowed to get long or it will form the ear, and when it does the impulse to grow is weakened. It is not generally known, perhaps, that rye furnishes an excellent pasture for milch cows, providing they are not allowed to stay on it for a longer period than two hours after the morning milking. They will eat enough to last them till noon in a couple of hours. They should have other food in the afternoon, or the rye will affect the milk adversely. But if managed as described the milk obtained will be excellent, and also abundant. And one of the grand features about rye as a pasture is the fact that another crop may follow it after it has been eaten off. But rye for pasture is less valuable on clay soils, as the tramping of hoofs in the early spring would make the land hard and cloddy.

Winter Wheat After Peas.

Winter wheat, as is pretty generally known, does well after peas. But it is not so generally known that the wheat will do better generally if the land is simply disced after the peas, rather than plowed. And yet it is a fact. The reasons are found in the finer character of the seed bed, in the larger amount of moisture which it holds, and in the firmer character of the soil during winter, which prevents the tendency to heaving of the grain just in proportion as greater firmness of the soil exists. But in wet weather these benefits will be less realized than in weather that is normal or the opposite in character. And if weeds or grass have been abundant in the peas, it will be found much better to plow than to disc.

The discing should be done just after the removal of the pea crop. It may be across the

ridges or along them. The second discing, however, should be across the course of the disc-marks first made. In dry weather the harrow should follow the disc to keep in moisture. And the longer the seed bed can be thus prepared prior to the sowing of the seed, the moister will the ground be.

Watch the Weeds.

The extent to which cultivated crops are grown in Ontario is a distinctive feature of its cultivation. And it is a most commendable one. It is driving to the wall the old system of the bare fallow. And it is well that such is the case. When wheat sold readily for $1.25 a bushel it is possible that money could be made in growing it, even though two years were taken to produce a crop, as, in addition to the crop grown, there were other benefits growing out of the bare fallow, such as, for instance, the cleaning of the land. But now, with the prices that rule, it would seem scarcely possible to make any money from a crop of wheat which takes so much labor to produce. The cultivated crop may be made to clean the land just as well. But, in growing it, care should be taken to keep down the weeds. None of them should be allowed to mature their seeds. And to prevent this is no easy task. It requires much watchfulness and some labor at a time when labor cannot well be spared. And yet it is labor that is necessary if such fields are to be made clean. In the latter part of the season the weeds rush to maturity with astonishing rapidity, and they produce, in many instances, an enormous amount of seed. Now, it will not avail to keep the ground clean for a time, and then to have it all smitten again the same season by weed seeds that have matured upon it. Then go through the cultivated fields and get the last of the weeds. Don't let any of them mature. They are only stray weeds at the best. At least, such will be the case if the crop has been well cared for up to the usual time of the year for laying it by; that is to say, up to that time of the year when ordinary cultivation must cease.

Clean Farms.

A clean farm is a rare sight. That it is so is unfortunate, for clean farms and good crops usually go together. And good crops and easy, comfortable circumstances are generally most intimately associated. Clean farms are certainly worked with much less labor than dirty farms. The rotation is less disturbed, and, all things considered, the clean farm is so immensely superior to the foul one that the great wonder is that clean farms are not more plentiful than they are.

But there may be much difference of opinion as to what is meant by a clean farm. Absolute cleanliness would be impossible. We must not look, then, for farms to be clean in that sense. It would take a fortune to make them so, and it would take a greater fortune to keep them so; but it is quite possible to have farms so free from noxious weeds that practically they will not hurt the grain crops. In this sense anyone may, after a time, have a clean farm. It may take years to make them clean, but it can be done, and it should be done, and it will be done when the farmer is fully alive to the importance of destroying noxious weeds.

That it may be done may be easily demonstrated by instances of men who have done it, and who, at the same time, have been successful farmers. We have in mind two instances. The first is that of Mr. Simpson Rennie, of Markham, Ontario. Mr. Rennie's farm is practically clean. And, as everyone knows, he has made money while working it. The second is that of Mr. Theodore Louis, Wisconsin. Mr. Louis settled, years ago, on a sandy farm, which soon became so impoverished that it refused any longer to grow wheat. He had to choose between moving away and adopting some other system of farming. So he adopted another system of farming. He turned his attention to hog-raising. To enable him to do this successfully, he grew clover and corn. Now he has a fertile farm. Everything about him indicates success and comfort, and all his farm is a model of cleanness. Of course many others, more especially in Ontario, have so cleaned their farms that they are a joy to behold; but many, also, are waging a hopeless contest with weeds from year to year, without making any appreciable headway, owing, principally, to the way in which they wage it.

That farms should be cleaned may be demonstrated in various ways. They should be cleaned for all the reasons assigned in the paragraph which commences this paper. Many other reasons may be assigned, but such a truth should need no demonstration. It is in itself a self-evident truth.

That farms will be more and more cleaned may also be expected. It would be strange if it were not so. Many things have been operating against cleanliness in farms. Grain-growing and grain-selling bear adversely upon cleanliness in farming. And these are the first forms in which tillage is introduced in an agricultural country.

Then there is that restlessness incident to the settlement of new countries. Farmers fleece the soil, and, when it gets poor and foul, they move on to new soils to repeat again the operations And many of the pioneer settlers are frequently lacking in knowledge as to the best modes of tilling land. This is against what may be termed successful and thorough farming. When settlements become older the feeling of unrest will somewhat subside, and the desire for change will moderate. Men who own farms will take more pride in tilling them because of the fact that they expect to live upon them the rest of their days.

It is somewhat strange that so many farmers look upon it as an impossible thing to have clean farms; that is, they look upon it as impossible in the sense of being able to clean the farm and to make it pay well while the work of cleaning is going on. And yet it is not so strange that they should conclude thus. They have tried to destroy weeds, and they have not succeeded. When a man fails in an undertaking, he is averse to concluding that he himself has been the sole cause of failure. It is natural that he should conclude that the task is a hopeless one, and that, in consequence, effort should be measurably paralyzed. A man does not care to fling his energies against a wall which he has repeatedly tried before, and to but little purpose.

Notwithstanding, farmers, our lands can be cleaned. Just how this will be done will depend largely upon such conditions as soil, climate, and other things—as the kind of weed, and the extent of the hold which it has upon the soil. It would make a long story to tell how the principal weeds may be destroyed. Such a story cannot be told in our paper, and we shall not attempt to tell it. But we do want to urge upon our farmers the desirability of having clean farms. May the number of these be increased from year to year! This should be the earnest desire of every lover of his country.

Experiments Which are Costly

"Where ignorance is bliss, 'tis folly to be wise"; so reads the proverb. But where ignorance is not bliss, then it is wisdom to be wise. It is not bliss by any means to be in ignorance with reference to the discoveries that have been made bearing on practical agriculture. To be ignorant with reference to these oftentimes means loss, and loss of a very serious nature, for such ignorance oftentimes leads a man to go to large outlay in conducting an experiment which only repeated what had been done long years before, and it may have been done much more effectively.

Such experimenting is usually costly, for all experimenting in agriculture is more or less costly. But when the experiment is a failure, as many experiments are, then it is certainly costly, more costly than the average farmer can afford. It is important, therefore, to keep abreast of the times. It is certainly important to keep well posted as to what has been done, and what can be done. It is idle to try to prove what has been proved, and to demonstrate again what has been demonstrated, it may be, under conditions that were far more likely to lead to definite conclusions.

But it is not easy always to keep posted. It is not easy for those who conduct experiments at experiment stations to keep fully posted, so rapidly is work being done, and so much is now being attempted. On this continent no fewer than fifty or sixty experiment stations are engaged in active work. With nearly all of these the law requires that no fewer than four bulletins be issued every year. This would mean the conducting of no fewer than four experiments every year, for a bulletin cannot be issued without an experiment first having been conducted. But many of the stations issue no fewer than a dozen bulletins a year; hence the average number is more than four. Say that the average number issued is six. This means that at least three hundred bulletins are issued yearly by the experiment stations; hence the person who is to keep well posted with regard to all phases of experimental work would have to examine a bulletin every working day in the year. This would pretty well occupy his whole time. But few persons are desirous of covering so wide a field. While that is true, they wish to keep posted on some one phase of agriculture, and even then much research will be required and much time occupied in keeping well abreast of the times.

We have already said that experimenting is costly work. This is true, at least, of some kinds of experimenting. And it may be added that it is critical work. Some experiments may be so simple in character that they do not require much thought and skill. But this is not the character of experiments generally. Usually there are complications which require the most careful consideration, and which one who is not a professional experimenter is very apt to overlook. Hence it is easily possible to come to incorrect conclusions regarding the precise value of an experiment, and more especially one that has not been considered in all its relations to the attendant conditions. While every farmer should

be an experimenter, it is manifest, therefore, with reference to his experiment, that he should reach conclusions with the utmost caution.

In the erection of buildings we oftentimes find the farmer his own architect, and in a sense it is well that it is so. But he will tell you with evident pride that his outbuilding is his own plan, and the outcome of his own ideas. That is all right, if his is the best plan. But if it is not, it is all wrong. It may be that a dozen plans are on record superior to his, and that he has not known of their existence. Had he been thus informed, he would probably have improved on some of them, and would, therefore, in the end have been a very great gainer.

In this age of incessant advance, when the very air is astir with discovery, it is all-important that the farmer shall keep himself abreast of the times. If he does not, he must fall behind. He must find a place rearward rather than in the van. How shall he do this? By keeping his eyes wide open, and reaching out and grasping the helps within his reach. These helps are various. They may relate, first, to the agricultural press. The agricultural press in itself is a compendium of the progress that is being made. Anyone, therefore, who is a careful reader of agricultural literature furnished from the source named will be fairly well posted as to the progress that is being made on every hand But, in the second place, farmers' organizations, bulletins, and books may all be made to swell the volume of his gleanings. When close attention is given to gathering information from all these sources, the farmer is not likely to engage in experiments that have already been demonstrated elsewhere.

A Newfoundland Scene.

The popular idea about Newfoundland is that it is a country of rocks and ice, with a climate largely tempered with fogs. To the better informed, however, it is a country with a great future before it, being possessed of great mineral wealth, and containing, moreover, a considerable quantity of land suitable for agriculture. It is true that agriculture is not yet in an advanced state on the island, but there are good farms there and progressive farmers, one of these being Mr. A. Makinson, Cochrane Dale, Brigus, the owner of a fine farm of 700 acres, a view of part of which is given in the illustration on the opposite page, which also shows The Var mountain in the background. Mr. Makinson is the proud owner of a silo, which he finds indispensable for feeding his cattle in the winter, and he is energetic in showing the benefits of improved methods of agriculture to his less enlightened neighbors.

Frequent Stirring of the Soil.

Without any doubt, a great field lies open for experiment with reference to stirring the soil, while producing our grain crops, after these have been sown. And the drier the section of country, the greater the necessity which exists for thus stirring the soil. This problem has not yet been more than touched upon by our experimenters, but undoubtedly its day is coming.

Men are eloquent, when writing in the press and when speaking from public platforms, over the great advantages to corn and root crops from frequent cultivation, but we do not hear a word about applying such a mode of cultivation to grain crops, although the results should be equally beneficial to the grain as to the crops named. No doubt one important obstacle to be overcome is the difficulty connected with the cultivation of grain. Our machinery is not adapted to it. In fact, we have no machinery that is suitable to the work.

One can readily see wherein cultivation would greatly increase the yield of grain. When it is sown in rows in the garden and hand-hoed, great returns relatively are obtained. Now, if some such system could be applied to growing grain in the field, which would not be too expensive, the results could not but be eminently satisfactory.

The reasons are obvious. Soon after ground is stirred it has a tendency to become encrusted more or less, according to the kind of soil and condition of weather. When such encrustation takes place the ground cracks, and from these openings the ground moisture escapes. If, therefore, the ground could be sometimes stirred in the early stages of the growth of the grain, until it was somewhat shaded by the grain, the results would be eminently satisfactory. The number of times for stirring it would depend on the season, but if it could be stirred two or three times the gain would be very great.

And the effect in destroying weeds would be greatly beneficial. Every time that the ground was stirred they would die in immense numbers. The soil would not only be freed from them, but they would not hinder the growth of the grain, as they too frequently do.

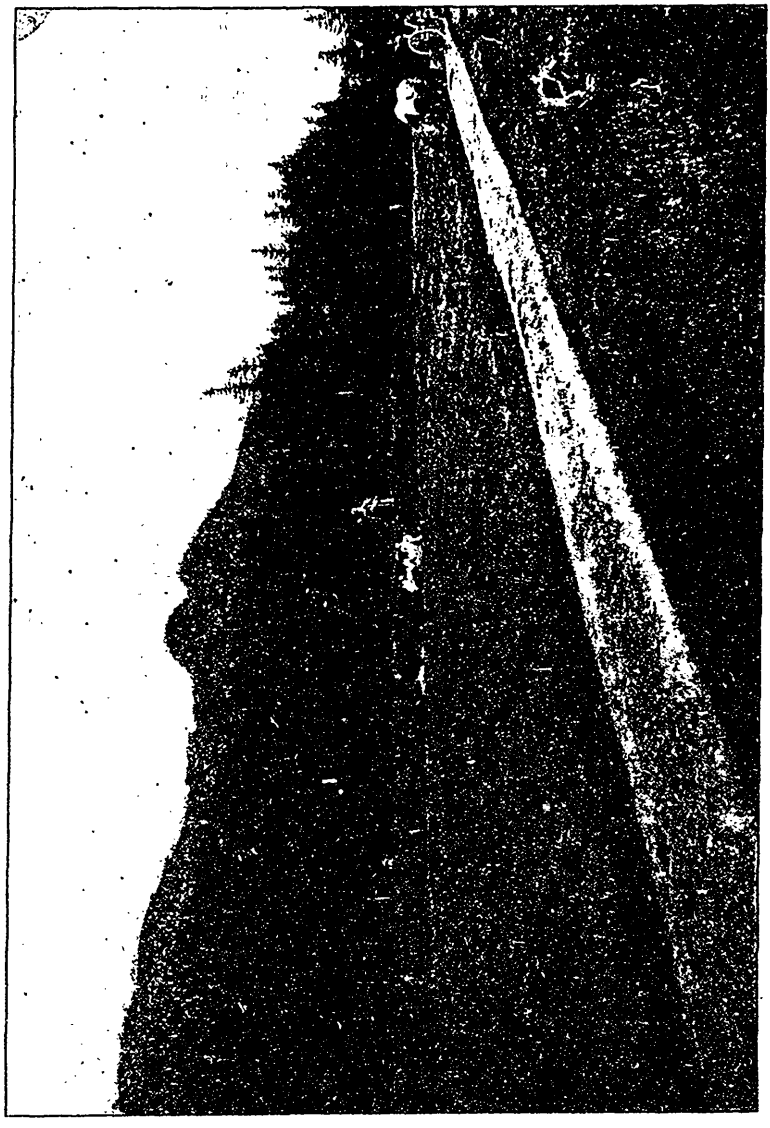
But we have no suitable implements for doing such work. We have not even harrows exactly adapted to it, nor are we likely to have until something is invented for this specific purpose. When grain is put in with the grain drill it would, generally speaking, help it greatly to harrow it

before it gets through the ground. But we should want a certain kind of harrow. It should be light, should have a wide sweep, and it should be possessed of many short teeth. By such an operation weeds would be destroyed, the escape of ground moisture would be hindered, and aeration would be promoted, which is so helpful to growth.

And a second harrowing would be in order some time after the grain is up. But it should be so arranged that the cross bars of the harrow would not sink into the surface and thus pull over the grain. We have no harrows suitable for the purpose. But the day will come when attention will be given to this matter.

And when that day does come it will probably be found necessary to sow the grain in the drills, so that these will have a greater distance between them than they have at the present time. The growth of the grain will be much stronger, and therefore a greater distance would be a necessity.

There are two classes of soils which would be particularly benefited by such an arrangement. These are clay and light prairie soils. Clay soils



A Newfoundland Scene.

become so dense upon the surface that air is too much excluded, and prairie soils are so light that unless the surface is stirred just a little on the top now and then they lose their moisture. They are also noted for the innumerable weeds which they produce. All this may seem very nicely woven theory to those who believe only that the thing which hath been is that which shall be, but it is our conviction that this matter will eventually receive that measure of attention which its importance deserves.

Moisture in the Soil.

In the season of growth it is very essential that the plants have a reasonable amount of moisture if we are to have good crops. How to supply them with moisture should be carefully studied by the husbandman, and it should be his aim, more especially in dry seasons, to so order the processes of cultivation that the plants may have a constant supply of moisture, so far as it is in his power to furnish the same.

Some soils have much more power than others to retain moisture which falls upon them, and also to draw up supplies of moisture from below. Clay soils have much more power than sandy in both of these respects. Hence it is that clay soils ordinarily suffer much less than sandy in time of drought. And hence it is, also, that when the surface of clay soils is frequently stirred they retain the ground moisture better than sandy soils.

There is a constant upward movement of moisture in the soil. This arises from that power in water which enables it to rise under certain conditions, on the principle of what is known as capillary attraction. It climbs up through the little interstices, or air spaces, in the soil, that is, between the particles of the same, and the smaller the air spaces the more easily does it climb. In clay soils, therefore, the ground moisture comes up to the surface much more readily than in sandy soils. In the latter, the spaces are so wide between the particles that the water cannot readily ascend, but it does ascend to some extent. Now, if some means are not adopted to prevent it, the ground moisture will come right up to the surface of the earth, and will escape into the atmosphere. The aim should be to try to arrest it as much as possible, and thus prevent its escape. It will then be taken up by the roots of the plants.

Several methods of doing this may be adopted, which are more or less practicable according to conditions. The most common of these is to stir the surface of the ground as frequently as possible during the season of growth. With grain crops this cannot ordinarily be done, but if it could be done without injuring the grain it would be beneficial to the crop. Because of this, it would be greatly beneficial to the crop if some form of cultivation could be given to grain crops, and more especially until these were far enough advanced to shade the ground, by which time they would help it to retain moisture, not only by hindering surface evaporation, but by changing the character of the surface soil as a mulch does. It has been observed by all who have tried it that when the surface of the ground is stirred often where a crop of corn or potatoes is growing, the growth of these crops is much promoted. Now, one of the principal reasons for the promotion of growth is found in the fact that the ground, in consequence of cultivation, has been able to hold much more moisture than it would have held had it not been so cultivated.

A second method of retaining moisture is by mulching. This process so changes the character of the surface soil that it holds the moisture. Those farmers in the far west who attempt to grow trees have found it necessary thus to use mulch. But mulching can only be done to a limited extent, because of the scarcity of materials. However, in this fact those who live in dry areas may get a pointer as to the best ways of applying coarse manure. It would seem to be good practice in those areas to apply much of it on pastures by simply spreading it over the surface of the ground.

A third mode, which is very effective, is to try to keep humus or vegetable matter in the soil. Because of this, we should try to plow under green crops to the greatest extent possible. The more fully we can do this the better we can succeed in retaining moisture.

Vegetable matter arrests moisture which falls from above, and holds it near the surface, and, like fine clays, it also holds that which comes up from below. The success or failure of a crop may, therefore, depend very considerably on the amount of vegetable matter in the soil. But in dry areas it would be easily possible to turn under so much vegetable matter, more especially in the dry form, that it would keep the land so open that it would soon be so dried by the atmosphere that plant life upon it would die. And in dry climates this danger has to be guarded against.

Coarse, leachy soils may be improved in texture by the application of fine clay, of wood ashes, plaster of Paris, marl, and salt. These substances fill up more or less the interstices between the particles of sand, and, moreover, some of them have much power to draw and to absorb moisture.

Close Pasturing not Profitable.

The grass crop is undoubtedly the most valuable crop that we grow; hence anything bearing upon its preservation should receive at least a respectful hearing. And it is probably correct to say that, notwithstanding the great value of this crop, it receives less attention, relatively, than any other important crop that we grow. Our kinsmen beyond the Atlantic have long ago recognized the great value of the grass crop, and have sought by every means in their power to improve its value. We, on the other hand, have done very little for its improvement, owing, it may be, to the abundance of our lands.

In the management of our grass lands we do well to remember that to pasture them off closely is poor policy. And this holds true whether they are in meadow or kept simply for pasture. We make no mistake greater than this in the management of our grass lands; and the drier the climate the greater the evils that arise from the practice. The reasons are apparent to any reflective mind.

First, when pastures are eaten bare in the spring, they do not stand the drought of summer nearly so well as if they had not been so eaten. When cropped right down to the ground the rays of the sun easily drink up the moisture out of the soil. But if not eaten closely, the grass uneaten acts as a mulch; hence much more moisture is retained in the soil. The difference in the growth in the two instances will be very marked, and in dry seasons it will be much greater than in those which are moist. It is evident, therefore, that much care should be exercised with reference to the closeness of the pasturing or the opposite that may be considered proper.

Second, when pastures are not eaten closely in the autumn they spring up more quickly in the spring. This is only what we should expect Protect the roots of plants that are valuable by mulching them in the autumn, and the growth will be more vigorous than if they had not been so protected. The uneaten grass acts as a mulch. It renders the freezing less severe in winter, and in the early spring, while the cold winds still sweep over the surface of the earth, it provides a protection amid which the tender blades of grass push upward to the height, it may be, of two or three inches before the grass commences to grow on places that have been eaten bare.

When such a protection has been given to the pastures the stock may be turned out upon them much earlier in the season than on other pastures, not thus protected. A supply of food is furnished earlier, and in a condition very suitable as food for stock. The decayed portions of the grass which provided the mulch are eaten along with the tender blades that grow up amid the former; hence the fresh grass does not purge the animals, as it otherwise would. Those farmers who finish animals on grass in the early summer know very well the advantages of such pastures in the early spring.

Third, a mulch of aftermath will tend very materially to increase the growth of meadows the following season, and more especially when timothy is the principal grass which they contain. As with the protected pastures, the protected meadows will start earlier than if they had not been so protected, and they will also grow more vigorously. The mulch furnished by the aftermath of winter is very advantageous also the following summer, as it prevents the evaporation of moisture when it falls, and consequently tends very materially to the promotion of the growth of the crop. It has been estimated that in some instances, and in some seasons, the yield of the hay crop has been doubled by simply refraining from pasturing off the aftermath.

But, it may be said, the seasons vary. How, then, can we regulate the pasturing of our lands so that sometimes we shall not be compelled to pasture too closely, as, for instance, when the seasons are very dry? We answer that this can only be done by growing soiling crops. These can be so used that the pastures will be spared. If the season should prove moist enough to furnish plenty of pasture, the soiling crop could then be used as winter fodder. A greater difficulty is found in the tastes of the animals used in pasturing. They are much prone to eat bare certain portions of the field and to leave other portions uneaten. And the difficulty is further aggravated by the fact that they eat first the portions where the growth is the least vigorous. Who can give a remedy?

YOUNG women employed in Danish butter actories earn from 6s. to 12s. per week. Women do a large share of the work, except where heavy lifting is entailed and driving the heavy milk vans. One establishment employs about 250 people.

MILK-MAKING in the udder of the cow is coincident with the act of milking. The distended udder may indicate that a cow is ready for milking, but it is not true that the udder is full of milk. The milk cisterns, in which alone the completed milk is to be found in the udder, are quite small, the four together not containing more than a pint.

CHEESE exports from the United States to Great Britain during April, May, and June of this year show a decrease of nearly 40,000 boxes from that of the same period in 1895. This, together with the reported decrease in the exports from Canada and the prospect for a considerable shortage in the make at the factories, will later on have some effect upon the price.

BUTTER is shipped from New Zealand to London (forty-two days by steamer) for 1½ cents per pound. The butter is frozen before being shipped. Butter keeps better when frozen in pound packages than when frozen in bulk. It is never exposed to a degree of cold greater than five above zero. It costs, on an average, 2 cents per pound to keep the butter frozen during the voyage.

IT never pays to rush the cows from the pasture to the milking yard. They should not be hurried, and should be allowed to take their own time in going to and from the pasture. It is better to dispense with the dog for the purpose. If the cows are given a little extra feed when they arrive at the place of milking, it will help the production of milk and also bring the cows home at milking time without the aid of a small boy or a dog.

THE insects now recognized as in some way and to some extent injurious to some part of the corn plant number 214 species, of which 18 are known to infest the seed, 27 the root and subterranean part of the stalk, 76 the stalk above ground, 118 the leaf, 19 the blossom—that is, the tassel and the silk—42 the ear in the field, 2 the stacked fodder, and 24 the corn in store, either whole or ground.

THE silo should stand where the ground is dry and well underdrained, naturally or artificially, and be protected from all exposure to water from the outside. In a favorable location the silo can with advantage run several feet below the surface of the ground. This is especially desirable for increasing the depth of indoor silos, where the height of the walls above ground is restricted.

FOR a herd of 30 cows a cylindrical silo of 14 feet, inside diameter, would be satisfactory. A herd of 50 cows would require the ensilage from one eighteen feet in diameter. The weight per cubic foot of corn ensilage at the bottom of a silo 30 feet deep is about 60 pounds; towards the top it is about 30 pounds. The average weight per cubic foot of silage in a deep silo can be taken as something over 40 pounds.

THE world's wheat market having been swamped by low-priced wheat from Argentina that country is now turning her attention to the production of butter. One company alone exported more than 150,000 kilos of butter to London during the last twelve weeks of 1895. The Argentine press place the exports to England of their butter at about 150,000 tons annually. A large market is also found in Germany. This butter has sold on the London market for as high as 106 shillings per hundredweight.

BUTTERMILK from the creameries is a most excellent food for hogs of all ages. It has a feeding value not materially different from skim-milk. For pigs feed not more than three pounds of buttermilk for one pound of grain, using cornmeal, barley meal, ground wheat, shorts, or any similar

feed. If a larger proportion of buttermilk or skim-milk is fed, the returns are not so good. Buttermilk is not recommended as a good food for calves, though, with great care, it may be fed by a skilful feeder.

In ordinary dairy or creamery practice, where modern methods of creaming and churning are applied, the yield of butter in the milk will exceed that of the fat by 15 to 16 per cent. One pound of fat in the milk will produce about 1.15 pounds of butter, so that the yield of butter from 100 pounds of milk will be 1.15 times the per cent. of fat in the milk.

Koumiss is a food made from milk, and is valuable for dyspeptics and persons with weak digestive organs. To make it, take one quart of new milk at a temperature of about 75°. Add two small teaspoonfuls of the best granulated sugar, and compressed yeast about the size of a pea; put in a bottle, with the cork tight and wired in, and place in a temperature of 65 or not over 70 degrees to ferment. Shake six or more times each day, and after 48 hours place in a temperature of 60° for preserv ion. At from 50 to 72 hours after bottling it should be ready for use.

Dr. Gerber, the Swiss scientist, classifies the causes of tainted milk as follows:

(1) Poor fodder.

(2) Poor, dirty water, used not only for watering cows, but also for washing cans.

(3) Foul air in cow stables.

(4) Uncleanliness in milking.

(5) Keeping the milk too long in too warm and poorly ventilated places.

(6) Neglecting to cool the milk quickly after milking.

(7) Lack of cleanliness in the care of milk.

(8) Poor transportation facilities.

(9) Sick cows.

(10) The cows being in heat.

The following is the English scale of points for judging butter:

Perfection, 100.

Flavor: nutty, aromatic, sweet	25
Moisture: as free from beads of water as possible	20
Solidity: firm, not melting easily, nor softening	10
Texture: closeness of grain, distinct fracture, not greasy	25
Color: natural, even	10
Make: remaining points, cleanliness, salting, nicely put up, etc.	10
	100

The approximate yield of green Cheddar cheese from 100 lbs. of milk may be found by multiplying the per cent. of fat in the milk by 2.7. For cured cheese the quantity may be found by multiplying the per cent. of fat in the milk by 2.6.

The English scale of points for judging cheese are as follows:

Perfection, 100.

Flavor: nutty, buttery	35
Quality: mellow, rich, melting on the tongue	25
Texture: solid, compact	15
Color: natural-like, even	15
Make: remainder due to good making, as cleanliness, salting, perfect rind, etc.	10
	100

The Private Buttermaker.

The question is often asked whether it is more profitable for the individual dairyman to make butter at home or to supply his milk to a creamery, and have it made up on the co-operative plan. As to which plan is the better one to adopt will depend nearly altogether upon the individual himself. Some of our most successful dairymen have been those who have made a specialty of buttermaking, and have had their milk made into a first-class article at home.

There are some advantages that the private buttermaker has over the co-operative buttermaker. He has control of the cows which produce the milk, and also control of the milk from the time it is taken from the cows till it is ready to be manufactured into butter. In fact, he has control of all the conditions, aside from natural ones, that come into play in the care of cows, in the handling of milk, and in preserving it in a pure state for manufacturing; and, if he is a capable man, is able to put skill into his work, and is willing to give particular attention to all the little details connected with the process throughout, he is likely to carry on a more remunerative business than the person who supplies milk to the co-operative concern.

Then, again, the private buttermaker is usually in a position to sell directly to the consumer, which is a decided advantage. If he is able to secure a private customer in some of our large towns and cities who is willing to pay a high price for a good article (and these are not hard to

secure in the larger centres),and he can retain that customer year in and year out, the success of his enterprise is assured.

Many of our most successful dairymen have managed in this way and have made a large profit out of their cows. In 1894 a private buttermaker in Western Ontario realized as high as $70 per cow clear profit, after paying for the cost of feed, etc., for the year. He had a herd of over fifteen cows, and, of course, milked them for twelve months. This is a very large return, and considerably higher than many others have made. During the last year or two the prices have not been so high, and consequently the profits have not been so large. However, to the man who understands his business, and will devote his time and attention to it, there is still profit for the private dairyman at present prices.

It must not be taken for granted that everyone who goes into private buttermaking is going to succeed. Where one will succeed ten will fail, just because they are not cut out for such work. For this latter class the co-operative institution, whether it be a butter or a cheese concern, will be the more profitable one. The average dairyman, in fact, will do better to have his milk manufactured on the co-operative plan. To secure the highest price for butter the quality must be perfect, and the buttermaker in a creamery is more likely, and is in a better position, to produce the required article than the average buttermaker. So we believe the co-operative creamery is better adapted for making up the butter of this country than the means the average dairyman has at his disposal.

Besides, it requires a little capital for the private dairyman to carry on his business for the best. And if he is not in a position to equip himself properly, it would be better for him to join the co-operative concern and have his milk manufactured along with that of his neighbors. This will save the cost of fitting up a creamery, will save the salary of an expert maker, and will do away with a large amount of labor connected with the handling of the cream and the making of it into butter.

The fact must not be overlooked that it was because the butter of this country was made up in private dairies, and therefore was not uniform in quality, that we lost our export trade in butter some years ago and acquired that unsavory reputation as butter producers which has been clinging to us ever since. If all the butter sent across the water had been equal in quality to that of our best private dairymen, the results might have been different. But really first-class buttermakers are scarce, and if we wish to build up a a reputation for our butter, and that is every dairyman's desire, we must get our dairymen to co-operate and have the butter made up after some uniform plan by an expert maker. The co-operative plan is increasing and as it develops the results will be more marked.

Dairy Products for the Fairs.

It is during August that dairy products for the fall exhibitions are mostly prepared. In any line of manufactured food products the greatest care and skill must be brought into power if the exhibitor wishes to excel in the quality of his products and to win the prize.

At all the leading fall fairs there is always plenty of competition in the cheese and butter classes. Not only have the Ontario dairymen to compete with the cheese and buttermakers of their own province, but, at some of the larger shows, with the dairy products from some of the other provinces as well, and especially is this the case in reference to cheese. Last year, at the Industrial Fair, Toronto, there was a large exhibit of cheese from the Province of Quebec and several lots from Manitoba.

The maker who contemplates exhibiting this fall must not take it for granted that the prize can be won by chance. The prize-winners of the past have been makers who have put the best skill and knowledge they possessed into their work,and have not left anything undone in their efforts to make a fine quality of cheese or butter. Nothing comes by chance, and to the making of good butter and good cheese this will apply more forcibly than to anything else. To make cheese or butter for the show the maker must have a definite object in view, and must prepare himself accordingly.

To get the best quality of cheese and butter only a pure flavored, wholesome quality of milk should be used, and every exhibitor should endeavor to get his patrons sufficiently interested in the undertaking to supply him with a perfect quality of milk. When this is secured, the best skill and the best methods the maker can command should be applied in converting that milk into a fine quality of cheese or butter. Particular care should be given to having the flavor pure and the grain or texture perfect, and no cheese should be sent to an exhibition that presents an unsightly appearance. A badly-finished cheese will not stand much of a chance of securing a prize, and will reflect upon the maker's work, and indicate his untidiness and slovenly manner of performing other duties that may devolve upon him.

All exhibitions have an educational value, and this is more particularly the case when products

requiring the highest type of skill in their manufacture are shown. If the exhibitor is successful in securing a prize, he has the satisfaction of knowing that it was won because he was in a position to put more skill and intelligence into his work than his competitors, and he, at the same time, realizes that by putting the same skill and knowledge to work as was put into the making of the first-prize product he can make an equally fine product, and thus the butter or cheese maker who secures the prize can, by applying the same skill and methods, make an equally fine product of cheese or butter all the year round.

Exhibitions have, in some respects, a greater educational value for the man who competes and does not secure the prize than for the man who wins. In the cheese and butter classes at the leading fairs each exhibitor receives a score card, giving the total score, and also the score for each point of quality made by his exhibit. From this he learns in what particular his exhibit has failed to carry off the prize, and knowing the methods he adopted in making his product he can profit by experience, and improve upon his methods when he next attempts to compete. This knowledge, if applied rightly, will also be helpful in carrying on his regular work throughout the year.

Canada is a dairy country, and our exhibitions should, by their numerous exhibits of cheese and butter, indicate to visitors from abroad not only the extent of its greatest industry, but also that the quality is the finest.

The Cheese Markets.

The cheese markets during the early part of this season have been very disappointing. In estimating the conditions affecting the market before the season began, one would have been justified in predicting better prices for this season's make than were obtained last year. As far as could be learned, there was not likely to be so much old stock on hand, the make of the factories was not likely to be so large, and many things pointed toward a return to prices approaching those of a few years back. But when the season got well under way a large quantity of old stock began to show itself, and to turn up on all sides. To such an extent was this true that a large quantity of this old stock was sold at auction in the London market instead of being disposed of in the usual channels of trade.

When the new goods began to go forward the effects of this glut of old stock began to be felt, and, though the new make showed signs of not going to be so large as last year, yet prices did not advance, but remained almost below the line of profit for the producer. The April make, though very small, went off at from 6½ to 7 cents. The May make was not much in advance. In fact, though they showed better quality this year than usual, owing to the early season, they failed to pique the dealers into making any great advance in the price until the latter half were pretty well disposed of, and then they took a little spurt up and advanced to 7¼ and 7⅜. Junes started in with this advance in their favor, but as the make of the first half of the month got about ready for shipping, and the factorymen were ready to sell, the market took a gradual fall, and went back to from 6½ to 6¾, with very dull sale at that. There is, however, a slight advance of from ⅛ to ¼ cent at this week's (July 11th) markets, and 6⅞ to 7 cents are the ruling figures.

These prices are about one cent less than the ruling prices for Junes last year, and it is little wonder that we hear of patrons withdrawing their milk from the factories. From the most reliable sources, it may be safely estimated that only about three-quarters of the cheese will be made this year that was made last season. In view of this decrease one would be justified in predicting considerably higher prices later on, and our dairymen may hope for better things for the fall makes.

The markets, however, do not seem to be responding very readily to this decrease in the make, and one may well ask the reason why. In discussing the cheese markets we have to consider many other conditions than those relating to cheese alone. Other food products must be taken into account. Without exception, every staple article of food is being produced in abundant quantities at the present time, and nearly every country under the sun that has a surplus is endeavoring to secure a market for that surplus of food products in the British markets.

This condition of things is affecting the price of cheese in this country more than anything else, and until the prices of beef, bacon, lamb, and such other commodities take a decidedly upward turn we have no reason to look for any great advance in the price of cheese. The consumer of our cheese is not going to pay a very high price for our cheese if he can get these other foods at a lower price. Canada, however, should be able to produce cheese as cheaply as any other country under the sun, and as we already have the reputation and the lead in the market it will pay us not to relax our efforts in any particular, but to make a special effort to keep the quality up and endeavor to advance the price in thi way.

The City Milk Supply.

Supplying milk to the towns and cities is a very important branch of dairying. The number of cows being milked for this purpose, and the number of individuals who make a living by selling and delivering the milk to various customers, is much larger than many not intimately connected with the trade would imagine. This trade is so large that for many miles around the great centres of population there are dairymen who make a business of keeping cows to supply milk to the city.

This branch of dairying deserves, perhaps, more attention than it usually gets, not merely on account of its extent, but because it has so much to do with the health of many of our citizens. Good, wholesome, normal milk, when taken in a pure unadulterated state, is one of the most nourishing and healthful of foods. But connected with this fact of its being a perfect food there is the fact that its constituents are of such a kind as to furnish one of the very best mediums for the growth of all kinds of germ life. So suitable a medium is it that if pure milk is placed near stagnant water, in foul, filthy stables, or near any place where disease-producing or injurious germs are lurking around, they are absolutely sure to come into contact with the milk and to grow and multiply very quickly, communicating their peculiar characteristics to it ; and if they are disease-producing in their nature will, in all probability, communicate the disease to the individual who takes that milk as a food.

This peculiar characteristic of milk being established, the duties devolving upon the producer and vendor of milk in the cities are of the most important kind. To a certain degree, the health of a great many people will depend upon how he performs them. If he is negligent regarding the care and feeding of his cows, regarding the condition and surroundings of his stables, and is careless regarding the preservation of the milk in its pure condition from contact with sources of injurious germ life, he not only will be unable to supply his customers with a wholesome article of food, but will endanger their health, and perhaps their lives, because of the injurious foreign matter in the milk.

There are certain points that should be strictly observed by all producers of milk, and more especially those who are catering to the city milk trade. All cows kept for this purpose should be examined by a competent individual at regular intervals. They should be supplied with good nourishing food, and nothing that would injure the flavor or quality of the milk should come into their diet.

The strictest cleanliness should also be observed in every detail, not only in connection with the stables and surroundings of the cows, but in regard to the cows themselves. It is surprising how much filth and dirt is seen clinging to cows which are giving milk. Their bodies are sometimes barnyards and manure heaps in miniature. When cows in such condition are being milked this filth will invariably fall into the pail, and become part of the product that will tickle the consumer's palate.

Dr. Backhaus, of Germany, stated, in a recent publication, that, from the results of his examination of the milk supply of Berlin, he estimated that the inhabitants of that city consume daily about 3 cwt. of cow dung in their milk. If this is the case in that country, where scientific training is so highly developed, what would the quantity be where so much attention is not paid to scientific methods?

Cleanliness is a good antidote for all kinds of germ life. All milking utensils should be kept perfectly clean and pure. They should be washed first with lukewarm water, and then thoroughly sterilized by boiling hot water, and, after being scalded, should be placed where they will come in contact with the direct rays of the sun, which is also a good destroyer of germ life. It will pay every producer of milk to devote considerable time to the cooling and aerating of the milk. The latter is almost a necessity if a pure-flavored milk is desired.

There is an important feature of this trade that should not be overlooked, and that is milk inspection. Citizens who purchase milk must have some guarantee that the article they buy is genuine, and is not half water or devoid of any butter-fat. This part of the business is usually managed by the municipalities themselves, which employ an inspector or health officer to test the milk, examine the cows, and see that the citizens' interests are well looked after. This is, perhaps, the best method to adopt, and if the individual employed is competent, and deals justly with all concerned, will give good results and serve the purpose well.

Not long ago, however, in one of our large cities, the milk vendors had a serious grievance against the inspector, who, they claimed, did not do his duty properly. He was charged with favoring certain individuals, and in not having any uniform method of testing. Whether this officer was to blame or not we are unable to say. But there must have been something wrong with the system in this particular case, as the local milk dealers were almost unanimous in their opposition to the inspector. The grievances were

aired before a special committee of the council, and, it is needless to say, whether justly or not, the official is going on in the same old way. We draw attention to this instance with the view of interesting others in this work, and of finding out if the case cited has any counterpart elsewhere. If not, it may be taken for granted that the system of inspection generally adopted is giving good satisfaction. If, on the other hand, such grievances are numerous, the system must be partly at fault, and admits of being remedied. An independent officer, who could be called in to act as arbitrator, or to settle such grievances, might help to make the present system more perfect.

Buckwheat Middlings.

The value of buckwheat middlings as a food for milch cows has been lately tested at the Pennsylvania Experiment Station, and found to be very satisfactory. It proved to be the cheapest by-product that could be obtained. When fed to cattle it has a slight costive tendency, which is easily overcome by feeding it in connection with corn-and-cob meal and new process oil-meal, the following proportions, by weight, being suitable:

3 parts buckwheat middlings.
2¼ parts corn-and-cob meal.
1½ parts new process oil-meal.

This mixture was used for the station herd for three months with entirely satisfactory results. Eight pounds per day per cow was the average grain ration, corn fodder being used for coarse fodder, and on this ration the herd averaged about twenty pounds of milk and 1.2 pounds of butter per cow per day. If ensilage is fed once a day, the oil-meal may be omitted with good results. Buckwheat middlings are palatable, and, when fed in the above ration, no ill-effect was observed on the health of the cows, or of the calves born while the ration was being fed. Not only the amount of milk and butter produced upon this ration, but also its quality, was very satisfactory. The cost of buckwheat middlings ranged from $14 to $15 per ton, and, taking into consideration the large amount of protein which it contains, and its high percentage of digestibility, it proved one of the cheapest concentrated foods obtainable.

Perhaps the by-product which is used most universally among dairymen is wheat bran, many thinking it necessary for the best results. On account of its low percentage of digestible matter and relatively high price, it cannot claim much attention from the economical feeder of to-day The station herd, as above noted, was fed a ration containing no bran for over three months, with satisfactory results, its place being taken very largely by buckwheat middlings.

When and How to Use a Starter in Cheesemaking.

By R. W. STRATTON, Dairy School, Guelph.

Just when and how much to use cannot be definitely stated. It must be determined by the exercise of good judgment. Suffice it to say, that it is better to err on the safe side, by using too little rather than too much. First apply the rennet test, to be sure of the acidity of the milk, before adding the starter. A starter may be used with advantage at all times with gassy milk, and in cold weather when milk is being delivered at the factory very sweet. If it is known for a certainty that all the milk being delivered in the vat is perfectly sweet, a little may be added at the start; but the bulk should always be kept until the condition of the milk has been ascertained by the rennet test. Do not ripen the milk so low, by two or three seconds, when using a starter.

Let it always be remembered that while a good, clean-flavored starter can be used to advantage, a poor flavored one should never be used under any circumstances, as it would spoil the flavor of the whole vat.

Making Fall Cheese and Handling Gassy Milk.

We give below some pointers on making fall cheese and handling gassy milk, by Mr. T. B. Millar, instructor in cheesemaking at the Provincial Dairy School, Guelph:

In making fall cheese, the system is similar to that used in making summer cheese, the following being the only points of difference:

If the milk is working slowly, use some clean-flavored starter.

Use enough rennet to have coagulation take place in from forty to forty-five minutes.

Set the milk so that it will be ready to dip, with one-quarter inch acid, in from two and three-quarters to three hours time after setting.

Keep the curd warm, about ninety degrees, until ready for milling. Mill when the curd becomes flaky, showing one and one-quarter to one and one-half inch acid.

Salt at the rate of two and three-quarters to three pounds of salt per 1,000 pounds of milk,

and put to press at a temperature of from eighty to eighty-five degrees.

Leave the cheese in the press one hour before bandaging.

In the case of gassy milk, note the following points:

The milk should be matured more than usual before setting (some two or three seconds more).

When cutting the curd, be careful to leave the cubes larger, so as to retain more moisture; then stir for fifteen minutes before turning on the steam.

When cooking, heat slowly to ninety-six degrees, raising it to ninety-eight degrees just before dipping.

Dip the curd with one-quarter inch acid, and do not stir much in the sink after dipping.

Turn frequently, at the same time piling the curd three or four deep in the sink; then mill when the curd becomes flaky, showing one and one-quarter inch acid. Air and mature well before salting.

In handling overripe milk, set the milk as soon as possible at a lower temperature than usual, at from eighty to eighty-four degrees; then, as always, make a rennet test. In a case of this kind more rennet should be used, from one-half to one ounce extra per 1,000 pounds of milk.

Commence to cut the curd early, cutting finer than usual, thus enabling you to cook the curd more quickly.

A portion of the whey should be drawn off as soon as possible; and when it can be managed the curd should be dipped with less acid than usual and then well stirred before allowing it to mat in the sink.

Mill early, or when the curd shows three-quarters of an inch of acid, and try to have the curd in a flaky condition at this stage.

Do not be in a hurry to salt a curd of this description; for if it has been milled at the proper time and well stirred, there is no danger of its getting too much acid in the sink.

With tainted milk, heat to eighty-eight degrees and air frequently by dipping or pouring, until the milk is ready for setting. If you have a sharp, clean-flavored starter, it will be an advantage to use a little extra with milk of this kind.

When the curd is heated to ninety-eight degrees draw off a portion of the whey, and just before the curd is ready for dipping raise the temperature two degrees and stir well.

Dip the curd with a small amount of acid, about one-eighth inch, endeavoring to have it in such a condition that it will not require much stirring in the sink, and keep up the temperature to ninety-two or ninety-four degrees until the curd is ready for milling. Mill when the curd is in a flaky condition and shows one inch acid. Air by frequent stirring and mature well before salting.

When making colored cheese, pour the coloring into a large dipper of milk taken from the vat, then draw the dipper quickly along under the surface of the milk from one end of the vat to the other, and make sure that it is thoroughly mixed before the rennet is added.

The rennet should be diluted with one gallon of pure water to each vat, and the milk should be well stirred for from three to five minutes, according to the condition of the milk, after the rennet has been added. In the case of overripe milk, two minutes will be ample time to stir after adding the rennet.

Everything in and about the factory should be scrupulously clean.

For FARMING.

An Old Question Revived.

Among the vast number of agricultural subjects which are being discussed at present there is probably not one of more general interest, or of greater importance, than the question of paying for milk at cheese factories. Those of us who have given the matter any serious study must agree in the conclusion that the time-honored pooling system is not a basis for just dividends to the patrons.

With the advent of the Babcock test, the question of a cheap, simple, speedy, and accurate method of fat determination in milk was satisfactorily answered. By many it was thought that its appearance heralded the death of the pooling system, but not so; the end is not yet. No sooner was the dairy world assured that the test was trustworthy than a new element of unrest appeared. The question arose on all sides, "Is the fat per cent. of milk an accurate measure of its value for the production of cheese?" The replies have been "numerous and varied." Honor to whom honor is due; and we must concede a large measure to those painstaking experimenters who have been seeking for the truth in this matter. Has the truth been ascertained and declared? We do not know, we cannot say just yet. There has been discussion and controversy *ad infinitum*; our scientists have differed. When doctors disagree, what can laymen do but become unbelievers? But we must always be able to point to *practical* results when talking with practical men.

The "result" in this case is that the Babcock test is becoming discredited in many sections; and, further, in these same sections, as a natural sequence, the old system is becoming more firmly entrenched than ever before. The average farmer furnishing milk to a cheese factory has neither the time nor the inclination to study carefully the merits of the different theories which have been propounded. Moreover, he has not usually the scientific knowledge bearing on the case essential to a perfect understanding thereof; and, sad to relate, very often he does not yearn for it. "Fat reading versus fat reading 2 would be just as well understood by many dairymen if written "zero."

The point I wish to make is this. Both of the two methods based on the Babcock reading at present being advocated are much more nearly correct than the old method of pooling. But many factory patrons refuse to believe this, contending erroneously that where there is such a decided difference of opinion among "professors" they will let well enough alone and profit by remaining content with the old plan. Reforms are never very valuable unless they meet with strong opposition. Quite recently, a local cheese magnate stated at a factory meeting that, in his opinion, "the Babcock test was decidedly a failure as a basis for dividends." The new system means greater expense for the cheese manufacturer and more work for the cheesemaker. These two facts may afford a ready explanation of the determined opposition very often shown by these worthies towards it. Their interest is strong until interest on invested capital is secured by the one and wages by the other. They are not much exercised in spirit as to how the remaining anxiety is apportioned.

But some one advances the argument: "In many places the new method, after being tried for a season, has been discarded." We do not deny that this has actually occurred in a few cases, but only in a few. To secure proper results the test must be carefully handled. Very often this is not done. I heard of one factory last season where, for a time after its introduction, the average of error in the fat readings was nearly five per cent. Dissatisfaction is certainly caused by such work as this. But some of the strongest opposition has its origin in a widely different cause. Patrons who have been furnishing milk in large quantity, of poor quality, are very naturally displeased when their returns from a given weight of milk are one-fifth or one-quarter less than formerly. But what about the man who supplies milk high in fat per cent.? There is certainly no grumbling from him.

The harmonious testimony of the factorymen who have the fat system in operation is that, after a time, there is a most decided improvement in the quality of the milk furnished. And is not this one point alone worth something, since more butter-fat means more cheese within normal limits, as well as a better (?) quality in the product? The pooling system actually places a premium upon milk low in fat, since the richer the milk the lighter it is, and weight is the only consideration at the weigh-can of the pooling-system factory.

Many manufacturers contend that a change from the old system is not justifiable until such time as the cheese-eating public will pay for cheese according to the amount of butter-fat in it. This is, to a certain extent, a question to be dealt with by cheese boards. The farmer who furnishes the milk to the factory is, at present, more interested in the fact that there is a certain definite relation existing between the amount of fat in one hundred pounds of milk and the amount of cheese which can be produced from it. As I understand it, the advance step of richer milk, with corresponding higher price, is more of the nature of a bonusing scheme, commendable as it is. It is enough for the patron to know, for the time being, that the amount of fat measures the amount of cheese, and hence also determines, ultimately, the value of the milk from which it was manufactured.

The horizon of the dairy world has, at present, a few ominous clouds looming up. The prospects for the present season are not so promising as we would like, especially so far as cheese is concerned. This is a further argument for supporting those who are trying to place the industry upon the very best business basis. When returns are smallest is certainly the time when every man wants his honest right. In order to show conclusively that this matter is worthy of more than a few passing thoughts, would it not be well to have the direct testimony of some of those who have given the new system a longer or shorter trial?

If the old system is as unfair as many of us believe it to be, the sooner it is abolished the better for all factory patrons. On the other hand, if, as many contend, the new plan of operations is not worthy of adoption by reason of its not being a practical, workable scheme, the sooner this is known and the more quickly we cease to pay any attention to it the better. Let us have more light from men who know whereof they speak.

J. J. F.

Fat of Milk Charred or Burnt—Trouble with Babcock Tester.

Editor FARMING:

A cheese factory manager in Western Ontario writes to know why "the fat, on rising to the top, is not clear, but in a dark condition, as if it was burned. There is very little showing of clear fat in the neck of the Babcock test bottle, and sometimes none at all?" He adds that he is anxious to pay according to the test plan as soon as everything is right in the testing.

From his outline of the plan adopted in sampling and testing, we learn that there are two causes of the trouble, viz., (1) using too much potassium bichromate, and (2) using too much acid. Numerous persons have trouble with the Babcock tester in a similar manner. If potassium bichromate alone be used, what will lie on a ten-cent piece would keep samples for two weeks or more, if the samples are kept in a cool place. Too much of the chromate has a tendency to produce dark, cloudy readings.

We are using a mixture of seven ounces of bichromate to one ounce of corrosive sublimate, and what will lie on a five-cent piece to preserve samples two weeks. A mixture of six ounces of bichromate to two ounces of sublimate would be better. A new preservative called "formalin" is highly spoken of.

Although much has been said and written regarding the Babcock tester, we find that many persons do not yet understand it. The person who had the trouble referred to was using *five drams* of sulphuric acid for each sample when testing. This is too much, if the acid is of proper strength. It would burn the fat. Each user should have a 17.5 c.c. acid measure, and use this amount if the acid is right.

The tester, the making of composite samples, preservatives, and all points relating to the theory and practice of testing milk with the Babcock tester, are fully explained and practised at the Provincial Dairy School, Guelph, which opens for the next session on January 15th, 1897. Every cheese and butter maker ought to avail himself of this opportunity of becoming fully acquainted with the latest and best methods of testing milk. He will learn many other things of value to him.

H. H. DEAN,
Ontario Agricultural College, Guelph.

Milk Fever.

In a recent contribution to *The Dairy*, Mr. Henry A. Howman gives some notes on the use of chloral hydrate for the treatment of milk fever. The recipe was one which was given him by a veterinary surgeon, Mr. Insall, Coleshill, Warwickshire. Mr. Howman states that, whereas for some years he used to lose cattle from milk fever, after adopting this treatment he never lost one. He now keeps the chloral mixture ready at hand, and on the first appearance of symptoms of the disease administers a dose. He lays special stress on refraining from milking a cow affected with milk fever for four meals, as he believes that milking just before or directly after calving is oftentimes the cause of a bad attack of the disease. He has found that heavy milking cows are most liable to it after their third or fourth calf, and that it generally attacks the cow before the fourth day after calving.

The following are the notes referred to:

Treatment before calving.—Shut up for three or four days before calving, but give exercise. Limit the food both in quantity and quality; sweet hay is the best. Give, in one or two doses, in plenty of water—

Epsom salts	1 lb.
Powdered ginger	1 oz.

Treatment after calving.—On no account milk the cow for four meals, but let the calf have the run of the cow, only taking care that the teats are kept clean and sucked level by the calf. If the cow shows signs of going down, give at once

Chloral hydrate	2 oz.
Potash bromide	1½ oz.
Tincture aconite (Fleming's)	15 drops.
Water	sufficient to dissolve.
Treacle	4 lbs.

Every three hours afterwards give

Chloral hydrate	3 dr.
Liquid extract of belladonna	2 dr.

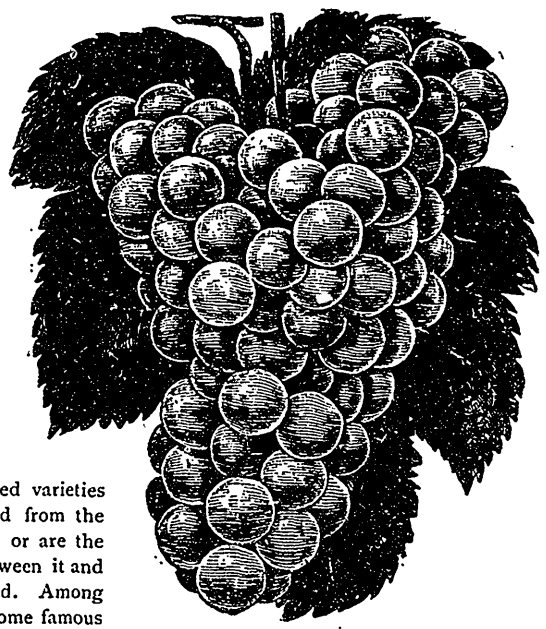
in treacle, and water sufficient enough to dissolve the treacle. Repeat this two or three times.

Stop giving the medicine directly the cow shows signs of recovery. When down, the cow must be propped upright on her breast in a comfortable position with bundles of straw. Twist a roller towel round the horns, and keep it wet and cold. The cow must not be left night or day.

HORTICULTURE

The Cultivation of the Grape.

The fruit of the vine has been known and enjoyed by the human race from time immemorial. The most ancient records contain references to it. It constituted one of the most important branches of production in Palestine, where, as the ancient parable tells, it vied for supremacy with the cedar, the olive, and the fig. It was the grapes of Eshcol that indicated to the encroaching Hebrews the wealth of the Promised Land. The Phœnicians introduced the vine into Greece, Italy, and Southern Gaul. Gradually it extended over the entire area of France, in which country it has long since been cultivated in its highest degree of perfection. In America the grapes of the old world do not flourish east of the Rocky Mountains. Our cultivated varieties are either developed from the native wild grape, or are the result of crosses between it and some European kind. Among those who have become famous in producing in this way new varieties suitable for growth in America the best known is Mr. Rogers, of Salem, Massachusetts.



Grapes.

A soil in good cultivation and of good fertility, sloping towards the south and east, is the best home for grapes. Every country schoolboy knows that one must look for wild grapes along the margin of the creeks, and the inference can easily be drawn that grapes require a good deal of moisture. But close observation will show that the roots are not in stagnant water. Drainage is as essential to grapes as to any other fruit crop. The grapevine is a gross feeder. Blood and bones, old shoes, kitchen water, barnyard manure, ashes, may be freely applied to the vineyard. The roots should have ample room, for the great growth of foliage and fruit and new wood that the . puts forth annually, requires an extensive root system. Eight feet apart in rows ten feet distant is the general rule followed in planting, though some varieties, of more dainty habits of growth than others, such as the Delaware, may grow closer. After taking pains to have the spots where the vines are to be set marked with mathematical accuracy, care should be taken to spread the roots as much as possible in each hole. Well pulverized surface soil should be put next the roots, and the ground about should be made thoroughly firm. Cut the vine back to three buds when planting, and when growth begins preserve only the strongest shoots, pinching the others off early.

Two-year-old vines are most usually planted, but if one is not so anxious about having fruit early a good one-year-old plant is more desirable to set. There is not so much loss of root, and the vines start into more vigorous growth.

Constant and thorough tillage is absolutely necessary in a vineyard, and if this is given there is no more certain crop in the orchard or garden. A hoed crop may be grown in the vineyard the

first year, but not after, and additional fertilizing should be given to make up for loss of food material. The soil of a vineyard should be frequently stirred, but not so deeply as to touch the roots. All the moisture possible should be conserved in the soil, for, as already intimated, the grape needs a great deal. No weeds should be allowed in the vineyard.

The first year of growth should be directed to obtaining as good and stable a root system as possible. To that end, no summer pruning is desirable, and the vine may be allowed to grow at will or may be trained temporarily to a stake. If that system of training is followed which consists in having the main trunk running parallel to the ground on the first wire, then at the end of the first year the cane should be cut back, leaving three buds, two of which are allowed to grow the second year. These are trained as before to a temporary stake, and the lateral shoots on them should be pinched off after three leaves are formed. If the Kniffen system is to be adopted the growth of the vine should be as yet directed perpendicularly in one main stem.

The third year should begin the training of the vine. The Kniffen system is the one now most generally followed. It is well adapted to large vineyards. Two wires are used, the vine trunk being carried to the top wire and there separating in two canes, one running along the wire to the right, the other to the left. Similar but smaller canes grow outwards along the lower wire. The fruiting branches are not tied, as the weight of the fruit bends them downwards.

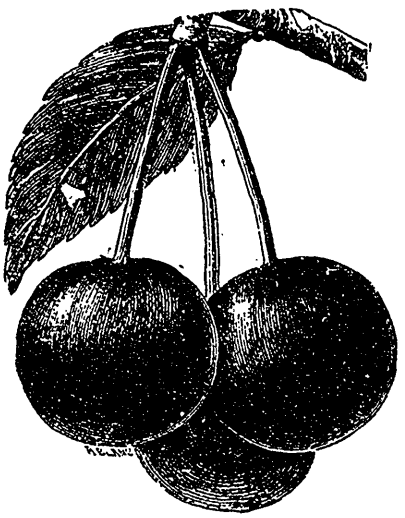
The best time for pruning is in early winter before the vines become frozen. In summer, lateral branches are pinched off, in order to concentrate the vigor of the vine upon the development of the fruit.

The grape is a healthy and independent grower, not yielding readily to enemies. But there are two kinds of fungous diseases that often destroy the fruit and greatly impair the vitality of the vine. These are commonly called powdery mildew and black rot. Where few vines are grown the fruit may be tied in small paper bags as soon as the bloom has fallen. The Bordeaux mixture, however, is an effective remedy against both diseases. The dilute form is recommended, namely, 2 lbs. of lime and 2 lbs. of copper sulphide. But five applications in the early part of the season will often be required.

The varieties to be planted vary according to conditions of soil and climate. Each prospective amateur will have to consult a reliable local nurseryman or fruit-grower. Of the black varieties the standard is the Concord, the best for general purposes and the widest known of all American grapes. Moore's Early and Worden are also fine varieties. Of the white, the Niagara is the popular variety, and is well deserving of all its popularity. Moore's Diamond, Jessica, and Pocklington are also recommended. Of the red kinds, the Delaware is the favorite, but the Salem and the Brighton must not be omitted. The Vergennes, also, is a late and prolific variety, and keeps till far on in the winter.

Cherries.

Fruit-growers have been agreeably surprised a the high prices realized this year for cherries. Eating cherries have sold from $1.25 to $1.50 per basket, and the sour varieties have remained in



Cherries.

the neighborhood of $1.00. Yet the crop was never better in the Niagara district than it has been this year. Cherry trees are becoming scarcer every year throughout the country where fruit-growing is not made a specialty. Towns and villages have not been able to secure their supplies from local sources, and have had to draw from more distant centres; so that the fruit-growers of the Niagara peninsula are having a wider and more distant market to supply with this luscious and indispensable fruit.

The reason of the growing scarcity of cherry trees is not far to seek. Black knot is slowly but surely killing them off. A number of years ago almost every farm had a row of cherry trees along the garden fence, but the black knot appeared, and was neglected, until now a cherry tree is a rarity where once it was a common sight.

Such a state of affairs is all the more to be deplored because it could have been so easily prevented. In districts where cherry trees are most plentiful, and where the habits of the trees are best known, black knot is a source of very little concern, as it is so easily kept down. It is one of the least of the troubles that fruit-growers have. Pear blight and apple scab, the curculio, the codling moth, and the aphis are to be dreaded; but the black knot needs only to be watched for. All that is necessary is to examine the cherry or plum trees carefully in early winter and cut out every affected branch, with a couple of inches of sound wood below the knot, and burn carefully all that has been cut out. Early winter is the best time of the year to cut out the black knot, because it is more readily seen, because there is more time to do the work systematically, and because the spores of the fungus are scattered abroad in mid-winter. But by all means cut out and burn any appearance of the disease at any time of the year in which it may be seen. To one who has always been careful in this regard, a few hours' work over a large orchard suffices yearly; but this fact one who proposes to grow cherry trees had better realize at the outset, that if the black knot is neglected it will destroy in the end every cherry tree which it can reach.

Raspberries.

Good prices have been obtained this year for red raspberries. The continued dry weather has made them in many places a rather scarce crop; yet, upon the whole, they have been fairly abundant, and, consequently, very remunerative, in the gardens of those who have attended with care to their cultivation. Red raspberries and strawberries are always sure of a good market. Public taste never seems to tire of them. This year gooseberries and red currants soon reached the level of demand, and then flooded the market, so that much of them had to be sold at prices that did not pay for the labor of growing and the cost of shipping them. But rarely do we hear of red raspberries and strawberries failing to bring good returns to the grower.

Raspberries should be planted as early as possible in the spring. They are particularly grateful for good conditions of growth. The soil must be well drained and in thorough cultivation. It is time and labor lost to plant raspberries in low, damp soil. If the plants are not killed outright by the surface water in spring, they are very liable to be attacked by a fungous disease called anthracnose. Raspberries can stand a strong, rich soil; and a free intermixture of well-rotted barnyard manure in the raspberry bed is desirable. Wood ashes, also, may be scattered liberally over the surface.

It is better, for the sake of cultivating the soil, to grow the raspberries in hills rather than in rows. The plants may be set in holes five feet apart, and the soil should be kept constantly stirred. One good feature of the cultivation of red raspberries is that the plants can be obtained so easily and cheaply. They are propagated in great abundance from underground branches or suckers, that take root and appear as separate plants in all directions around the parent plant.

The Cuthbert variety is the standard one, and for a combination of good qualities it is as yet unsurpassed. The Marlboro is earlier, and is also highly recommended. Shaffer's Colossal is a good canning variety.

China Asters.

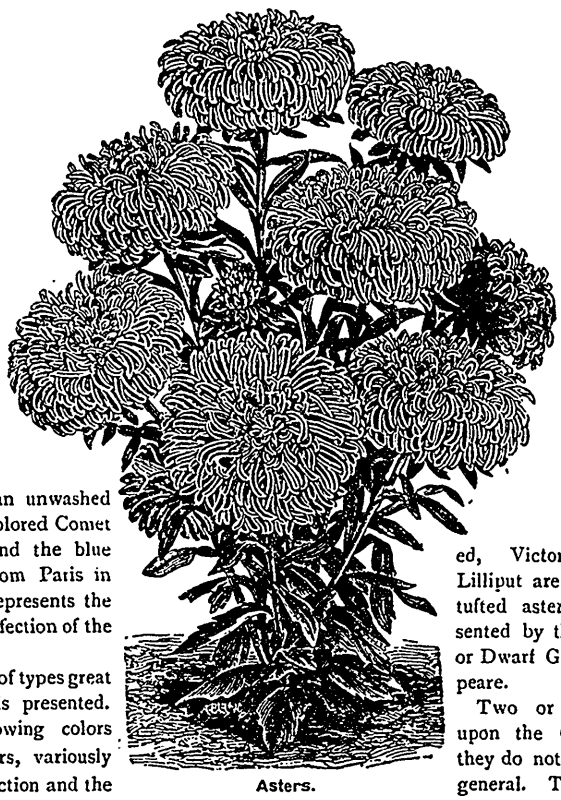
China asters are among the best of our annual garden flowers. They are easy of cultivation, free in bloom, and comprise a multitude of forms and colors. They are, therefore, admirably adapted for profuse effects in any scheme of flower-planting. They are grown without the aid of glass, and attain their best bloom late in the season, from the end of August till frost appears, when many of the annuals and almost all the perennials are spent and gone. No garden flowers carry such a profusion of bloom and color during the closing of the season.

The evolution of the China aster suggests that of the chrysanthemum at almost every point. It is a native of China, as its name implies. A Jesuit missionary first introduced it into Europe early last century. At that time it was a single flower; the rays of florets were of two to four rows—blue, violet, or white in color. The centre of the flower was composed of very numerous tubular yellowish florets.

The China aster has been developed most successfully in Germany; the seed which we now use comes largely from that country. The first marked departure from the original type consisted in the prolongation of the central florets of the head, and the production of the quilled flower. Some forty or fifty years ago this type was very popular. The dwarf varieties also began to attract attention about this time. But nowadays the quilled high-centred flower of a generation ago is too stiff, and the flat-rayed, loose, and fluffy varieties are most in demand, and their popularity is usually greater the nearer they

approach the form of the uncombed chrysanthemum.

In color China asters have long since obtained the limits of their widest range; the modern evolution of the plant is in the direction of habit and form of flower. Some type varies, suddenly and without apparent cause, into some novel form, retaining, however, its normal color. The "sport" becomes a fixed variety by the florist propagating from its best and most stable specimens. Soon other colors appear, until finally the entire range is obtained. So it happens that there are various well-marked races or types, each with its full and independent array of colors. The Comet type, the most admired of asters, appeared on the market about 1887, with a flower of a full white overlaid with pink. The pink tended to fade out after the flower opened, leaving the color an unwashed white. The rose-colored Comet next appeared, and the blue was introduced from Paris in 1892, and this represents the highest artistic perfection of the China aster.



Asters.

In such a range of types great variety of choice is presented. For deep and glowing colors the Truffaut asters, variously known as the Perfection and the Peony-flowered, are recommended. They have a beautiful pyramidal habit, and a comely, high-centred, incurved flower. In this type the shades of red are most admired. The Comet asters are usually given first place in a collection. Their habit is dwarf and compact. Their great merit lies in the flat, long, soft, spreading rays, which give the flowers a freedom and novelty of outline not found in any other aster.

China asters are easily raised. If early flowers are wanted, or if the plants are to be grown in pots for exhibition, the seed should be sown indoors, or in a frame, as early as the middle of April. But, if the plants are to be grown in borders, it is quite as well to sow the seed in the ground where the plants are to grow. The China aster is essentially an autumn flower, and should not be forced into competition with midsummer flowers. They may be sown as late as the middle of June, if the soil is good and the plants are carefully watched. Besides the Comet and the Truffaut varieties, the Semple, Washington, Victoria, Mignon, and Queen of the Market are excellent kinds to grow. The last is early and of very graceful outline, and is one of the best for use as cut flowers. The Crown, also, is odd and attractive. Amongst the quilled asters the various forms of German quilled, Victoria, Needle, and Lilliput are esteemed. Dwarf-tufted asters may be represented by the Dwarf Bouquet, or Dwarf German, and Shakespeare.

Two or three insects prey upon the China asters, but they do not appear to be very general. There is a rust, or fungus, which is a much more serious difficulty. It attacks the underside of the leaf, and raises an orange-colored pustule. Timely spraying with a copper fungicide will keep this disease in check. The ammoniacal carbonate of copper is better than the Bordeaux mixture, for the latter discolors the plants. Spray the underside of the leaves especially.

Swarming of Bees.

When honey is the sole object, I have always obtained the best results by allowing my best colonies to cast a swarm, if reasonably strong, says a writer in the Philadelphia *Record*. It is true we cannot count largely on swarms if we hive them in empty hives, but to receive the best results we must use either empty combs or foundation instead. The swarming limit should extend to first swarms only, as there can be no advantage in after-swarming. Second swarms often do well, but it weakens the parent stock to such an extent that it is not profitable. In hiving swarms be certain you have the queen inside the hive. If you have not discovered the queen in hiving, see that all the bees are in the hive. A small cluster of bees left on the outside may contain the queen, and, if so, they are liable to swarm off again, and may leave you for good.

After hiving, give them an abundance of ventilation, either by enlarging the entrance or shading the hive from the hot rays of the sun, or both, and especially if the swarms are large. In swarming, bees fill themselves with honey to the utmost limit. Hence more ventilation is required than at any other time. It is always an advantage to give the swarm a frame of brood from some other colony to commence housekeeping on. Never allow a swarm of bees to remain long after settling, but hive them as soon as possible. Swarms often return to their hives after issuing. This is evidence that the queen has not taken wing with them, and she may be found crawling about the hive, having bad wings and being unable to fly.

Taking Honey from Bees.

Many have trouble in taking honey from their bees. S. T. Pettit gives his plan in the *Canadian Bee Journal*, as follows:

"This is the way I do it now: First, give a couple of smart whiffs of smoke in the entrance, then blow smoke smartly under the quilt, and the bees will rush downwards, then remove the quilt or cloth, and, for a moment, rush the bees down with smoke. Now is your opportunity; lift the combs out quickly, and shake off what bees you can quickly, and lean the combs against the back part of the hive or any other convenient thing, or place them in a light box for the purpose. Now, keep on a hustle, and, as soon as the last frame is out, drop in and adjust your empty combs and close up the hive. Now, see, all this must be done before the reaction or return of the bees sets in, and your bees are still in good humor, and their zeal for gathering honey is not decreased by the presence of those empty combs, and everything is all right.

"The process of brushing the remaining bees from the comb will be found pleasant and easy, for by this time they feel lost and lonely, and they are in no mood for self-defence. I had rather remove the filled combs, and replace them with empty ones, than adjust and remove a bee-escape. And then I fancy that the bees being crowded in the brood chamber, and the consequent excitement caused by the bee-escape, would work up swarming-fever.

"I go right on with this work in the robbing season. I place the robber-cloth over the comb box, and just when commencing operations I fill the box with smoke; this keeps the robbers at bay. At such seasons I have an assistant to keep the air over and about the hive pretty full of smoke."

Liquefied Honey.

The following query was answered not long ago through the columns of *The American Bee Journal*: "After candied honey has been liquefied by heat, is it inferior to its former quality?" This query elicited twenty-five replies. Four of these were a plain "no" without any qualifications. Two answers were to the effect that the quality is injured somewhat by heating. The majority seemed to think that if the liquefaction is carefully done at the lowest possible temperature it does not affect the quality of the honey.

Will Barnum said: "I have never detected any difference in the quality, but it is quite probable that too much heat would be detrimental." J. M. Jenkins replied: "No, unless overheated. It is not necessary to cook or boil it to liquefy honey, and care should be taken to use only enough heat (hot water) to attain the desired result." C. H. Dibbern said: "I think not,

Giant East Indian Honey Bee—Worker.

unless the heat is up to about the boiling point." J. M. Hambaugh's answer was: "No, not necessarily. The flavor is often injured by allowing it to become too hot."

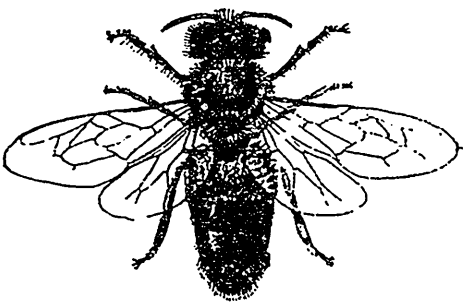
G. W. Demaree wrote: "The honey will not be injured if melted under glass by the heat of the sun. Put your candied honey in small, bright tin buckets. Set them in a shallow box, covered with glass (like a solar wax extractor), put the lids loosely on the buckets. In this way you may melt one hundred or more pounds each clear day, and the delicious odor of new honey will apparently be restored. I use my solar wax extractor to melt candied honey, and it does the work well."

Allan Pringle expressed the opinion that honey was at its best a few days after being extracted, when it was fully ripe. No matter how ripe the honey was when extracted, he thought the taste was improved somewhat by allowing it to stand exposed in a warm, dry place for a short time. It lost the pungency to some extent, without deteriorating in flavor. "On the contrary, when candied honey is liquefied, it should not be left exposed at all, but sealed up tight at once while it is hot. The exposure in the one case improves it, while in the other it deteriorates it. If the honey has been properly handled from the start, and is liquefied right and put up at once, as above, it will be nearly as good as ever, but not quite. The flavor may be about as good, but that fragrant aroma is partially lost."

The Giant East Indian Honey Bee.

The two illustrations on this page represent a worker and drone, respectively, of the Giant East Indian Honey Bee, which has its home in the far East, both on the continent of Asia and the adjacent islands. There are probably several varieties of this species. All the varieties build huge combs of very pure wax—often five to six feet in length and three to four in width, which they attach to overhanging ledges of rocks or to large limbs of high trees in the forests and jungles. Strange stories are told of these bees. It has been stated that they build their combs horizontally; that they are so given to wandering as to make it impossible to keep them in hives; and that their ferocity renders them greatly to be dreaded. Mr. Frank Benton, however, of the Department of Agriculture, Washington, in his visit to India, found out that these stories were not true.

Their combs are always built perpendicularly. They do not desert hives, and, far from being ferocious, they are easily handled, even without



Giant East Indian Honey Bee—Drone.

smoking. They are also good gatherers of honey.

These large bees would no doubt be able to get honey from flowers whose nectaries are located out of the reach of ordinary bees, such as red clover, and might pollinate and cause it to produce seed more abundantly. Unfortunately, owing to Mr. Benton's severe illness, contracted in India, he was unable to procure any of these bees and bring them back with him. It would be interesting to know whether they would live and be of any benefit to this country.

RECENT INVESTIGATIONS

Skim Milk for Milch Cows.

From Germany comes the report of a practical experiment showing that skim-milk may be fed to milch cows with advantage. One pound of concentrated feed (wheat and rye bran) was found to about equal ten pounds of skim-milk. The milk must be fed gradually, thinning it with water, or feeding it mixed with concentrated feeds.

Effect of Changes in Stable Routine.

North Carolina Station Bulletin 116 reports the effect on cows accustomed to being fed before milking of not feeding them at that time. One cow that commonly gave 7⅜ pounds of milk per day gave only one pound at a milking; the next milking was larger, but did not make up for the loss. Another cow, whose milk tested from 3.6 to 4.4 per cent., gave milk containing only 1.6 per cent. of fat when grain was not given before milking. This illustrates the great need of regularity in all things pertaining to the management of cows, and no doubt lack of attention to small things is costing many a man the greater part of the profit from his dairy.

Angus vs. Shorthorn.

Bulletin 28 of the Iowa Experiment Station reports two feeding trials with ten animals of each breed. No marked difference in the gains made were observed. At the close of the experiment the animals were all sold and slaughtered. Each lot brought $5.65 per 100 lbs. The meat was cut up and priced by an expert, but no marked difference between the two breeds was observed. The author concludes that, from the standpoint of feeding for beef, the two breeds differ very little. A comparison of pasturage with and without grain was made with two lots composed of five animals of each breed. The addition of grain was not found profitable.

Formalin as a Milk Preservative.

S. Rideal reports favorably on the use of formalin as a milk preservative. He found that one part of formalin to 10,000 of milk kept the milk fresh for seven days. The formalin used for preserving milk in the trade he found to contain five ounces of pure formalin to the gallon. Of this, one-half pint was used to seventeen to eighteen gallons of milk. This quantity does not impart any taste or smell to the milk, even after boiling. He considers it much to be preferred to borax or boric acid, seeing that the quantity used is so much smaller. He states that he has never known any injurious effects from its use, and that he has frequently drunk the one per cent. solution.

Wheat Smut.

A very simple method of treating smutty wheat is described in Bulletin 46 of the Minnesota Experiment Station. The method is as follows: Dissolve one pound of copper sulphate in two and one-half gallons of water. Spread out ten bushels of wheat on a tight floor and sprinkle the solution over it. With a shovel, turn over the grain several times during sprinkling until every kernel is thoroughly wetted. The solution needs to penetrate even the hairs at the blossom end of each kernel, and also the crease of the grain. The sprinkling should be done only a few hours before sowing, as the copper sulphate is liable to injure the grain. It is almost as effective as the dipping methods, and more easily performed.

Zinc in Evaporated Apples.

In many European markets the consumption of American evaporated apples is either restricted or prohibited on account of the supposed contamination of the product with zinc. The United States Department of Agriculture has investigated the matter, and Bulletin 48 reports the results of investigation.

In samples of American evaporated apples, weighable quantities of zinc have been found in nearly every instance in which the drying was accomplished on galvanized iron wire trays. It is recommended that pure aluminium or well tinned iron wire should be substituted for the galvanized iron, and that bronze cutting instruments should be excluded and steel substituted.

Although the amount of zinc in the apples was very small, it is believed that it would pay factories to make the suggested changes in order to place the goods above suspicion.

The Food of Woodpeckers.

Bulletin No. 7 of the United States Department of Agriculture contains a report of investigations relating to the food of woodpeckers. Six hundred and seventy-nine stomachs were examined, representing seven species—the downy woodpecker, hairy woodpecker, flicker, red-headed woodpecker, red-bellied woodpecker, yellow-bellied woodpecker, and pileated woodpecker. The downy woodpecker is considered to be of the most economic value. All the woodpeckers were found to eat grasshoppers, the red-head eating the largest percentage. The advantage to farmers and to granaries from the insectivorous tastes of woodpeckers is insisted upon.

Crow Blackbirds, Hawks, and Owls.

The United States Department of Agriculture Year Book for 1894 contains some interesting information regarding the birds mentioned above. The contents of the stomachs of 2,258 crow blackbirds were examined, and the results go to show that the crow blackbird is a beneficial rather than an injurious bird. The popular belief that they are nest-robbers was not sustained, as only 37 of the stomachs examined contained remains of eggs. It is the belief of the writer that, though crow blackbirds may cause considerable injury at times when they collect in large flocks, the damage is more than balanced by their destruction of injurious insects, and that they should not be indiscriminately destroyed.

Regarding hawks and owls, a protest is entered against the prejudice commonly existing in regard to birds of prey, and it is shown that the majority of them are not only harmless, but positively beneficial to farmers by destroying injurious mammals and insects. Among the harmful birds of prey are included the gyrfalcon, duck hawk, sharp-shinned hawk, Cooper's hawk, and goshawk.

Muriate of Potash as a Fertilizer.

C. A. Goessmann, of the Hatch Experiment Station, Mass., reports some experiments with muriate and sulphate of potash. Both are reported upon favorably as potash fertilizers, but the muriate of potash appeared to reduce the lime content of the soil, and to cause an unhealthy growth of vegetation where it had been used for a number of years. The injurious action of muriate (chloride) of potash apparently consisted in rendering the lime compounds of the soil soluble, and thus causing a loss of lime in the drainage water. The application of slacked lime, at the rate of from 500 to 600 lbs. per acre, remedied the evil and produced a healthy growth of vegetation.

Muriate of potash is regarded as a safer source of potash upon deep soils with a free subsoil than upon shallow soils with a compact clayish subsoil. On the latter soils there is danger of an accumulation of chloride of lime and magnesia near the roots of plants, both of which have an injurious effect. On the more open soils these compounds, being soluble, are drained out of the soil. For shallow soils, sulphate of potash is a safer fertilizer.

Composition of Milk.

It is well known that the composition of cow's milk varies very widely, and that it is very difficult to obtain reliable figures regarding the average composition of milk of the different breeds. Bulletin 36 of the Hatch Experiment Station contains figures representing the probable average composition of the milk of different breeds. It must be borne in mind, however, that individuals of the different breeds will vary very widely from the averages given, and that any figures regarding this matter can be only approximate. Following are the averages as given in the bulletin:

Average cow's milk:

Water	87 per cent.
Fat	4 "
Casein and albumin	3.2 "
Milk sugar	5.1 "
Ash	0.7 "

A different manner of stating the composition would be:

Total solids	13 per cent.
Fat	4 "
Solids not fat	9 "

Average composition of milk of different breeds:

	Total Solids. Per cent.	Fat. Per cent.	Solids not Fat. Per cent.
Holstein	11.8	3.2	8.6
Ayrshire	12.5	3.7	8.8
Shorthorn	12.9	3.8	9.1
Devon	13.4	4.4	9.0
Jersey	14.7	5.0	9.7
Guernsey	14.7	5.0	9.7

Publishers' Desk

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

W. W. CHAPMAN, Representative for Great Britain and Ireland,
Fitzalan House, Arundel St., Strand, LONDON, ENG.

To Facilitate Registration.

For the accommodation of those who wish to make entry of their animals, Mr. Henry Wade, registrar of live stock, Parliament Buildings, Toronto, will have an office in the Provincial Government tent at Toronto, London, and Ottawa, where pedigrees of all classes of stock will be received.

Montreal Provincial Exhibition.

The date selected for the Montreal Exhibition this year is from September 11th to 19th, and it is confidently expected that a large increase of entries will be made as the classes have been revised and improved. No one who was present last year can fail to remember the magnificent display of Ayrshire cattle, perhaps never excelled in any country, which surprised all who saw them. It is probable that it will be even better this year, while other classes of live stock promise exceedingly well. A large number of special prizes are being offered, and everything is being done to draw forth a first-class exhibit. Dr. W. Seward Webb, Burlington, Vt., will exhibit a number of his valuable Hackneys, which will in themselves prove a valuable attraction. Those who have not yet received a prize list should apply at once to Mr. S. C. Stevenson, manager, Montreal.

The Western Fair.

The Great Western Fair in London, Ont., which is to be held from September 10th to 19th, is sure to take a leap forward in the number of exhibitors and visitors, should the weather prove as favorable for them as in the past twenty-nine years. The new buildings, which have been erected by the citizens of London, are worth a visit to the fair to see. They are constructed on the very best improved plans after careful inspection. They are without obstructions to the view, all having circular bents, abundance of light, and are especially well arranged for ventilation, and have every necessary accommodation and convenience for animals and exhibitors. The buildings, in the first place, form the fence on the west, south, and east sides to the Queen's Park or Exhibition grounds. The cattle, sheep, and swine building is 735 feet long and 52 feet wide, with five towers, and will furnish ample accommodation for 1,600 animals, the entire number being visible from the centre of this building. The machinery and agricultural hall is 400 feet long and 60 feet wide, fitted with lines of shafting to drive the exhibits. It is built the same length, parallel to and adjoining the G.T.R. platform; therefore there will be no trouble with heavy machines. The carriage building is very fine, 180 feet long and 60 feet wide, also adjoining the railway, and without a single post to obstruct the view. The horse barn is 1,110 feet long, with three large towers. It has box stalls on one side and single stalls down the other. Every care has been

taken for light and ventilating, and the comforts of the exhibitors in this building have been well looked after. The poultry building is the best of the kind, and furnished throughout with light, airy wire coops, of all sizes, to suit the requirements of the different kinds of poultry and pets. The double-decked grand stand, 300 feet long and 45 feet wide, will greatly increase the pleasure of witnessing the special attractions and fill a long-felt want. The rest of the exhibition buildings are being remodelled and arranged so as to keep abreast of the times, and everything points to a most successful fair.

Ontario Fat Stock and Dairy Show.

The representatives of the live stock and dairy associations of Ontario met at the Agricultural College, Guelph, June 25th, for the purpose of organizing the Provincial Fat Stock Club for 1896, arranging the prize lists, and deciding where the fat stock show should be held this year. The representatives present were: For the Dominion Cattle Breeders' Association—Messrs. John I. Hobson, David McCrae, Prof. G. E. Day, Guelph. Sheep Breeders' Association—Messrs. James Tolton, Walkerton; D. G. Hanmer, Burford. Swine Breeders' Association—Major G. B. Hood, Guelph; Mr. J. C. Snell, Snelgrove; Mr. J. E. Brethour, Burford. Dairymen's Association of Eastern Ontario—Messrs. H. Wade, Toronto; R. J. Murphy, Elgin. Dairymen's Association of Western Ontario—Mr. J. W. Wheaton, London. Mr. Tolton officiated as chairman.

In revising the prize list $500 was allotted for dairy cattle and $750 for the beef breeds. Herefords and Polled Angus will show in the same class, and Galloways and Devons will also be classed together. The prize list as rearranged for the dairy classes is now as follows:

	1st.	2nd.	3rd.
Shorthorn, 36 months and over.....	$25	$15	$10
" under 36 months.....	25	15	10
Ayrshire, 36 months and over.....	25	15	10
" under 36 months.....	25	15	10
Holstein, 36 months and over.	25	15	10
" under 36 months.....	25	15	10
Jersey and Guernsey, 36 months and over.....	25	15	10
" " " under 36 months	25	15	10
Grades, 36 months and over.....	25	15	10
" under 36 months.....	25	15	10

The two newly-arranged beefing classes, which formerly offered no prizes for heifers, now allow them to compete with steers in each of the three sections of each class.

A few changes were made in the general rules and regulations. All entries made before two weeks previous to the show will be received, as last year, at the regular price. All entries made during the following week will be charged double fee. No entries will be received after December 2nd. All exhibitors of purebred cattle must be members of the Dominion Cattle Breeders' Association. The exhibition will open for the meat breeds at 8 o'clock, December 8th, and close at 12 o'clock, midnight, at the close of December 10th. No animal shall be removed from the show until the close of the same. All except dairy cattle are given till 12 o'clock Tuesday, December 8th, to reach the grounds.

It was decided to conduct a 48-hour dairy test. Exhibitors of cows may use their own discretion whether they milk them twice or three times a day. The cows milked twice a day shall be milked out cleanly in the presence of the judges at 6 o'clock p.m. Monday, December 7th, the test to close at the corresponding hour of Wednesday. Those milked thrice a day shall be milked out in the presence of the judges at 9 o'clock on the evening of the 7th, the test to conclude at the corresponding hour of Wednesday.

The dairy judges appointed are Prof. Dean, of the O.A.C. Dairy School; Mr. J. W. Wheaton, secretary of the Western Dairymen's Association; and Mr. R. G. Murphy, secretary of the Eastern Dairymen's Association.

For beef cattle the judges are Messrs. Thomas Crawford, M.P.P., Toronto; James Smith, Brantford; and James Russell, Richmond Hill, who will be the reserve judge.

The following special prizes have been contributed: By the Shorthorn Breeders' Association, as reported in our last issue; the Thom Manufacturing Company, of Watford, have promised a corn cultivator, value $10; the Wilkinson Plow Company, Toronto, offers a $15 plow; W. H. Heard & Co., of London, place at the disposal of the association one of their Spramotor outfits; and Mr. W. C. Edwards, M.P., Rockland, offers $20 for the best Shorthorn.

The officers elected were: President, Mr. J. I. Hobson; vice-president, Mr. James Tolton; secretary-treasurer, Mr. F. W. Hodson; associate-secretary, Mayor G. B. Hood, Guelph. Executive—President, vice-president, and secretary-treasurer. Committee on Cattle—The representatives of the Cattle Breeders' Association, with the name of Mr. Arthur Johnston, Greenwood, added. Sheep—Representatives of the Sheep Breeders' Association present, with power to add to their number. Dairy — Representatives of the association and Prof. Dean. Committee from the College—Dr. Mills, Prof. Day, Mr. Rennie, and Superintendent John McCorkindale.

A discussion arose over where the show would be held this year. Deputations from Brantford and Guelph were present, and set forth their claims. The chief argument urged by Brantford was that as the show was a provincial concern it should be moved around. On behalf of Guelph it was claimed that the excellence of the accommodation and the great success of the show in the past warranted the associa..

tion in again locating the exhibition in the Royal City By a vote of 6 to 4 it was decided to hold the show in Guelph on December 8th, 9th, and 10th.

A committee of two from the Council and two from the Board of Trade and four from the Fat Stock Club were appointed to act with the committee of the Fat Stock Association in connection with furthering the interests of the show.

Jottings.

Oxford Down Flock Book.—Volume 8 of the English Oxford Down Flock Book has been received from the secretary, Mr. R. Henry Rew, Norfolk House, Norfolk street, London.

Southdown Flock Book.—The Southdown Sheep-Breeders' Association of England have just issued Volume 5 of their flock book, a copy of which has come to hand from the secretary, Mr. W. W. Chapman, Fitzalan House, Arundel street, Strand, London.

Bath and West of England Society's Report.—Vol. 6 of this excellent society's report has come to hand. As usual, many of the articles are devoted to dairying, including one on "Dairying in Denmark." The whole report is instructive and interesting.

Fall Wheat.—Messrs. John S. Pearce & Co., London, Ont., are out in this issue with an advertisement of fall wheat for seed. Among the varieties are Early Arcadian, Oatka Chief, Genesee Giant, Dawson's Golden Chaff, White Leader, Helena, and others. This firm's bulb and fall wheat catalogue will be ready for mailing on August 15th. Send for one. They are a very reliable house.

Highland Society's Report.—We have received Vol. 8 of the above report, which includes index to Volumes 1 to 7. Among the interesting articles to be found in it are one on the utility or otherwise of pigeons, rooks, and starlings to the agricultural interest, which proves that the two former are injurious and the latter harmless as regards the farmer's crops. A chapter on Shorthorn history by Mr. William Parlour is illustrated with eight pictures of early types of the breed.

A Wool-Growers' Quarterly.—Mr. Frank P. Bennett, one of the vice-presidents of the National Association of Wool-Growers, will issue in July the first number of the bulletin of the National Wool-Growers' Association. It will be a neat pamphlet of about 200 pages, containing articles on the agricultural and practical aspects of wool-growing, as well as a clean-cut exposition of the needs and duties of the industry in regard to national legislation. The subscription price for the first year is one dollar, and office of publication is 29 Corcoran Building, Washington, D.C.

Central Canada Exhibition. — The official programme of the Ottawa Exhibition for 1896 indicates a great improvement over the shows of previous years, not only in the prize list and accommodation, but also in character and variety of entertainment. The association will have splendid value to show for the $40,000 expended in new buildings and in improvements to the grounds. The horse and cattle stables are constructed upon a plan entirely different from any in use in the country, and are splendidly adapted for the purpose of exhibiting stock to the comfort and convenience of the visiting public. Each building has a separate entrance and plank walk for the spectators, apart altogether from the passages used by the animals on exhibition; thereby the inconvenience is avoided of spectators and live stock using the same walk, as is the case in other exhibition buildings. These walks are in the centre of the buildings, so that the visitor on his round of inspection is comfortably sheltered, and has the advantage of dry, clean footing. New sheds for sheep and swine are also erected, and upon the most modern principles; they also have plank walks around them. By reason of these improvements rain will not impair the success of the fair; visitors will be able to view all the live stock, in addition to other displays, under shelter. The exhibition lasts from September 17th to 26th, and entries close on September 14th. Write to Secretary McMahon for a prize list.

Wabash Railroad.—The superb and magnificent trains now on the Wabash are the admiration of travellers; they are richly and even luxuriously furnished in the highest style of the car builders' art. They consist of buffet, parlor, sleeping, café, library, dining, and free reclining chair cars, running between Detroit, Chicago, St. Louis, Indianapolis, Louisville, and Kansas City. For timetables and tickets oft his great railroad write or ask any railroad agent, or J. A. Richardson, Canadian passenger agent, northeast corner of King and Yonge streets, Toronto.

Corn Tie.

The Holdfast Corn Binder is one of the greatest inventions for the saving of labor and fodder ever made. In applying you just have to pull on the rope and it ties automatically. It is bound to come into general use, as it costs so little, is so easily applied, quickly removed, binds shock tightly and holds it up, and thus prevents loss. It is manufactured by the Tie Co., Unadilla, N.Y. Notice advertisement in this issue.

Stock Notes.

Cattle.

MRS. E. M. JONES, Brockville, Ont., owner of the famous Belvidere herd of Jerseys, has sold to Mr. Hartz, of Prince Edward Island, thirty head of her best Jerseys. Mrs. Jones retains a few young cattle to supply her own family.

MESSRS. MACKIE BROS., breeders of Ayrshire cattle, Eburne, B.C., write: We have bought the well-known Ayrshire bull, Sir Laughlin, from Messrs. Jas. McCormack & Son, Rockton, Ont. He weighed 1,645 lbs. after being on the car for sixteen days.

MR. JOS. BARNETT, manager for Messrs. W. C. Edwards & Co., Rockland, Ont., writes: Since last writing we have sold three young bulls, two to the Osgoode Agricultural Society and one to Mr. John Mahoney, Rockland, Ont. Our season's sales have been better than last year, and there is every prospect of a still better season coming, as we have several inquiries for calves already. We have the best lot this year ever seen at Pine Grove. Noticeable among these are a red bull out of Imported Lady Lancaster 6th, another out of Imported Rosebloom, and a nice roan (a plum) out of Bessie of Rockland, "the medal cow last year." They are all by Knight of St. John, and fit for any company. The breeding herd is in good healthy shape. Our Shropshires are taking kindly to their new quarters. We have a bunch of twenty shearling rams that should do good service for someone the coming fall.

MESSRS. WILLIAM STEWART & SON, Willow Grove, Lucasville, Ont., write: Our stock are looking very well, although of late the weather has been very warm, and the pasture nearly burnt up. The doddies seem to take all the nourishment out of their feed, whatever it may be. We have had a good many inquiries of late, and have made some very good sales. We sold our stock bull, Hero of Willow Grove, to Major Varcoe, of Goderich; Thistle of Willow Grove to Mr. Wm. Ische, Sebringville; Caroline of Verulam to Mr. F. J. Collyer, Welwyn, Assa., N.W.T., also Lady Bate of Willow Grove to the same buyer; Monarch of K.P. has gone to Mr. John Joynt, Goderich, also Caroline's Beauty. We have still some extra fine animals of both sexes for sale and will be glad to meet our old friends and customers, and will guarantee our stock to be hardy, healthy, hornless, and handsome, and fit to go into any herd in the Dominion. We intend exhibiting at Toronto, Montreal, Ottawa, London, and other shows, and invite all visitors at the fairs to come and inspect our exhibit.

MR. W. A. REBURN, St. Anne's, Quebec, announces in this issue the sale of his celebrated herd, which is to be sold without reserve. In 1871 Mr. Reburn started the St. Anne's herd with stock purchased from Mr. Romeo Stephens, the founder of that world-renowned family of Jerseys, the St. Lamberts. Lady Fawn of St. Anne's was his first purchase. She turned out to be a wonderful cow, testing in her fifteenth year over sixteen pounds of butter in seven days; but could it be otherwise when her sire was the noted Victor Hugo 197 and her dam Lisette, imported animals whose names appear in nearly every pedigree of the great St. Lamberts. A later purchase was Jolie of St. Lambert. She was purchased just before the boom of the St. Lamberts started, and when tested on feed that would now be called starvation rations she gave 48 lbs. of milk per day, which yielded over 17 lbs. of butter. $1,500 was refused for her. When public tests were started Jolie was amongst the first to compete for winning laurels for the Jerseys. At Toronto, in 1885, she won first as the best milk, butter, and cheese cow, beating one of the celebrated cows from Oaklands that had just won a similar test at London. Jolie gave 20 per cent. more butter and 33⅓ per cent. more cheese curd in the 24 hours than the second-prize cow. She was not again exhibited till 1888, when she competed for this prize at Kingston. Fourteen cows entered; among them were some that had several times won similar prizes. One, a Devon, Rose of Cobourg, had for two years previously taken every dairy prize offered. Still Jolie came out victorious, her score being 113 points, the highest ever reached in a like test. At this show she swept everything before her, winning two silver

Stock Notes—(*Continued*).

medals, diploma, and first prize (in four separate classes). She was ably seconded by her daughter, Jolie of St. Lambert 3rd, who had the year before at Quebec won this prize over cows from the Ayrshire herds of Messrs. Brown and Drummond. But it was through her daughters—when they competed for the special prize offered by *The Farmer's Advocate* for the three best cows of any breed showing the greatest profit from food consumed—that Jolie proved her wonderful dairy qualities and her rare ability of transmitting them to her offspring. Jolie of St. Lambert 3rd, 4th, and 5th, *all by different sires*, won with a profit of 132 per cent. This was far ahead of the like test in 1889, which the Jerseys won with 47 per cent., the Ayrshires showing 14 per cent. Unfortunately Jolie of St. Lambert 3rd died a few years ago with milk fever; but Jolie of St. Lambert 4th has for a number of years stood first wherever exhibited, and holds more first prizes, diplomas, and medals than any other Jersey in Canada. Jolie 3rd had only one daughter, and she bids fair to uphold her dam's great reputation, having been shown three times and each time winning the red ticket. Among the old breeding cows will be found Dora and Juliet of St. Anne's, granddaughters of Lady Fawn; Queen Bess and Gipsy Hugo, inbred Victor Hugos; Pet of St. Lambert 3rd and 4th, daughters of Pet of St. Lambert, who with her two sisters were dams of the greatest St. Lambert cows, namely, Ida of St. Lambert with a record of 30 lbs., Allie of St. Lambert with 26 lbs., and Oaklands Nora with 25 lbs., who, by the way, was sold out of this herd. All the females are descended from these famous cows, Jolie of St. Lambert, Lady Fawn of St. Anne's, Pet of St. Lambert, and Hebe of St. Lambert, and sired by such bulls as Romeo of St. Lambert, 50 per cent. Stoke Pogis 3rd, and almost full brother to Mary Anne of St. Lambert; and Orloff's Stoke Pogis by that great son of Lord Lisgar, Orloff, and out of Cheerful of St. Lambert, one of Stoke Pogis 3rd's best daughters, who tested over 20 lbs. and her daughter over 22 lbs. Hebe's Victor Hugo, a pure Victor Hugo, was also used for a great number of years. His sire, Lorne, was purchased by Mr. T. S. Cooper, who successfully bred his great cow, Marjoram 2nd, to him, as she produced daughters that tested over 25 lbs. Among the breeding bulls to be sold are Jolie of St. Lambert 3rd's Son by Lord Lisgar of St. Anne's, full brother to Jolie of St. Lambert 4th. This bull has produced some wonderful dairy stock, his daughters having won first prizes at all the principal fairs. Lady Fawn of St. Anne's Son is another great bull. His full brother was sold at a high figure, and for a great number of years headed the herd of Sheriff Tappen, Troy. Victor Hugo of St. Anne's and Hebe's Victor Hugo 2nd, two full brothers, are also in service in this herd. They

Stock Notes—*Continued.*

have several times won first prize and diploma as best Jersey bull of any age, and are the only bulls living having 50 per cent. Victor Hugo blood. In the show ring this herd has always stood in the front ranks, the number of gold and silver medals, diplomas and hundreds of prizes won by them being sufficient proof of this; but the greatest honor of all is that Mr. Reburn was not only the owner of the successful winners, but the breeder also, an honor that could seldom be claimed by other exhibitors.

Sheep.

DR. MORTON, Barrie, Ont., has bought a grand lot of sheep from the Pagham Harbor Co., Sussex, England, for flock purposes. Mr. John Campbell, Woodville, also has brought out a grand lot of Shropshires and selections from other breeds. Mr. Robert Miller, Brougham, purchased a string of fine sheep from the best and leading prize pens of Shropshires, Cotswolds, Dorset Horns, Southdowns, and Hampshire Downs at the large English shows. He has also concluded to bring over a prime lot of Oxford Downs.

MR. JOHN CAMPBELL, Woodville, Ont., writes, under date July 17th: "Yesterday I landed my importation of sheep at quarantine, as fresh as when they left Liverpool. Among them is a shearling ram from Mr. A. E. Mansell's third-prize pen at the Shropshire show, a ram lamb from Mr. Mills' flock, my choice of the pen that won second at the Bath and West of England, third at the Royal, and first at the Shropshire shows; also a ram lamb, my pick from Mr. T. Nevett's first-prize pen of five at the Shropshire show. With others, I think that they are the best two ram lambs seen at the English shows this season. Then I have three ram lambs from Mr. H. Williams' third-prize pen at the Shropshire show. In ewes, two shears, I have six from Mr. J. Bowen-Jones' noted flock, and of shearling ewes a pair from Mr. Mills' fourth-prize pen of five at the Shropshire show, which was also highly commended at the Royal; a pair out of Mr. Fenn's highly commended pen at the Royal, and Mr. Ramsden's highly commended at same show. In every instance my pick of the exhibits was taken, and the same privilege was given me in selecting a pair from Mr. Bach's first-prize pen at the Shropshire show. A pair was also secured from Mr. H. Williams' second-prize pen. In ewe lambs I have Mr. Ramsden's third-prize pen at the Royal and the first selections from Mr. Nevett's and Mr. Bryce's first-prize pens at the Shropshire shows. Never was I so fortunate in getting just what I wanted out of so many winning pens at the two shows, where Shropshires were out in large numbers. In field rams and ewes my selections were made from large lots in Mr. A. E. Mansell's and Mr

H. Williams' flocks. The Mansell ewes were sired by his best rams, viz., Fair Star and Montford Dreamer. The latter was bought at $918, and sired the 1895 champion ram, Darlington, the second-prize ram, and the three first-prize ram lambs at the Royal. Fair Star sired thirty-two rams, which made the extraordinary average of $215 at Mr. Mansell's 1895 sale, one of them making $1,200. I have two choice Southdown rams, and three beautiful shearling ewes, one Oxford ram lamb, and a pair of Oxford ewe lambs. The latter were not exhibited, as Mr. Adams, the breeder, has retired from the show ring, but would easily have stood well to the front at the Royal had they been there. A Lincoln ram lamb, from the second-prize pen at the Royal, makes up the lot.

Swine.

MR. S. COXWORTH, Whitby, Ont., has left for England, where he expects to be for some weeks. He will return soon with a choice lot of Berkshires.

MR. E. BUSS, Elphicks, Horsmonden, Kent, England, has, we understand, about concluded arrangements with a breeder on this side of the water to send him some choice pigs, which will surprise those who see them. The Elphicks herd has come well to the front during this and the last year.

MICA ROOFING

USE

Mica Roofing

On all your buildings.

It is cheaper than shingles.

Waterproof and Fireproof.

USE

Mica Paint

To Repair Leaky Roofs.

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

RAPIDLY TAKING THE PLACE OF SHINGLES.

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

HAMILTON MICA ROOFING COMPANY,
Office—101 Rebecca Street, HAMILTON, ONT.

664

GREAT DISPERSION SALE.....

NO RESERVE WHATEVER
EVERY ANIMAL WILL BE SOLD

THE CELEBRATED
ST. ANNE'S HERD OF PURE ST. LAMBERT JERSEYS.

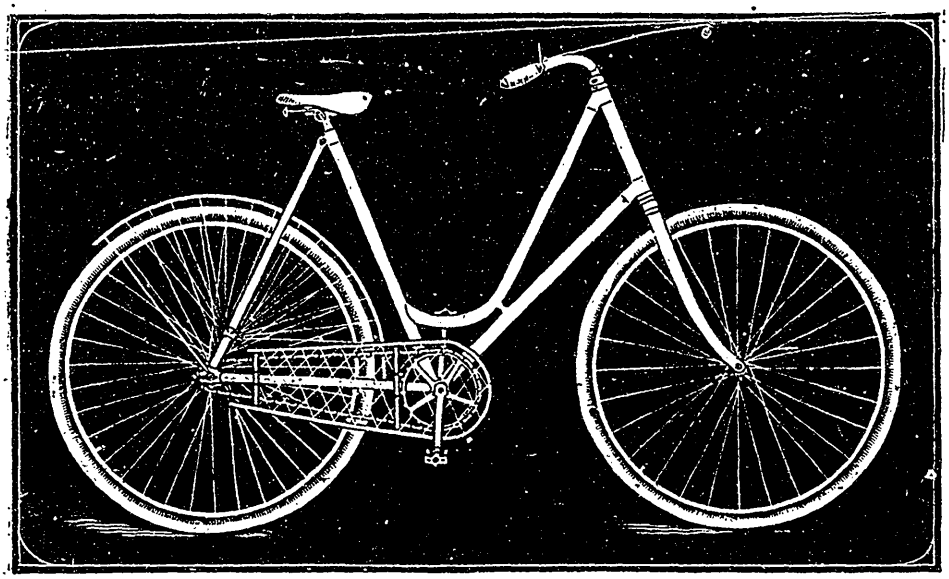
Will be sold by Auction on August 19th and 20th, 1896.

NEARLY one hundred head of the finest Jerseys ever offered for sale in Canada, comprising 32 milch cows (15 of which will be fresh by time of sale), 4 two-year-old heifers in calf, 15 yearling heifers, and a number of heifer calves. Also the famous breeding bulls and a number of their sons out of noted prize-winning cows. This will be a rare opportunity for obtaining prize stock whose breeding cannot be duplicated in Canada.

Sale will commence each day at 10.30 a.m. **Send for Catalogue.**

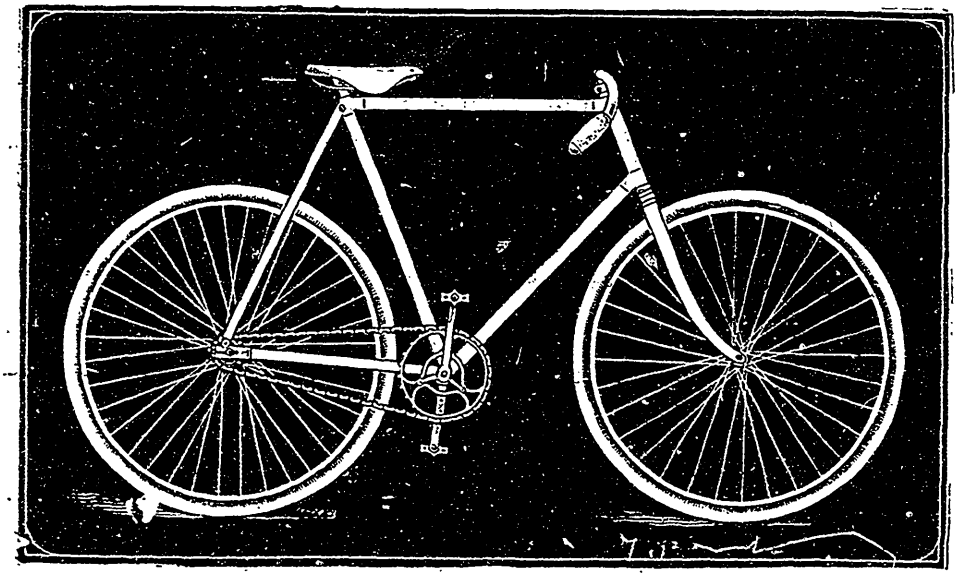
St. Anne's is twenty miles west of Montreal on the Toronto main line of the Grand Trunk and Canadian Pacific Railways. All trains stop.

Address,
GEO. W. A. REBURN,
MANAGER.



Ladies' Hyslop

Fitted with Anderson Automatic Brake



Men's Hyslop

Fitted with Anderson Automatic Brake

THE INVENTION OF THE AGE

Patented in Canada and United States September 21, 1893; July 17, 1894.

Spramotor Stands at the Head

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.

Diploma at Industrial Exhibition, Toronto
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 o. 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.

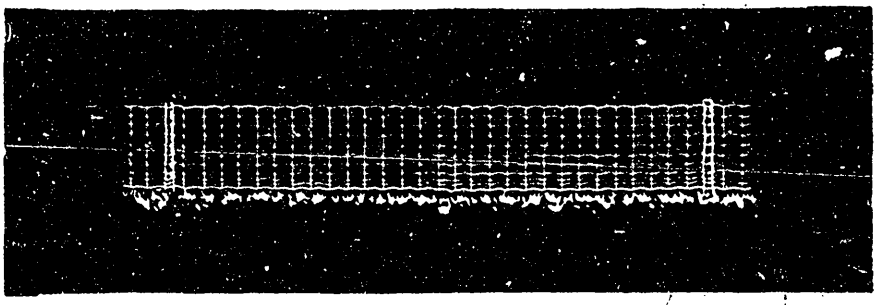
Dear Sirs,—My first outfit arrived yesterday, and I am greatly pleased with it. It is as nearly perfect as it possibly can be. Enclosed please find Post Office Order for another outfit same as you shipped me last, and oblige,

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.



THE FENCE THAT PAYS

Farmers that buy the **PAGE** are always satisfied. The **PAGE** turns all their stock, does not sag, and requires no attention until posts wear out. Send for free illustrated paper and catalogue giving full particulars.

THE PAGE WIRE FENCE COMPANY OF ONTARIO, Ltd.,
WALKERVILLE, ONT.

624

ESTABLISHED 1834

Skinner & Co. Gananoque, Ontario

MANUFACTURERS OF ALL KINDS OF

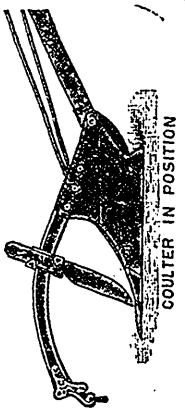
Hames, Scythe Snaths, Pea Rakes, Saddlery AND Carriage Hardware

When buying a Set of Harness demand our Hames and Trimmings from your Harness Maker, and remember that our Swing Socket Scythe Snath is the best Snath made.

DIRECTIONS FOR USING OUR SOLID CAST STEEL IMPROVED PATENTED PEA HARVESTER

Commence at the root end of the vines, stand close to them and walk the way they lean. Reach in as far as convenient, placing the head and teeth of the Harvester as much as possible between the vines in vacant or open spots. Keep the handle well up, so as to cause the head and steel-plate to lay nearly flat on the ground, draw it toward you with a quick motion, and, before raising it, press it lightly on the ground, and give it a quick shove from you, which is done to free the steel teeth from any fine grass, etc., that may stick between them; draw the vines to within about two feet of where you stand, leaving about two feet swarth or row not cut, which will be cut in the operation of rolling the peas up in bunches. *In gathering in swarth, draw the* vines as much as possible sideways, and, in rolling them in bunches, against the way they lean. Where there are many thistles raise the handle higher, so as to keep the back edge of the steel-plate lower than the teeth. It may with some seem a little awkward at first, so would the scythe or plow in the hands of those who never used them. By following the above directions, and becoming accustomed to the use of it, one man, in short peas, will cut more than three men with scythes, and take them off cleaner, and shell less peas.

788



W. P. PLANT, Hastings, Ont.

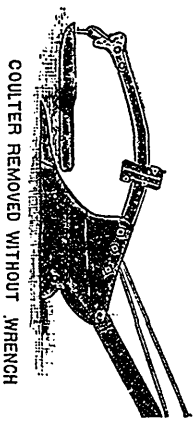
PATENT COULTER CLIP.

1. It can be set at any depth.
2. It can be set at any angle.
3. It will not hold a root or stone.
4. It can be removed without a wrench.

Manufacturer of
Stoves and Furnaces,
Agricultural Implements,
Pumps of all kinds,
Church, Lawn, and
School Seats, etc.

Dealer in
ENGINES,
BOILERS,
NEW and
SECOND-HAND
MACHINERY.

SPECIAL MACHINERY MADE TO ORDER FROM DRAWINGS.



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IS THE STANDARD

Twenty-three varieties of High-Grade Ploughs.
We build no Second-Grade Ploughs.

Our Repairs Have a Splendid Reputation

"They last twice as long"
They all have our Name and Address in full on them.

Something Seasonable:

PATENT STEEL SUSPENSION DRUM **LAND ROLLER**
In nine sizes. All steel.

THE STEEL HEAD GANG PLOUGH
High out of the ground. All steel.

THE ALL-STEEL SCUFFLER
An exact reproduction of the "PLANET JR."

THE LITTLE GIANT SCUFFLER

PATENT ADJUSTABLE and REVERSIBLE WOODLAND DISC HARROW

THE PATENT SUBSOILER ATTACHMENT
Can be used on any steel beam plough.

Drag Scrapers and Wheel Scrapers

All steel. Last longer, larger capacity, and smaller cost than any imported scraper.

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Wilkinson Plough Co.

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TORONTO, ONT.