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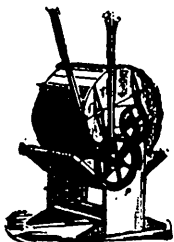
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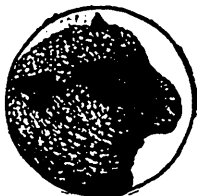
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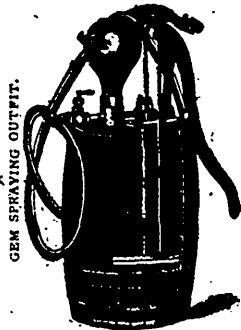
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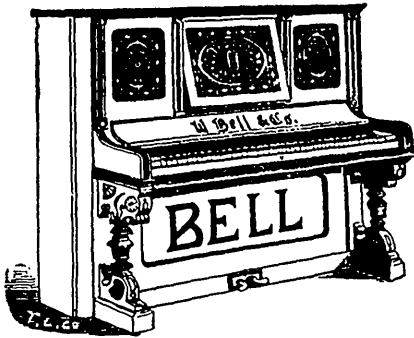
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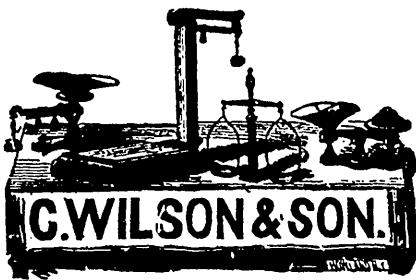
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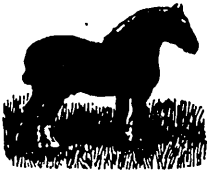
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Imported King James at the head of herd.

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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

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Twenty heifers of finest quality and best Scotch breeding. Sired by the greatest living Cruickshank bull, Sittyton Stamp (66968). Also a few high-class Welsh ponies. Prices low. Write us. 497

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

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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.

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I will offer for sale my herd of AYRSHIRES,
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Alice of Hatton, Violet of Park,
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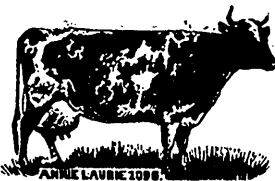
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Menie Stock Yard



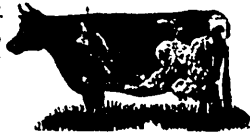
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Six young bulls, fit for ser-
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RICHEST MILKING STRAINS

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YOUNG BULLS AND HEIFERS FOR SALE

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Sydenham Farm, Oshawa, Ont.



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Four Young Bulls from prize-winning stock now for sale.
Closely related to winners at the World's Fair. Write for
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AYRSHIRES Bulls for sale. Two fit for service, one
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All fine calves and sired by Imp. Glencairn. Also

EGGS—Silver Laced Wyandotte eggs. The best American
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**AYRSHIRE AND GUERNSEY CATTLE,
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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.

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CARLYLE LESS MESSOCK, 2861 IMP.

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TWO BULL CALVES (Imported in Dam)
To head herd they have no equal.

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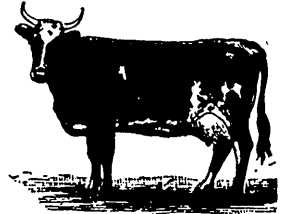
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AYRSHIRE CATTLE.

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.

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ROBERTSON & NESS - Howick, Que.

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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.

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

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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.

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Petite Cote, Que.

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AYRSHIRE CATTLE
BERKSHIRE PIGS

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

DAVID LEITCH.

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

AYRSHIRE CATTLE.

Now is the time to secure your stock bulls before the best are picked, and we have a few left. 2 two-year-old, 3 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.

J. YULL & SONS,

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

A. McCALLUM & SON,

Spruce Hill Dairy Farm. 566 DANVILLE, QUE.

JAMES COTTINGHAM, Riverside Farm,
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Breeder of

AYRSHIRE CATTLE.

My herd is headed by the prize-winning bull, Sir James (5057); sire, Rob Roy (3971). Stock of both sexes for sale at all times, including some choice young bulls and heifers. 707



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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

Petite Cote, Que.

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HOLSTEINS.

**PUREBRED HOLSTEINS
AND
TAMWORTHS**

Carmen Sylvia, the sweepstakes cow over all breeds in milk tests at Toronto and Gananoque, was bred by me. Pieterje, Jewel, Sir Henry of Maplewood, and Mercedes strains. Catholine 4th's Sir Aggie Clothilde at the head of the herd. Tamworths from imported stock.

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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 rock bull with the very best results, only part with him to improve 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
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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."

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Frankford, Ont.

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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.

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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

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

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LINCOLNS.

The Largest Flock in Canada!

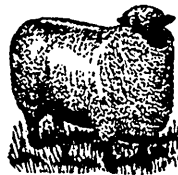
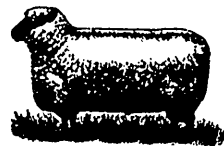
Our breeding ewes, 150 in all, are from the best English flocks. Our last importation was made from the flock of Mr. Henry Dudding, and were all personally selected. If you want a ram or a few ewes, send along your order. If you want shearlings or lambs of either sex, we can supply you with the very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

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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.
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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,
ARKELL, ONT.

403

SHEEP.

**FAIRVIEW
SHROPSHIRE.**

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. It 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,
Fairview Farm. WOODVILLE, Ont.

606

OXFORD DOWNS.

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

TURNER & JULL,
BURFORD.

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

446

**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.

**SHROPSHIRE**

Our flock, one of the oldest established Shropshire flocks in Canada, was founded in 1887. Importation 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,
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Large English Berkshires

Boars fit for service. Sows in farrow. Young pigs, all ages, both sexes. Pairs and trios not akin. Show Stock for sale in aged and young classes.

Mention FARMING.

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**For Sale 9 Poland
China
PIGS**

now ready to ship.

Bred from stock of Capt. A. W. Yo Write for price list of Poland-Chinas and Poultry.

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Send 25c. for Wright's "Death to Lice." It has no equa

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**Berkshires AND
Yorkshires**

Over 50 young pigs of both the above breeds now on hand for sale at moderate prices.

AYRSHIRE BULIS 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 '06. All first-class. Send order for a pair not akin, or a single pig of this most profitable breeding sort.

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603

D. A. GRAHAM, - PARKHILL, ONT.

Importer and Breeder of Large English Berkshires.

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

ELMDALE HERD OF TAMWORTHS

One yearling boar, a prize-winner at the Western Fair, 1905. 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 for ready to ship. Also a twelve-months-old sow due to farrow in August (a show sow).

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710

PINE GROVE HERD**IMPROVED CHESTER WHITE and BERKSHIRE SWINE**

Fine young stock from prize-winners now ready to ship.

Certificate of breeding sent in request. Address 804

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MOUNT PLEASANT STOCK FARM**Large English Berkshires**

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

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SWINE.

Chester Whites

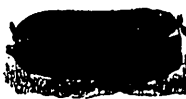
Sows in farrow, and Mammoth Bronze Turkeys. AT ROCK-BOTTOM PRICES.

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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455

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Best Strains of

LARGE ENGLISH BERKSHIRES

Selected from the herds of J. G. SNELL & BRO., Snellgrove, and T. TEASDALE, Concord.

Boars and sows of all ages, not connected. Sows in farrow. All first-class stock. Address,

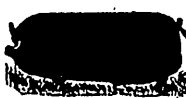


650 **Wm. McALLISTER,**

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GOLD MEDAL HERD OF BERKSHIRES

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



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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. Some choice sows and boars for sale. Am booking orders for spring litters. Write me for prices before you order. My motto, "A good pig at a fair price." Also choice Shropshire sheep and Silver-Laced Wyandottes for sale. Sunnyside Stock Farm. 453 **T. A. COX, Brantford, Ont.**



THE SWEEPSTAKES HERD OF

TAMWORTHS

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



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POLAND-CHINAS at Willisroft. ARE THE RIGHT KIND

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



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MAPLE LEAF FARM. IMPROVED LARGE YORKSHIRES

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



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

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



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ONLY ONE BREED KEPT

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

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Burford, Ontario.

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

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

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Improved Yorkshire Pigs of the best strains of breeding. **Large English Berks**



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

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OHIO IMPROVED CHESTER WHITES AND ENGLISH BERKSHIRES.

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



504

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Ohio Improved Chester White Swine

The largest and oldest established registered herd in Canada. I make this breed a speciality and furnish a good pig at a fair price. Write for prices. 657

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My pigs are of the best imported stock. Am now looking orders for spring pigs. Pair furnished not akin, and nothing but first-class stock shipped. Prices low and satisfaction guaranteed. Address



754

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Young boars and sows and sows in farrow for immediate delivery. Pairs supplied, not akin, of January litters, sired by imported Queen's Own and General Jackson. Herd has won a very large number of first and other prizes at the leading shows in Ontario, Quebec, Manitoba, and the Northwest Provinces. I guarantee satisfaction.

686

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For Sale Silver and White Wyandottes, Barred and White P. Rocks, Cornish Indian Games and Mammoth Bronze Turkeys. Specimens for exhibition and breeding purposes. Send for my 12-page catalogue. Address **ALBERT F. FIRESTONE**, 674 L. Box 79. Logansville, Ohio.

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462

Lenton's Fowls

Are noted winners. To my already fine yards, I have recently added the entire flock of **Golden Wyandottes** of C. W. Johnson, Crawford, N.J. which includes Jersey King, winner of three firsts at New York, and never beaten wherever shown, hen third at New York, and dozens of other famous winners at Philadelphia, Hackensack, Newburg, etc. Remember I also bought from M. D. Hinds his 1st hen and 3rd cock at New York, 1875. In Silver Wyandottes I have just received a fine pen from E. L. Everett, Spokane, Washington, thus making my pens of this variety equal to any. **White P. Rocks** (Rice's stock) and **Black Hamburgs** (McNeil's stock) equal to my Golden Wyandottes. Eggs, \$2.00 per 13. **Bronze Turkeys** of immense size and rich color. Eggs, \$3.00 per 13. Four full particulars send for catalogue. I am agent for **Webster & Hannum Bone Cutters**. Catalogue free.

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when they are 7c. to 10c. per doz., for your own use, or sell them when they are 20c. to 25c., and double your money. I have a recipe to make Pickle that will keep eggs two years if necessary, which I have used for fifteen years. Will send it to anyone sending me \$1.00 (registered letter).

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WHITE WYANDOTTES . . .

The very best general purpose fowl. Excellent for the table, and grand good layers of rich flavored eggs. Eggs from pen headed by my winning 10 lb. cock, and prize hens and pullets at \$3.00 per 13, \$5.00 per 26.

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Orders booked now for eggs for setting, from choice mated pens, at \$1 for thirteen. Stock for sale.

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EGGS \$1 per 13. From high-class purebred **Barred Plymouth Rocks, Red Caps, Silver Laced Wyandotte,** and **Silver Gray Dorkings.** When at Oshawa call and see my stock. **W. H. KIRBY, OSHAWA, ONT.**

806

POULTRY

DUFF'S
WHITE AND BLACK MINORCAS.
BARRED PLYMOUTH ROCKS.

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Readers of "Farming" may have them at \$1.50 per setting. Good breeding Hens from \$2 to \$4 each.

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Eggs from Prize Birds for Hatching

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38

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FARMING

Vol. XIII.

JULY, 1896.

No. 11.

Destruction and Death.

From the terrible effects of the dread cyclone we in Canada have, as a rule, hitherto obtained immunity. These peculiar storms, with their accompanying destruction of human life and property, have generally had their origin to the south of the boundary line, and their force has been very largely spent before they reached Canadian territory, their advent only resulting in high winds, which are as but gentle blasts in comparison with the original strength of the cyclone. We can but be thankful that this is the case, and let us hope that we may always enjoy such immunity from them.

The present year is notable for the great loss of life and destruction of property in the United States by cyclones. There were several small storms this spring, but the first of any importance took place on May 25th, when a cyclone passed over Michigan and other states, dealing death and destruction in its wake, and leaping over the lake crossed to the Canadian side, doing considerable damage to a limited locality, but, fortunately, without killing anyone.

Then came the great cyclone which took St. Louis in its track, and which numbered several hundreds among its victims, besides destroying numerous buildings. Of the terrible strength of the storm on this occasion the wrecked houses and bridges bear eloquent testimony. Since then there has been cyclones of minor importance in other parts of the United States. This year will probably be remembered as the "cyclone year" on this continent.

Inspecting Canadian Horses in Great Britain.

The large increase in the shipment of horses from Canada and the United States, and some outbreaks of glanders in Great Britain, which have been, of course, attributed to these "swimmers," as they are designated by the London *Live Stock Journal*, has caused that organ of the British breeders to agitate for a change in the

regulations under which horses are now admitted from other countries into Great Britain. Among other things, a quarantine of them is suggested, the prohibition even of landing them, and the slaughter of suspected horses when necessary, while it counsels the Board of Agriculture to designate certain ports at which alone horses can be landed.

As to disease among Canadian horses shipped to Great Britain, we maintain that it no more exists than does contagious pleuro-pneumonia among our cattle shipped thither. Whether among American horses shipped from Canadian ports there have been cases, of course we do not know; but, if there have been in the past, there will be no more sent hereafter, thanks to the stringent inspection rules laid down by our government for all horses shipped from Canadian ports. These regulations call for a certificate of a qualified veterinary surgeon for every horse entering from the United States, showing that the locality from which it came is free from glanders and other contagious diseases. Horses from the United States will also be inspected at the Canadian port of exportation to Europe, as will all horses exported, this inspection being made within twenty-four hours of embarkation. All horses to be exported must reach the port of exportation thirty-six hours before shipment, and the owners must notify the inspector at least twenty-four hours before embarkation. Each horse inspected will be marked on the breast V.R., and no horse will be allowed to board ship without such mark. All inspections must be made in daylight. If glanders or other contagious disease is discovered in any horse on board ship, railroad car, in stable, shed, or other place, such places are to be thoroughly disinfected after the removal of the horse infected.

With such stringent regulations in force it will be impossible for any horse infected with glanders or other contagious disease to leave our shores; and, therefore, unless it be necessary in the interests of British horse-breeders to discourage competition by severe regulations, our contemporary need not be concerned about the fear of our horses carrying disease to British studs.

Husbanding Our Forest Resources.

In a thickly-wooded country, such as Canada and a considerable portion of the United States was when white colonists first landed on their shores, the first object of the settlers was to clear the land of the timber as fast as possible, with no thought for the preservation of any portion of it. In their eyes the timber was just an encumbrance on the soil, inasmuch as they had no other object in view than the removal of the trees to enable them to carry on the tilling of the ground.

Years have passed by, and still the same idea of indiscriminate destruction seems to hold sway in districts where the timber supply is more or less plentiful, although in the more settled parts, where timber is getting scarce, the cutting is being more carefully done, the larger trees being taken first, and the smaller allowed to grow. In the pine districts, however, everything is taken, even trees that would only make a 4x4 scantling, and even then there would be bark left on the corners. There are some exceptions to this rule, it is true, as in the spruce region of northern New York and New England, where some efforts have been made to cut the larger timber economically, preserving the smaller for future use.

In Great Britain and in some of the European countries, the conservation of the forests, with a view to getting the greatest benefits from them, receives considerable attention. The thinning out is carefully done, such trees only being removed as have reached maturity, or, for certain reasons, have to be taken out, while the replanting of fresh trees is constantly kept in view.

There is no question but that some such system should be put in force in this country in the northern and other districts where timber yet exists in considerable quantities. The general practice of lumbermen is to slash down the timber without any concern as to the future growth and preservation of forest areas. This is bad enough, but when to it there is added that dread scourge, fire, which, whether caused by locomotives, lumbermen, settlers, or hunters, does even greater damage, sweeping over the timber districts, it is evident that the supplies derivable from our forests must sooner or later fail us, if energetic steps are not taken to preserve what we have left. The number of trees cut down annually to supply wood pulp for paper alone is something enormous. It is said that to make paper for one newspaper in Paris alone 120,000 trees are required, being equivalent to an annual thinning out of 35,000 acres of timber land. If one newspaper requires so much, what an enor-

mous quantity of trees must be annually destroyed all over the world for newspaper purposes!

The Ontario Government have already taken steps to conserve the forests in northern Ontario by appointing rangers to see that the lumbermen do not destroy trees other than they are allowed to, and also to preserve the forest areas from fire. This is greatly to be commended, and we would that other governments would do the same, as well as private individuals, as far as possible.

A notable experiment in the line of private enterprise is being carried on by Mr. George W. Vanderbilt on his estate at Biltmore, North Carolina, to test whether lumber operations can be carried on so as to conserve tree growth, and, at the same time, permit of profitable cutting of logs to be converted into timber and lumber.

The scheme proposed is to crop the forests continuously, as is done in Europe, and at the same time manage the growth so as to make that possible. To this end an expert forester has been employed, who will superintend the operation with all the skill and judgment requisite to that end. The aim will be to preserve the young growth by preventing fires and excluding browsing cattle, sheep, and swine from the forest. It is assumed that by a careful preservation of the undergrowth, and thinning out of the sickly and deformed, the healthy and sturdier growths will thrive and get on much more rapidly than is usual with underbrush. In fact, the process will be much like that in the culture of fruit trees, except that leaf mulch will stand in place of plowing. By preventing fires the falling leaves will remain on the ground to conserve moisture and increase fertility. There can be no question but that this will be of great benefit to the growth in point of rapidity as well as perfection of trunks. Cutting for lumber will be done by selecting those trees most fit and merchantable. It will doubtless include the several varieties on the area, and with reference to market adaptability and profit.

This experiment is in the hands of a man of ample capital, so that there will be no need of haste or unwise expenditure of resources. Mr. Vanderbilt will not have to rush operations at inopportune times in order to meet bills and keep out of bankruptcy. He can wait on the slow processes of nature, and hold his lumber until the most favorable market conditions prevail. In seasons of weak demand he will not be obliged to slaughter his trees. He can thus get out all that is in them during a period of years. The majority of his trees will be in a growing stage, and waiting will only add to their value. If his experiment shall prove successful, it will be an object lesson for other wealthy timber owners, which

may possibly induce them to follow Mr. Vanderbilt's example.

Horses, Not Outfits, Considered.

There seems to be an impression among our friends, the farmers, that it is useless for them to enter horses in the harness classes at the Industrial Exhibition unless these have a smart set of harness on them and an elegant vehicle behind them, and it has been alleged that judges in the past have taken the outfit into consideration in awarding the prizes. This may have been so in the past, but it was certainly not the intention of those who drew up the prize list. That there may be no mistake in the future, special instructions are to be given to the judges this year to consider the animal only in making the awards, except in classes 18 and 19, for which other regulations are drawn up. No farmer, therefore, who owns a good horse need be afraid to enter this year because he has no grand carriage and harness, as such will not be considered in determining the awards.

The Industrial Exhibition.

The prize list of the Industrial Exhibition, which is now to hand, contains a number of changes as compared with that of last year. In the horse department there are additional prizes, amounting to \$100, offered for Clydesdale stallions and four of their get, and for Hackney stallions and four of their get, while the English Hackney Society offers several special prizes. A class that has been reinstated is the general purpose class, for which \$319 in prizes is allotted. This seems to us a backward move, as we have always considered that it calls forth a most unsatisfactory array of horses and one hard to judge, so varied are they.

In the speed department there are three new classes given for colt stakes, for yearlings, two-year-olds, and three-year-olds, and one class for three-year-old pacers.

This year Hereford cattle get a full list of prizes, the amounts offered for them being the same as for Polled Angus and Galloways. Sections are offered for calves under six months in the Ayrshire, Jersey, Guernsey, and Holstein classes, the stipulation being that they must be calved after February 1st, 1896. In the former class the section for "bull and four of his get" now reads "four animals, the progeny of one bull, all bred and owned by the exhibitor," and the same section is offered for Jerseys. The herd prize for Guernseys reads "first, \$30, second, \$20, instead of a medal."

The milk test remains the same as last year. The new regulations require cattle to be on the ground by noon on Thursday of the first week, and there is also a stipulation that all animals must be registered before entry is made so that the registered number may appear in the catalogue, otherwise the entry will not be accepted.

All entries of live stock must be made before August 8th, except of poultry, which can be entered up to the 22nd.

There are no changes in the sheep list, except that the wool prizes are not offered this year.

There is an increase of \$240 in the prizes offered for swine spread over all the classes with the exception of Essex and Suffolks. These two breeds have now to be shown in one class.

Nor have poultry been forgotten. There are extra classes, male and female, provided both in old bird and chicken classes, for Buff Wyandottes, Black Sumatras, White Unbearded Polands, White Game Bantams, Black Cochins Bantams and Polish Bearded Bantams. In the breeding pens, Dorkings, Buff Plymouth Rocks, Brown Leghorns, Polish, Wyandottes, White, Buff Cochins, Polish and Rose-Comb Bantams have extra prizes added, and there is a new class for White Turkeys. There are also several additional prizes offered for pigeons and cage birds.

The new regulations made this year, and which have been endorsed by the breeders' associations, provide that judging in certain classes will commence on the Friday of the first week. On that day certain of the horse classes and all the classes for dairy cows will come before the judges. On Saturday as many of these classes as have not been finished will be proceeded with, and fat and grade cattle will also be called out. On Monday, September 7th, the judging will be general, and will be continued until everything is judged.

Such, in brief, are the new rules laid down this year for the Industrial Exhibition. We believe that what changes have been made are nearly all in the public interest, and we predict for this year's exhibition, should the weather be propitious, a much larger success even than it has met with in the past, although that has been by no means of a mean order.

FOR FARMING.

Prince Edward Island Correspondence.

The season so far has been exceedingly dry; we have had scarcely any rain since April 1st. The weather has been cold and backward. Grass is very short on the pastures, and cattle still have to be fed some feed in the stables.

The month of June is a very critical time with us, for if we do not have plenty of rain then our hay crop will be light. Good pasture and hay together with the root crop are our main dependence now since the keeping of dairy and beef cattle has become our principal business.

Prices of grain and potatoes have gone below what they can be profitably produced for, and this obliges us to turn our attention to other lines that will tend to conserve and increase the fertility of our soil. Agriculture here is in a depressed state. We have had several bad seasons lately on account of drought, which seems to be becoming more prevalent of late years. The shortage in crops and the extremely low prices prevailing have made the lot of the farmer a hard one. Oats are now worth about 25c., potatoes 10c., and the best of fat cattle $3\frac{1}{2}$ to $3\frac{3}{4}$ c. Fresh beef from Chicago and cattle from Ontario supply to a great extent the cities in Nova Scotia and New Brunswick, and Newfoundland, which used to be our markets, and barrel beef from Chicago is now coming to Charlottetown.

Our cheese business, from which we expected better things, has been disappointing, and has returned to the patrons of the factories only about 55 cents per hundred pounds of milk. This has put something of a damper on the dairy business, especially among those who have had only one year's experience in it, as is the case with patrons of about one-half of our factories. But the feeling is that we have touched bottom, and that better times must come soon. Low prices will not be an unmixed evil if they lead us to study economy in production, a lesson which we all need to learn, and which, if learned, will place agriculture on a sounder basis than it has hitherto rested on in this country.

Our cheese, which was all made and marketed by the government last year, sold for an average of \$8.40 per hundred pounds. The expenses for freight, insurance, cold storage, and interest on advances to patrons, amounted to 55 cents per hundred. The government charge for manufacturing was \$1.25 per hundred, and the cost of drawing milk would average about 9 cents.

Our output of dairy produce for the year totalled \$178,700, \$16,000 of which was from the winter creamery which the dairy commissioner put in operation last fall. The Dominion Government are only managing a few of the smaller factories this year. Prof. Robertson visited the island in the latter part of May, and met representatives of the factories and discussed the prospects with them. He considers that the dairy business is well established now, and will not require much more aid from the government. He

spoke hopefully of the future of the industry, and said that the experience of the past few years had taught them how to handle milk in our climate so as to make the very best quality of cheese. The professor advised us to make butter in October, as it was then too cold and moist to make and cure a good article of cheese.

This is the year for fruit on the island, and the trees now in bloom give promise of an abundant crop. Apple-growing is receiving a good deal of attention, and, where intelligently engaged in, is giving good returns. Prof. Craig's visit and address last winter gave the people much-needed information on the growing of fruit, especially on the kind of apples suited to our climate. Fruit-growing is coming to the front and will soon be an important industry.

POPLAR SHADE.

June 10th.

FOR FARMING.

An Englishman's View of the Cattle Exclusion Bill.

A tremendous endeavor is being made to get the government to make an exception in favor of Canadian cattle in the bill now before parliament, so as to put an end once and for all to all doubt as to the method under which the importation of live animals from abroad shall be carried on—an effort which every breeder at home hopes fervently will be unsuccessful. It is urged that the measure is simply one of protection in disguise, but this is a gross misstatement and utterly devoid of truth. The British farmer and stockbreeder is far too keen a man of business to ask for protection in the sense in which the word is generally understood, for not only would it mean to him dearer food for cattle, but dearer wages, etc., and thus most likely the result would be that he would be worse off than before; but what he does ask for, and what he is determined to have, is protection from all fear of the importation of diseased animals, either bullocks or sheep. It is urged that Canadian bullocks are free from disease. Well, this may be the case; but, even if it were conclusively proved that they were free from disease in every shape and form, it would not alter the question one iota, because there is always a very great danger of infection taking place on the voyage, and, consequently, a danger to the English breeder that infection may be unintentionally brought over. As regards sheep, one need not say a word on this, for the sheepmen here only too recently had an actual example of the state some arrived in.

Your farmers and breeders must, therefore,

make up their minds that the decision of our home farmers and breeders is irrevocable, for they will never again allow the question to rest until the only way that they can obtain security is accomplished, namely, by the total exclusion of the importation of all live animals to this country, other than to the port of debarkation for the purpose of their being slaughtered there. Has it never occurred to your people what an outbreak of disease means to any one of the leading pedigree stockbreeders in Great Britain, even though it may not occur on his own farm, or near it? I think not. A fellow-breeder recently sold a ram to go abroad, and the country to which he was going required a certificate that the district in which the ram had been reared had been free from all contagious diseases for twelve months previously. This is a regulation that is a perfectly right one, but unfortunately for this breeder the veterinary authority was unable to give the certificate, and for this reason the sheep could not go. Now, why, I ask, should our breeders be liable to have not only their herds, which are priceless, put in jeopardy, but the sales therefrom as well, simply in order to gratify an idea of some few persons that we cannot do without the importation of live stock for grazing purposes? Surely it is absurd to expect that any class of persons will allow their years of ceaseless toil, energy, and money to be kept in such a position as it has been for far too long now, at the mercy or the caprice of any single minister or party who for the moment happens to be in power, who, under the present law, could and might allow, innocently it might be, the importation of a cargo of animals that might be the cause of the loss of millions to the home breeders.

Facts are stubborn things, and there can be no question that we have suffered in the past, and have now, at last, determined that we will suffer no longer. Therefore, your breeders, on the one hand, and your feeders, on the other hand, had better at once make up their minds to get into working order under the new state of things, and they can rest assured that whatever stock, be they cattle, sheep, or pigs, are sent us either killed or alive for slaughter at the port of debarkation will, if the quality be first class, meet with a ready sale, and be fairly treated in all respects.

June 10th. ENGLISH BREEDER.

Philadelphia Horse Show.

The fifth annual exhibition of the Philadelphia Horse Show Association, held at St. Martin's Green, Wissahickon Heights, May 26th to 30th,

was a good success, in spite of the wet weather, which considerably lessened the attendance. Taken as a whole, the exhibits were more numerous than they were last year.

There were two classes of Thoroughbreds. Ten aged stallions, all owned by Edward Kelly, New York, were entered, first and second going to Devotee and Potentate. In the yearling class for colts and fillies all three prizes went to Rudolph Ellis, Bryn Mawr, Pa., the first two being colts and the third a filly.

Trotters were not numerous nor good, there being only one aged stallion that could pass the veterinary surgeon. There was a class for heavy draft horses attached to a delivery wagon in which there were seven teams entered.

The Hackney classes were the attraction of the show, although the entries here were not up to those of previous shows. In the aged stallion class for horses 15.2 hands and over, F. C. Stevens, Attica, N. Y., came to the front with his well-known Langton Performer, a horse of perfect type, action, and speed. Second to him was placed Senator Cameron's Royalty, a son of Rufus, while J. E. Widener's Lord Rufus 2nd came third.

Mr. Stevens was equally fortunate in the class for stallions under 15.2 hands. There one of his latest importation, Clifton 2nd, a champion at the Royal, and a son of Danegelt, came easily to the fore, second place falling to Mr. Belmont's The Dane, and third to the old veteran, Wildfire, owned by Mr. Harrison. In the two-year-old class Rickell, a son of Cadet, came first, followed by Norfolk Cadet and a son of Bonfire in the order named.

The sons of Cadet shown by Mr. Cassatt, Patriot, and Postguard, were first and second in the yearling class, with Mr. Kimball's Knickerbocker third.

Mr. Widener's Dorothea was an easy winner in the class for aged mares 15 hands or over. Next to her was placed Winnifred, which was sold by Mr. Beith, Bowmanville, to Mr. Stevens, and the latter also got the third prize with Jessamine, one of his recent importation. Mr. Widener's Wallflower repeated her last year's victory among mares under 15 hands, three years old or over, followed by Garton Pride and Alvina. There was no competition in class twenty for three-year-old fillies, but Mr. Stevens' entry, Applause, another of his late importation, fully deserved the ribbon she got. In the two-year-old class Mr. Stevens' phenomenal filly, Lady Sutton, the junior female champion at New York, could not be denied first place. Next to her came Mr. Kimball's Pherie, a particularly good one, and a

daughter of Cadet, followed by Rose of Lancaster, another daughter of that grand old horse.

Three yearling fillies competed, first going to Mr. Cassatt's Sybil, and second and third to Mr. Kimball's Clarissa and Perdita.

Cadet and his progeny were first in the class for that purpose, with Wildfire and his get next, and Phaeton and his offspring third.

The silver medals offered by the English Hackney Society for the best male and female went to Clifton 2nd and Lady Sutton, Mr. Stevens thus winning both these coveted honors.

There were a number of grand half-bred Hackneys shown, among them Frills, the wonderful daughter of Old Fashion, who carried off first in the two-year-old class, being closely run, however, by the Cadet filly, Cynthia. In the yearling class were two of Cadet's offspring from Morgan mares, that won first and second, while a filly by the deceased Ottawa came next.

The classes for saddlers and horses in harness were fair, with some very good ones among them, but the judging in these classes did not give general satisfaction.

Bath and West of England Show.

(By Our Own Correspondent.)

HORSES.

This show was this year held at St. Albans, from May 27th to June 1st. The total exhibits were more in number than in previous years, but the attendance was disappointing.

Shire stallion horses foaled in 1894 were a small class. Mr. A. P. McMullen, a new exhibitor, came first with Iron Chancellor, a very nice horse, to whom the championship also went; Sir W. Gilbe, was second. For stallions foaled in 1894 Mr. J. A. Barrs was first with Nailstone Star Ascendent, Mr. Muntz's Dunsmore Forester being second.

In the yearling colt class there was a better and more numerous lot of entries, Lord Belper being to the fore with a very promising colt. Next came Lord Wantage's colt, that won first at Oxford, and third place went to Mr. A. P. McMullen's colt.

Of Shire mares and fillies there was a very satisfactory entry, many of them being of considerable merit, the principal winners being Messrs. A. J. Hollington, A. P. Muntz, W. Greenwell, and Lord Egerton, of Tatton.

Clydesdales were not afforded a separate classification, but, notwithstanding this, they triumphantly held their own, Lords A. and L. Cecil fully maintaining their reputation.

Hunters were shown in fairly large numbers.

Hackneys made a show of great merit, Sir W. Gilbey being the principal winner.

CATTLE.

This section was a very good one in all respects. Devons take precedence in the society's catalogue, and a grand lot they were all round.

In the bull classes, Messrs. A. Bowerman, J. C. Williams, E. Mucklow, A. C. Skinner, and F. R. Morris were the principal winners, whilst in the cow classes Mr. A. C. Skinner, Sir W. Williams, and J. C. Williams took the lead.

Shorthorns were of considerable merit. Champion Cup, Mr. G. Harrison's bull, here again came out at the top of the class, an honor well deserved. The Prince of Wales won for bulls, calved in 1894, with a very excellent and promising young bull. The other winners for males, in addition to these, were Messrs. R. Stratton, Foster-Harter, P. L. Mills, and J. D. Willis.

Cows and heifers were shown in well-filled classes, and Mr. C. W. Brierly came to the fore in the two older classes, whilst the remaining three were headed respectively by Messrs. P. L. Mills, F. Platt, and Mrs. E. Ross.

Hereford cattle made a very good exhibit all round, and were an excellent lot of cattle. The principal winners for bulls were Messrs. J. H. Arkwright, E. Yeld, and R. Green, whilst Lord Coventry and Mr. J. Price came in for second prizes. Cows were a very typical lot. Messrs. F. W. Caddick, R. Green, R. Edwards, and E. Yeld took the four first prizes, whilst amongst the other winners were Messrs. R. Palmer, J. Tudge, W. T. Barnaby, and A. A. Hughes.

Lord Derby (your late Governor-General), Messrs. C. J. Lucas, G. Warde, and F. Warde, were the principal prize-winners in the Sussex class.

The Jersey classes made a grand show, and were well filled. This same remark also applies to the Guernsey classes, which were as good as I have ever seen them. Aberdeen-Angus cattle were here wonderfully well shown, and there was very meritorious competition. The whole of the exhibits were from herds that have been in recent years established in the south of England. The chief prize-takers were Messrs. W. R. Greenfield, C. W. Schroeter, F. Crisp, and Col. Tufnell.

Dexters and Kerries also made an excellent display. There is apparently a very strong demand for these hardy and very useful animals, which, on a very small amount of food, produce a very large quantity of both milk and butter.

SHEEP.

This whole section was particularly strong in point of quality, and remarkable for the evenness of the exhibits.

Leicesters here are first in the catalogue. These must not be confounded with the Improved Leicesters, for those exhibited in this class were typical representatives of the breed as improved by Bakewell. In the ram class Mrs. Perry-Herrick was the principal winner, taking both first and second premiums, Mr. G. Harrison coming in third. In the ram lamb class and ewe class, Mr. G. Harrison took premier place with beautiful specimens of the breed.

Cotswolds were well shown, but were not numerous, Mr. Russell Swannick taking the lead in the ram class, Mr. F. Craddock being the premier winner in the ram lamb class, whilst in the female section Mr. F. Craddock was first and Mr. T. R. Hulbert second.

The class for Devon long-wools was not only well filled in number, but many exhibits were of far more than ordinary merit, the three leading breeders of the breed sharing amongst them the three money prizes in the following order in the ram class: N. Cook, J. White, C. J. Thorne. Ram lambs were a very useful class, the awards going to A. C. Skinner and N. Cook. The latter had it all alone in the ewe classes.

Southdowns were out in full force. Shearling rams were a class of great merit, particularly as regards the first-prize sheep, a true typical Southdown, owned by Sir J. Blyth, whilst a second sheep from this same flock came in a good second, Sir Wm. Throckmorton taking the third premium. Ram lambs were another very strong class, and the first-prize pair of lambs from Mr. E. Mathews' flock fully deserved their place. Mr. E. Ellis was second with a very good pair of typical lambs, whilst the judge put a pair of the Prince of Wales' third. Shearling ewes were another class of great merit, but here no doubt could arise as to the winner, for Sir J. Blyth's pair went clean ahead of all the others; they are a grand pair of ewes, well matched. Next in order of merit were Mr. E. Ellis' excellent trio of typical ewes.

Hampshire Downs were of far higher merit in all respects than we have seen at this show for some years past. Shearling rams found Mr. A. de Mornay to the fore with an excellent sheep, well woolled, of great length and substance. Next came a pair of great sheep from Mr. T. F. Baxter's celebrated flock, whilst Mr. E. Whalley-Tooker's exhibit came a good third. Ram lambs were strong in numbers, and the quality was good. Mr. A. de Mornay was first with a pair of lambs of great merit and promise, Mr. E. Whalley-Tooker being a close second, whilst Mr. W. T. Twiddell came third. Shearling ewes were not a large class. Mr. T. F. Buxton's pen were

easily first, and Lord Rothschild's second, whilst Mr. James Turner came third.

Suffolk sheep were few in numbers, but of very nice quality, Lord Ellesmere being first for rams and ram lambs, and Mr. J. Smith for ewes.

Shropshires were a grand lot, the best lot it has ever been our lot to see at this show. Shearling rams were a class to be remembered, with thirty-four entries, and scarcely a medium one in the lot. Mrs. M. Barrs was winner of the first prize with a ram of great quality and substance. Next in order came Mr. J. Bowen-Jones' ram, whilst third went to a sheep from Mr. A. Mansell's celebrated flock. Mr. W. F. Inge was placed fourth. Ram lambs were a large class. Mr. A. Mansell's first-prize pair were full of promise, Mr. P. Mills being second, whilst Mr. P. W. Muntz was a very good third. Shearling ewes were worthily headed by Mr. W. F. Inge's sheep, which were well brought out. Mrs. M. Barrs was second, and Mr. J. Bowen-Jones third.

Oxford Downs were not a particularly large class, but were of good merit. Shearling rams were headed by a useful sheep from Mr. A. Brassey's flock, next being a very good sheep from Mr. J. C. Eady's well-known flock, whilst Mr. H. W. Stilgoe's sheep was placed third. Ram lambs were headed by a typical pen from Mr. A. Brassey's flock, next in order of merit being a very good pair from Mr. C. James' flock. Shearling ewes were a fair class, and again here Mr. A. Brassey was clearly to the fore, next being Mr. J. C. Eady with a pen of great merit.

Dorset Horns made a very small exhibit, Mr. H. Farthing being first and second for rams, and Mr. S. Kidner third. Ram lambs and shearling ewes found Mr. W. R. Flower taking first and second in both classes, with excellent pens of both.

Hackneys, 1895.

Paper read by George H. Hastings, Deer Park, Toronto, at the meeting of the Canadian Hackney Horse Society, 1895.

Owners and breeders of the Hackney horse can hardly fail to regard the year 1895 as a season to be remembered. Prime Hackneys have been in good demand in the home market. Prices made at public auction have been such as nobody could have anticipated a few years ago. Even the unpleasant things said by a few persons who suppose that they are well informed in regard to horses may not be without their uses for those who desire the steady improvement of the Hackney.

It is a fact that great progress has been made

since the Hackney Horse Society was founded on the 30th of June, 1883, and more especially since the society's first show in the spring of the year 1885, how great even Hackney breeders are apt to forget. But those who do not look with a kindly eye on this evidence of public favor have a better memory. They recognize that, so far as the mass of horse-breeders are concerned, the Hackney is the newcomer; moreover, they have not cared to look up the evidence that the Hackney has in foreign lands as well as at home. Well sustained is the test that is everywhere recognized as the best proof of purity of blood—the power to impress its own characteristics on the produce of mares of other varieties of the horse, not even excepting the Eastern breeds, and the British compound of Eastern and the old English courser, which we speak of as Thoroughbred. Hackney breeders know that the purest-blooded Hackney horses are just such another compound, but with the old English Hackney instead of the courser as the foundation; and they may readily admit that as this last breed were so few as to be spoken of as “well-nigh extinct” fifty years ago, Hackney owners had to master more of the science of breeding than has been demanded of the man whose taste is for the racer or the hunter. None should be more ready to admit that short pedigree has uncertainty as its attendant, since in recent years the one particular sought after by the owner of Hackneys is the back-breeding of sires and dams when a man desires to breed only the best.

Ireland saw, last April, the founding of an Irish Harness Horse Society, with an influential array of noblemen and gentlemen as its supporters. The declared purpose of this society is to increase the supply of harness horses, bred in Ireland, by farmers who cannot hope to produce a made hunter, as Hackney stallions have been the means by which foreigners have been enabled to send to Great Britain “harness horses with action,” for which there is a constant demand. The Harness Horse Society further proposes gradually to form a register of mares specially suitable for breeding harness horses.

The Harness Horse Society had stated that after the horse show of 1894 “the different journals were unanimous in expressing their approval of the action of the Royal Dublin Society in re-introducing Hackney classes, stating that it was part of the society's duty to encourage a development of industry among all classes of farmers, and not practically to confine their efforts to one branch only of the horse trade.” No classes, however, were provided for Hackney stallions at the Dublin Show of 1895, and there was only the barest possible recognition of Hackney mares.

The excuse was that the breeding of hunters would be made more hazardous by the possibility of farmers using a Hackney stallion. It was further asserted that big carriage horses were harder to get in Yorkshire, since farmers there had bred Hackneys more freely, this apparently discounting the promise held out to Irish farmers by the Harness Horse Society.

One result of this dog-in-the-manger policy has been a letter to the *Live Stock Journal* by Mr. R. G. Carden, of Fishmoyne, Templemore County, Tipperary, whose “whole aim,” he says, “has been to breed weight-carrying hunters with as much thoroughbred blood as possible.” This unprejudiced observer, acting as judge at district shows instituted by the congested districts board, gives one of the strongest possible testimonies yet received as to the value of the Hackney stallion; and this, be it remembered, when the horse was used over Irish country mares, deficient in bone, quality, and shape. Mr. Carden says of the young stock exhibited: “With regard to the young stock, the produce of the Hackney stallions, the really splendid show of two-year-olds, yearlings, and foals, particularly the last, which came before us would have done credit to any show in the country, and it was hard to realize, when one saw the foals trotting beside their dams, that one could have been the offspring of the other, so much has the Hackney impressed his make and shape.” Further proof of what the Hackney is already doing for Ireland is found in Mr. Carden's statement that many of the farmers had got nearly double the price for the produce of the Hackney stallion that they had been hitherto receiving.

Here is the promise of 1895 for British breeders of the prime Hackney, as it is also abundant warrant for increased efforts on the part of the Irish Harness Horse Society.

Scotland has more than maintained the lively interest which has been aroused there by a few earnest lovers of the Hackney. Her Majesty the Queen is there an occasional exhibitor. There is also a noteworthy readiness to provide classes which shall lead to the more general use of the Hackney stallion.

This policy, in such strong contrast to that pursued in Dublin, is followed consistently both by the Highland and Agricultural and by the Edinburgh societies. County and district associations have thus a good example set them that is rapidly bearing fruit.

The year has, as we have said, been noted for the exceptional prices realized at several of the sales by public auction. Mr. Alexander Morton, in March, offered Hackneys and ponies from his

stud at Gowanbank Darvel. A couple of Hackney geldings made 400 guineas, and the average for nineteen harness horses was £90 6s., as against £67 14s. 6d. for ten sold in 1893. Two sales on following days in the east riding opened the English season.

At Mr. F. Usher's, Middlethorpe, the top price was 145 guineas for Maggie Murphy, and 100 guineas was given for a yearling filly by His Majesty. The first seven mares sold made a total of 459 guineas. Lady Cranbrook brought 205 guineas, and Martha 185 guineas. Sir Gilbert Grenall's Hackneys were offered at Tattersall's, when Orange Blossom was bid up to 1,400 guineas and withdrawn at 1,450 guineas. Amazement was withdrawn at 900 guineas. Sir Humfrey de Trafford's ponies, sold on September 5th, previous to the removal from Flodon to Swafield, in Norfolk, made a yet more sensational sale. Snorer 2nd made 600 guineas; Georgina 5th, 600 guineas; Dorothy Derby, 600 guineas; Dorothy Derby 2nd, 720 guineas; Snorer 2nd, 700 guineas; Miss Sniff, yearling by Cassius, 900 guineas; and Snorter, 350 guineas; the stud of breeding ponies totalling £6,100 10s.

The reason of the phenomenal sale of the Hackney cobs is their suitability for breeding Hackney cobs and polo ponies, which are in great demand up to big weight, and are very fast and active for saddle. They fetch higher prices than the hunters, as they are quicker, and several large breeders are breeding this class of Hackneys.

General Gordon's stud sale of Hackney ponies, on September 10th, was followed, two days later, by another Lancashire sale, that of Mr. R. Hartley's Woodfold Park stud at Blackburn. The top price at this sale was 250 guineas, for Countess of Derby; 230 guineas was given for Fearless, a three-year-old filly and 170 guineas for Golden Belle, also a three-year-old.

In Canada there have been several good sales, and only this month I sold a complete stud of Hackneys and mares to go to North Carolina. They comprised Black Prince, Miss Noble, Noble Girl, Soubrette, Little Duchess, sired by Young Nobleman; Lady Bardolph and Geraldine, by Lord Bardolph and Norfolk Duchess. Two of them were left at A. J. Cassatt's farm to be bred to Cadet, and two were sent to Dr. Seward Webb's to be bred to Matchless of Londesboro. The purchaser was more than pleased with them, and it is his intention to cross them with trotting mares, of which he has a large stud.

Americans are more and more demanding style and action in their pleasure horses, and there has also sprung up a good demand for geldings with the Hackney characteristics, which tends to the advantage of importers and breeders of Hackneys.

Railroad Rates.

EDITOR FARMING:

SIR,—In a recent issue you refer to the excessive rates charged by the C.P.R. on live stock, and you advise the farmers to bring pressure to bear on the railroad companies by means of their representatives at Ottawa. I venture to think that the only practical way to remedy this great difficulty is for the government to take over and run the railways, as is done in most of the progressive countries of the world. The experience of England and the United States proves conclusively that it is impossible for the government to effectually control the railroad companies; and, indeed, in the States, and to a great extent in Canada, it is the railroad companies that control the government.

In England a parliamentary committee, only a few years ago, attempted to lower the railroad rates, and the result finally was that in many cases the rates were increased, as the companies merely classed the freight differently. The only remedy that their customers had was to go to law, a remedy that was impossible to the poorer sufferers and worse than the disease to the wealthier.

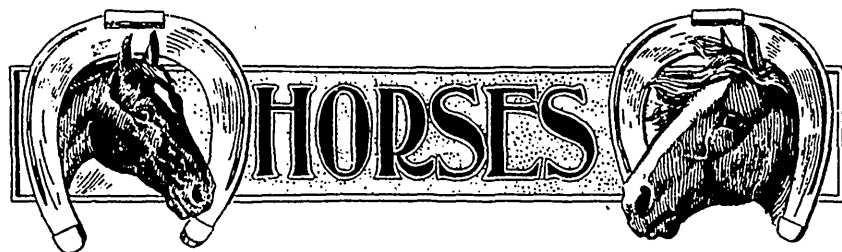
Railways are at once monopolies and necessities nowadays; consequently, we are at their mercy unless we, as a nation, own them, and the tender mercies of railway managers and railway companies can best be judged by the condition of affairs in California, or in any of the Western States. The great objection urged to the ownership of railways by the state is that a government may be too corrupt and inefficient to manage them. To this I reply that we must get a government sufficiently honest and capable to manage them properly.

This question of railroad management is a greater and more vital question than that of our trade policy, for it is obvious that no change of policy can benefit farmer, miner, or manufacturer, when the railways, by reason of their monopoly, can and will sweep off every margin of profit, leaving to those who produce the wealth a bare existence. We have an agricultural department which is a great credit to Canada, and is probably the most efficient and practical institution of its sort in the whole world. As dairy commissioner, and at the head of our experimental farms, we have men who are known and respected throughout Canada. Can we, in the face of facts such as these, doubt that we can get a government department capable of managing our railways?

I know that you avoid politics in your paper, but you will, I trust, find space for this letter, as this is not a party question, and is above politics, it being, in fact, a matter of life or death to Canada.

J. C. HARRIS.

Westholme, Vancouver Island.



MR. AUGUST BELMONT was the sole judge of Thoroughbreds at the Philadelphia show, and did his work well.

STAR POINTER, 2.04½, will be in the stable of the Boston trainer, Jack Bowen, and is expected to give all the fast New England pacers the go-by.

THERE was a recent race for \$3,000 at San Francisco between Orestes, the first colt sired in America by Ormonde, and the colt San Mateo, by Salvator. The latter won a close race.

MR. BLADON, of Sutton-on-Hull, Yorkshire, England, has sent over to New York State a Hackney filly to be bred to Langton Performer, owned by Mr. Frederick C. Stevens, Maplewood Stud, Attica, N.Y.

NIGHTINGALE, 2.08, by Mambrino King, dropped dead at Louisville, Ky. She was a fine chestnut racer, with a two-mile record of 4.33¼, and a three-mile of 6.55½. She was the greatest money-maker ever bred by Messrs. Hamlin at Village Farm.

MR. PIERRE LORILLARD's racers have been winning some minor events in England recently. They won two events at Newmarket of 103 sovereigns each, and ran second in three others. The home stud is now in charge of R. Carter, V.S., formerly of Guelph, Ont.

SUNOL, Mr. Robert Bonner's queen of the turf in the past, having a record of 2.08½ to a high-wheeled sulky, will be trained again this year. Two years ago she strained a tendon and has been laid off. Since then she seems to have recovered, and may be heard from before the year is out.

MESSRS. AIKENS & FLANIGAN lately shipped from Montreal 36 head of trotters, pacers, and coachers. Among this lot were several very fast ones, Gertie B., 2.13½, by Clinton, having the lowest record, but there were several who had gone under 2.20. Altogether, they were an extra good lot.

THE May parade of cart horses in London this year brought out 767 animals. It is said to have been the best show of heavy ripe geldings ever seen. The large brewers' vans had the heaviest animals. One account of the parade says: "There were 'a good many chunk-headed Canadians,'" whatever that may mean.

THERE have been a number of notable sales of Clydes in Scotland this spring. One hundred and six head were sold at four sales, and the average price, \$327, is very high. The average of the best of the four sales was \$584, and the highest price paid was \$2,250. On the whole, the Clydesdale breeders ought to feel happy over the good prices and the decided revival in the trade in Clydesdales.

AT dairy meetings and farmers' institutes a favorite topic is how to make the most out of the skim-milk. It usually pays to give the foals and young colts a liberal allowance. If the foal be still with the dam, the milk is better warmed with a little sugar and water added. Older ones can take their allowance without any preparation, and there is no food better for the young growing colt than a liberal allowance of milk.

THE handsome harness mare, Lyric, brought \$1,600 at auction lately in New York. She was owned by A. J. Cassatt and purchased by T. H. Shults, jr. She is a roan filly, fifteen hands, four years old, by Matchless of Londesborough. A bay filly by the same Hackney sire realized for Mr. Fairfax \$650. The prize-winning team at Philadelphia—Romeo and Juliet—sold to Mr. Robert Carson for \$3,000.

CARRIAGE horses are bringing good prices in Great Britain, when of the best class. Mr. R. Pattinson, Edinburgh, lately bought a pair of high-stepping 16-hand horses, five and six years old, for \$2,000. A fine team of bays, beautifully matched in style and action, were bought by Mr. W. D. Rucker, Walton-on-Thames, for \$2,500. For the best class of harness horses there is a good demand.

PRINCE OF CLAY, winner of the champion plate in the Clyde stallion class at the Glasgow

show, is by Prince Alexander, out of Pandora. Prince of Clay is a big thick horse, of rare quality. He is strong in Darnley (222) blood, both his dam and his sire's dam being by that well-known horse. In the female classes at the same show the championship fell to Montrave Maud. She is by Prince of Albion, out of Moss Rose, and is a beautiful mare with four white stockings.

MR. JAMES FORSHAW, the well-known English breeder of Shires, has lost his famous Shire stallion, Honest Tom 5123, which died at Carlton-Trent, Newark, lately. Foaled in 1884, he was bred by Mr. T. J. Mott, Littleport, Ely, got by Wonder of the West 2371, out of the King Tom mare, Sunbeam 1272. He has left an indelible impress upon the Shire breed, and although he won the Cambridge Show championship in 1890, and stood well up at Islington, he was more of a stud than showy or type. He had immense weight and substance, and rumor had it that he weighed about a ton and a quarter. His death will be much regretted. The cause of his illness was water on the chest.

Judging at Shows.

The old-fashioned three-judge system is out of date. The tide seems now to have set in for two judges, but there are many who declare for the single-judge system. Given good, competent men, who will make their awards without fear or favor, the single-judge system is as good as any. The judge is put upon his mettle; there can be no shifting of the responsibility to the shoulders of the other judge. Any error made is easily laid at the door of the single judge. At the Glasgow show this year the single-judge system was tried, and gave good satisfaction. The verdict of the public was largely in favor of the new style.

Food and Water.

Watchful care is needed to keep the horse sound and healthy. Regular watering and feeding is the best medicine to prevent colic and the ills that follow thereafter. Overfeeding is more to be dreaded than some think. Especially is this true in the matter of feeding hay, which is overfed by many farmers. Watering is of fully as much importance as feeding. Horses are quite particular about the water they drink. Running water from a clear spring creek is best. Well water is usually good, and may be given if fit for human use. Pond water without inlet or outlet is unfit for use, and should never be given. Water should always be offered before feeding,

and not given for some time after. The horse's stomach is small, and drinking after feeding is apt to wash the food undigested out of the stomach and cause trouble.

Horse Breeding.

There is still, with many farmers, too much of the happy-go-lucky style of horse-breeding. They have bred medium-weight mares to draft sires, hoping thereby to get a heavy draft horse. They have tried half-bred Clyde mares with standard-bred trotters to breed a coach horse. Then they have tried all sorts of trotting-bred animals of all styles and types, and the mixtures have been very wonderful, with nothing else to commend them.

Crossing small mares with heavy animals to get a nice medium animal is a delusion. In these times horses without quality are worth little. Good horses of a fixed type, be that carriage, high-stepper, or heavy draft, are scarce, and becoming dearer all the time. Really good heavy draft horses are worth money. Handsome high-standing carriage horses are in demand. Breed them right, and they will sell for a good price.

To breed good ones, we must have good mares and select the best stallion of the type we want that is available. Haphazard work, too common in the past, is out of date. Careful selection and systematic mating, with good care of the young stock, is needed to make money in the business, and it brings a good reward still.

It will pay farmers who have good mares to breed them. If you have not good mares, it will pay to sell your inferior stock, and buy a pair of good mares of the breed you fancy. One or two good colts will bring more money than half a dozen poor scrubs. For good results get the best mares you can, and breed with care to the best.

Our Export Trade.

Our export trade in horses is a valuable one, and should be carefully guarded. The scheduling of our Canadian cattle and compulsory slaughter at the port of landing has been a source of loss to our breeders. Now our horses are threatened, and the cry of "glanders" is raised in England. It is well known that this disease is not prevalent in Canada, and that the particular animals complained about really came from the United States, as did the oxen alleged to have been landed suffering from contagious pleuro-pneumonia. The London *Live Stock Journal*, which has always strongly opposed the Canadian cattle trade, now

calls loudly for some change in the conditions under which horses are imported into Britain. In its issue of May 22nd, it has a very rabid article against the importation of horses, in which it says: "But if the Board of Agriculture do not at present possess any powers to deal with imported horses, they can remedy the defect. If we read the statute aright, the Diseases of Animals Act empowers them to make orders extending any or all of its provisions to any class of four-footed animals. This provision would enable the board to pass an order to prohibit, if that were necessary, the landing of horses; to carry out slaughter at the ports of landing; to quarantine horses, or to detain them for inspection."

This suggestion of the steps to be taken is surely drastic enough. It behooves our government to take every precaution to have our Canadian horses landed in good order, to see that no cause of complaint is given to those people, who are so anxious to have our horses shut out of the British markets. A closing of the horse market in Britain would be a severe loss to our Canadian breeders.

Drinking Sand with Water.

Now, when horses are out at pasture, on many farms it is necessary to pay some attention to the drinking water. See that a proper drinking place, with clean water, is at hand for the horses. A writer in a live stock paper states that he recently lost a valuable cart horse from drinking in sand from a shallow stream. A *post-mortem* examination revealed fourteen pounds of fine sand by actual weight in the great gut. Some horses may carry the dirt for a long time without fatal results, but they are weakened in the bowels, tire quickly while at work, and are difficult to keep in good condition. Care in seeing that a good drinking place is provided is the only known remedy.

Handling the Colt.

The foal should be handled from the first week of its life. This handling should always be done gently; there is no need to use the colt roughly at any time. It should become accustomed to the pressure of the hand on all parts of its body and limbs. If this be gradually and carefully done the foal will allow its feet to be lifted, and its head and ears to be rubbed, and that without taking offence or feeling fear. Before being weaned, or earlier if convenient, a light halter

should be put on the colt. By repeated handling it becomes accustomed to the pressure, and then a rope or leading rein may be attached and the colt be taught to lead to halter. Should the earlier handling have been neglected, there may be considerable care required in

PUTTING ON THE HALTER.

Go about the work quietly and slowly. Get on the left side of the colt close up to his shoulder, put both arms around his neck, holding the head towards you. Have the halter handed to you, taking the upper part in your right hand, and with the left slip the lower part over the nose of the colt. Be ready for a start back if the colt should attempt it. As soon as the latter is firmly on, fasten to it a rope or long strap, and teach the colt to walk around the enclosure without pulling at it and without much forcing, but at the same time it must be made to feel that resistance is useless. If it begins to pull, it must on no account be allowed to break away.

LEADING THE COLT.

If the colt pulls straight back, it is better to yield somewhat, and hold gently with a side strain. If the line be not held too shortly, and the colt feels that it has full play to walk forward, it will not be liable to behave so badly as if it were held by force in one place.

Never provoke the colt by tugging and jerking, but be careful and gentle in all movements. Just here the skill of the trainer comes into play. Some men will manage without the slightest violence, while others will always be fighting with their horses. The latter kind are not fitted to handle a colt, and should at once give up the job. When the colt submits to be held by a short line without shying, approach it and guide it to one side. It will follow a gradual pull of the halter to that side. Do not get in front of the animal and try to pull it after you. When it has made a few steps sideways fondle it, and proceed till you can guide it in any direction. Do not make the lesson too long. Do not tire it out, but teach one lesson thoroughly before trying a new one.

TO TIE THE YOUNG HORSE.

The colt may be safely tied in a stall not too wide nor too long. If it has been carefully handled while with the mare and haltered, it may be taught to stand tied up by its dam's side. If this has not been done, a safe way is to put the colt in a stall with a movable cross beam fastened a short distance behind him; with this it is not able to step back far enough to tug at the halter in a direction straight backwards. It is well to tie it up during the day till it becomes well ac-

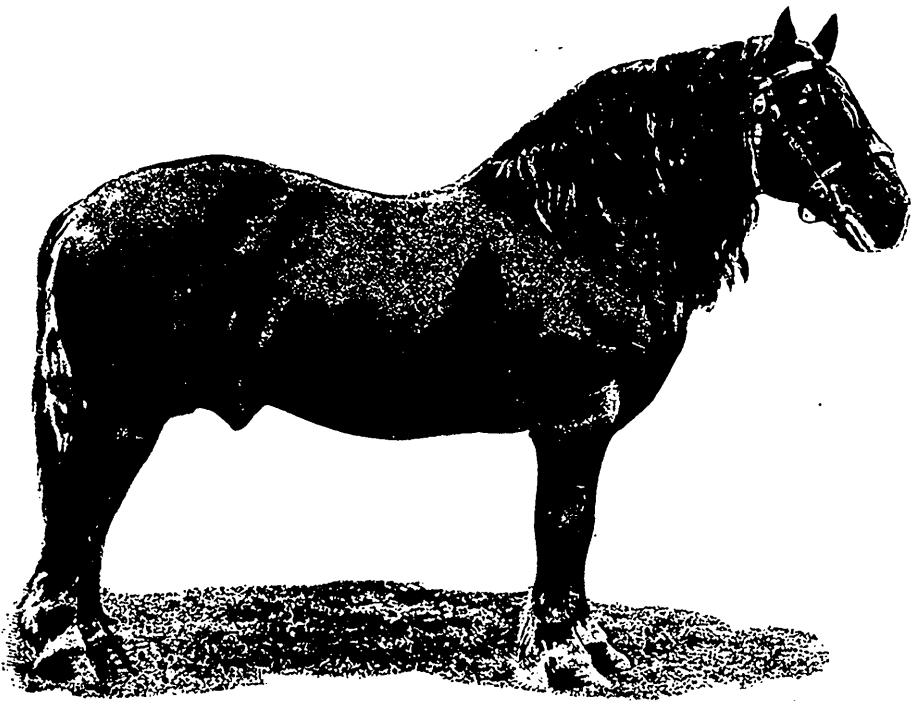
customed to being tied. Accidents sometimes happen from tying the colt at night when he feels strange and frightened, and leaving him alone.

LEADING WITH ANOTHER HORSE.

To accustom the colt to lead with another horse take an old, well-trained horse and place the colt on his off side. Have a second strap fastened to the colt's halter, and this passed across the breast of the old horse and firmly held. This will prevent any hanging back on the part of the colt, while the first halter strap keeps it from going too far forward. Both horses may be managed while riding the old horse. Should the

A Prominent Suffolk Sire.

It seems strange that Suffolk horses have not been greatly sought after in this country, when we consider the many excellencies of the breed. For toughness, determination at a pull, and easy keeping qualities they are hard to be excelled, while they are also active in movement. Many instances are on record of the wonderfully heavy loads that have been drawn by Suffolk Punches. Our engraving is that of the stallion Warrior 1938, the property of Mr. William Everett, Levington, England, and a prize-winner at shows.



The Suffolk Punch Stallion, Warrior.

The property of Mr. William Everett, Levington, England.

colt get obstinate and refuse to go, turn the old horse towards the right and against the neck of the colt. Compel it in this way to turn a few times, and it will then usually be willing to go forward again. If the old horse be well acquainted with the colt it will be all the better, and will give the colt confidence. An old, trained horse with which it is intended to break the colt to harness is the one that should be used. In this way the colt may be taught to go with its mother, and accustomed to do so before the harness is put on.

The Keir Clydesdale Sale.

The dispersion of the Keir stud of Clydes removes a very old landmark in the Clydesdale world. Keir was the home farm of the late Sir William Stirling Maxwell, in his day one of the most enterprising agriculturists in Britain. It is situated near the Bridge of Allan, Stirling, Scotland, and the Clydes bred there have made a reputation which is world-wide. For more than fifty years this pioneer stud of the Scottish breed of draft horse has held a leading place. Sam-

son (741) was one of the first of the good ones there. He was foaled in 1855. Keir Peggy (187), by Samson, was the dam of the celebrated Darnley (222), the greatest breeding horse that came from Keir. The writer first visited the Keir Clydes in 1866, and was shown over the beautiful estate by Mr. Young, the manager. The farm at that time was one of the show farms of Scotland, and the stables and steading were kept in first-class style. The stallion then in use was Baronet (30); there were some good colts, and the mares were the grandest lot of Clydes seen anywhere, Keir Peggy being not the least notable of the lot. Since that time Keir has been revisited more than once, but the memory of that first visit and the grand lot of Clydes then seen stands out clear and more striking than that of any subsequent visit. Sir William Stirling Maxwell, of Keir, was the first vice-president of the Clydesdale Horse Society of Great Britain and Ireland; but while he took an active part in the formation of the society, he did not live to attend many of the meetings, but died in Venice in 1878. The Clydes were kept on by his trustees during the minority of his sons, and now the dispersion sale has come, and the Keir Clydes are scattered. There was a very large attendance of Clyde breeders from all over Scotland. The associations connected with the place drew a vast crowd. Over one thousand persons surrounded the ring. The sale was a good one, but there were few fancy prices. Many of the mares were well up in years, and some of them were past breeding, and this, of course, kept down the average of the sale.

Professor McCall, the breeder of Cedric, paid \$1,250 for Newhope Mewstead Darling (9810), nine years old. Mr. Riddell paid \$1,000 for the twelve-year-old mare, Lorne Peggy (8579), a fine type of a brood mare on short legs. The same buyer paid \$1,300 for Victoria, a big brown mare nine years old, by Prince of Albyn. Queen of Quality, six years old, a nice little mare, sold for \$680 to Mr. Stevenson, of Blairshinnock. The Marquis of Londonderry got a nice two-year-old filly, by Buxom Lad, for \$800. The mares averaged, for twenty-nine head, \$382, and the average of the whole sale for fifty-three head was \$337. Thus closed the last of the old Keir stock, but it is hoped that Keir will again have a famous stud of Clydes under Mr. A. Stirling, the present owner and the late baronet's younger son. The sale took place to close out a partnership between the two brothers. The elder son, Sir John Stirling Maxwell, M.P. for Glasgow, has the Pollok estate near Glasgow. The younger, Mr. A. Stirling, of Keir, was left the Keir estate.

The Clydes were left jointly to the two brothers, and the dispersion sale was the termination of this arrangement, the elder brother's parliamentary duties demanding all his spare time. The sale shows that good Clydes are bringing paying prices in the old land.

Breeds of Horses.

THE ARAB.

As has already been mentioned, the English Thoroughbred owes a good deal to the Arab. James I. is said to have paid \$2,500 for an Arabian imported by Mr. Markham from Constantinople. This was a very large sum in those days. Mr. Place, stud groom to Oliver Cromwell, obtained possession of an Arab which appears in the studbook as "Place's White Turk." Charles II brought from Tangiers four Barb mares which are now known as the "Royal mares." In 1684 three Arab mares were captured at the siege of Vienna and brought to England. These with stallions such as the Byerley Turk, Darley Arabian, and Godolphin Arabian gave a large admixture of Arab blood to the English racer. But even in those days it was a rare thing for any Arab to capture a race at a first-class meeting. Now it is well known that second-rate Thoroughbred horses can run away from the best Arabs. Pure Arabs are considerably smaller than our modern Thoroughbreds. The size of the Arab should be between fourteen or fifteen hands. There are exceptions, but usually they vary little in size. Some of the best studs at present in the United States do not vary one inch in height. One American breeder keeps his entire stud under 14.3 by fresh infusions of desert blood. He thinks the Arab loses in individuality when he grows over 15 hands. They have a tendency to grow larger in northern climes. Better treatment and better food may account for this tendency.

In Arabia there is oftentimes a scarcity of food, and the young growing stock suffer at such times. Arabia is largely made up of rough rocky mountains and sandy plains. On the oasis about a well or spring of water and in the valleys along the banks of streams grows rich grass, fine and soft, very suitable for horse food. It is probable that the lightness of frame and the fine quality of muscle and tendon of the Arab is due to the sandy soil in which these grasses grow. The clear dry air is good for his wind, and the soft, yielding sands make shoes a needless incumbrance and allow the hoofs to keep their natural shape.

The Arab is wide across the forehead, which is also full and square. Owing to this large brain

development, they have courage and intelligence far above the average. Most of them are extremely docile and have fine tempers. When one goes bad and becomes vicious, it is very unmanageable and dangerous. The muzzle is fine (some can drink out of a tumbler), the face is hollowed out, and the jaws large and more fully developed than in other breeds. The eye is full and soft, sometimes slightly sleepy-looking in repose, but brilliant when lighted up by excitement. The ear is small, beautifully pricked, and shows great sensitiveness. The neck is arched, somewhat shorter and thicker than that of the Thoroughbred, but quite as delicate in its point of union with the head. The Arab rarely has such a crest as the English stallion. His neck is strong, light, and muscular, but sometimes runs rather low down into the shoulders. The shoulders are oblique but muscular, the withers moderately high and thin. The chest is not broad, but is deep enough for either strength or bottom, but rather light in girth. The ribs are deep and round like a barrel, which helps to give the animal wonderful endurance. The hips are rather narrow, but well united to the back by powerful muscles. The croup is high, and the tail is set on in a manner quite peculiar to the breed.

The Arab is more beautifully made in his hind-quarters than most other breeds. His quarters are powerful, and his tail carried high. The bones of the legs are large in proportion to the size, the tendons full and free, and the ligaments strong and clean. The forearm is strong and muscular, and is pretty long; the knee square, and the hock good below the knee. The pasterns are shorter, straighter, and stronger than those of the English Thoroughbred. The feet are usually rather small, but of good quality, and sound. They will stand much more battering than will the Thoroughbred's. Some of the very best Arabs stand with their forelegs very much under them. The hocks are large and free from spavins or curbs. They are not so much let down, not so grayhound-like, as in the English racer. They almost all have a straight dropped hind leg, and this, when extended, brings the hind foot under the stirrup, which gives a good stride without danger of over-reaching.

The colors of the Arab are mostly bay, chestnut, and gray—more rarely black. The skin of the gray horses is of a deep slate color, and the manes and tails darker than the rest of the body.

There are some five or six breeds of horses in Arabia, or, rather, variations or strains of the same breed. The most highly prized are those which trace to the stud of Mahomet. The horse

is much prized by the Bedouins of the desert, and great care is taken to keep the breed pure. The speed of the Arabs is undoubtedly not nearly equal to that of the English Thoroughbred. In the Goodwood Cup an allowance is made of 140 pounds in favor of Arabs, yet none have ever had a chance of winning, and, so far as the test goes, they are inferior to either French or American horses. The mare is commonly supposed to be more highly prized by the Bedouins than the stallion, but this idea seems to rest on no good basis, as they show great care in the choice of a breeding stallion, and travel long distances to procure the services of the animal they admire, which must be of pure blood.

In Gibbon's history we read: "The Bedouins preserve with superstitious care the honors and memory of the purest race; the males are sold at a high price, but the females are seldom alienated; and the birth of a noble foal was esteemed among the tribes as a subject of joy and mutual congratulation. These horses are educated in the tents among the children of the Arabs, with a tender familiarity which trains them in the habits of gentleness and attachment. They are accustomed only to walk or gallop; their sensations are not blunted by the incessant abuse of the spur and the whip; their powers are reserved for the moments of flight and pursuit; but no sooner do they feel the touch of the hand or stirrup than they dart away with the swiftness of the wind."

Loss of Hair.

L.S.I. asks how to keep the hair on the legs of a Shire stallion during the season.

ANS.—Loss of hair is natural to some horses, just as there are people whose hair is very thin while they are in good health. Keep the legs clean by means of soap, water, and a brush, and rub into the roots of the hair, after being well dried, a little vaseline.

Joint-III.

J.B., Drayton: What will prevent joint-ill in foals?

ANS.—Put the dam on weak diet for a few days after foaling, feeding bran mashes and plain food. Wash the navel cord of the foal with a disinfectant regularly, and keep the stable clean and well bedded.



MR. ROBERT RIDGE, Twickenham, England, owns a live calf, somewhat over a month old, which has three mouths, three sets of teeth, and two tongues. In all other respects the animal is normal, and is healthy and strong.

MR. SILAS BETTS, president of the American Guernsey Cattle Club, died on May 21st, at his residence, Camden, N.J. He was a most enthusiastic admirer of Guernseys, and was the first to introduce them into the State of New Jersey. He also contributed numerous articles to the agricultural press.

MESSRS. ELBERT & FALL, Albia, Iowa, had a most successful sale of Shorthorn cattle on June 4th. Only one animal, a calf, sold for less than \$100. The top price of the sale was \$500, paid by N. H. Gentry, Sedalia, Mo., for Baroness of Hazelhurst, a three-year-old Barrington heifer, with heifer calf at foot. Forty-two head sold for \$9,300, an average of \$221.

A NUMBER of Jersey cattle have been shipped to Japan from Portland, Oregon. A Japanese resident in that region has sent a consignment of cows and heifers to his brother, who is a dairy farmer in Japan. It is probable that, when the Japanese get better acquainted with the merits of the Channel Island cattle, there will arise a considerable trade in them between America and Japan.

ARGENTINA now ranks third as an exporting country of pastoral produce to Great Britain. This trade has developed very fast, but is not paying very well just at present. The number of live animals exported from thence during the last four years is as follows :

	1895	1894	1893	1892
Live cattle,	125,839	220,490	201,458	125,645
Live sheep,	477,121	122,218	71,167	40,100.

THE price of beef is being kept down in Britain by the large importation of foreign cattle for slaughter. During the first quarter of this year there were landed 134,995, against 71,361 in 1895,

and 86,018 in 1894. This is a very large increase. The stock from Argentina increased 300 per cent. this year, while those for the United States were over fifty per cent. more than the same period last year. No wonder, with such an increase in the supply, that the price is kept down.

A NUMBER of breeders in Aberdeenshire, Scotland, among them Mr. Duthie, Collynie, have lost several valuable calves this spring. The *post-mortem* examinations revealed that the deaths had occurred through portions of binder twine among the fodder having become consolidated into hard balls in the stomachs of animals, in much the same way as wool balls in the stomachs of lambs cause death. It is best to remove all binder twine from straw, whenever a piece is discovered in it.

THE London *Live Stock Journal*, which has always opposed Canadian cattle being allowed into England, says : " We have never alleged that pleuro-pneumonia exists among Canadian cattle. We know nothing about it ; what we do know is that animals from Canada were landed in this country that (according to the verdict of men who have seen more of the disease than any other specialists in the world) were suffering from pleuro-pneumonia on their arrival. Where they came from it is not our duty to find out, but the explanation that was given at the time by some leading Canadian public men seemed to be the most reasonable, viz., that the defective frontier arrangements had resulted in the export of cattle from the Western States."

FOR some years past a disease of a peculiar character affecting cattle has periodically visited the Brighton district, Victoria, Australia, and has been very fatal in its effect. The symptoms in all cases develop within a few days or weeks after calving. The bones soften so rapidly that the ribs are often broken in the act of lying down, and the vertebræ can be cut through from head to tail with a knife. The animals affected show very few signs of pain, but often develop gases under the skin, and die in about two weeks after showing the first symptoms. Mr. A. E. Callow, G.M.V.C., first drew attention to the unknown character of

the disease, and has closely investigated the last case. He is of opinion that the disease has been the cause of many deaths which have hitherto been attributed to pleuro-pneumonia and anthrax. The blood has been subjected to microscopical examination, but no germ likely to cause the disease has yet been discovered. It is supposed that the disease is of septic origin.

Lincolnshire Red Shorthorn Association.

A new cattle breeders' association has recently been formed in Lincolnshire, England, called the Lincolnshire Red Shorthorn Association. Considering that there is already in existence an association and herdbook in the interests of Shorthorns in Great Britain, the founding of a new association and herdbook would seem superfluous, unless there were some special features in connection with Lincolnshire Shorthorns. This the breeders of Shorthorns in Lincolnshire assert exists, and they claim for their favorites that they are superior to all other Shorthorns in hardihood, constitutional robustness, and those qualities which make them most serviceable for rent-paying purposes.

That Lincolnshire Shorthorns possess these qualities in a high degree was evident to those who had the pleasure of looking over them at the Lincolnshire annual show. As the title of the association indicates, they are red in color, and in size and robustness they seem considerably larger than the average run of Shorthorns. It was to perpetuate these valuable features, and to preserve their branch of the Shorthorn breed from contamination with other less excellent strains, that the breeders of Lincolnshire united to establish an association and record.

We are not at all sure that the establishment of this association will be of any advantage to the Lincolnshire strain of Shorthorns. The multiplying of records for any one breed is, in our opinion, a source of great weakness. When one herdbook can accomplish all that is required, what purpose is served by establishing another? Granting that the Lincolnshire Shorthorns possess all the characteristics named, could not the breeders in that county continue by selection to maintain them unimpaired, in the same way as Scotch Shorthorn breeders bred a type of their own, without starting a new record? It certainly seems to us a very unwise move, and we feel exceedingly doubtful about the success of the new association.

In the meanwhile a dispute has arisen between the old established Shorthorn society and the

newly formed association as to the use of the word "Shorthorn" in the latter's title. The new society have, however, taken counsel's opinion on the subject and this proved favorable to their right to use that designation. They have, accordingly, decided to continue the use of the word Shorthorn in the title, and they expressly state that they wish to work in harmony with the older society, and do not intend to put themselves into antagonism with it.

This dispute brings to mind one of a similar nature some time ago between the Devon Cattle Breeders' Society and the South Devon Herd Book Society, when the latter changed their name from the South Hams Society to the South Devon Herd Book Society. The first named society wished the newly established association to omit the word Devon, but, as in the case of the Lincolnshire association, the junior society declined.

Tuberculin not Satisfactory.

We have frequently called attention to the unsatisfactory results that have attended the use of tuberculin as a diagnostic of tuberculosis. It has been found that it is impossible to judge from the reaction that took place whether the animal was badly affected or not, or even whether it was affected at all. In some cases animals have reacted, a *post-mortem* examination of which failed to show the slightest trace of the disease, while the contrary to this has occasionally been heard of, that is to say, animals have failed to react which were badly diseased.

An instance of this is given in the *London Field*. The Earl of Mar and Kellie had all his cows, consisting of five Ayrshires and five Jerseys, inoculated with tuberculin by a qualified veterinary surgeon last summer, with the result that one only failed to show a rise in the temperature of a greater or less degree within twenty-four hours, this exception being an imported Jersey which had become wretchedly thin and rheumatic, caused, as was supposed, by the climate. The result of the test on this cow was to reduce her temperature two or three degrees below what was normal. On having her slaughtered lately, on account of her wretched condition, her lungs were found to be simply coated with tubercles. How the animal could have lived is a mystery, but she was never off her feed, or seemed in any way affected by the disease, except that she had become literally a bag of bones.

On the other hand, immediately after the inoculation of the herd, the cow, an Ayrshire, which had reacted to the greatest extent, was slaughtered

and found to have only a very few small tubercles in her lungs.

Judging from the instances given by the Earl of Mar and Kellie, and from others that have come to our notice, tuberculin is not the reliable agent in diagnosing tuberculosis that its advocates try to make it out to be.

Feeding Cattle on Grass for the British Market.

In the August number of the *Canadian Live Stock Journal* for 1894 we gave a description of the methods pursued by Messrs. J. & W. Weir, of St. Marys, in feeding steers for the British market on grass, and the great success they had met with in so doing. As stated there, Messrs. Weir had previously practised stall feeding, which plan had been followed for twenty years, but the lessened profits which were being obtained from this method of fattening cattle at the present day had caused them to try the system of grass feeding, with most satisfactory results.

Another well-known feeder, who practises much the same method, is Mr. Albin Rawlings, of Forest, Ont. In an interview with this gentleman we learnt the following particulars of the system he pursues:

"How have you found grazing to pay during the last two years, Mr. Rawlings?"

"It has paid fairly well with me. Some young beginners, however, have had very little success, but this is either because they stocked too heavily, or else bought unsuitable cattle."

"You are in a good grazing district, which, of course, gives you a great advantage."

"Yes, I think it is the best district for grass or stall feeding in Canada. We can grow immense crops of corn, as good as they can in Michigan. We cut up the corn as it grows, and it is the cheapest way to feed cattle. We give them cut corn and cut oat straw in the winter, and a little meal, and sometimes oil-cake, when it can be bought at a reasonable price."

"Your cattle will thus be in good condition when they go out to grass?"

"Yes, they are pretty nearly fat then."

"How long do you keep them at grass?"

"Till about the 25th of June or the beginning of July. They are then ready for any market. Cattle in this section are marketed in July and August, but mostly in July. By having them ready early we get clear of our fat stock before the dry weather comes on."

"Have your profits been as great during the last year or two as before?"

"Not quite so much, but from now on we shall probably be able to buy store stock cheaper to fatten."

"You believe in shipping only fat stock from this country?"

"Yes. All stock should be shipped fat. In this way we get the benefit of all the manure on the land."

"Where do you buy your store stock?"

"I find it cheapest to buy them on the Toronto market, and, consequently, get as many as possible there. In a grazing district like ours store stock are held so high that it is unprofitable to buy them there for fattening."

"Can you give me any particulars as to how much you have made per head on an average during the last two years?"

"About \$30 to \$35 per head for keeping for nine months."

"Has the horn-fly been troublesome this spring?"

"Not yet, but we shall probably have plenty of them soon."

After thanking Mr. Rawlings for his information, our representative took his way home, with the conviction that, in spite of low prices, there is still money to be made out of the Canadian steer, provided that the feeder follows the system of feeding suitable for the district, buys the right kind of cattle, and carries on his work intelligently.

Removal of Warts.

Warts on any part of an animal are disfiguring, but when they appear on the teats they become troublesome as well, especially when a cow is in milk.

In the majority of cases the warts are too small to permit of their removal by tying a thread or horsehair round the base; but, where this can be done, there is no better way of destroying them. Draw the thread or horsehair as tightly as you can round the neck of the wart and leave for a short time, and the wart will soon die and drop off on account of the supply of blood having been cut off.

Where the warts are too small to permit of this treatment, the caustic treatment must be used. Various caustics have been suggested, the following one by a French veterinary surgeon being spoken of as highly successful: Arsenious acid (white arsenic), powdered savin, and powdered gum arabic, of each ten parts; simple cerate, thirty-six parts. This, when made partly fluid by heat, is to be spread on the wart by means of a small brush. As it adheres very closely, it

answers particularly well for warts on the teats of cows.

Another remedy highly recommended is : Perchloride of mercury, one part ; castor-oil colloidion, thirty parts. Great care should be taken when applying caustics to see that the caustic does not spread to the skin surrounding the wart, as it will render it very sore.

Scientists are unable to state positively what is the cause of warts. They sometimes disappear of their own accord ; but, more generally, they remain and grow. It is best to apply caustics to warts on the teats of cows when the animals are dry ; as, otherwise, the teats might be made so sore from the fingers rubbing on them while milking that the cows would not stand quietly.

Ayrshire Matters.

Paper read at the Ayrshire breeder's meeting, Toronto, by H. E. EVRE, Harlem, Ont.

The kindness with which you received a paper of mine in 1892 has induced me to offer you again a few thoughts on Ayrshire matters. I will premise my observations with an earnest request that the ideas I advance may be thoroughly discussed and frankly criticized by this meeting. Were it necessary for me to give an excuse for presenting another paper to this association, I would give an excuse similar to the one given by the late Sir John A. Macdonald for keeping the N. P. alive so long. "I ought," said the veteran statesman, "to do something for the N. P. ; it has done so much for me." This, gentlemen, is my feeling towards the Ayrshires.

I shall not waste your time by speculating upon the origin of the breed, neither shall I give you a list of the breeds said by their promoters to be akin to the Ayrshires. Suffice it, then, to say that, with the espousing of our favorite cattle, there dawned upon the then poor, discouraged, ill-clad, and ill-fed people of Ayrshire an era of prosperity that has increased in intensity as well as in magnitude until its light and heat of comfort have permeated the whole land of the harebell and heather. They have also crossed the billowy Atlantic with the animals that produced them, and we enjoy in our bossies the fruits of over a century's care and labor in selection and development.

That broad-minded political economist and philosopher, Henry George, has said that "land and labor are the prime factors of wealth." If we grant this hypothesis, we are immediately confronted by the question, how best to utilize these elements.

Experience in this country answers by the propagation and development of the dairy industry. The first step in this direction is to decide on the cow that will give the best returns for the time and labor expended on her. The writer of this paper spent years in solving this problem. He visited good herds of different breeds, closely observed their treatment and its results, found that each breed had its merits and its fancies, and that all breeds had furnished to the annals of the exhibitions some phenomenal animals. He was finally compelled, when he had exhausted all means available to him, to conclude, contrary to his best impressions, that the animal that will best suit all classes and conditions of farmers in this country is the Ayrshire cow. Not yet content, he consulted a number of successful dairymen who were not married to any breed, but had tried specimens of different breeds, and their consensus of opinion strengthened the former conclusion. Indeed, one farmer and drover, who lived in the suburbs of a smart little town, and was breeding another kind of cattle, said, confidentially : "Although I find the cow fanciers of the towns and villages readily purchase the calves from my herd at fairly remunerative prices, yet I must admit that for buoyancy, constitution, ability to assimilate all kinds of food, power to endure hardship, and respond nobly to kind treatment, the cow *par excellence* is the Ayrshire." He even went further and said : "During the last twenty years I have bought and sold a great many cows. I very often find, when I drive into a man's yard and select some sleek, high-headed, and good-looking animal, and ask the owner to put a price on her, that he will say, 'That is our Ayrshire cow, and we cannot spare her.'"

Did I hear someone say, "Does he not know that it was not an Ayrshire cow that won the sweepstakes at the leading fairs last fall?" Yes ; and I know, too, that the winner is owned by a relative of my own and in my own county, the banner dairy county, dear old Leeds. Gentlemen, if the ghost of your poet Robbie Burns will forgive, I will say :

"Auld Leeds, whom ne'er a place surpasses
For splendid cows and bonnie lasses."

Do you think I would detract from the laurels of Mr. Gilroy's magnificent cow ? Certainly not. I feel more like scolding your Ayrshire breeders, who have so long headed the list that you seem to have become plethoric or surfeited with prizes. I doubt not but the surprise you got last fall will make you hunger again for the fruits of the ring, and I expect when we meet next winter, instead of dilating upon the conquests of a distant cousin,

I may have the opportunity of rejoicing with an Ayrshire brother.

No, gentlemen, there is no place to stand still. Either retrogression or progress will be the lot of every man. Who is content to stand at ease on fields already won will have the grim satisfaction of seeing his competitors turn up richer treasures at his very feet.

Before closing, I desire to express a wish that each member of this association may be careful to never, under any circumstances—not even to make a sale or win a prize—insinuate anything against the honor of another breeder or the merits of his herd. Such reprehensible conduct always has a reflex action, and will turn again and smite the striker. Better by far that each should endeavor to emit a ray of sunshine across the path of his fellow, and that all should labor to improve our favorite breed for our own particular benefit and the prosperity of the common weal.

I again invite you to criticize this paper, believing that by interchange of thought we can benefit each other, and remembering that it was in a discussion on my first paper that the millionaire lumberman and breeder of the Ottawa valley, while naming the fancy breeds in which he was interested, declared that for the farmer and dairyman the best animal in the world was the Ayrshire cow.

Scale of Points for Polled Angus.

In response to an enquirer we give the following scale of points drawn up for Polled Angus cattle by the American Aberdeen-Angus Association in 1890:

BULLS.

1. *Color*—Black. White is objectionable, except on the underline behind the navel, and there only to a moderate extent; a white cod is most undesirable—counts 3.
2. *Head*—Forehead broad; face slightly prominent, and tapering towards the nose; muzzle fine; nostrils wide and open; distance from eyes to nostrils of moderate length; eyes mild, full, and expressive, indicative of good disposition; ears of good medium size, well set and well covered with hair; poll well defined, and without any appearance of horns or scurs; jaws clean—counts 10.
3. *Throat*—Clean, without any development of loose flesh underneath—counts 3.
4. *Neck*—Of medium length, muscular, with moderate crest (which increases with age), spreading out to meet the shoulders, with full neck vein—counts 3.
5. *Shoulders*—Moderately oblique, well covered

on the blades and top; with vertebra or back-bone slightly above the scapula or shoulder-blades, which should be moderately broad—counts 6.

6. *Chest*—Wide and deep; also round and full just back of elbows—counts 10.

7. *Brisket*—Deep and moderately projecting from between the legs, and proportionately covered with flesh and fat—counts 4.

8. *Ribs*—Well sprung from the backbone, arched and deep, neatly joined to the crops and loins—counts 8.

9. *Back*—Broad and straight from crops to hooks; loins strong; hook bones moderate in width, not prominent, and well covered; rumps long, full, level, and rounded neatly into hind-quarters—counts 10.

10. *Hindquarters*—Deep and full, thighs thick and muscular, and in proportion to hindquarters; twist filled out well in its "seam" so as to form an even, wide plain between thighs—counts 8.

11. *Tail*—Fine, coming neatly out of the body on a line with the back and hanging at right angles to it—counts 3.

12. *Underline*—Straight as nearly as possible, flank deep and full—counts 4.

13. *Legs*—Short, straight, and squarely placed, hind legs slightly inclined forward below the hocks; forearm muscular; bones fine and clean—counts 4.

14. *Flesh*—Even and without patchiness—counts 4.

15. *Skin*—Of moderate thickness and mellow touch, abundantly covered with thick, soft hair. (Much of the thriftiness, feeding properties, and value of the animal depend upon this quality, which is of great weight in the grazier's and butcher's judgment. A good "touch" will compensate for some deficiencies of form. Nothing can compensate for a skin hard and stiff. In raising the skin from the body it should have a substantial, soft, flexible feeling, and when beneath the outspread hand it should move easily, as though resting on a soft cellular substance, which, however, becomes firmer as the animal ripens. A thin papery skin is objectionable, especially in a cold climate.)—counts 10.

16. *General Appearance*—Elegant, well bred and masculine. The walk square, the step quick, and the head up—counts 10.

Perfection—Counts 100.

When bulls are exhibited with their progeny in a separate class, add 25 counts for progeny.

COWS.

1. *Color*—Black. White is objectionable, ex-

cept on underline behind the navel, and there only to a moderate extent—counts 2.

2. *Head*—Forehead moderately broad, and slightly indented; tapering toward the nose; muzzle fine; nostrils wide and open; distance from eyes to nostrils of moderate length; eyes full, bright, and expressive, indicative of good disposition; ears large, slightly rising upward, and well furnished with hair; poll well defined, and without any appearance of horns or scurs; jaws clean—counts 10.

3. *Throat*—Clean, without any development of loose flesh underneath—counts 3.

4. *Neck*—Of medium length, spreading out to meet the shoulders, with full neck vein—counts 3.

5. *Shoulders*—Moderately oblique, well covered on blades and top; with vertebra or backbone slightly above the scapula or shoulder-blades, which should be moderately broad—counts 6.

6. *Chest*—Wide and deep; round and full just back of elbows—counts 10.

7. *Brisket*—Deep and moderately projecting from between the legs, and proportionately covered with flesh and fat—counts 4.

8. *Ribs*—Well sprung from backbone, arched and deep, neatly joined to the crops and loins—counts 8.

9. *Back*—Broad and straight from crops to hooks; loins strong; hook bones moderate in width, not prominent, and well covered; rumps long, full, level, and rounded neatly into hind-quarters—counts 10.

10. *Hindquarters*—Deep and full; thighs thick and muscular, and in proportion with hind-quarters; twist filled out well in its "seam" so as to form an even wide plain between thighs—counts 8.

11. *Tail*—Fine, coming neatly out of the body on a line with the back, and hanging at right angles to it—counts 3.

12. *Udder*—Not fleshy, coming well forward in line with the body, and well up behind; teats squarely placed, well apart, and of good size—counts 8.

13. *Underline*—Straight, as nearly as possible; flank deep and full—counts 4.

14. *Legs*—Short, straight, and squarely placed; hind legs slightly inclined forward below the hocks; forearm muscular; bones fine and clean—counts 3.

15. *Flesh*—Even and without patchiness—counts 4.

16. *Skin*—Of moderate thickness and mellow touch, abundantly covered with thick soft hair. (See remarks under standard for bulls.)—counts 10.

17. *General appearance*—Elegant, well bred, and feminine. The walk square, the step quick, and the head up—counts 5.

Perfection—Counts 100.

In judging heifers omit No. 12 and add 3 counts to No. 15, and 5 counts to No. 17.

Canadian Records.

Inquirer: Why were not the pedigrees of Canadian Hereford and Aberdeen-Angus cattle accepted at the World's Fair, as I understand they were not?

ANS.—You have been wrongly informed. The pedigrees of all Canadian cattle recorded in Canadian herdbooks were accepted without demur. There were, however, no Aberdeen-Angus forwarded for competition.

Sussex Cattle.

Subscriber, Detroit: I should like to have some particulars of the Sussex breed of cattle. Are they a beef breed? Would they do well in this country?

ANS.—Sussex cattle are essentially a beef breed. They are one of the largest breeds of British cattle, resembling the Devon in many particulars, only being much larger. They have been improved of late years, and are now highly spoken of as beef cattle. The cows are not distinguished as milkers, but give sufficient to raise their calves. In color, the Sussex are dark red, though not, as a rule, of as deep a shade as the Devon. The horns are very similar in style to those of the old long-horn breed, some of the oxen having beautifully shaped horns. At one time Sussex oxen were largely used for plowing the heavy land in Sussex and the adjoining counties, a use for which they were well suited, but the practice has been mostly discontinued. The breed should do well in this country, as they are hardy cattle and their beef is excellent. Some few years ago a few specimens were imported into Canada, and there are a few kept at the Agricultural College, Guelph, Ont. An illustration of two of the cows at Guelph appeared in the September number of *The Canadian Live Stock Journal*, the predecessor of *FARMING*, in 1892.



ON the farm of Duntanlich, near Pitlochry, Scotland, a black-faced ewe this spring dropped no fewer than seven lambs.

GUSTAV JOVANOVITCH, the cattle king of the Russian steppes, owns more dogs than anyone else in the world. For the protection of his 1,500,000 sheep he employs no less than 35,000 sheep dogs of various breeds.

MR. ALFRED MANSELL, Shrewsbury, England, speaks of a Shropshire ewe which he lately saw on a high, exposed farm near Marshbrook station, Shropshire. She had just completed her nineteenth year. She was born on the same farm in March, 1877, and has bred her present owner, Mr. Hayward, thirty-three lambs, viz.,¹ fourteen twins, two singles, one lot of triplets, and this year is barren. She has never lost a lamb, and never had foot-rot, though some parts of the farm (being low-lying) are apt to cause it. The ewe seems hale and hearty, and quite likely to live, and, perhaps, breed again. Can any of our readers give any similar cases?

Keep the Best for Breeding.

Local buyers are ever and anon picking up the lambs from the farms near the cities, and it is well that it is so. Were it otherwise the returns from the flock would be less than they are. It is all right when due discretion and forethought are exercised in regard to the selling of the lambs. The buyers have a sharp eye for the best, and when they get their eye on a good ewe lamb they are much prone to try to carry off the prize. If the farmer is going to increase his flocks it is just here that he must take a firm stand. Such lambs under these conditions should never be sold. Fifty cents extra now for such a lamb is only a trifle compared with the return in the future if she is kept for a breeder. A decided stand should be taken. The owner should say "no" every time to such offers, and he should say it emphatically. Only through keeping the best can we effect improvement, and by always keeping the best for breeding uses we can so improve our flocks that they will at once become to us a source of pride and of more substantial profit.

A Flock of Sheep on the Farm.

A flock of sheep on a farm is a great help in many ways. They will eat products every day, if they have access to them, that would otherwise go to waste. The reference here is to the food that they will pick up in lanes, along fence borders, on the edge of forests, and in the stubbles of grain fields. They bring in a return twice a year; first, in the wool, and, second, in the lamb. They furnish nice meat for the table and just when it is wanted. They destroy weeds to a far greater extent than any other class of domestic animal found upon the farm. They distribute manure readily and evenly, and when they are fed grain or oil-cake, or both, upon the farm, they enrich the land upon which they pasture. And they do not call for so much labor or attention as other kinds of live stock, except at the lambing season. It is somewhat surprising, when we think of the general utility of this class of live stock, that it is not kept to a much greater extent.

The Mutton Sheep Wanted.

The kind of sheep wanted will depend somewhat on the market. If Britain is to be our market, then our lambs may be well grown. If, on the other hand, the United States is to be our market, then it is not so necessary that they be of the heavy-weight order. It is a fact that in the market of Chicago to-day lambs under the 100-pound notch, if in fair finish, sell more readily than lambs that are heavier. In the eastern markets, as, for instance, New York and Boston, somewhat heavier lambs will be in demand, but even in these the tendency is to call for those of lighter weights than formerly. This means that we must shape our breeding accordingly. If such a tendency shall become permanent, it will mean that the lighter breeds of sheep will certainly be the most profitable to raise. And yet when money has been invested in the heavy breeds, it would not be wise to make any change in the meantime. It may be that the demand for lighter and leaner lambs arises in part from the depressed times that have come to us, and that when these pass away

the heavier lamb will again be in demand. But it would not seem to be so necessary as formerly to have lambs come early in order that as much of size as possible should be obtained before they are sold.

Autumn Pastures.

These are of great moment in sheep husbandry. Sometimes we get them without sowing special crops, but not often. If there is an abundance of rain through all the latter part of the season, then it is not so necessary to have these special crops, but these seasons are the exception rather than the rule. It is not too late yet to get a rape crop. Even after rye or wheat, that is to say, more particularly after winter wheat, such crops may be obtained. They may be obtained without the labor of sowing in drills when the ground is rich, but they can be better obtained by the drill method. The value of the rape crop is now becoming much better known than it was a few years ago, but even now many farmers who keep a bunch of sheep have never grown rape as a pasture. Where the soil is a strong clay it would not pay to grow rape thus except in the valleys, but where turnips will grow well so will rape. This is the most valuable pasture to sow after the advent of July.

Dorset Horns Easily Marketed.

One great advantage in growing the Dorset Horns arises from the fact that they are ready for the markets when these are not glutted, and this holds true of the matured sheep as well as of the lambs. If the producer can have his product ready for market when the many who grow the same product cannot, he has gained a great advantage. The man who sells his lamb crop at that season of the year, when the annual inundation of lambs comes down from the ranges of the west, cannot hope to get good prices for the same. But when he can get his lambs upon the market at a time when competition is absent to a great extent, he has just so much the advantage.

Dorset lambs come upon the market before lambs from other breeds are ready. This means a great deal. It may mean, probably it does mean, a difference of at least 100 per cent. in price in favor of the Dorset Horns.

Even the cull lambs may easily be disposed of. The term "cull lambs" here means those which cannot be said to be suitable to keep as breeders, owing, it may be, to unsuitable development, as,

for instance, ill-formed shapes. With all breeds a certain percentage of such lambs appear. Being unfit for breeding they have to be disposed of for mutton prices. With other breeds that would mean that they would have to be sold for a very low price, unless they were held over till the following winter. In such instances the males would have to be castrated. But it is not so with the Dorsets. The lambs rejected for breeding uses would be put upon the market at a comparatively early age, and would command the good price.

And the breeding ewes can be disposed of with comparative advantage. Their lambs being sold in the winter or early spring, they have time to take on flesh and be marketed before grass-finished sheep can reach it. In consequence, they command a much better price. Old ewes put upon the market in the autumn are of but little account, and, more especially, when good mutton is cheap. They must then, in a sense, be given away. As they come into the market in competition with the bulk of the lamb crop, the seller is at the mercy of the buyer, which, in very many instances, is an undesirable position to be in. But it is not so with those who breed Dorsets. The old ewes, if properly managed, will be ready for market in the months of April, May, or June, and will therefore command good prices and a ready market if they have been rightly handled.

When the owner desires to turn off a number of breeding ewes, he should regulate the feed which he gives to them accordingly, while they are still nursing the lambs. The tendency during the suckling period with the ewes is to lose flesh. In fact, unless they are fed heavily, and with suitable kinds of food, they will lose flesh. Where it can be done, therefore, it would be well to separate these ewes with their lambs, and put the former on a food that would produce much milk, and that would, at the same time, produce fat. Such a diet would include one or more of the following ingredients, viz., corn, peas, and oil-cake. If roots or corn ensilage could be fed at the same time, it would be so much the better, for then there would be plenty of milk and the ewes would hold their own in flesh. Those, therefore, who breed Dorsets or Dorset grades should be able to keep their flocks in fine shape. With them there would be no excuse for keeping sheep that were not well adapted for mutton uses. The culling of the flock could be done every year when prices are high, and, in consequence, good prices could be obtained for the meat. The culling of other flocks must needs be done in the autumn, and, in consequence, it has to be done under circumstances that are far from advantageous.

Pasture for Sheep in Summer.

In this part of the country we do not need this to the same extent as the farmers of some countries. Our grasses are luxuriant. They are thick in the bottom and fine in the stalk, and they keep succulent during a considerable portion of the season. It is seldom that we feel the want of summer pastures for our sheep until the summer has begun to wear near its close; that is to say, it is seldom that we seriously feel the want. It is different in prairie countries. The summers are hotter there, and usually they are drier. There is less clay in the land, and, consequently, the grasses grow far less luxuriantly, and they dry up much sooner in the sweltering summer heat. As a consequence, the flockmaster on the prairie is much more in want of summer pastures for his flocks than the sheep owners of Ontario, for instance.

And yet artificial pastures would sometimes help us out greatly. In dry seasons pastures may be scarce early in summer. They may become dry and parched. Succulent pastures at such a time will help out wonderfully, even though the sheep can be on them but at one end of the day, or during a part of the day. Such food will stimulate milk secretion in the dams, and consequently it will promote growth in the lambs. Which foods shall we grow to tide over such a time?

Various foods will answer; but, taking all things into consideration, none will answer better, probably, than a mixture of peas, oats, and tares. These may be sown early in the spring, and by the middle of July they will furnish a large amount of food. They may be sown per acre at the rate of, oats, one-half bushel; peas, one-half bushel; and tares or vetches, one-half bushel. If tares are dear, sow less of them and more of oats and peas. Sheep are fonder of tares than of peas or oats, but the seed of tares is oftentimes so dear that we cannot afford to buy much of it.

This food is ready for being pastured when it is, say, six inches high. It should be eaten off before the oats joint, and before the other grains show signs of budding to produce blossoms. When thus eaten off, all these kinds of grain will grow up again if allowed to do so. When eaten off a second time, the ground may be harrowed, but before harrowing it some rape seed may be sprinkled over it. The rape seed will grow, and in due time we shall have a crop of rape. There will also be more or less of a third crop of the peas and oats to be pastured off, and when these three growths are put together they amount to a great deal from a small piece of land. When the harrowing has been carefully done, the chances

are good for a full crop of rape, if the land has recently been well manured.

In pasturing off such a crop, something like the following plan could be adopted: The sheep could be kept on their own grass pasture over night and until midday. They could then be put upon the artificial pasture to remain upon it until evening. They would in this way not tramp it down as much as though they pastured it when the dew was on it, nor would they impact the land to so great an extent. They should not be allowed on it while the land is wet, or while the crop is wet. It would be advantageous to have two plots growing instead of one; for then, while one plot was growing up again after having been eaten off, the other could be pastured. The assistance that could be obtained in pasture from a piece of land handled thus would be very considerable.

And the land would be improved in two ways. In the first place, it would be measurably cleaned; and, in the second place, it would be made richer.

The cleaning of the land would arise in part from the gleanings of the sheep, and in part from the harrowing of the land. Sheep are proverbial as weed eaters if they get the chance to eat the weeds while they are succulent, and weeds are always succulent when they grow in a crop of grain that is pastured off thus early. The harrowing of the ground after the crop has been eaten down the second time dislodges growing weeds and encourages other weeds to start. These are, in turn, eaten off by the sheep along with the rape. And when the ground is thus harrowed soil moisture is retained to better advantage. If the ground were plowed after the second cropping of the pasture, it would dry out more in a season lacking in moisture.

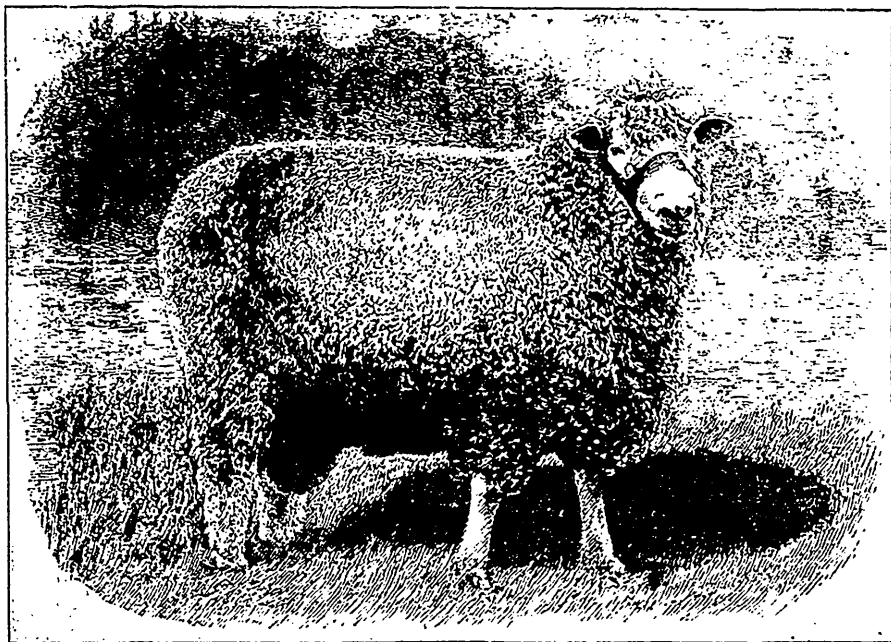
The land would be enriched by the droppings of the sheep. The plants growing upon the soil would gather part of their food from the soil, and this would be returned by the sheep to the surface soil. The manure would thus be spread over the land without any extra outlay on the part of the owner, and in this way the land would be cheaply enriched. And, in addition to the nutriment thus brought, it should be remembered that peas and tares are both nitrogen gatherers. They should bring some nutriment to the soil from the air; but as they are eaten off at a comparatively early stage, they probably bring less than they would if allowed to get near maturity before being thus cropped down.

And in another way this crop could be utilized for the advantage of sheep. It could be allowed to grow up until the plants had reached

the blossoming stage. It could then be cut and fed as a soiling crop. The objection to using it thus would arise from the labor involved, but with a valuable flock of sheep this plan would doubtless be found remunerative. In either case the crop could be followed by rape or turnips, grown as a catch crop.

Such pastures should not be sown on very poor land, unless these are first well manured, as the returns would not pay for the labor and outlay. On good lands, however, it may be eminently wise in many instances thus to try to supplement the pastures. It is unfortunate when sheep fall away in the summer, and it is particularly unfortunate when the lambs become

stitution, character, wool, and bone. Messrs. Kirkham's flock is an old one, having been established for considerably over a century, and has been in the hands of worthy and true shepherds, descending from father to son until it came into the hands of its present owners, who are practical shepherds, who know not only how to talk to you of sheep, but are perfectly able and actually do attend to their flock themselves. They are also men who know and value at its true worth registration of pedigree. The farm consists of some 1,200 acres, and the flock numbers about 2,000 sheep. Large though this number is, Mr. R. R. Kirkham informed us that more often than not in recent years so great had been the demand



A Champion Lincoln Ram.
The property of Mr. Wilson, New Zealand.

stagnated in their growth during the suckling period.

A Champion Lincoln.

Our sheep illustration this month is one of a Lincoln sheep, bred by Messrs. J. & R. Kirkham, Lincoln, England, and sold by them to Mr. Wilson, New Zealand. He has won in succession in 1891, 1892, and 1893 the champion prize at Waugani, New Zealand.

The portrait is a faithful likeness of a truly grand sheep, noted alike for his strength of con-

for their sheep that the difficulty he had experienced was to find sheep enough to supply to his customers. A mere recapitulation of the sales held either in the past few years or in the days of long ago would be of but little value, for when the sales of rams have, year by year, for a period now fast approaching fifty years, made averages of from \$55 to \$200, there is no need to describe what has been done; suffice it therefore to say that ever since the late Mr. Thomas Kirkham, in 1853, first established his annual lettings of rams, with an average of \$55, down to last year, there has been a constant

and continuous demand for sheep from all countries where the Lincoln sheep has found new homes and patrons.

The report of this year's lambing is of a most favorable nature. A fairly large fall of lambs, with but few, if any, losses, is the tenor of the report, whilst the remainder of the flock is reported in most excellent trim.

Amongst the sires used this year is an exceptionally grand one, Biscathorpe Duke 441, vol. 1, who was by Duke 133, vol. 1, by Short Dock, by Son of Spot, by Spot, bred by the late Mr. T. Kirkham (Messrs. Kirkham's father and predecessor), and he this year topped thirty ewes, with a result that one had triplets, seventeen had pairs, and ten had single lambs.

Advantages of Sheep Husbandry.

In estimating the value of any industry, we are much prone to look at it only from the standpoint of direct profit. It is natural that it should be so, and yet in agriculture the direct profit does not always show the entire gain. In many instances it does not show the larger proportion of the gain. Sheep husbandry is one of those branches in which the direct profit does not by any means show all the gain, and in this paper we propose to dwell upon some indirect benefits which flow from it, and also upon some of the points in management which involve much less labor than some of the other branches of the live stock industry.

Sheep are great consumers of weeds. There is scarcely any kind of weed which sheep will not eat when it is young, if they are given the opportunity. They soon banish weeds from pastures wherein they feed from year to year. If given the run of lanes and around the borders of forests, they will soon reduce the weeds to a minimum, and, if they do not clean them out of fence borders along the sides of fields, it is because they are not given the opportunity at a season of the year when vegetation is succulent. If allowed to feed along the sides of the public highway in the early spring, sheep will trim off the weeds as nothing else will.

There are some kinds of very troublesome weeds that would be worried in a reasonably short space of time if sheep could get at them. Is there any other way of checking wild mustard so effectively as by growing sheep feed on the fields from year to year, and allowing the sheep to feed upon it? Suppose two crops of food were grown upon the same field every year, and from year to year, how much of the mustard would be left in,

say, three or four years? The first of these crops could be rye, and the second one rape or millet. No matter how thickly the mustard grew, the sheep would turn it to good account, and also all the crop that grew amid the mustard, or amid which the mustard grew, as the case might be.

Sheep are also noted for the favorable influence which they exert upon fertility. No one who stocks his farm with sheep has his land shorn of its fertility. Sheep owners the world over are willing to bear testimony to the favorable influence which sheep exert upon soil fertility. Some farmers may never have taken this feature of sheep husbandry into account, and yet it is an important factor. Those who have considered the matter carefully lay much stress upon this item. The droppings are scattered upon the soil, and are pretty evenly distributed over every part. If sheep gather upon the hills to rest, and in consequence deposit a larger share of their droppings there, it is where they are most wanted. And, as they are constantly on the move, they tread the droppings into the surface soil, where they do not waste. But with cattle and horses the droppings fall in bunches. They are oftentimes wasted by insect life, in one or other of its forms, and in other instances considerable of the value is borne away by rains, although the loss from this cause is not so great as we oftentimes suppose.

Again, sheep are out much of the year. They gather their living when in the fields, that is, as a rule they do so. But they do more. They are the distributors of their own droppings, whereas the manure from other farm animals has to be drawn to a much greater extent. In this sense sheep husbandry tends to save labor.

They are more easily fed and cared for than other live stock. When in the fields they need but little care. When pasturing, if they are given salt, water, and shade, they ask for nothing more. In winter, except in the lambing season, they require to be fed only twice a day, and the work of feeding them is both simple and easy. The fodder for them does not, as a rule, require to be cut. The grain given them does not need to be ground. The water provided does not want to be heated. Their pens only want cleaning at intervals, and they do not need fresh bedding every time they are fed. They want no milking. The milk requires no churning. The lambs will gladly both milk and churn without any fee, and they will give back the butter in a form that is quite valuable. The lambing season is the only season when sheep want very close attention, or take much of the time of the owner.

And less housing is required for sheep than for other kinds of stock, and the houses required

are less costly. Sheep spend a large proportion of the year in the fields, and, therefore, the room required in which to store food for them is not very considerable.

And when sheep have the chance to get at food scattered here and there in by-places, they will gain a good living on food which would be otherwise wasted. They gather grass from the fence borders, in stubble fields, and in divers places, and turn the whole of it to an excellent account. Every farm should have a flock of sheep. If every farm in Ontario had a small flock of sheep, instead of having less than 2,000,000 head, we should have more than 3,000,000 head, thus adding very greatly to our revenues.

Wensleydale Sheep.

The Wensleydales are a breed of sheep which are becoming rather popular at the present time in some parts of England. They may be described in general terms as the modernized form of the old Teeswater sheep. This breed was at one time not unlike the Leicester, and, indeed, at the present time the resemblance in many leading essentials is somewhat close.

As contrasted with the Leicesters, they are a more upstanding breed. They are somewhat longer in the legs and neck, and they are withal of more stylish carriage. They have, as a breed, not been forced to the same extent as the Leicesters, hence they have more of hardihood.

The skin of the face and ears is bluish in color, and sometimes this is true of the skin over the whole of the body, but the shade of blue is usually more dense on the face and shanks. The wool is long, uniform in growth, and open in texture. Long, fleecy locks should cover the whole surface of the body, the forehead, the frontal bone between the eyes, and also the belly and scrotum. The hind legs are woolled down to the hoofs, and the fore legs sometimes have short wool on them. In some instances, coarse, hairy-like wool is found on the thighs, but this is considered objectionable. The breed is of good size, and, as it is well carried, these sheep have, generally speaking, a showy and attractive appearance. The head is wide at the poll, and the ears are large and thin.

It is also claimed for these sheep that they are free from patchiness, and that the flesh is not so excessively fat as in the Leicester. But they are lacking somewhat in that blockiness and com-

pactness of form which has made the Leicesters so famous the world over as the improvers of common grades of sheep, and also as the improvers of all the larger of the long-woolled breeds.

Where long-woolled sheep are wanted, a place will be found for the Wensleydales. They may be preferred by some persons to the other long-woolled breeds, because they have been less pampered. Others may prefer them on account of the quality of the mutton which they produce, and yet others because of their stylish appearance. But it should be borne in mind that, generally speaking, the breed that produces much lean meat is harder to keep than the breed which can easily be fattened and which produces much fat.

The Wensleydales have not, as yet, been introduced into Canada, so far as we know. If they are here, the breeders thereof will please let our readers hear from them. One reason, doubtless, why we have them not arises from the fact that the other long-woolled breeds have been with us for so long, and they have served the purpose so well for which they are kept, notwithstanding that there is always room for another good breed. If any, therefore, choose to turn their attention to this breed, we cannot do otherwise than wish them success.

The Wensleydales have found their way into the United States. Several breeders now possess them, but it would probably be correct to say that the centre for them in that country at the present time is Pennsylvania. From Pennsylvania they have already found their way into South Dakota. Mr. J. B. Henderson, of Big Stone City, has introduced a flock into that state, and, so far as we can learn, they are looked upon with considerable favor by the people.

While we are astonished at the number of the excellent breeds of sheep which have found their way into Canada and the United States, we should be more astonished when we reflect that nearly all the good breeds of sheep now found on this continent came originally from Britain. Without any exception, the pure breeds that we now have in the Dominion came from the island home of our fathers, except in the case of the few small flocks of Merinos that are kept in sundry places. The exceptions in the United States are the Silesian, from Prussia; the Rambouillet, from France; and the Tunis, from Africa. In the south, of course, are the native Texans, descended from the original breeds brought over by the Spaniards from their own country.

SWINE

"BLOOD will tell." Undoubtedly, every time; but when the blood is backed by judicious feeding on a well-balanced ration, it will tell better than ever.

THE claim is often made that water heated to 140 degrees will scald a hog. We prefer 165 degrees, and even a greater heat will be better if the day is very cold. The hotter the water the less time it will take to do the work, but at over 170 degrees there is danger of setting the hair.

WHEN you find your hogs growing too fine in the bone, do not blame it all on the breed. Remember that hogs cannot grow bone without the necessary material to do it with in their food, any more than you can make mortar without lime and sand. See that your food ration contains plenty of phosphates, and keep salt and ashes always within the pigs' reach.

THE number of hogs packed at the principal packing houses in the United States for the year ending March 1st, 1896, was 15,010,635, as against 16,003,645 packed during the year ending March 1st, 1895. When we take into consideration the fact that the pack of the last twelve months was made up of a much lighter class of hogs than formerly, it shows a very considerable decrease in the weight of meat cured between the two years.

THE secret of all profitable stock-growing, and this is especially true of pigs, is to keep the young things growing from birth to sale day. If the feeder makes a mistake, and there is a check in growth, no pains taken afterwards can quite make up for time and growth lost. The feeder who knows his business will watch every pig at feeding time, and if one is not doing well he will lie awake at night until he knows what is the matter and has corrected it. No time is so valuable as the feeding hour, because it is at the trough that the first symptoms of things going wrong are visible to a careful observer. If the appetite is not good, and the pig does not fight for his place at the trough, something is wrong and must be set right. This may be done by a change of food, a change of pen, a supply of charcoal, or, perhaps, a run

of an hour or two in a lot even in moderate winter days. The feeder who does not know every day what his stock are doing is not fit to carry a pail of swill to the pen, and should choose another calling.—*Northwestern Agriculturist.*

Artichokes for Pigs.

There has been a good deal of discussion lately, among some of our friends across the line, as to the desirability of growing artichokes as a food for hogs. Some writers are loud in their praises, declaring them to be one of the cheapest foods they have ever tried, while others pronounce them an unmitigated nuisance, owing to the difficulty of controlling their growth and preventing their spreading so much as to become a positive curse. We have had no experience with artichokes as a food for pigs ourselves, but are inclined to think that they should be worth trying. The fact that they will live through the winter in the ground in our severe climate is certainly a point in their favor.

The following analysis and notes on their culture are taken from a report by the Kansas Experiment Station:

ANALYSIS.

Water 81.50

DRY MATTER.

Ash	5.33
Protein	12.08
Fibre	3.43
Nitrogen, free extract	78.56
Fat60
	100.00

This analysis shows artichokes to contain a fairly large amount of nutriment, being superior to potatoes, turnips, rutabagas, squashes, and pumpkins.

Artichokes are grown much the same as potatoes. From four to six bushels of seed per acre are recommended by different growers. The tubers may be cut small like potatoes, and planted fifteen to eighteen inches apart, in rows three and one-half feet apart. Planting may be done in the

spring till June 1st, and also during the latter part of the fall, before freezing. The ground should be well tilled, and weeds destroyed. The roots spread widely, and, at the end of the season, unless cultivation has been vigorous, cover the ground. Freezing does not injure the tubers. They will live through the winter, and be sweet and palatable in the spring.

Several varieties are advertised. The Jerusalem is an old, well-known variety. The Red Brazilian and Mammoth White French are also popular. The Red Brazilian has been grown somewhat in America for over a score of years, and it is claimed that its roots do not spread so badly as do the Jerusalem.

FOR FARMING.

Nicking.

Among certain chemicals there exists what is known as *chemical affinity*, or, in other words, certain chemicals appear to have a peculiar power of uniting with certain others so as to produce a harmonious whole, or *vice versa*. Where this affinity does not exist, it is found almost impossible to produce a satisfactory combination from two such substances.

Among animals a very similar power of adaptation to each other exists. Certain animals when mated together will produce what is probably as near perfection as can be obtained, while other animals, apparently equally good, when mated, produce nothing but miserable failures. Or, again, a female may, when bred to one male, produce an exceedingly fine offspring, yet when she is bred to another apparently fully as good an individual, but of different blood lines, the union will result in nothing but failure and disappointment to the breeder. This property of uniting harmoniously with each other is known as "nicking" among stockbreeders, and where two animals do not nick well at the outset it is, as a general thing, a waste of time to continue breeding them together any longer; while, on the other hand, when a breeder has succeeded in producing satisfactory results by the combining of two different strains of blood, he cannot do better than continue in the same lines. An excellent example of a successful "nick," and one that will be familiar to all draught horse-breeders, is the combination of the blood of the two great Clydesdale stallions, Prince of Wales and Darnley, which has produced some of the best Clydesdales that have ever existed. Another among light horses is that produced by the mating of Hambletonian stallions with Pilot Jr. mares.

We need hardly say that this affinity, or lack of

affinity, exists among all classes of animals, and the pig-breeder who wishes to make a success of his business must spare no efforts to discover what families will produce the best results when bred together.

BLUE BLOOD.

Sunlight for Pigs.

A writer in *Wallace's Farmer* makes the following very sensible remark about the necessity of providing plenty of sunlight for young pigs:

Many a fine litter of pigs is injured seriously the first week by a lack of sunlight. A young pig is much like a flower in this respect; it must have sunlight or be dwarfed in size, impaired in health and spoiled for future usefulness. Where farmers have a hog house in which a number of brood sows are having their litters, we advise putting in cheap sash on the south side, which can be done very easily and at present prices at a very small cost. A brood sow should never be allowed to produce a litter in a dark place. The north side of a building is no place for her at all. Choose the south side, or the east if nothing better can be done, and let there be plenty of glass windows to admit the sunlight. In the summer time these windows can be removed and their place taken by some kind of screen, or, if nothing better, a coarse gunny sack, which will admit the air and keep out the flies if pigs are to be kept in the building. A little attention to this matter of light will save plenty of money and prevent serious disappointment.

Turning Pigs into Gold.

By SANDERS SPENCER.

(Continued.)

When the pigs are three or four weeks old the sow may be taken away from them for an hour or so in the middle of the day, a little skim-milk placed in a trough, and a handful of whole wheat sprinkled on the floor of the sty to entice the little ones to eat, and thus reduce the drain on the sow. When the pigs commence to feed they usually suffer from an attack of diarrhoea; as soon as the droppings are dry and like black peas a gentle dose of opening medicine given to the sow will ward off or moderate the attack; a shovelful of mould occasionally thrown into the sty is a good thing; cinders, small coal, and wood ashes are also readily eaten by the young pigs, and prove of benefit. One of the best foods for the latter is skim-milk given fresh and sweet. If this can be purchased at 2d. per gallon no cheaper food can be obtained; the other food

mixed with it is more readily eaten and better digested. One of the great secrets in feeding is to feed little and often; and, when the weather is cold, the food should be made slightly warm. The pigs not intended for breeders should be operated upon when five or six weeks old, being fed lightly the night before the operation.

The old-fashioned plan of keeping pigs for nine months in a growing state, or as stores, is gradually becoming less general; like all popular errors, it dies hard. It cannot require much thought to be convinced of the fact that a certain proportion of the food eaten each day is used up in keeping the machinery going, or as fuel to supply heat, etc. It therefore follows that at least twice the amount of food is required for this purpose if the pig is so fed that it takes twelve months to arrive at the same weight as might be attained in six months had the food supplied been either more in quantity or better in quality. The question may be asked, Can a pig be as cheaply kept on food which keeps it in a progressive state as on inferior food? We should say, Certainly, even more cheaply, for the simple reason that if the pig's digestive organs have to extract the small quantity of nourishment from inferior food, they must waste a considerable amount of energy, as so much more useless matter has to be dealt with to obtain a sufficiency of nutrition. Besides this, if a pig be well and liberally fed it soon makes room for another, so that two pigs can be fattened and two profits made where only one was before obtainable.

Another thing—and this is a most important matter to the pig-keeper who has an allotment or large garden—the manure made contains at least twice as much goodness, whilst the expense of everything except food is no greater in fattening two sets of pigs in twelve months than in only turning out one in the same period. The straw and attention required is the same, whilst the money is turned over twice, and the profits from the same capital are twice as large. We would strongly urge that young pigs should never be allowed to become poor or to be kept as are stores. In every way it is more profitable to add good food to the garden stuff or the house swill which is fed to the pig, so that by the time it is seven or eight months old it is ready for the butcher. Experiments have been made which clearly prove that a pig of 100 pounds weight requires less food to make one pound weight of increase than one weighing 300 pounds, and that the amount needed increases in proportion to the extra weight of the pig, whilst the ten or twelve stone pig is more ready of sale, and at a higher price per stone, than a fifteen stone pig. In most

districts a young fat pig of some 150 pounds weight appears to be more readily saleable than an older pig weighing considerably more. In years gone by the fashion was for large joints of fat meat; now, small joints are more generally in demand

(To be continued.)

An Improved Large Yorkshire Champion.

Among the breeders of Yorkshire pigs who showed up well last year in the prize list at the leading shows in Great Britain was Mr. E. Buss, Elphicks, Horsmonden, Kent, of whose champion boar, Elphicks Kent, we give an illustration on this page.

The first show visited was the Oxford County Show, where Elphicks Kent won first and champion honors. At the Royal Counties Show he again headed his class, and he occupied a similar position at the East Kent Society's exhibition. These victories at once stamped him as a boar of no ordinary merit; and as Mr. Buss was equally victorious with his other exhibits, both Yorkshires and Berkshires, at these and other exhibitions, it will be seen that his stock are of no ordinary merit.

At what Age Should the Brood Sow be Discarded?

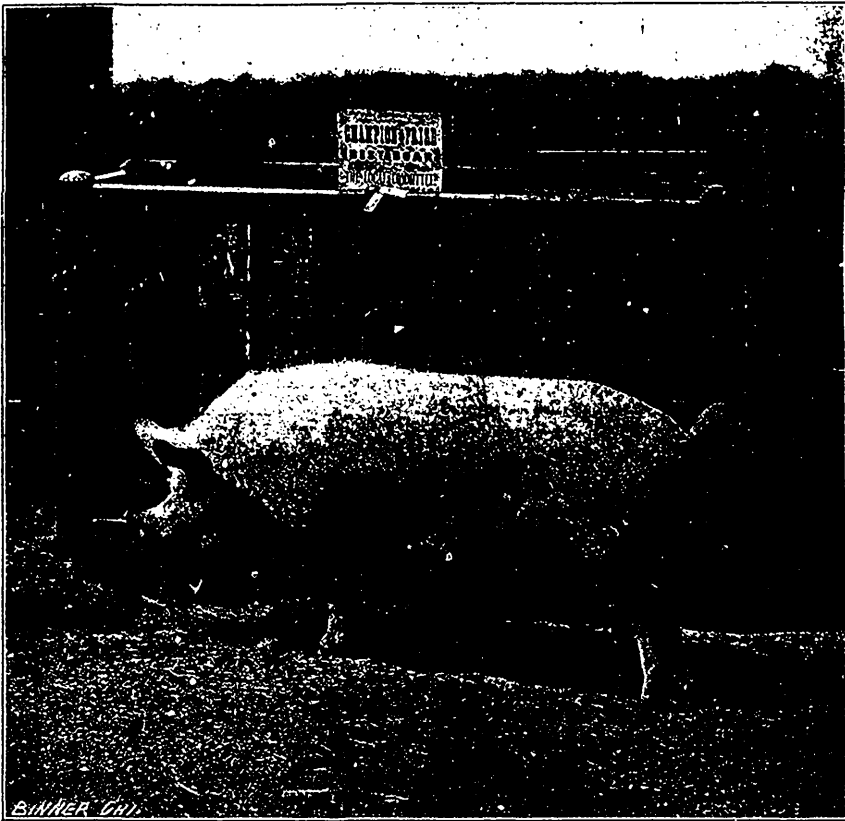
It is my custom when I have selected a lot of good brood sows to continue their use till there are evidences of failing. These evidences are difficult mastication of food, small number of pigs, and too many runts, if the usual number is farrowed, and sometimes physical weakness.

One sow that will be fattened this fall is past eight years old. In her prime she usually farrowed twelve pigs. She now weighs over three hundred pounds, farrowed last time four pigs, and saved three. Last fall she raised eight, but previous to that had not given a good number once or twice. In appearance this sow is stronger physically than any of the others, and should still bring large, strong litters, but in this she fails whether coupled with an old or young boar. Another sow, the largest and fattest of the lot, farrowed and saved eight pigs, the number she has brought and saved for several previous litters. Still another sow that has been low in flesh, and has farrowed at previous litters from six to ten pigs, farrowed twelve strong pigs, saving nine.

Farmers, as a rule, believe that a sow should be thin when she farrows, to prevent laziness and

the crushing of the pigs. This sow was much lower in flesh than we like to have them; still, she was the ideal in that respect for the average farmer, but she overlaid three of her pigs. The large sow that had eight pigs had we not given her attention would have smothered one of her pigs. The other sows had no attention, and did much better than young sows often do when they are given the best possible care. I am agreeably surprised with the returns the old sows have given. The four have an average of nearly eight

pigs, and then with the others finish on new corn for market. I have kept them till past nine years old, and still they produced good litters, but were condemned because they could not properly masticate their corn. A neighbor tells me that he has kept them in use till nine or ten years old. Another neighbor that was an excellent hog-grower retained a sow till she was thirteen years old. Only superior individual merit would have given her such a lease on life. An old sow that has proven her good qualities is safer than a young



A Champion Yorkshire Boar.

Owned by Mr. E. Buss, Horsmonden, Kent, England.

pigs apiece. Previous to this last time, with one exception they have been bred to an aged boar, which was probably to some extent the cause of unsatisfactory litters. When sows do as well as three of these have done at this last farrowing, I dislike to send them to the feed lot, for young sows cannot do any better, nor can they raise the pigs as well as these old ones. One of these sows would probably do well for two years yet, but she will gather rye for a time after she weans her

and untried one. Away with the idea that a sow is old at three or four years, the age that most of them go to market because "too old."

JOHN M. JAMISON.

[The above remarks, by friend Jamison, in the *National Stockman and Farmer*, are sound doctrine, and we would ask our readers to read them carefully. Numbers of the best sows in the country are sacrificed every year to the insane prejudice against old sows.—ED.]

Danish Experiments in Pig-Feeding.

Following* is an extended list of pig-feeding experiments conducted by the Danish State Agricultural Experiment Station :

TURNIPS V. WHEY.

Two experiments with thirty pigs were made to study the relative value of turnips and whey. Lot A was fed whey, and lot B was fed half the amount of whey and a like amount of turnips. Both lots received equal amounts of barley in addition. The gains made by the different lots indicate that, under the conditions given, the whey had a higher feeding value, pound for pound, than the turnips.

BARLEY V. CORN.

Five series of experiments with 115 pigs were made.

Lot A received barley throughout.

Lot B received corn, for which barley was substituted when the pigs weighed 120 lbs.

Lot C received corn, for which barley was substituted at 140 lbs.

Lot D received corn, for which barley was substituted at 160 lbs.

Lot E received corn throughout.

The lots fed corn throughout the experiments made somewhat heavier gains than the barley-fed lots, but the corn had a tendency to produce a poor quality of pork. Dividing the pigs into four classes, according to quality, 92 per cent. of those fed on barley alone were placed in the first two classes, while only 62 per cent. of those fed corn throughout came within these classes, and 14 per cent. came within class four (poor carcasses sold at a discount).

The softness of the pork increased with the amount fed. Thus taking one as perfection, the softness of the pork from the different lots was as follows : Lot A, 1.4 ; B, 1.6 ; C, 2.0 ; D, 2.3 ; E, 2.7.

FOOD REQUIRED PER POUND OF GRAIN.

In these experiments the relative value of dairy by-products, grains, roots, etc., was also studied. One pound of barley was equivalent to six pounds of centrifugal skim-milk, or 12 lbs. of whey from skim-milk cheese.

The following table shows the amount of "calculated grain," according to the value given above, required for the production of one pound of growth at different periods :

At 75 to 115 lbs.....	4.37
At 115 to 155 lbs.....	4.67
At 155 to 195 lbs... ..	4.99
At 195 to 235 lbs.. .. .	5.43
At 235 to 275 lbs.....	6.24

These figures show a marked increase in the amount of food required to produce one pound of gain as the age of the animal advanced.

FOOD REQUIRED PER POUND OF INCREASE IN SUMMER AND IN WINTER.

In these experiments the average results of 100 winter and 99 summer experiments are given, each of which included from 25 to 30 animals, so that for each season (summer and winter) the averages represent at least 2,500 pigs. The results show that the animals ate but slightly more in winter than in summer, but it required .44 lb. more grain feed for one pound of gain in winter than in summer. It is estimated that at current American prices for feeding stuffs it would cost not quite half a cent more in winter than in summer to produce a pound of pork.

[In connection with the experiment on turnips vs. whey, it might be well to note that, while the percentage of albuminoids in whey and turnips is practically the same, and that of carbohydrates is slightly higher in turnips than in whey, the percentage of fat in whey, although small, is six times as great as in turnips. Barley is somewhat deficient in fat as compared with either oats or corn. We would like to see this particular experiment tried with corn in place of barley.—Ed.]

English Breeds.

"THE LARGE WHITE," OR "IMPROVED YORKSHIRE."

(Continued.)

Although admitted to be the one of the oldest breeds of pigs in England, the Large White has, like many other of our domesticated animals, been so much improved that a scale of points that would have been applicable to the breed some years ago would not, perhaps, suit its altered circumstances of to-day so well. The two best scales for the Large Whites that we have found in English works on pig-breeding are those formulated by Mr. Sanders Spencer and the late Mr. James Howard respectively, both of which we give here.

That drawn up by Mr. Spencer for the first volume of the National Pig Breeders' Association's Herdbook is as follows :

	Points.
<i>Head</i> —wide, deep, and of fair length ; lower jaw sprung ; ears neither too drooped nor pricked	10
<i>Neck</i> —muscular and rather long.....	5
<i>Shoulders</i> —wide, but not open, obliquely laid	10
<i>Fore legs</i> —straight, and placed well outside the body.....	7

<i>Ribs</i> —well sprung and deep.....	12
<i>Loin</i> —wide, but not slack.....	8
<i>Flank</i> —deep and full.....	7
<i>Quarters</i> —long and straight from hip to setting on of tail.....	13
<i>Hams</i> —wide, with meat down to hocks....	10
<i>Hind legs</i> —placed well outside, and not too much under the body.....	5
<i>Bone</i> —not coarse.....	6
<i>Hair</i> —long and silky, and without mane or bristles along neck or shoulders.....	7

100

Mr. Spencer adds that, aside from the special characteristics of the male and female animals, every good pig of the Large White breed, whether boar, sow, or fat pig, should possess most of the points above mentioned.

The scale of points suggested by that well-known authority, the late James Howard, was as follows:

Points.

1) Straightness, strength, and setting on of fore legs.....	10
2) Straightness, strength, and setting on of hind legs.....	10
3) Length and general exterior.....	5
4) Breadth, form, and character of head, including width between eyes; size of jowls, and length, fineness and erectness of ears.....	10
5) Breadth of collar or neck.....	5
6) Breadth and depth of shoulders.....	10
7) Girth around heart.....	10
8) Depth of sides and springing of ribs....	10
9) Width across loin.....	10
10) Depth and breadth of hams.....	10
11) Straightness of back from shoulder to tail.....	5
12) Quantity and quality of hair.....	5

100

While we are loath to criticize the opinions of two such eminent authorities as those mentioned, we may be permitted to say that we hardly think either scale is entirely applicable to the Large White of to-day, and more especially to the type most desired by American and Canadian breeders. It will be noticed that in both these scales width of back and loin is indicated, a point which is certainly not desired on this side of the water; and, again, for use among breeders in this country we would like to see more emphasis laid on the necessity of a *long and deep side*, such as the breed is undoubtedly pre-eminent for. We beg, therefore, to submit to those of our readers who are

interested in this breed the following scale, which has been suggested by two of the oldest breeders of Improved Yorkshires on the continent, and we shall be glad to have the opinion of all interested in it:

SCALE OF POINTS FOR IMPROVED YORKSHIRES.

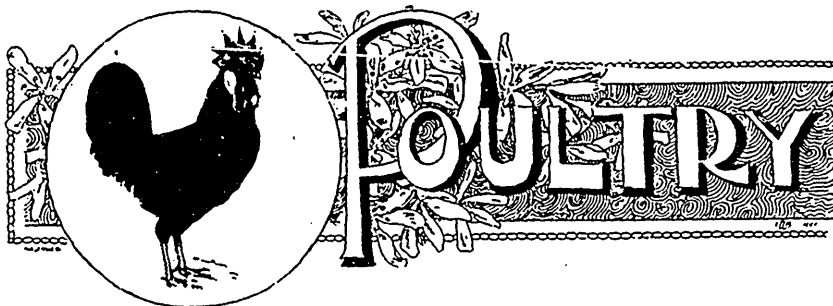
	Pts.	Pts.
<i>Head and Neck</i> —Forehead and poll, wide.	4	
<i>Ear</i> —Fine, of good length, erect or slightly pointing forward.....	4	
<i>Jowl</i> —Medium, but not flabby.....	3	
<i>Snout</i> —Medium length, and slightly curved upward.....	2	
<i>Neck</i> —Of moderate length, muscular, and well filled up.....	5-18	
N.B.—Head, taken as a whole, should be wide and deep, with face well dished.		
<i>Body: Back</i> —Of moderate width and slightly arched.....	5	
<i>Loins</i> —Strong, with short ribs of good length.....	5	
<i>Ribs</i> —Well sprung, but deep in proportion.....	5	
<i>Flank</i> —Deep and full.....	5	
<i>Side</i> —Long, deep, and smooth.....	10	
<i>Forequarters: Shoulders</i> —Of moderate width on top, not open.....	7	
<i>Fore legs</i> —Straight, and placed well outside the body, giving requisite width to chest, with bone strong, but of good quality; [short.....	5	
<i>Hindquarters</i> —Long, to correspond with shoulders and side; wide, with hams deep and well let down to hocks....	10	
<i>Hind legs</i> —Short, straight, and firm, with bone strong, but of good quality....	5	
<i>Hair</i> —Abundant, long, free from curl, and of fine quality.....	5	
<i>Skin</i> —Smooth and pliable.....	5	
<i>Color</i> —White on all parts of the body....	5	

NOTE.—Black hairs to disqualify; blue spots objectionable, but not to disqualify.

Symmetry and general appearance..... 10

100

Should this scale prove acceptable to the majority of breeders, we would suggest its adoption either as it stands, or with any modifications that may be suggested by the breeders in session, as we feel that the adoption of a regular standard is necessary for the production of a more uniform type among Improved Yorkshires on this continent.



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

Poultry for Market.

This is a very much neglected part of the poultry business in this country. It is, of course, true that there are countless fowl sold here, but at what period of the year are they sold? They are placed on the market when fowl are a drug, and the result is poor prices. As a general thing, those who raise chickens for market hatch them in April and May, and hold them until September. Why do they do this? Ask them, and they will probably tell you that they do not think them large enough to market before. This is where they make a sad mistake. Plymouth Rocks, Wyandottes, Javas, or any of the heavier breeds, should make excellent broilers at from ten to twelve weeks old. At this age they should weigh from two and a half to four pounds a pair, and it certainly seems to me that a good market could be cultivated. From interviews which I have had with commission men, restaurant and hotel keepers in Toronto, I am in a position to state that for fine chickens remunerative prices would be paid. By fine chickens I mean stock well fatted, so that the breast bone does not stick out like the keel of a boat; well dressed, cleanly picked, not rough all over or torn, with no pin feathers left in, nor the legs and feet left dirty. If you have the stock of the age and size described, try the experiment this year.

How to Dress Poultry.

Kill by bleeding in the mouth or neck, and pick clean, but do not attempt to stick poultry in

the mouth unless you understand it, because if this is not properly done they will only half "bleed out," and when they are being picked blood will follow every feather, giving the bird a bad appearance, and rendering it almost unsaleable. All poultry should be without food at least twelve hours before being killed, so that their crops may be entirely empty. Dry-pick the feathers; never scald. Some commission men refuse any that are scalded.

SHIPPING.

Poultry from places near the market should always be shipped in warm weather by express. See that the animal heat is entirely out before packing, or they will surely spoil. Any express agent will give you rates to any point to which you may wish to ship.

In the larger cities people are on the lookout for nice chickens during this season of the year, and the supply does not nearly meet the demand. By marketing your April-and-May-hatched chickens in June and July, when they weigh from two and a half to four pounds per pair, you will get from seventy-five cents to a dollar a pair, whereas if you keep them until September, when they are a drug in the market, you will only realize from forty to sixty cents per pair. To keep a chicken for from ten to twelve weeks and then sell it will only cost you a few cents for feed, and the result is a good price. To keep one five or six months will cost nearly three times as much, and to market such stock when the supply is greater than the demand means a very much lower figure—perhaps not so much as the cost for feed. Those who are in a position to do so should try what I here advocate.

Good Birds Cannot be Bought Cheap.

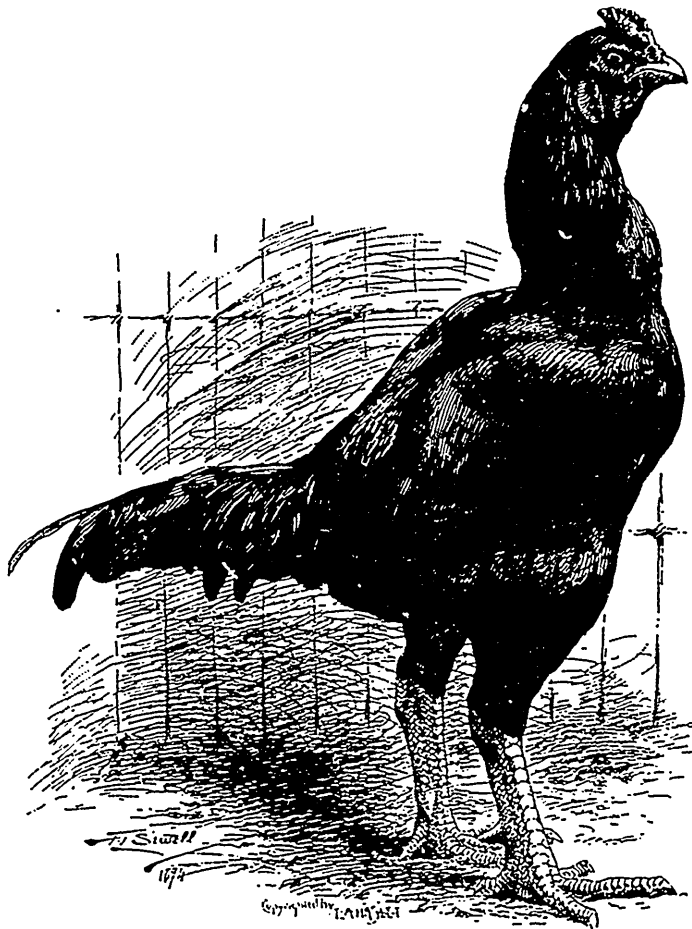
It is amusing to read the correspondence which fanciers sometimes receive from writers who wish to obtain poultry and eggs. Apparently they think they can get world beaters for little or

nothing. An advertiser in *FARMING* recently received a letter from a would-be purchaser, who hoped to be able to secure a *good show* cockerel and pullet of a certain breed for \$3.50 the pair, or a *good show* cockerel alone for \$2.

It ought to be unnecessary to state that good show birds cannot be obtained at any such figures as that. It takes time and careful work to breed good show birds, and those who wish to buy such

Eggs.

Apropos of the subject of fertile and unfertile eggs, and the caring and keeping of the same, that excellent English publication, *The British Fancier*, contained, in a recent issue, a very good article, which, no doubt, will be of considerable interest to all of our readers, and especially to those who are engaged in purchasing eggs and



Indian Game Cock.

must make up their minds that they must pay for them.

Some buyers are very unreasonable. The following is an experience of my own :

I sent a setting of thirteen eggs to a man in the States, and after the hatch was off he wrote to me as follows : " The eggs came to hand all right, but I only got eleven chicks from the thirteen eggs ! What are you going to do about it ? "

Of course I sent him another setting (?).

storing them or winter sales. The article is a very thorough one, but it omitted to mention the fact that unfertile eggs will keep much longer and retain their flavor for a very much greater period than fertile ones. The article is as follows :

As Mr. James V. R. Swann, C.E., remarks in his report on the importation of Russian eggs, it is extraordinary, with our enormous consumption of eggs for food, how little is known about them.

Few who break the shell of eggs think of the structure they crash, or the complex chemical nature of the contents consumed as food. Even the membrane adhering to the shell is regarded as part of it, which it is not, and but few house-keepers who break eggs ever distinguish between the two whites, or know of their separate existence.

Though the object of an egg is undoubtedly to envelop the germ, yet impregnation of an egg by this germ has no influence upon the actual laying, and a hen will lay at the proper season independently altogether of her being mated with a male bird. Millions of eggs are laid every year which would never hatch, simply because they contain no germ, not having been fecundated. There are therefore two classes of eggs, fertile and unfertile. A fertile egg is one in which the vital impulse has been communicated by fecundation, and by the term unfertile is meant an egg that has never been impregnated, and consequently one that cannot possibly hatch.

In storing eggs for food it must be remembered that an egg with a germ only represents the first stage, and its voidance does not, as in the birth of animals, mean actual appearance of the living being itself. There is, consequently, a further process for its completion. It is therefore obvious that the various changes to which an egg is liable to be subjected must be considered apart from the changes to which they are subjected by exposure to atmospheric influence. The laws that govern successful incubation must be studied if the complex formation of the egg is to be preserved.

We gather from Mr. J. V. R. Swann's report with respect to the storage of eggs that some knowledge of their structure is necessary to their successful storing. The shell of an egg is porous and permeable by the air, and there is constant evaporation going on from the time the egg is laid. The evaporation depends upon the condition under which the egg is kept, and will vary in accordance with these conditions. It is much more rapid in hot weather than in cold; in warm places than in cool. The freezing of eggs destroys their vitality, but by employing a low temperature eggs have been kept 140 days, and successfully hatched afterwards.

When eggs are stored in other than cool places, the transpiration of oxygen and hydrogen invariably renders them stale. This loss and evaporation are scarcely perceptible in the first week, but are more marked in the second, and are of considerable importance in the third. An egg exposed to the weather, but protected from sun, rain, and frost, will lose more than half its original weight in twelve months. Under similar condi-

tions twenty-seven eggs, at the end of six months, will weigh less than twenty-two newly-laid ones. Evaporation is half the annual daily average in winter and double the annual daily average in summer, or a daily loss four times greater in hot weather than in cold. Experiments have proved that evaporation is very unequal. It is influenced by the size and form of the eggs. In a series of experiments made with new-laid eggs, weighing eight, nine, and ten eggs to the pound, it was found that eggs weighing ten to the pound lost double that of eggs weighing eight to the pound, and with very small and long eggs the loss in weight assumed a still greater disproportion.

Cold storage minimizes evaporation, and a low temperature is not favorable to the multiplication of the micro-organisms associated with the decomposition of eggs. To prevent bacteria-laden air taking the place of the contents of the egg lost by the evaporation and transpiration, a pure air where the eggs are stored is absolutely essential. There are always more micro-organisms in the air those places where decomposing matter of any kind is allowed to accumulate, especially those which form resting spheres, and are carried about from place to place either alone or adhering to dust or other particles. This is proved by the number of micro-organisms in the air of a warehouse, where from fifty to seventy cases of eggs were constantly in stock, the average number in a given volume of air, for the winter quarter, being 37°; for spring, 64°; for summer, 132°; and for autumn, 78°.

In view of the chemical processes associated with the life history of micro-organisms in air, pure surroundings are indispensable, and also regular turnings of the eggs by reversing the cases, if disruption of the complex formation and chemical nature of the egg is to be avoided. Upon two rules, apart from preserving processes depends successes in storing eggs for food—cool storage in a pure atmosphere, and reversing the eggs twice weekly.

STRAY FEATHERS

PUT coal oil on your roosts and nests once a week.

As this is one of the hottest months in the year, see that your poultry house is kept nice and cool.

SCALD the drinking vessels once a week, and see that your fowls have fresh water at least twice a day. It is a good plan to place the water in shady spot.

TRY to make a point of cleaning up the droppings every morning. It will pay you well in the long run.

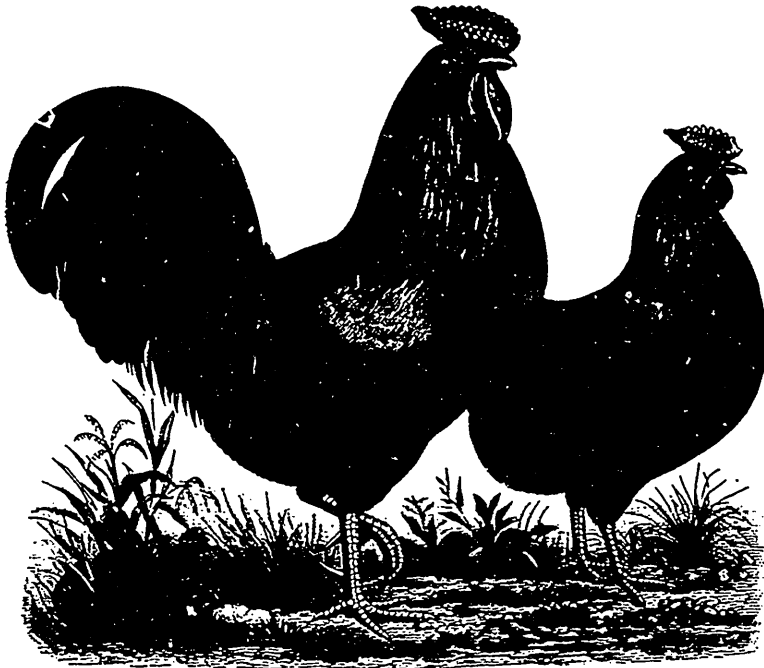
BE sure to gather your eggs daily. If you neglect this, be assured that you will be disposing of some partially-hatched ones.

SHOULD you intend to do any building for your poultry this season, do not leave it until late in the season. The sooner it is done the better.

Do not feed corn during the hot weather, for it is too heating, and produces too much fat. In summer good, sound oats is as good a food as you can give your fowls.

three feet high in the rear, five feet in the front, and six feet wide; with each section for individual birds, three feet in width is sufficient. The whole building may be made of rough boards, using lath for the fronts. Be sure, however, to locate it in a cool place and make each pen rain-proof. A building such as this can be put up very cheaply, and will do for years.

THE dark-colored yolks are preferred by those who use eggs for cakes and pastry, and the question is frequently asked why the yolks of some eggs are of pale color at times. The color of the yolk does not indicate quality, but depends on the food. If yellow corn or clover hay is given to hens



Red Caps.

BURN a pound of sulphur in each pen the first day of the month, choosing this day so that you will not forget it. This will destroy all germs of disease and kill myriads of insects. Be sure, however, that your fowl are all out. Make the building as tight as possible, so that all the fumes will remain a considerable time in the air and gradually find their way out through cracks and crevices.

Now that the breeding season is over, see that all male birds are taken away from the hens. If you desire to hold them for another season's breeding, make a nice pen for each bird, a coop

the yolks will be deeper in color than when wheat and bran are the principal grain foods. In summer, when hens can secure a greater variety, the color of the yolks is deeper than when the food is restricted to one or two kinds only.

CHANGE the straw in your nest boxes once every two weeks. I would recommend burning what is taken out. Should any insects be in the litter, they would certainly be thus destroyed. July is the busiest month for lice, and every precaution should be adopted to exterminate them from about your houses. They are the prime evil of poultry-keeping, and, notwithstanding the

advice given in all poultry and agricultural papers, it is surprising how many people permit their houses to become overrun with these pests. My oft-repeated advice is to take an ordinary hand sprayer and spray every crack and crevice with a solution of carbolic acid and water. To every gallon of water add *two tablespoonfuls* of crude carbolic acid, and follow this up with a thick coat of whitewash, into a gallon of which drop an ounce of refined carbolic acid. It only takes a little time to do this, and do it well. It (the whitewashing) need not be done often—in the spring and fall will suffice. The cost is trifling. Negligence is the only excuse for a lice-infested poultry house.

A Sick Turkey.

Subscriber, Parkhill, Ont. : Enclosed I send you some questions about a sick turkey.

ANS.—I will answer your questions fully in the August issue. Try a two-grain quinine pill night and morning for three or four days, and bathe the swollen part with vinegar and water in the proportion of one of vinegar to fifteen of water. See August number.

Egg Shells.

D. M., St. John, N. B. : I would like to ask if eggshells are good for hens. I have found a great many needed and important items of information in your department, but have never seen this subject touched upon.

ANS.—Eggshells are good for the hens. Crush some up and see how greedily they will eat them. This fact is sufficient to prove that they contain something which the fowls want. Always crush before feeding. It is a bad practice to throw them into the yards practically whole. The best way to feed them is to crush and mix them with the soft food.

Express Rates.

A. B., Athens: I took a coop of birds to our express agent for shipment. The coop was made solid top and bottom, with slatted sides. No canvas was used at all. Notwithstanding this they were billed at *double* rates. The agent admitted that I had *received* birds at *single* rate, but stated that he had no instructions to ship at any rate other than *double* first-class for thoroughbred poultry. I write to you now in view of the paragraphs which have appeared in FARMING on the subject.

ANS.—The agent to whom you took your fowls is wrong. He does not know his business.

Every agent of both the express companies which do business in Canada received a circular from the superintendent of his company notifying him of the change in rates. If your agent insists upon charging the old rate, and refuses to give you a refund, write a *firm but gentlemanly letter* to the superintendent of the express company for which the agent works, and you will find matters put right. I find the officers of both companies very obliging, and willing to meet their customers half way.

Poultry on the Farm.

W. B. M., Stanley house: In an article headed "Poultry on the Farm," printed in the May number of FARMING, there is a statement as follows: "I saw a man last spring who, on a little 50x130 foot lot, raised and sold \$1,000 worth of eggs and chickens in one year. . . . Mrs. Judy, of Decatur, made more than this off 25 hens in one year." I don't know the man's methods on his 50x130 lot, but I am quite skeptical concerning the 25-hen statement. I look at it in this way: You say a hen lays 150 eggs per year; allow Mrs. Judy's hens to double that, making 300 from each hen; that would allow her 625 dozen per year, which, at 20c., would make \$125. Say that there were 10 chickens to each hen, 250 chicks in all, and allow 50c. each, which makes \$125. Eggs and chicks at these prices and quantities would amount to \$250. Could you get particulars of her methods?

ANS.—Your question is quite a proper one, and I am somewhat skeptical also. You will observe that the article to which you refer was an address by Mr. Johnson at a farmers' institute meeting. I have written to both Mr. Johnson and Mrs. Judy, and if favored with a reply from either or both shall publish the same in the August issue of FARMING. I might mention, however, that, without a doubt, the profit referred to was made from selling exhibition stock and eggs for hatching. I know this is how Mrs. Judy arrived at her figures.

Poultry House.

Subscriber, South Mountain, Ont. : Kindly allow me space in your valuable paper to ask a few questions regarding the erection of a poultry house. I enclose a rough plan of same, and would like your opinion.

(1) Is the plan a fairly good one, and is 12 x 12 feet large enough to accommodate thirty hens?

(2) Are my yards (12 x 72), as shown in plan, too large, or would it be advisable to only have them 12 x 40, and put some green food in the balance?

(3) What would be most suitable green food?

(4) How many ventilators will be required for

a building 12 x 72, and how and where should I build them?

(5) Kindly advise me in the July issue as to the above, and add any other information which you think would be of service.

ANS.—(1) In the plan enclosed you show a height of five feet at the lowest side and seven feet on the highest side, and give the building as twelve feet wide. In my opinion, a fall to the roof of two feet in twelve is not sufficient. It would be preferable to have the highest side of the building eight feet instead of seven. You would thus have a much better fall. Pens of the size shown in plan (12 x 12) are not large enough to accommodate thirty fowl during our severe winter months. I would put only twenty-five fowl in each 12 x 12 pen, and would make a solid partition between each compartment. This will prevent all draughts, and in all likelihood keep your flock in better health. Remember: Plenty of green food must be supplied in winter.

(2) The size of the yards (12 x 72) is very suitable. In the fall I would put in some rye. You could sow about forty feet of this, and the

chickens would be kept busy eating this down in the spring. Do not, of course, partition it off from the rest. Plant plum trees in your runs.

(3) Rye would be my choice, but there may be something more suitable. Perhaps some of our readers have had some experience with other

kinds of green food. If so, I shall be pleased to hear from them for the August number.

(4) This is the all-important subject—ventilation. In your building I would put a ventilator in each pen. I would build them in the roof, and make them twelve inches wide by six. I would run these down to within twelve or fourteen inches of the floor. The reason of this is that the foul air becomes heavy and sinks to the floor. The ventilator being low will carry it off. In the part of the ventilator close to the inside of the roof I would have a door which could be

opened and shut at will. This would be found useful in summer, but would hardly be required in winter. Place the ventilators in the centre of the pens. By making these as described, there will be no draughts and you will find that they will keep your house clear of impure air. Should you not understand this, do not hesitate to write and let me know, and perhaps we can publish a plan of it in the August number. It is no trouble to give information. That is what the paper is published for.

(5) No doubt you have planned to have the house warm enough for your climate. Be careful! as to this.

Also see that your windows are doubled and not too large. Windows 2 x 4 are plenty large enough for each pen. If there is any further information which you think I can give you, do not hesitate about writing, but please do so before the 15th of each month.



Black Langshan Cockerel.



Mixed Farming.

Mixed husbandry has brought untold blessings to our country. There is no other farming that will long stand the test with the rank and file in any country. One line of farming may do in a new country, but it comes to an end. One requires to go west to see the folly of clinging to the one-crop system. Many men grew rich by raising wheat when the land was new and good, and then they grew poor again when the soil became worn and prices fell. The one-crop farmer comes to be a narrow-gauge man in his views of farming. He gets into a rut, and cannot apparently get out of it. With him the thing that has been is that which shall be. The man who grows a variety of crops from the soil, and a variety of products from the crops which he has grown, soon gets ready for any emergency. He has some crops that yield well in almost any season. There are some products which bring a fair price though the times are depressed, and there is always a fair living for the farmer and his family even in adverse seasons. The one-line farmer may sometimes find a spring-tide, but the next season he is just as likely to find an ebb-tide, and he finds himself sometimes in "good" luck and sometimes in "hard" luck. The man who diversifies wisely sails on a smooth sea, and he usually finds the winds at least fairly propitious.

Working Late Now and Then.

When a crop has been grown it is of very great moment that it be harvested in the best possible condition. When the weather is dry and settled, so that there is no reasonable fear of rain, the work may just as well go on in the usual lines. But when the weather is showery it is different. Then it may prove very advantageous to work sometimes into the night. For instance, a field of clover hay may be in a good condition for being stored, and yet it may be impossible to store more than a part of it by the time that the sun goes down behind the distant west. There may be

strong indications of rain. Now, under these conditions, the husbandman would be unkind to himself who quit work at sundown. He should rather continue until the deepest shades of the night have gathered in. And the hired man who would not willingly work on under those conditions would not be worthy of his place. But this also should be remembered: it would be manifestly unfair to call that man at the usual hour the next morning, and to commence the labor grind as usual. Ordinarily, nothing is gained by working unduly long hours, but in harvest time and also in seedtime there are exceptions to this rule.

Under Rather than Over-Ripe.

It would be quite possible to cut grain under-ripe, and the same is true of grass. But for one mistake made in harvesting these too soon twenty mistakes are made in not harvesting them soon enough. When hay is cut overripe there is loss in palatability, in digestibility, in aroma, and in the greater tendency of the leaves to fall off while it is being cured. The only advantage gained would seem to be greater ease in curing the crop after it has been cut. When grain is cut over-ripe it soon sheds on the ground, and the value of the straw is very much lessened for food. In a country where straw is burned, and where but little of it is used even for litter, this would not be so serious a matter; but with us, where so much of the straw is used as food, it is indeed a great matter to save the straw in the best possible condition for food. The safe rule to follow in cutting grain is to cut it as soon as the stem has turned yellow for a short distance under the head. When this point is once reached don't wait any longer, if it is possible to cut the grain at such a stage. It is one thing to grow good crops and quite another thing to harvest them in the best possible condition.

Autumn Cultivation.

It may seem early to speak of autumn cultivation when we have only reached July. But

autumn cultivation cannot be given too early. That light plowing of the land after harvest which has been practised by many of our farmers for years past has done very much to keep the weeds down that infest our growing crops. There are objections to the system, however. In the first place, it is not easy to "skim" the land thus at so busy a time. And, in the second place, there is loss from the leaching of nitrates out of the soil before the next crop grows. The remedy for such loss would be to sow some crop for plowing under or for being pastured off. But sometimes the seed will not start because of the dry weather. The farmer must then do the best that he can under the conditions. By taking advantage of a shower it may be easy to start some crop which would not start at any other time. The extent to which weeds are destroyed by such a system cannot easily be over-estimated. Therefore, let the system of thus dealing with the land be continued. Let it be still more practised.

The Compost Heap.

Don't forget the compost heap. It may be made a source of at least some profit, and while being made it certainly furnishes a receptacle for many matters that would otherwise lie around and become a source of trouble to the extent at least of being an eyesore. The compost heap should be in a secluded place, for it cannot be said to be ornamental, however useful it may be. And it should not be too far away, or waste substances will not be thrown upon it. A foundation may be made of, say, swamp muck or earth. Then waste vegetable matters from about the house and lawn and garden may be thrown on it till these accumulate. A layer of earth may again be added, or of long manure and then earth. If the liquids can be added from the house, there is additional richness imparted, and decay becomes more rapid. But compost heaps should be used as soon as ready. When properly applied, the fertility added through this source will be very considerable, more than is usually supposed, and, in fact, enough to surprise those who have never tried to make the most of the waste products of the house and its surroundings.

The Lawn in Front of the Farm Home.

It was a beautiful lawn. The dwelling was old and it was also old-fashioned. The paint on it had become dingy and the signs of wear were on the chimneys which had begun to chip a little on

the outer surface of the bricks. The old-fashioned veranda had begun to sag a little in the centre. Indeed there was not much in the old dwelling to attract, and yet no one could pass that way in the summer season without looking admiringly toward the old dwelling. It had a level lawn in front that was mown three or four times a year, which gave it an attractiveness that was simply captivating. Two or three old trees stood in the lawn with their beautiful shade. Otherwise it was bare, and yet it was beautifully attractive. The cost of keeping that lawn was trifling. The mowing could be done in two or three hours, even though done by hand. And trifling as was the labor involved, there was a beauty possessed by that lawn which exceeded that which surrounded many a home where there had been far greater outlay. It was the beauty of simplicity, the beauty of fitness in a calling where work drives, in the bright yet busy summer time. Why cannot every farmer have a neat lawn? Why is it, farmers? Tell us why. Boys, why is it that you don't make a nice neat lawn in front of the house? Girls, why don't you get the boys to do it?

The Old-Fashioned Bare Fallow.

The old-fashioned bare fallow is more and more becoming a thing of the past. And nobody should shed tears because it is. It was an expensive luxury, very expensive. And in this utilitarian age, when revenues are shrinking because of a shrinkage in values of produce, we must make up our minds to dispense with luxuries. The bare fallow was, in a sense, a necessity once; at least it had a purpose to serve, and that purpose was the cleaning of the land. But little corn was grown, and, in some localities, scarcely any field roots; hence, if the land was to be made clean, it was felt that it should be made so by leaving the ground fallow, and by plowing it several times in the season, when it was in that condition. But now that the crops named above are more generally grown, the ground can be cleaned by growing them. The benefits to the land are just the same in many respects, and the crop grown pays for the labor of cleaning the land. The old-fashioned fallow is not needed now except when land is to be improved by sowing green crops upon it. In such instances it may be given a place. The number of the crops to be grown upon it will depend very largely upon the season and the kinds of crops grown, but ordinarily there should be no difficulty in growing upon it at least two crops for turning under the same season.

Grass Seeds Before or Behind the Grain Drill.

When grass seeds are sown with the seeder attachment to the grain drill, as everyone knows, it is a very convenient way of putting them into the ground. But there is a difference of opinion as to whether the seeds should fall before the grain drill tubes or after them. Good results have followed both methods. Some persons argue, however, that when the seeds fall before the drill they are buried too deeply, and others argue that when they fall behind they are not covered deeply enough by the rolling subsequently given to the land. This question should be decided more by the character of the land than in any other way. The fact should be recognized, in sowing grass seeds, that the lighter and more open the land the more deeply may the seeds be buried, and the more stiff and dense the soil the lighter should they be covered. On the soils of the prairie grass seed may be covered as deeply as three inches without apparent injury, whereas to put them so deep in clay soil would be to entomb them beyond the power of resurrection. On stiff clays, therefore, it would seem the better way to let the seeds fall behind the drill tubes, while on sandy soils and black loams inclining in character to muck it may be the better way to let the seed fall in front of the drill. In any event, the seed should be got in at the earliest possible moment. When grass seeds are sown late and dry weather follows they are almost sure to perish.

The Proper Stage at which to Cut Grass.

Grasses should, as a rule, be cut early rather than late. The great mistakes made in harvesting grasses arise more frequently from cutting them late than from cutting them early. Many delay cutting because of the saving in labor effected in curing the grasses. While it is a fact that late cut grasses are more easily cured, yet it is also true that the gain thus made is more than counterbalanced by the loss in feeding qualities, more especially in palatability. We cannot lay too much stress on palatability in all our feed curing practices, for it will not avail though a food should be ever so nutritious if the animals to which it is fed do not care to eat it.

We will begin with clovers. The common red clover should be cut when in full bloom. Some writers say, wait till some of the heads turn brown. It may be advisable in showery weather

to wait thus long, and it may also be advisable to do so when clover and timothy are growing together, for the sake of the timothy, but ordinarily red clover should be cut when it is in the meridian of bloom. If cut then, it will be palatable, and from that stage onward it becomes more and more woody. It contains all the nutriment it will ever have at the stage indicated, or very nearly so. And the second cutting will come up more vigorously and quickly when the first cutting is done at the time mentioned. Mammoth clover should also be cut thus early. In fact, it is even more important that mammoth clover should be cut early, as it has naturally a stronger stalk, and therefore a larger proportion of woody matter. The stage indicated will also be proper for alsike clover when it is to be made into hay.

As to timothy, it should be cut when in full bloom. Some have objected to cutting it at that stage for horses, on the ground that there is more of dustiness in it from the blossoms than if cut later. But, when properly cured, there is not much force in the objection. There can be no serious objection, however, when it is to be fed to horses, to allow it to stand until it reaches what is termed the second bloom, that is, until after the blossom has chiefly left the heads, and only remains upon the tip thereof. Some writers argue that if timothy is allowed to get nearly ripe it increases in weight, and probably it does, but it also increases in woodiness; hence it loses in palatability. It is also much more easily cured when cut at an advanced stage. That is true of all kinds of grasses and clovers, but it is, indeed, a poor compensation for the loss in palatability.

Orchard grass, blue grass, and tall oat grass should all be cut early. In fact, it is imperative that they should be cut early if they are going to be of use as hay. If they are not cut early, they will only be of use as straw. They should be cut as soon as fully out in head. They lose very quickly in palatability when they are not cut with all promptness after the stage indicated. They lose in feeding value because they lose in palatability. And they lose in palatability because they become woody. If the farmer were to cut either of the varieties of grasses named at the stage mentioned, and were then to cut the same at a later stage, and if he were then to submit these samples to a lot of hungry cattle, he would never again cut such grasses late if it were at all in his power to cut them early.

And in Manitoba and the Northwest the same mistake is oftentimes made with reference to cutting prairie hay. The farmer in too many instances seems to think that it is all right if he gets his hay put up before the advent of winter, but it is

not all right. There is a proper season at which it should be cut in order to get full feeding value from it, and that proper time is a period in advance of the wheat harvest.

When mixed grains are grown together, it is greatly important that they shall be cut at the proper stage, if they are to be used for hay. That stage is reached before the grain hardens. If cut before that time the straw will be valuable. If not cut till later its value will be lessened, not that it will have lost nutriment so much as that it will have lost palatability. As stated before, it matters little how much of food constituents any fodder may contain, if live stock do not care to eat it, as a food it will prove a failure.

Growing Autumn Forage for Swine.

Autumn forage is not so much needed in swine husbandry as early spring forage, or as summer forage, because spring litters are usually being fattened for market at that season, and also because autumn litters are not being reared to anything like the same extent as spring litters. But where a number of brood sows are kept, and where early autumn litters are being reared for winter finishing, then the question of providing a supply of autumn forage may be profitably considered.

Where the swine-grower has a large range, and when, up to harvest-time, the rain has been plentiful, a sufficiency of autumn forage may be assured without any extra or special effort being necessary to provide it; but in seasons of an opposite character the question of growing autumn forage may be well worthy of attention.

Of the grasses, common red clover will stand first in importance in the autumn, as well as in the spring. But blue grass and orchard grass may also be helpful. The value of any one of these will be dependent largely upon the amount of rainfall. In dry seasons the blue grass will be of but little consequence, but when heavy rains fall in the early autumn blue grass will furnish a plentiful and palatable food. Clover, on newly-sown meadows, will be tender, and much inclined to grow vigorously. But, except where the catch is so good that it will stand some cropping without injury, it should not be pastured at all the first season.

By harrowing the stubbles of barley and oats, where these crops have grown, a large amount of pasture may be secured in a moist season, and more especially on humous soils. On clay soils the growth would be much slower, and more especially on stiff clays. A little labor thus

expended may be followed by a very satisfactory return in pasture, and it would have the further advantage of starting into growth many weed seeds that are lying on or near the surface of the soil.

A large amount of autumn pasture, relatively, may be grown for swine—or, indeed, for other stock—by sowing barley about harvest-time. Some peas may be added with advantage. On free-growing soils it would be necessary to sow the barley a little later than harvest-time. Barley grows rapidly, and it furnishes a pasture that is relished by swine. This pasture would, of course, have to be eaten before the arrival of hard frost, but the barley, and also the peas, would stand, at least, a moderate amount of freezing without serious injury.

Rye also could be turned to good account. It would need to be sown, if possible, in August. It would then make a good growth in time to be pastured for several weeks before the advent of winter. And when it had thus served a useful purpose in the autumn, it could be devoted to a similar use in the spring. There is no kind of grain that may be made to furnish so much pasture in one year as winter rye.

Rape also makes an excellent autumn pasture for swine. In fact, there is none better. And this is true of rape whether we take into account its palatability, its nutritive properties, or the large yield it gives per acre. When we remember that it will furnish as much as twelve tons per acre, and that it is about twice as nutritious as clover, we have an excellent idea of the feeding value of rape. And it may be pastured right up to the time of cold weather. One acre of rape would furnish pasture to about a dozen brood sows during the whole of the autumn.

Fall turnips may also be similarly used. They may be sown about harvest-time, or a little later. Like the rape, they may be sown broadcast, or in drills, and cultivated. The feeding value of these would probably be fully equal to that of the rape.

The Constancy of the Seasons.

We are prone to conclude that the seasons change. We oftentimes say that now they are not as they were wont to be of yore. There is no doubt but that they do change somewhat, and yet, after all, it is change that moves in a cycle. It may be that the drainage of the land, the breaking of the surface of the prairie, the cutting away of the forests, and the damming of rivers and lakes, all affect the climate somewhat, yet

the changes are far less radical than we are apt to conclude. There is a constancy about them that should fill us with hope, for with them we may pretty nearly conclude that the thing that hath been is that which shall be, and we should govern ourselves accordingly in all our plans which relate to work.

And, happily, there is a constant variety in the seasons, and yet it is not a variety that is regular. Next year will not be like this year, but the measure of the difference or the character of the difference cannot even be conjectured now. It is well, therefore, by a prudent forethought to take advantage of present variation so that we may be somewhat prepared for variation of a different character when it comes.

To illustrate, this year may be one of great plenty. Next year may also be one of plenty, but we cannot be sure of this. It is rather more likely to be one of scarcity, for such is the trend of variation, we shall not say the law thereof. It is better, therefore, to try to lay up of the plenty in store for the scarcity that may come. It is not wise to allow produce to go to waste because of the excess of the same over present and prospective needs. Nothing should be allowed to waste that can be saved. The surplus may be wanted another season, and, if it is, we have reason to blame ourselves for not having been more provident.

And it may be that there is an abundance of rainfall, which enables us to grow certain catch crops with which to enrich our land. In a season of a different character we could not do so. Our part is, therefore, to take time by the forelock and grow these crops while we may, for next year, and, it may be, the next again, the weather may not be favorable.

And yet, after all, the seasons are sufficiently constant to enable us to carry on the ordinary operations of the farm after much the same fashion from year to year. It is the extraordinary operations that are affected most by changes. We may not be able one year to dig a ditch in a very low piece of land because of an excess of water, but we can sow our seed and reap our harvest every year where the soil conditions are normal. We may look for a succession of the seasons about the same time every year, and from year to year.

How unwise, then, to allow discouragement to creep over us when the seasons are adverse. Adverse seasons are less numerous than favorable ones, just as there is less of cloud than of sunshine, and less of night than of day. Adverse seasons are sometimes discouraging, very much so, but it is only meet that we should take the

bitter with the sweet. It is necessary that they come betimes to teach us a lesson of economy which we are slow to learn from any other book.

Since the seasons are so constant, let us go on with fresh nerve in our plans and the execution of the same. Farm operations are not of necessity elaborate, but they are to some extent complex, and where the work is properly carried on the plans of the present run on into the future, and cover several years. If it were not so, there could be no such thing as a rotation, and rotation is very necessary where fertility is to be maintained.

And since the seasons are so constant we can trust the future. It will be at least as good as the past if we do our part, and if we fail to do this we should not murmur when things are not as we would have them. Away, then, with gloomy forebodings. Look for the breaking of the clouds rather than for the clouds themselves. Go forward with the labor of life with that assurance and hope which are the sure fore-runners of success.

Mixed Crops.

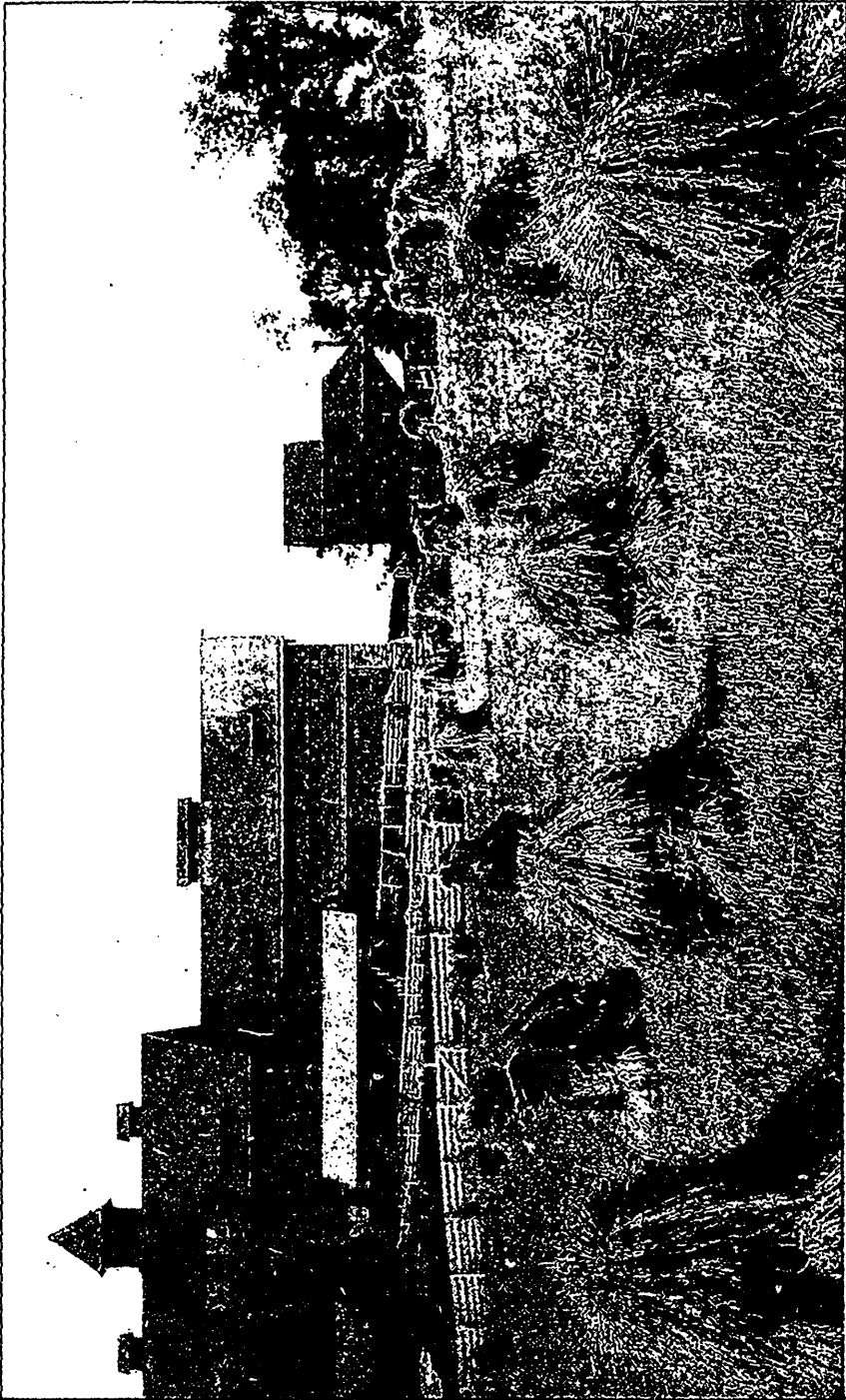
Mixed crops for forage are growing in favor in the west. The accompanying sketch shows a portion of a field on which such a crop has been grown as a winter food for sheep on the Minnesota University farm. These crops vary in character. Sometimes they include wheat, oats, and peas, sometimes oats and peas, at other times millet and oats, and yet again flax, millet, and oats. Owing to the peculiar character of the soil these fodder crops produce abundantly, and the almost uniformly dry weather of harvest-time admits of their being cured in fine form. Much larger quantities of such food can be grown from a piece of land than could be got from an equal area of such land laid down to meadow. This, at least, is the rule, though it may have some exceptions. Such crops could probably be grown with some advantage in Ontario. They certainly could in Manitoba and in sections farther west. The question is at least deserving of some attention from those who may be interested.

THOS. SHAW.

Minnesota University Experiment Farm.

Curing Hay.

Hay is not all hay. Much of it is straw, and sometimes it is straw of an inferior quality. It did not grow thus. It grew in the form of grass



Mixed Forage for Sheep.

or clover, and was made into straw while being cured. Sometimes, of course, the weather is such that hay cannot be cured properly; but oftentimes it could when it is not so cured, and when this happens it is unfortunate, for unless we have food of a good quality we cannot have the success in feeding stock that we ought to have.

The following principles should be observed in curing hay: First, cure, as far as practicable, by the aid of the wind. Second, try to preserve the natural color; and, third, cure in such a way that the grass will be exposed as little as possible to the influences of dew and rain. Over-exposure to sunshine fades the hay, makes it crisp and woody, and, in the case of the different varieties of clover, deprives it of its leaves. And exposure to dew and rain fades it, and also causes the loss of certain of its nutrient properties. When hay can be so cured that it retains its natural color and aroma it is palatable and nutritious, and it becomes less so in proportion as it loses these.

Clover, if cut at the right stage, will be very succulent, so much so that in showery weather it will be impossible to cure it. In such instances it would be better to defer cutting the crop for a time, even though it should become somewhat woody before it is cut. It will probably have to lie over night exposed to the dew, at least in many instances, before it can be raked. If so, follow with the tedder as soon as the dew has lifted, and draw the clover into windrows as soon as it will rake. Unless it is to be drawn by the aid of the hay-loader, it should then be put up in cocks and allowed to stand in these until it goes through the "sweating" process.

In some instances clover is put into the mow and kept thus in the green form. It is allowed to wilt somewhat before being thus cured. Some farmers in Wisconsin cure hay thus every year. But this method of storing hay is not likely to become popular or general, owing to the amount of skill required in curing it thus, *c.*, to put it more mildly, owing to the amount of experience required before one can be quite sure that he will not spoil a portion of his crop, if not, indeed, the whole of it. Such a mode of handling hay may apply to climatic conditions such as those in Britain, but in this land of bright, clear skies we can usually cure our hay in good form in the field. Others prefer to make ensilage of their hay, and when hay is thus cured it may be compactly stored; but where hay can be cured as nicely as we can generally make it here, field curing is the plan that will probably remain most in favor.

What has been said about curing clover will apply to all kinds of clover, and also to lucerne, and it will apply to millet. It is even more im-

portant with lucerne than with clover that it be not allowed to get too dry before being raked. When thus exposed, a mass of leaves will strew the ground after the lucerne has been raked, and much of the hay will be made up of stems more or less woody. It is not quite so essential with millet as with clover that it be cured in the cock, but it is essential and highly important that it be not allowed to bleach while yet lying on the ground until its color has faded and its palatability is gone.

The grasses are all much more easily cured than the clovers. They do not require to be cured in the cock in fair weather, and they can be made ready for storage in a much shorter time than clover of any variety. It may be quite possible to cut and house timothy on the same day. But this can only be done when the weather is really fine, and when the timothy has reached an advanced state of maturity.

All hay should be raked as soon as the raking can be done without difficulty. Before this stage hay is too green to rake. But it is never too green to ted. When it lies thickly on the ground the tedder may be used with advantage as soon as the hay is cut, or at least within a short time after it has been cut. And as soon as it is ready to rake, it should be drawn into windrows. But when hay is in windrows it is in the worst possible condition to receive showers, for reasons that will be manifest.

Grain Growing in Minnesota.

This has been the chief business of the farmers since the settlement of the state. Minnesota has wonderful adaptation for growing wheat—spring wheat, of course—and for many years much money was made in growing wheat. But it is not so now, owing, first, to the fact that prices are very low, and, second, to the reduced yields obtained, brought about chiefly through the over-cropping of the land. In some parts of the state fields may be found which have grown wheat continuously for a score of years.

One not living in the country cannot well imagine the extent to which wheat has been grown to the exclusion of other crops. The areas of barley and oats are small compared to those of wheat. I have not yet been able to find many men in all the state who could tell me the yield per acre which can be obtained from peas, and then only for very small areas; and yet I am satisfied that many parts of the state will grow these handsomely, and other parts not so well, owing to conditions of soil and climate.

Notwithstanding the marked adaptability of the soil to wheat culture, the average yields obtained are inferior to those from Ontario soils. Judging from the statistical returns of the two countries, one would imagine that Ontario is much ahead of Minnesota as a wheat-growing country, and yet that is not the judgment of the writer. The difference arises more from a difference in the mode of cultivating than from soil-ability to produce. In the one country wheat has been grown, as a rule, for years in succession on the same land. In the other country it invariably alternates in some kind of a rotation. In Ontario the land is kept measurably clean by some kind of cultivation, as, for instance, the bare fallow, or by growing hoed crops. In Minnesota the soil becomes very weedy when wheat is grown continuously year after year. With a rotating system of crops, of which corn is one, the average yields of wheat in this state may be greatly increased.

Barley has been grown during recent years to a greater extent than formerly, but it has not received anything like the attention of which it is deserving, and for the reason, probably, that the necessity for growing it as a food for live stock has not yet been much felt.

Rye grows well in nearly all parts of the state. It is the only grain crop that will endure the low temperatures of winter. It is likely to grow much in favor with the farmers as a medium on which to sow clover and other grass seeds.

It was thought at one time that clover would not grow well in the state, but now splendid crops are grown in the southeastern portions of the same, and the area is gradually extending westward and northward. There is no doubt but that in time clover will grow in all parts of the state. Timothy will also grow fairly well, but not so well as in Ontario. But the truth is that comparatively little attention has been given to the cultivation of grasses, owing to the great abundance of native hay that is grown in the sloughs and on the unbroken prairie. So long as a man can get all the hay that he may want for cutting, he is not going to take trouble in cultivating it.

Millet is at home on the soils of the prairie, and great crops of it are grown. And corn, for the grain or as fodder for live stock, grows abundantly in the southern part of the state; and as a food for live stock it can be freely grown right up to the Canadian boundary. But in the northern half of the state the growth of corn is only in its infancy.

The capabilities of the state in the line of production are very great. In the southeast, where

farming is diversified, famous crops are raised, and the farmers are prosperous. When the same system of farming is adopted everywhere the production of the state will be, in a sense, almost without limit.

When the day of general stock-keeping arrives, and it is coming, the production of this country will be vastly increased. In very many instances the straw is still burned in the fields after threshing. On the outskirts of towns, the manure may be seen dumped into ravines, where it is left to decay. There are splendid openings in this state for progressive men in the line of stock-keeping, and those who come first will reap the richest reward.

The eyes of extensive landowners are looking to Britain for settlers, with a view to the more rapid advancement of the live stock interest. The Anglo-Saxon takes more kindly to that interest than the people of other nationalities. The names of Canadians and old country people could easily be given who have done well in growing live stock. But, taking the country as a whole, this great and growing interest is yet, as it were, in its infancy.

Flax is also an important crop in the state. But almost the entire crop is sold; hence, as with wheat culture, its growth has a tendency to deteriorate the fertility of the soil.

THOS. SHAW.

University Experiment Farm,
St. Anthony Park, Minn.

Silo Questions.

Inquirer: What is the best length to cut corn for the silo? In building a silo in a barn, would it be a disadvantage to have a slide on one side, the slide to be one foot wide by three feet high?

ANS.—It is usually thought that corn cut in lengths, say, from one inch to one and a half inches, is more suitable for the silo than when cut shorter. The cattle, when eating it, bite on the side rather than the end when cut long, and, in consequence, it is less liable to make their mouths sore. But there are those who advocate cutting the corn into lengths of not more than three-fourths of an inch. The shorter the ensilage is cut the more easily does it handle when feeding it. The meaning of "Inquirer" is not quite clear when he speaks of a slide. It would seem difficult to construct a slide that would completely exclude the air. If that condition could be fulfilled, the slide would, of course, answer.



THE DAIRY

GOOD water is indispensable to the health of the stock and to a good flow of milk, and it should not be allowed to become either filthy or muddy. A spring is a valuable adjunct to a dairy farm. Those who are not favored with one will have to be content with a good well.

THE annual convention of the Western Dairymen's Association will be held in the city of Brantford on January 19th, 20th and 21st, 1897. The Eastern Dairymen's Association will meet during the first week of January, and the Creameries' Association during the second week. The places for holding the last two gatherings have not been selected yet.

A COW must have kind treatment in order that she may fully perform the duties expected of her. To abuse a cow in milk will prevent a normal flow of milk, and will cause the cow to give less milk, and that of a poorer quality, and will induce her to withhold her milk from the abusive milker. The better the cow the better the treatment required. A scrub cow will stand more abuse than a highly developed milker.

IN making cheese for the British markets particular attention should be given to neatness in outside appearance, so as to give the buyer a good impression. All cheese should be neatly boxed and branded. Then the quality inside should be perfect. No one wants a dry, hard cheese, but one that is meaty and fine flavored is always in demand. A dealer once said that selecting cheese was very much like selecting a wife. First, they should be rich; second, they should be mild; and, third, they should be good-looking.

THOUGH it may not be possible in a week or a month, or even a year, to change the percentage of fat in milk by feeding richer foods, yet we may, by a continued system of judicious feeding, increase the capacity of the cow to produce milk containing a higher percentage of butter-fat. This is evident from the fact that at some time in the history of cow-life all cows produced the same

quality of milk, while to-day we have a variety of breeds producing various qualities of milk, and this variation must be due to a variety in feeding, as in breeding like produces like.

THE cold process of making condensed milk is something new in the milk business. The ordinary method of making condensed milk is by heating the milk and evaporating most of the water. It is now proposed to freeze the milk, and thus precipitate the solids, stirring and freezing it until the solids and the water of the milk mix like snow, and then separate them by centrifugal force. It is claimed that milk condensed in this manner can, by the addition of water, return to its normal condition, so that no one can tell that it has ever been condensed.

A NEW milk fraud is being practised by some of the milk dealers in some of the States. This scheme is to take the cream of the milk and add a quantity of condensed skimmed milk to supply its place. Such milk has the amount of solids required by law, but the percentage of fat is low. It is claimed that under the law of the States these persons cannot be successfully prosecuted because it cannot be proved that the cream has been removed, and the addition of condensed skimmed milk is not an addition of "a foreign substance," as prohibited by statute.

The Home Markets for Cheese.

There has been considerable talk during the past year or two in reference to the development of our home market for cheese. The agitation along this line has been more noticeable since cheese has taken the drop in prices. Before that time the prices for cheese for export had been good for a number of years, and the local market was largely looked upon only as a dumping ground for all cheese that was not considered of fine enough quality to send to the English consumer. Since the depression in prices, however, leading dairymen have been looking to the home market as an outlet for some of our fine Cheddar cheese.

Comparatively little of our cheese is consumed in Canada. Our people only use it as a kind of relish, and not at all as a staple article of food. We are in no sense of the term a cheese-eating people. True, we have not the great centres of population that the mother country has, comprised of the working and middle classes, who have to use wholesome, substantial, and economical foods in order to sustain them when at work, and which can be had at the lowest possible cost; but we have in Canada a large agricultural class, whose outdoor employment compels them to take nutritious foods, and, besides, in our cities and towns a large class of workmen who are compelled to live as economically as possible. There appears, therefore, to be considerable room for developing our home market for cheese, and for inducing our people to become greater consumers of that nutritious article of food than they are.

There are several reasons why the consumption of cheese in Canada is not what it should be. As we have already intimated, it has been the custom to keep for the home market only such cheese as were not considered fine enough for export. This has resulted, in many cases, in our own people being supplied with a quality of cheese profuse with bad odors, bitter tastes, and everything that would tend to make them abhor the very name of cheese. Cheese that are not good "keepers"; cheese that are dry and hard, and wholly unpalatable, have been kept back and sent to supply the tables of the consumers in our towns and cities. Besides, the prices charged by the retailers have been too high, comparatively, to admit of the consumption increasing very much. It is claimed by them, and perhaps justly, that there must be a margin of four or five cents per pound for cutting, or there is no profit in handling it. This is probably true where a cheese is only cut up in a week or two; but if the price were cut down to near the wholesale value, more people would buy cheese, and would buy in larger quantities, and ten cheese would be cut up and sold where only one was before. In one of our western cities an old cheese dealer started a retail provision store about one year ago. He began selling cheese at the usual retail price, and found that one cheese would last about two weeks. He was finally persuaded to try the experiment of selling cheese at about $1\frac{1}{2}$ cents per pound above cost. A supply was procured at a price which enabled him to sell them retail at 8 cents; and in a short time he was cutting up from five to ten cheese per day, and was making more profit than before, as there was not so much waste and the cheese did not have a chance to dry out. It is said by many who have bought

our cheese in England that it can be bought retail there as cheap, if not cheaper, than in our stores here.

Another drawback to the consumption of cheese by our people is that most of the cheese sold in our towns and cities is not old nor sufficiently matured to make it a profitable or a nourishing food. This is also noticeable among the patrons of our cheese factories who get out cheese for their own use. It is usually only a few weeks old, and half cured and little more than half matured curd, which is very indigestible. This half-raw stuff is therefore not looked upon as nourishing, and really has an injurious effect upon the digestive organs. A cheese, to be palatable, nutritious, nourishing, and digestible, must be several months old. If it has been perfectly made age will only improve it, and it will not acquire the sharp, bitter flavor common to poorly made cheese that have been kept for a long time.

The question may be asked, What are we to do with our culled cheese if they are not put upon the local market? A good reply would be, not to make any "culls." If every patron who supplies milk to our cheese factories would take the proper care of that milk, and give it his best attention, and if every maker thoroughly understood his business, and never neglected his work, there would be no culled cheese made, or only a very small percentage. But if there does happen to be in many of our factories a few cheese that are not quite first-class, it would be better to mark them as such, and send them forward as third or fourth grade cheese rather than load them upon our own people. Our people are not cheese eaters, and their tastes in that direction must be cultivated, which can never be done if the very poor stuff made in many of our factories is forced upon them. If a person is supplied with a wholesome, palatable, and nutritious article of food, he will eat more of it, and ask for that same article the next time he dines. A couple of winters ago a deputation of several gentlemen were addressing a series of dairy meetings in this province, and had occasion to stop at several hotels in the various towns visited. At only one of these hotels was a really first-class article of cheese found on the table, though there was cheese at all the others, and it was remarked that a large quantity of this fine cheese was consumed by the deputation, while at the other places the cheese was rarely touched. This was rather hard on the hotel-keeper who supplied the good cheese, but it was certainly in the interests of the producer. So we contend that if only a first-class article of cheese is supplied to our own people their desire for it will increase, and the home

consumption of cheese may be trebled in a short time.

To those who are interested in developing the home market for cheese, we would commend the following rules as being worthy of their attention :

(1) Supply the home trade with only the best quality of cheese.

(2) Have the cheese well cured, and at least several months old, before it reaches the consumer.

(3) Endeavor to get the retailer to lessen his margin for cutting and selling cheese, by showing him that more will be bought if the price is lowered.

(4) Keep before our people the value of a well-made and a well cured cheese as a nutritious and palatable article of food.

(5) Make everyone feel the importance of developing the home market, and of creating an outlet on this side of the Atlantic for a large quantity of our fine Cheddar cheese.

The Cold Storage Service.

The cold storage service for the transportation of butter, cheese, and other perishable food products, inaugurated under the direction of the Dominion Dairy Commissioner last year, will be continued this season under more perfect arrangements. Instead of having insulated compartments only on steamships to several ports, as was done last year, a refrigerator service of the latest and best kind will be given from Montreal to Avonmouth, near Bristol. About eighty per cent. of the creamery butter sent from Canada to Great Britain is shipped to Avonmouth. The railway track runs alongside of the dock at Avonmouth, so that butter designed for other centres can be transferred without any loss from heating or damage by cartage. Arrangements have also been made for the quick despatch of butter and other perishable food products from Avonmouth to the large centres of consumption, such as London, Birmingham, and Manchester. Through bills of lading at through rates will be issued. There is also a cold storage warehouse on the docks at Avonmouth.

Three steamships of the New Dominion Line between Montreal and Avonmouth have been fitted up with mechanical refrigeration plants, to carry butter at a temperature of 30 degrees Fahr., and cheese and fruit at a temperature of from 34 to 38 degrees. Each of the three steamships has a cold storage capacity of about 20,000 cubic feet, or space sufficient to carry about 300 tons of cheese and butter. The steamships will carry

butter in the cold storage compartments at a charge of ten shillings per ton, and cheese at a charge of five shillings per ton, in addition to the usual charge for freight on cheese and butter.

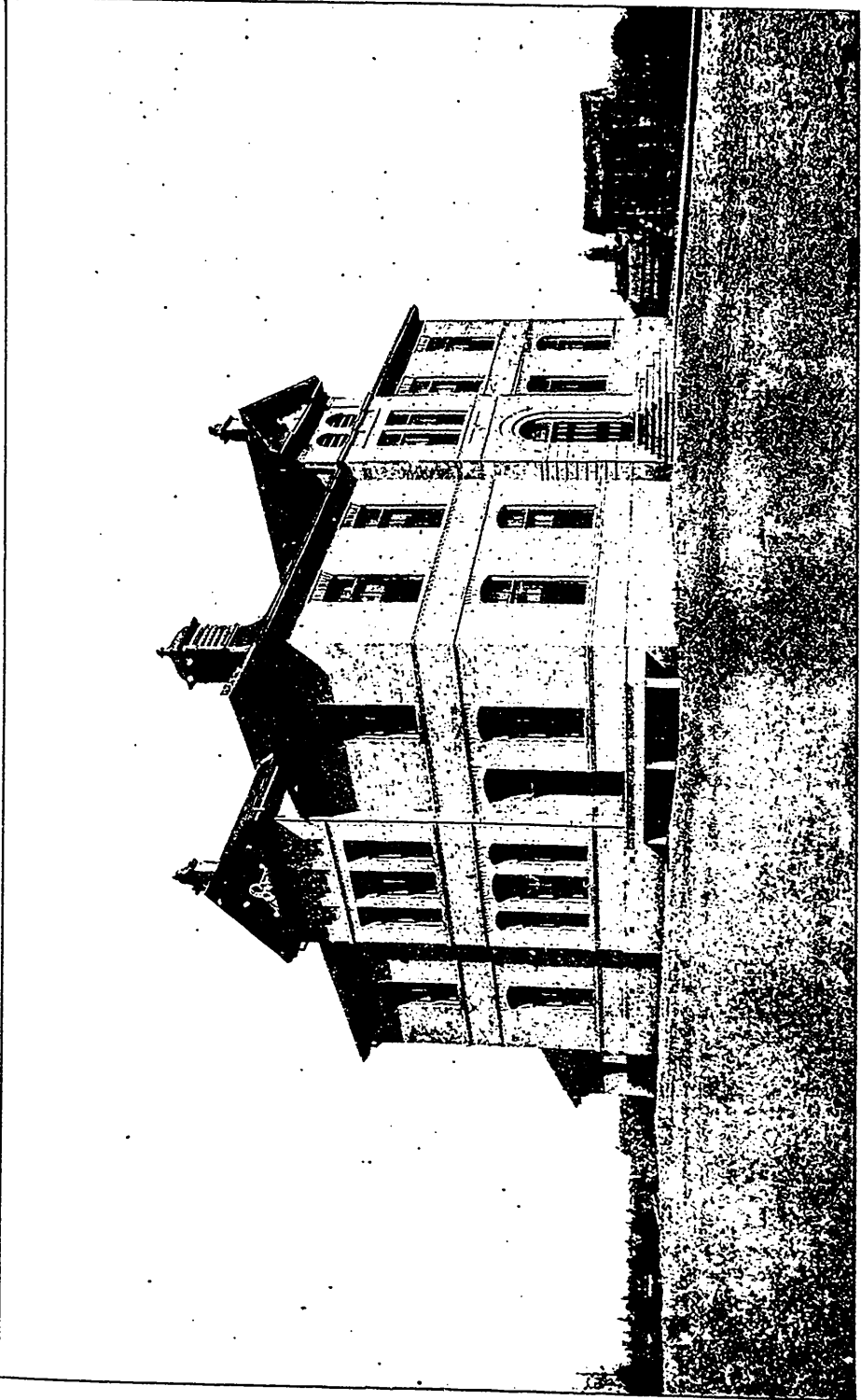
The steamship company have also fitted up two steamships with insulated compartments for the carriage of chilled butter. These two steamships have a capacity of about 3,000 packages of butter each. The compartments are cooled by the use of ice in galvanized iron cylinders. The butter must be thoroughly chilled before it is put in them. The extra freight charge for this carriage is not more than five shillings per ton, in addition to the usual current charge for freight on butter and cheese. Besides the assistance rendered in fitting up the refrigerator plants and cold storage compartments, the Dominion Government bears one-half of the cost of operating the refrigerator plants up to a sum not exceeding \$50 per trip per steamer.

These vessels call at the port of Quebec to accommodate creamery men and shippers in that locality. Cold storage facilities on the leading railways have also been inaugurated, as was done last year to take up lots of butter at different way stations. It will thus be seen that a complete system of cold storage transportation facilities has been arranged for at a reasonable charge to shippers.

The benefits of such a service should be greatly appreciated. It is important that the quality of the food products we produce, and especially the quality of the butter, should be of the finest when made; but it is equally important that the quality of such goods should not be injured in any way in transportation. Our butter must be in a perfect condition when placed in the consumers' hands in Great Britain. If our creamery men and shippers take advantage of these cold storage facilities, and will send across the Atlantic only the finest quality of butter, preserved in a perfect condition, we may look for a large increase in the extent of our export trade in creamery butter.

Strathroy Dairy School.

When the Hon. John Dryden, Minister of Agriculture for Ontario, decided to establish a branch dairy school at Strathroy for the convenience of the western part of the province, there were not a few who considered that such action was inopportune, as they asserted that the number of students who would take advantage of the school would be very limited. Such, however, has not been the case, and it is evident, in spite of



Strathroy Dairy School.

the depression in dairying, that the school is well appreciated, and will be still more so in the future.

The school building, of which we give illustrations in these columns, was formally opened on February 14th last. It is a large and substantial brick structure, with large, airy, and well-lighted rooms, and is furnished with a complete outfit of the latest appliances for butter and cheese making and milk testing. All the apartments are well arranged, not only for the work, but also for the comfort of the students.

The school is under the directorship of Dr. Mills, M.A., LL.D., president of the Ontario Agricultural College, Guelph. Mr. F. J. Sleightholm, B.S.A., is the resident superintendent, and is also instructor in milk testing. The instructor in cheesemaking is Mr. W. Waddell, and in buttermaking Messrs. H. Smith and J. E. Crealy. The course lasts two weeks, and the capacity of the school is thirty students, fifteen in each department. The school is on the same plan as the Kingston Dairy School described in our last issue, and bears to the college at Guelph the same relation as a Public School does to a High School.

A 20-horse-power engine supplies power to the buttermaking machinery. The butter department contains three power separators, a Russian, with a capacity of 1,200 pounds an hour; an Alpha De Laval, of 2,500 pounds; and an Alexandria, of 1,000 pounds. A hand separator of 200 pounds capacity is also kept. About 60 pounds of butter a day was made during the session which ended in April last. A twin cream vat was used to ripen the cream, and a Mason worker for handling the product, most of which was sold in Strathroy and London. For storing the butter until it was shipped a refrigerator of 500 pounds capacity was erected. A very neat arrangement just inside the butter-room, in the shape of a draining-table, with two steam jets, has been found an admirable adjunct to the department.

In the milk-testing department four Babcock milk testers have been used. Skim-milk, butter-milk, whey, whole milk, and cream have been tested daily. The students have been thoroughly drilled in this important department in all its phases, and the use of a Quevenne lactometer has been fully explained. This department has acted as a check upon the others, and skim-milk, butter-milk, and whey have stood the testing well, the two former rarely exceeding one-tenth of one per cent. of butter-fat, and the latter two tenths. Milk has been paid for according to the per cent. of butter-fat.

Six hundred pounds of milk were consumed daily in the cheese-room. This department contains two vats of 300 pounds capacity each, a curd

sink, and cheese gang press, in which six cheese may be pressed at once.

The sitting-rooms, lecture hall, superintendent's office, and lavatories are located upstairs, and furnish every convenience.

During the session lectures were given every morning from 8.30 to 9.30 on the various branches of the work, as well as on the feeding and management of milch cows.

The school reopens in November, and applications for admission are already being made by intending students, thus showing its popularity.

Dairying in British Columbia.

Considerable attention is being given in British Columbia to the developing of the dairying industry of that province. For a long period dairying has been practically neglected except in the immediate neighborhood of the cities. Among the farmers attention has been given chiefly to land clearing, and selling hay and other coarse products. There have been lower returns for these products during late years, and farmers are turning their attention to other lines. The country is well adapted for dairying, hog raising, and fruit growing, and several enterprising men, who went into dairying and stock-raising some years ago, have had remarkable success.

According to the last Provincial Agricultural Report, there were imported into that province for one year 2,390,685 lbs. of butter; 389,631 lbs. of cheese; 2,732,433 lbs. of bacon, ham, and lard; and 2,300,847 lbs. of fruit and preserves. The local output from the dairies for the same period was only about 500,000 lbs. of butter and cheese. The values of the imports of dairy produce for the last three years that have been reported are as follows:

	1892-93.	Valued at.
Butter, lbs.....	1,677,970	\$409,372 00
Cheese, lbs.....	387,676	41,043 00
Condensed milk, cases..	8,256	42,466 00
Total value.....		\$492,881 00
	1893-94.	Valued at.
Butter, lbs.....	2,065,435	\$504,694 00
Cheese, lbs.....	346,749	36,503 00
Condensed milk, cases..	9,715	50,058 00
Total value.....		\$591,255 00
	1894-95.	Valued at.
Butter, lbs.....	2,390,685	\$566,752 00
Cheese, lbs.....	389,631	40,837 00
Condensed milk.....	52,254 00
Total value.....		\$659,843 00

The dairymen of the Pacific province, as shown by these figures, have a large home market to overtake, and one that will give scope for their energies for some time to come before they will be able to supply it with what it needs of fine dairy products. The local government has been approached, with the view to securing either a bonus of three cents per pound on all butter made on the co-operation plan, or a loan to assist creamery companies in starting out. The result of this appeal will be looked forward to by the local dairymen. In our opinion, a loan to enable companies for manufacturing butter to be formed would be the better one. It would allow the trade to grow in a natural way, and one that

bringing about legislation, and in drawing the attention of the local dairymen to the importance of developing the dairy industry, and in showing the importance of the home market.

New Brunswick Dairying.

Provincial Secretary Mitchell, in his budget speech last session, stated that the output of dairy products for New Brunswick had increased very largely within the last few years. Three years ago nearly all the cheese used in that province was imported from Ontario. During the past year there were 53 cheese factories in operation,



Butter Making Department, Strathroy Dairy School.

would show the farmers what there was in the business without the price being bolstered up by a bonus. So far as we can learn, prices for dairy products are such as would warrant any ordinary farmer in that mild climate in going into the dairy business.

During the past year or two the work done by the Dominion Dairy Commissioner and his staff has had a stimulating effect upon the dairy industry of that province by setting before the people the best ways and means of carrying on the business, and the economical methods of producing milk. There is an active dairy association in the province, which has already done a good deal in

and the amount of cheese turned out was 1,263,266 pounds. The average price per pound was $8\frac{1}{2}$ cents, and the total value of the output was \$104,219.44. The increase in the output over last year was 369,066 pounds. Of creameries, nine were in operation, and the number of pounds of butter they turned out during the year was 113,892; the average price being $18\frac{1}{2}$ cents. Last year the export of butter to England by way of St. John was 220,000 pounds, and now that St. John has become a winter port no doubt the shipments would be very largely increased. The export by way of Montreal was 150,000 pounds, the export to the West Indies was 22,000 pounds,

and there were now in stock 50,000 pounds, making the total for export 442,000, the value of which was \$36,465. The value of the cheese export for the year 1894 was \$19,912, so that the value of the export for the year, although the price was less, had nearly doubled. The butter exported during the year was 55,000 pounds, mostly sent to Halifax.

The total value of cheese and butter exported in 1895 was \$125,289, as compared with \$110,739.80 in 1894. This was in face of the fact that last season was particularly unfavorable for dairying operations, owing to the protracted drought.

Bonuses to the value of \$4,250 were paid last year to assist in the erection of factories. The government had, however, in addition, employed lecturers and instructors, who visited the different factories during the cheesemaking season with a view to bringing the cheese up to the uniform standard which is required for the English markets. The government had also employed men with a portable dairy to give lectures in different sections of the country. In pursuing this plan the government were profiting by the experience of the other provinces.

Butter from Argentina.

The Argentine Republic is rapidly becoming an important competitor for the supply of butter to British markets, following in this respect the lead of Denmark, Sweden, France, Australasia, and Canada. As the results of the first year's operations, though these have been largely experimental, Argentine butter has, in fact, already become an established commercial success. Not only are cattle plentiful in the Argentine, but there is an abundance of fine pasture land over which the animals roam, and where they are merely corralled at night in charge of the guachos, or natives, who are pastoralists by nature, the "camps" being moved about from place to place as the state of the pasturage requires. Under the organization that has been set up, the guachos are left to perform the duties of herdsmen, for which they are so well fitted; but all the other work is done by Europeans. Great numbers, not only of Italians, but also of Basques from the south of France, or the north of Spain, have emigrated to the Argentine (the Italians represent 60 per cent. of the immigrants, while 25 per cent. of the population are also of Italian parentage), and these people are taking very readily to the dairy work, while their wages amount, as a rule, to only about 1s. a day. They attend solely to the milking of the cows, and the general arrangement is that the herds of cattle, while wandering at large over the pampas,

shall always be within comparatively easy reach of the railway. The milk can be sent on by train from any point along the line to the nearest butter factory, and the extent to which the industry has expanded is proved by the fact that there have already been established from twenty to thirty of these factories, several of them being fitted up with machinery and dairy appliances, having all the latest improvements, and mainly sent out from England for the purpose at a cost of some thousands of pounds. This particular machinery, it may be remarked in passing, is admitted duty free by the government.

Shipping Frozen Milk.

The success that has attended the shipment of frozen milk from Denmark to London is bound to eventually stimulate a similar industry in the United States. When that period arrives it will be possible for creameries with refrigerating plants to ship solid chunks of milk, a thousand or more miles, to such markets as New York, Chicago, and other large cities, whenever that form of the dairy business pays better than making either butter or cheese, and it will possess the advantage of affording larger facilities for profit and enhanced service to dairy farmers in all sections of the country, at times when any branch is congested with an over-supply, or other market conditions suggest its availability. Hence the foreign experiments are all the more interesting.

A year ago a Danish merchant experimented in this direction by taking Danish milk, which is peculiarly delicate and rich in flavor, freezing it by the use of ice and salt, and sending it in barrels, by rail and steamer, to London. On its arrival the milk proved to be as sweet and well-tasting as if it had been just drawn from a cow in the middle of Sweden.

The milk was so much in demand and proved so profitable an article of commerce that the exporter immediately took out a patent on the shipment of frozen milk from Sweden and Denmark to London. He then sold the patent to a stock company with large capital, which, on February 1st last, bought one of the largest Swedish creameries, converted it into a factory, and, having put in a special freezing apparatus, began, on May 1st, the export of frozen milk in large quantities.

When the milk is received from the farmers it is pasteurized; that is, heated to 75 degrees C., and then immediately cooled off to about 10 degrees C.; and now the freezing is commenced. Half the milk is filled into cans and placed in a freezing apparatus, where it will be thoroughly

frozen in the course of three hours. The frozen milk is then filled into barrels of pine, the only kind of wood that can be used. The barrels, however, are only half filled with this frozen milk, the balance being filled with the unfrozen milk.

This way of packing has proved to be the only practical one, as part of the milk has to be frozen in order to keep the whole cold, and part has to be in a flowing state in order to get the barrels exactly full, which is necessary in order to avoid too much shaking up on the road, by which the cream would be turned into butter. Milk which is treated in this way has proved to keep quite fresh for twenty-six days. Every barrel holds 1,000 pounds of milk, and twice a week there

The Milk Trade of New York City.

The *Milk Reporter* gives the following figures, showing the amount of milk in its various forms used in New York city in 1894 and 1895 :

" During the year 1894 the total number of gallons of fluid milk received over the various routes was 74,792,730. In 1895, it was 77,290,640 gallons, showing a considerable increase in the amount of natural milk used in that city. Of cream, in 1894 there were sent into the city 2,102,690 gallons, and, in 1895, 2,221,570 gallons; showing of this article also an increase of about 10 per cent. Of plain condensed milk, not the sugared article, there were sent to New York in



Milk Testing Room, Strathroy Dairy School.

will be shipped 50 barrels, making, in all, about 100,000 pounds of milk a week.

The milk is shipped to Newcastle, and from there by rail to large manufacturing cities, where it is sold in the streets or in retail stores. It is reported that the patent has been bought for Ireland also, at a cost of \$200,000, which proves how much the stock company expects from this new enterprise.

The time may not be far away when the dairy farms of the New England and Western States may be sending, not butter and milk, but frozen milk and cream, to the large cities of both continents.—*Dairy World*.

1894, 673,020 gallons, and, in 1895, 785,190 gallons; showing a very considerable increase in this as well.

The average price of the raw milk for 1894 was 2.626 cents, and, for 1895, 2.525. The average price of butter for these two years, 1894 and 1895, was 22 cents for 1894 and 20½ for 1895, showing about the same average decrease in the price of butter as in the price of milk.

Evolution of Type in Dairy Cattle.

Bearing on the discussion which has appeared in some papers in reference to the importance of

type in dairy cattle, I wish to record a single observation impressed on me when inspecting the herd of Mr. C. P. Goodrich, at Fort Atkinson, Wisconsin. While a great many arguments may be used to substantiate the statement that function evolves a type peculiar to the requirements demanded, yet I have not seen any that so clearly emphasized this fact as the inspection of Mr. Goodrich's herd.

Mr. Goodrich started some years ago with a herd not showing anything, in general, of an approach towards a dairy type. He has selected them continuously on their performance, and the fact that there is a striking uniformity of form now existing in the herd proves, in my mind, conclusively that there is a type which is common to good dairy cattle. The members of this herd, in the single factor of type, approach so closely together that one can imagine that they were made in the same mould in a manner similar to the casting of machinery.

In 1879 Mr. Goodrich began to improve his herd by the introduction of special dairy blood; that year he had thirteen cows, mostly of his own breeding, and these were grade Shorthorns with a little Ayrshire blood in them. He informed me that they were large, square, fine-looking cows, and most of those that saw them considered them as fine a herd as any to be found in the neighborhood. That year, with many misgivings, as he stated, he obtained a Jersey bull and used him on all his cows. The lack of faith on his part, the ridicule of his neighbors, who stated that he was spoiling his fine herd, his old love for the general purpose cow, and his disgust at the looks of the little scrawny Jersey, caused him to go back to his old way of breeding after the first attempt. But after his half a dozen calves of this breeding became cows and he tested them fairly for butter production, and found that some of them were ahead of any that he had ever had, he then concluded that the special butter cow was what he wanted. In 1886 he obtained a Jersey bull, and since then he has always used one. He adopted the plan of carefully testing his cows, and keeping only the best. He based his selection entirely on the ability or the promise of ability to produce butter economically, and all other considerations were absolutely eliminated. The looks of a heifer or cow were no consideration with him whatever. With this statement, it is interesting to know that the result of such selection has been to evolve a type which is recognized by students of dairy cattle to be the type peculiar to the best performing cows.

To indicate what the work has been which has produced this type, a statement of the record of

this herd will be interesting. In the year 1880, before any of the grade Shorthorns had given milk, his herd of fifteen cows produced an average of 254 pounds of butter for the year. Since then the increase has been constant. In the year 1894, twenty-five cows in the herd, eight of which were two and three-year-old heifers, produced an average of 353 pounds of butter. In 1893 it was 334 pounds, and in 1892 it was 327 pounds. The cows which he now has, with one or two exceptions, are descendants of the first grade Jersey heifers that he raised. Mr. Goodrich states that this increase of nearly one hundred pounds per cow per year cannot be properly credited, wholly, to breeding and selection, but something must be allowed for better feeding and care.

In further substantiation of the statement that this herd possesses exceptional dairy qualities, while at the same time illustrating the evolution of a type, let me present some of the results which Mr. Goodrich has lately obtained from a few of his heifers. Four of the two-year-old heifers, when tested January 25th, 1896, for one day, gave the following returns:

Number.	Milk.		Yield.	Butter-fat.	82½ per cent.
	lbs.	per cent. fat.			
1	27	6%	1.62		1.89
2	20	6%	1.20		1.40
3	22	6%	1.32		1.54
4	24	5%	1.20		1.40

It is not necessary to state that this is an unusual record for cows at this age, and it seems to me that, in conjunction with the work of the cows, it clearly indicates that there is a type characteristic of dairy cattle. An inspection of this herd with all those results in mind and the type of the cattle before one is the most practical demonstration of the evolution of a type that I have ever seen, and it is certainly a strong endorsement for its importance and the value of it as a study. While no one would presume to judge cattle simply on their type, or on any other single feature, for that matter, yet it is one of the factors that must be considered in the building up of a working dairy herd. While performance is usually the fruit of proper breeding and high individual merit, yet it would seem a mistake to accept it alone as a guide. To lessen the chances of a misstep in the matter of breeding dairy stock, or any other class of domesticated animals, the breeder should be a student of each of these factors, and his judgment must be so balanced and broad that each is allowed its due prominence.

JOHN A. CRAIG.

Wisconsin Experiment Station.



About Apples.

Last year the apple crop was, on the whole, a very large one in America, and this year every thing indicates another. The importance of apple-growing has been put in the shade, of late years, by other fruits, and many apple orchards have been cut down to make room for peaches, plums, and pears. Fruit-growers were also discouraged by failures in the apple crop.

There will, very likely, soon be a reaction in favor of apples again. We are beginning to realize that the apple trees have failed to bear through no fault of their own, but through neglect on the part of the owners. Orchards have been allowed to go to sod, and crops of hay forced from them. The trees have been left to the mercies of all their natural enemies, and then the farmer, impatient at their barrenness, cuts them down.

The general use of insecticides will enable the farmer to mature a larger and better crop than formerly. Improved methods of storing, canning, and evaporating the fruit lengthen the season of consumption. The demand for a staple commodity such as this will increase with the improvement in quality. The necessity of cultivating, fertilizing, and pruning is forcing itself upon the attention of all who raise apples. It is being more and more recognized that a neglected apple orchard is an incumbrance on a farm, whereas a well-kept one is a valuable addition to a farmer's resources. The entire root-system of the tree must be reached in cultivating and fertilizing. Clover is a valuable fertilizing agency; the variety known as crimson clover is the best wherever it is hardy. It is to be feared, however, that the region of its successful growth is rather limited. The apple tree uses a great deal of moisture throughout the growing year, and means should be used to conserve as well as possible for the sole use of the tree whatever moisture there may be in the ground. To this end, mulching is recommended; the branches also should be allowed to shade the ground, and droop down as low as possible. If this is not practicable the next best course is to keep the ground frequently stirred, using small horses so as to allow the

branches to be low. In any event, it is very unwise to cut off the lower branches to admit of driving teams under the trees. Permanent injury is often done in this way. When dry winds blow through an apple orchard, the fruit is apt to fall off prematurely, not having obtained sufficient moisture. If the roots of the trees should be shaded and moist, so, on the other hand, the tops should be open and exposed to the light. The larger the area of the dome of the apple tree that the sun can reach the better it is for the fruit. Adjoining trees should not touch, still less interlace their branches.

One has only to grow peaches and plums for a few years to realize the genuine good qualities of the apple tree. A plum or a peach perishes quickly under neglect which scarcely affects the apple; and when the apple receives the liberal and careful treatment that must be accorded the others, it very soon ceases to be barren and unfruitful.

The real profit of apple-growing comes from the winter fruit. Summer and autumn apples are short-lived, and come at a time when they have to compete with more luscious fruits; but the winter sorts comprise most of the fresh fruit that is commonly eaten at that season of the year, and a larger, longer, and steadier market is assured for them.

The best market for our winter apples is, and has been for a long time, Great Britain. The British are good customers, but quite fastidious. They like to get what they want, and they are willing to pay good prices for such. Any fruit that is sent to England must be selected to suit the conditions of the demand for fruit there. In the first place, it must be honestly packed. The apples throughout the barrel must be as good in quality as those at the ends. Of course, there is everything to recommend a neat layering of the apples that appear first when the barrel is opened to view. But that abominable habit of "plugging" apple barrels—that is, of putting two baskets of excellent fruit at both ends and four of inferior fruit in the centre—cannot be too strongly deprecated. It is unprofitable to the rascal, as well as disgraceful to the trade.

The question of color is also important. For some reason or other consumers like a showy apple. The favorite apple in England is the King of Tompkins County, a large, red apple, of inferior quality as compared with the Spy or the Greening. A red apple will also hide marks which are inevitable in close packing, and which show disadvantageously in light-skinned fruit; so that a preference should be given to the red varieties of apples in exporting to Great Britain.

It is not well to send very large apples. There are fewer in the barrel, and where dealers sell them at so much apiece they view with misgivings a barrel that promises them a rather limited number of apples. Showy apples, of fair or good quality, and of medium size, are the most profitable apples to export.

The Cactus.

The cultivation of this curious and very interesting plant is one of the favorite fads of the present day among horticulturnists. In many European botanical gardens there are collections of several hundred varieties, and on this side of the Atlantic many amateur growers have more than one hundred. In the floral magazines many articles are published relating to the cactus; and one magazine, the *Baltimore Cactus Journal*, is devoted exclusively to it.

The cactus is very different from other plants. It has no leaves; its various forms are most peculiar and fantastic; and its surface is regularly spotted with spines or prickles, in some varieties hard and sharp, in others, as in the "old man," soft and hairy.

This plant is a native of the arid and rocky parts of America, its region extending from California to Chili. One can easily see how its form and habits have been developed to suit its environments. In its fleshy stem it preserves a store of moisture to tide it over a long drought, and its tough skin allows no evaporation. The spines and prickles have effectually protected it against the hungry and thirsty bisons that found no other vegetation in their wandering through the arid wildernesses of the west. So tenacious of life is it, indeed, that one variety has been known to grow from a piece of a stem thrust into a chink of lava rock. In New Mexico and Texas the cactus attains its greatest perfection; specimens of the *Cereus Giganteus* have been known to reach a height of 60 ft. Between this giant among cacti and the smaller varieties there is an

immense gulf. One tiny specimen, when it has attained its full growth, is only two inches high.

But the cacti are not more interesting to us on account of their curious shapes and habits than they are on account of their lovely flowers. Some varieties have flowers not half an inch wide, others have flowers nearly a foot in diameter, many of them of remarkable beauty. The night-blooming *Cereus* provokes more interest and curiosity, probably, than any other single flower. Its ivory white petals are worthy of the enthusiasm of its most ardent admirer.

There are many different genera of cacti, and many more species of each of these. Among those that produce the most profuse and luxuriant bloom are the *Cereus*, the *Epiphyllum*, and the *Phyllocactus*. The *Epiphyllum* has flattened and jointed stems. The *Phyllocactus* is commonly called the People's Cactus, from the fact that it is



A Group of Cacti.

capable of blooming and thriving under the most adverse circumstances.

Many varieties of the cactus are cultivated on account of their grotesque shape. Some are flattened, some cylindrical, some cone-shaped, some even quadrilateral. Sometimes one genus may, in this age of specialization, be found to occupy alone the attention of a cactus enthusiast. The *Echinocactus* is one of the most grotesque varieties of this plant. The *Mammillaria* is another; it is a dwarf variety, with pretty flowers as well, and interesting on account of the seed pods that remain after the flowers have gone. Another favorite genus of the cactus family is the *Echinocereus*, which has a stocky, upright shape, spines of various colors, and a very showy and profuse bloom.

There is but little disagreement among cacti

growers as to the general treatment which the plant requires. The proper soil is one part of rich loam with two parts of sand. Sometimes a little charcoal or lime is added to improve the color of the blossoms. The most important matter in the cultivation of the cactus is to secure proper drainage. To ensure this, fill the flower pot or box one quarter full of crushed charcoal or broken brick, then put in the prepared soil, placing sand on top so that the cactus may always rest on dry soil above and below.

There are two divisions in the cactus year: one is the growing season in summer, the other is the dormant season in winter. In the growing season the cactus requires a great deal of light, heat, and moisture, quite as much as other plants. In the dormant season, it requires but little water, merely enough to keep it from shrivelling, and a very moderate amount of light and warmth. During this period it may be kept in any frost-proof place, and as long as it looks fresh it needs no water. The Phyllocactus, however, requires some occasionally.

The cacti are propagated in all three ways—from seed, from cuttings, and by grafting. Seed-propagation, however, is a slow process with the cactus; and grafting is often unsuccessful. Cuttings afford the best means for raising new plants, especially as the cactus is very tenacious of life. In grafting, the best stock to use is the *Pereskia* and the *Cereus*.

Cacti may be grown in pots or in a flower bed, or, best of all, they many adorn a rockery. In any case they had better be taken out of the pots for the summer. There are few diseases or insects to fear in its cultivation. Sometimes a scab appears here and there on the plant, but a little castor oil applied with a hair brush will cause it to drop off.

Petunias.

Among annual flowering plants the *Petunia* is one of the half dozen best suited for garden decoration. Its only fault is its early feebleness. The tiny plants that germinate from its powder-like seeds look hopelessly frail and weak. The trouble oftener lies in the fact that the seed is sown either too deep or too late in the season, and the sun proves too strong for the plants before the roots strike into the cool, moist ground below. Out of doors self-sown seeds of single varieties grow readily and thrive. Double petunias had better, in any case, be sown first in pots in the house, the seeds being covered but lightly; and when the plants appear they should have plenty of fresh air and not too much sunshine at first.

Prepare the petunia bed in good time, and let the soil be rich. Rake the surface until it is very fine and level, then sow the seeds thinly and pat the ground smooth with a board, to press the soil around the seeds rather than over them. It may be well to strew light sticks or brush over the bed until the plants make a little headway, for high winds or hot sunshine will make them shrivel up. Once out of their swaddling clothes they need no coddling. They are then like a group of merry romping children, who climb fences, ride bare-back, and run races, regardless of restraint or ceremony. The petunias run along the ground, shoot up in uncouth turns, interlock arms with one another, or venture out sprawling far beyond the limits of their proper field. Dust and insects, drought and rain, have no effect upon them. Soon the buds come, and then the flowers, dozens,



Petunias.

hundreds, in constant succession from early summer until after the late frosts. The petunia blossoms are as gay and light-hearted as the parent plants, their wide corollas, snow-white and carmine, or resplendent in richest purple and maroon, coquettishly frilled and ruffled, or splashed and mottled by vivid hues. It would be difficult to find a prettier flower bed.

Petunias carry their beauty and bloom wherever they can climb or stay. Over rock work, scattered among shrubbery, through mixed borders or massed in beds by themselves, they are alike thrifty and handsome. In October, even when seed pods are formed in all directions, the blossoms are still profuse.

In Europe the petunia is one of the commonest of flowers. "I remember," a German friend said to me, "that when I was a child the weeds

in our garden were as often petunias and poppies as ragweed and purslane. Our petunias were very unlike these beautiful cultivated ones. They were the original pale, washed-out purple varieties. But they had the same sociable trick of coming up in the most unexpected places."

There is a wide range of form in petunias: small-flowered, large-flowered, wide-throated, and frilled, among the single varieties; besides the large, handsome double varieties that are so much esteemed as pot plants. All are worth growing; but for garden beds the small-flowered ones are the best; they are so wonderfully bright and profuse. Any kind will make a good pot plant.

The Rose Chafer.



The rose chafer, or rosebug, as it is commonly called, has been doing considerable damage this year in the Niagara Peninsula. Its special object of attack is the young apple. It makes a small hole in the skin of the fruit, and then as many chafers as can feed at the hole, until the inside of the apple is eaten through. This habit makes its ravages difficult to control by means of ordinary insecticides. Fortunately, the life of the rose chafer is very short, above ground at least. It breeds in sandy ground, and during most of its life feeds on the roots of grasses. It is in its underground stage that it can be combated to best advantage, for against the swarms of hungry chafers that fill the air we are as helpless as the Egyptians were against the locusts. In districts liable to be infested by rosebugs, the sandy ridges should be kept under cultivation.

The rose chafer gets its name, not because it is specially fond of the rose, but because it appears when roses are in bloom. It is an awkward, long-legged beetle, about one-third of an inch long, with a dusty yellow body. It is constantly on the wing, very active, will not feign death like the curculio, and is very voracious.

TRY running the pigs in the apple orchard. Do not ring them. They will cultivate and manure the soil, and destroy many insects and grubs that would help to ruin your crop; and the windfalls will not hurt the pigs.

Strawberry Culture.

The following remarks on strawberry-growing are taken from the recently issued report of the horticulturist, Mr. John Craig, of the Central Experimental Farm, Ottawa:

Among the many errors which beginners in strawberry-growing may fall into, none is attended with more serious consequences than that of limiting the plantation to a single variety, and that one not bisexual. At the beginning of the picking season this year I was requested by a young strawberry-grower in this vicinity to visit and examine his grounds for the purpose of investigating the cause of the unproductiveness of his thrifty plants. As the plants were in flower it required only a glance to arrive at a solution of the problem. The plants were nearly, if not quite all, of a pronounced pistillate type. Therefore the unfruitfulness was due to the inability of the blossom to fertilize itself. He was advised to at once replace every third or fourth row with a strong growing free producer of pollen like Capt. Jack, New Dominion, Beder Wood or Williams. It is well known that the pistillate varieties under favorable circumstances are the most productive, and the mistake came about in this instance by the grower making up his new plantation entirely of the variety which had been most productive in the old. Another point which it is well to remember in commercial berry-growing is that the early berries are by far the most profitable. It is not here meant to convey the idea that the earliest varieties bring the most money, because these are often comparatively unproductive, but rather that the plantation furnishing the bulk of its berries in the forepart of the season is far more profitable than another field which may perhaps produce a greater quantity, but which covers a longer and later fruiting period. In choosing a location for strawberries it is therefore extremely desirable that a piece of land be chosen which is warm and early, and, though well drained, yet not dry in nature, because this plant needs a good deal of moisture at fruiting time. Some growers continue the plantation for three years in the same place on account of the habit of the old plants of ripening their fruit earlier than young plants. A difference of two or three days in time of ripening affects the financial result quite appreciably.



B. TAYLOR, Forestville, Minn., condemns, in no uncertain way, the queen breeders who advertise queens whose bees "make three or more hundred pounds of honey in a season," who "work on red clover," and are of a "non-swarmling strain." He says the effect such an announcement has upon him is to influence him to buy from someone else.

BEE paralysis, a comparatively new disease among bees, is attracting considerable attention. It appears to be most prevalent in the Western and Southern States. The best authorities attribute it largely to in-breeding. Bees in Canada are at the present time almost free from such a disease. Probably in the United States *some* queen breeders have bred for color, and have in and in bred. Practical results in honey gathering are of greater value than color.

A WRITER in the *Revue des Sciences Naturelles* makes the following calculations in regard to the work done by the honey bee: When the weather is fine a worker can visit from forty to eighty flowers in six or ten trips, and collect a grain of nectar. If it visits two hundred or four hundred flowers, it will gather five grains. Under favorable circumstances it will take a fortnight to obtain fifteen grains. It would, therefore, take it several years to manufacture a pound of honey, which will fill about three thousand cells.

HERR PHILIPP KEIDENBACH, Rehborn, Germany, has given out a new method of rearing queens. Heretofore queen breeders have taken the larva directly after it hatched from the egg, or within forty-eight hours, and from this queen cells have been started. Herr Keidenbach affirms that although the bees will destroy all eggs when made queenless, if they are given two days after they will not destroy them. He recommends after that time to put the eggs transferred with a bent pin into queen cells. If this system will work it will be a much better method, and the apiarist will not be liable to get larvæ too old, as may occur with present methods. Mr. Holtermann, of Brantford, is testing the method this summer.

Alighting Boards.

In passing through the country and visiting those keeping bees it is quite customary to find the hives placed in all kinds of positions, the ground about them in all kinds of conditions, and the elevations from the ground beginning with *o and running up to several feet*. In this there is a manifest carelessness and ignorance which does not speak well for the individual's success in bee-keeping. The facilities offered to the bees to alight and leave the hive often appear to be a small matter, but it has a very important bearing on the returns from the hive. Let anyone go to an entrance where the bees are working gathering honey and pollen; if the grass and weeds are kept clear, so as not to impede flight, and there is an entrance board, say, 6 to 12 inches wide, or the width of the hive, slanting from the ground to the entrance, most of the bees readily alight on the hive or alighting board; a few, if heavily loaded, may drop on the ground about the alighting board, but if the ground is clear of long grass they readily reach the point they failed to reach the first time. You then go to another entrance where the hive stands almost flat upon the ground. The weeds or grass have shot up rapidly in the spring, the warmth from the entrance having assisted in their growth. The bees find it a difficult matter, especially when it is windy, and those winds are chilly, to drop down between the grass and the front of the hive, and if they drop among the grass, even in warm weather, they get to the entrance only after great loss of time and much exertion. Imagine yourself in among a great pile of logs turned in every direction, mixed with brush, the only way out being to get over and through them, and you are relatively in much the same situation as the bees. There is a great loss of time when the entrance to the hive is obstructed. Then, when hot weather comes on, the bees in the one case have a free current and circulation at the entrance; in the other, the grass and weeds obstruct the currents of air which the bees are trying to get up, and if the combs do not melt down the bees are made uncomfortable, get the

swarming impulse sooner, and, as a result, there is likely to be less honey.

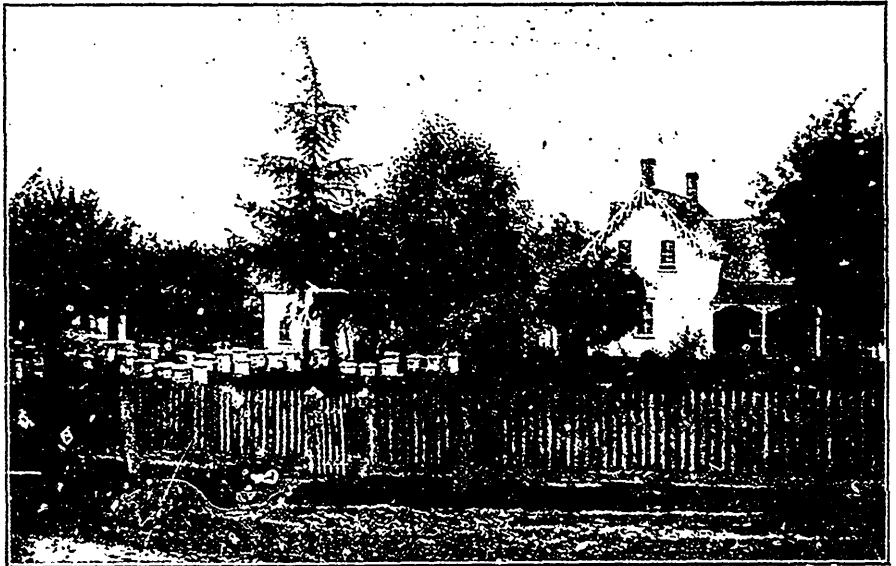
HIVES RESTING ON THE GROUND.

In connection with this subject it will be well to speak of the injury likely to result from having hives resting upon the ground. Unless the air can circulate with some freedom under the hive the wood is likely to take up moisture. This will quickly rot the bottom board, but that is not the worst; the moisture will, to a certain extent, communicate itself to the bees and combs above. The bees dislike moisture, and under such conditions they are not likely to do very well.

HIVES UNLEVEL.

Again, we find hives tilted in all directions, no attempt being made to have them level. If they

the hive. This, however, is not often the case. The writer has his hives placed on stands made of four pieces of pine nailed together. The side pieces project beyond the front of the hive and taper to a point at the bottom. Upon this is nailed an alighting board, which slopes from the ground to the entrance. The side pieces of the stand are four inches wide, raising the hive that distance from the ground. The stands are levelled with a spirit level every spring. Those who are not able to get such an instrument can use a baking pan with water in it. The lawn mower is used freely, and where the grass cannot be reached, owing to proximity to the side of the hive, the clippers are used. Since making the above stand a very good design for an alighting



The Home and a Portion of the Apiary of Mr. S. T. Pettit, Belmont, Ont.

slope backward and the bottom board is tight, the rain strikes the front of the hive and the water runs in. This water has largely to pass off by evaporation, a very undesirable state of affairs. Perhaps one side is lower than the other. This frequently results in crooked brood combs and bulging and uneven sections. Let the hive stand level from side to side, but let it slope slightly forward to prevent water from running into the entrance. This latter can, of course, not be done if the frames and sections run at right angles to

board has come to my notice. The stand does not project beyond the front, and the alighting board is hooked at the proper angle into holes in the bottom board of the hive. These alighting boards can be unhooked before running the lawn mower. Those not wanting to use the mower, or to have the trouble of cutting grass and weeds, can, in a rough way, accomplish their object by putting a good coating of wood ashes about the entrance, which will destroy all vegetation underneath.



RECENT INVESTIGATIONS

Carnation Rust.

Bulletin 100, of the Geneva Experiment Station, deals with methods of combating carnation rust. Attempts to cure rusty plants failed, but for the prevention of rust, it is recommended to spray once a week with copper sulphate solution, 2 pounds to 45 gallons of water. Proper greenhouse management will also help to prevent rust.

Road Bulletin.

The Ontario Department of Agriculture has issued the first of a series of bulletins on road-making, prepared by A. W. Campbell, C.E., the newly-appointed provincial instructor in road-making. Mr. Campbell's office is in the Parliament Buildings, Toronto, where he may be consulted at any time by those interested in road-making.

The bulletin deals with the importance of drainage, crowning the road, quality of gravel, method of placing the gravel, and how to repair roads. It is to be hoped that every overseer of roads will give this bulletin careful study.

Potatoes.

In a test of muriate and sulphate of potash for potatoes, at the Hatch Experiment Station, muriate of potash gave the more satisfactory results, both in yield and quality of tubers.

Applying the fertilizer in the drill gave better results than applying broadcast.

Treatment of seed potatoes with corrosive sublimate proved effective in preventing scab. Two and one-fourth ounces of corrosive sublimate were dissolved in fifteen gallons of water. The potatoes were first washed, and, after draining, were put into the corrosive sublimate solution, where they remained one and one-half hours. The same solution may be used for several lots of potatoes. Corrosive sublimate is a dangerous poison and must be carefully handled.

Valuing Commercial Fertilizers.

In purchasing commercial fertilizers, a great deal of attention must be paid to the form in which the particular ingredient exists. According to the trade values for 1896, as given in Bulletin

38 of the Hatch Experiment Station, the value of nitrogen varies from 15 cents per pound in ammonia salts to 3 cents per pound in coarse bone, tankage, hair, horn shavings, etc. Phosphoric acid varies from 5½ cents per pound in forms which are soluble in water to 2 cents per pound in coarse bone and tankage. Potash is worth 5 cents per pound as pure sulphate, and 4½ cents as muriate. The manurial constituents contained in feedstuffs are valued as follows: Nitrogen, 12 cents per pound; phosphoric acid, 4½ cents per pound; and potash, 5 cents per pound.

Dairy Bulletin.

Bulletin 101 of the Ontario Agricultural College will be found of interest to dairymen. It was prepared by the instructors of the Dairy School, and deals with the following subjects: "Separators and the Separation of Milk," by Mark Sprague; "Care of Milk for Creameries," by J. H. Findlay; "Care and Churning of Separator Cream," by T. C. Rogers; "Cream-Gathering Creameries and the Private Dairy," by Jas. Stonehouse; "Cheesemaking," by T. B. Millar; "A Starter," by R. W. Stratton; and "Milk Testing," by J. W. Mitchell, B.A. As every reader can procure this bulletin by asking for it, no attempt will be made to summarize. Everyone who owns a Babcock milk tester should read Mr. Mitchell's article on milk testing, as it is full of valuable hints.

Experiments in Cheesemaking.

Bulletin 102 of the Ontario Agricultural College, by Prof. H. H. Dean, contains a report of valuable investigations in cheesemaking. The bulletin is in three parts. Part 1 deals with the relation of fat in milk to quantity and quality of cheese produced in the months of November and December, 1895. Part 2 contains a summary of two years' work on the relation of fat in milk to cheese produced. Part 3 deals with the effects of salt, temperature, rennet, and acid in cheesemaking.

The work performed along the line indicated in parts 1 and 2 goes to confirm the claim that the yield of cheese is not exactly in proportion to the per cent. of fat in the milk, and that the method of adding 2 to the per cent. of fat as

indicated by the Babcock test, and dividing the proceeds in the resulting proportion, comes very near to giving each patron pay for the exact amount of cheese which his milk makes.

The scoring of the cheese by expert judges brings out the interesting point that the cheese made from the milk highest in fat is not always of the finest quality. There was not sufficient difference in the quality of the cheese made from the different kinds of milk to influence the price, as all the cheese sold for the same price per pound.

The Conn Culture (B. 41) in Butter-making.

Bulletin 48 of the Wisconsin Experiment Station reports experiments with *Bacillus 41*. This bacillus was discovered by Prof. H. W. Conn, in 1893, in a can of imperfectly sterilized milk that was sent to the World's Fair from Uruguay. This ferment has been used in a great many creameries, and the results were generally very favorable, and "B. 41" was especially popular because the cream needed no previous treatment before adding the ferment, it being necessary with nearly all other commercial ferments to first sterilize the cream. The Wisconsin results, however, were somewhat disappointing, as no decided benefit appeared to be derived from the use of "B. 41." It is possible that further experiments may give more favorable results.

The Plum Leaf Spot.

This disease makes its appearance soon after the leaves are full grown. The leaves begin to show little discolored spots, at first about a sixteenth of an inch in diameter, with margins often tinged with purple or red. The spots enlarge, and soon become dark brown with a pale centre. Frequently the diseased spots drop out, leaving holes in the leaf. The infested leaves often turn yellow and drop prematurely, so that in case of very severe attacks, the tree may lose nearly all of its foliage before September.

Bulletin 98, of the Geneva Experiment Station, reports favorable results from spraying with the Bordeaux mixture.

The first spraying should be made soon after the blossoms fall; the second, from ten to fourteen days later; and the third about the middle of June. If after this treatment the spot be-

comes abundant, Bordeaux mixture may be used as late as the middle of July; after which, if treatments are necessary, *cau celeste* soap mixture may be used, as it does not discolor the fruit so much as Bordeaux mixture does.

The treatment outlined may be expected to largely prevent the leaf spot disease, and also to lessen the attacks of fruit rot and black knot.

The *cau celeste* soap mixture is made as follows: One pound of copper sulphate is dissolved in water and diluted to 40 gallons. A quart of 26° ammonia is then added and a pound of whale oil soap dissolved in water. The whole mixture is then diluted to fifty gallons. The *cau celeste* soap mixture seems more apt to injure the foliage than does the Bordeaux mixture.

Digestibility of Corn Ensilage, Cow Pea Ensilage, Soja Bean Ensilage, and Corn Fodder.

The Illinois Experiment Station has conducted a number of interesting experiments upon the digestibility of the fodders mentioned above, which are reported in Bulletin 43 of that station.

Cow pea ensilage was found to correspond very closely to clover hay in composition, but was much more digestible, and furnished an equal amount of fat and much more protein than clover hay.

Soja bean ensilage resembles clover hay in composition and digestibility. It furnishes an equal amount of protein, and more fat, but less total energy than clover hay.

Corn fodder and corn ensilage have about the same digestibility for the total dry matter, and furnish nearly equal amounts of energy. The fodder furnishes more digestible carbohydrates, but the ensilage slightly more of the other nutrients.

As compared with cow peas and soja beans, the corn fodder and corn ensilage have a much higher value for energy or fat production, but the cow pea ensilage and soja bean ensilage are far more valuable for animal growth and the production of milk.

These results correspond very closely with the results of feeding experiments with corn ensilage and corn fodder. In some cases ensilage gave the better results, while in others the fodder was slightly ahead, so that the average of a great many experiments by different stations would go to show that they are nearly equal in feeding value.



FARMING

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

Succeeding *The Canadian Live Stock and Farm Journal*.

Published on the first of each month by

THE BRYANT PRESS,

20 BAY STREET TORONTO, CANADA.

EDITOR-IN-CHIEF, G. W. GREEN.

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from our list.

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when subscribers do this it must be at their own risk.

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

Communications—

All business communications should be addressed to
"FARMING, 20 Bay Street, Toronto, Canada."

Communications for the Editor-in-Chief should be ad-
dressed to "The Editorial Department," FARMING, 20 Bay
Street, Toronto, Canada."

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

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

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

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

Dominion Shorthorn Breeders' Association.

At a meeting of the finance committee of this
association last month, it was decided to offer
the following premiums at the next Provincial Fat
Stock Show, to be held in December:

In the purebred Shorthorn class, a special of
\$20 for the best registered Shorthorn steer of any
age. In the Shorthorn grade class prizes for the
best steer two years old and under three—1st
prize to be \$15; 2nd prize, \$10; and 3rd prize, \$5.
For the best steer one year old and under two
years, 1st prize to be \$15; 2nd prize, \$10; and
3rd, \$5. For the best steer under one year, 1st
prize to be \$15; 2nd prize, \$10; and 3rd prize, \$5.
The prizes given in this Shorthorn grade class will
be in addition to those given by the Provincial
Fat Stock Show.

Hackney Horse Society.

The third annual meeting of the Hackney Horse
Society of Canada was held at the Albion Hotel,
Toronto, on May 15th, with the president, Mr.
R. Beith, M.P., Bowmanville, in the chair.
Others present were Messrs. G. H. Hastings,
Deer Park; A. G. Bowker, Woodstock; H. N.
Crossley, John Holderness, and H. Wade, secre-
tary, Toronto; and A. E. Major, Whitevale.

The secretary's report showed a balance on
hand of \$101 at the end of 1895, after paying all
prizes at the spring show, the Industrial and the
Western Fairs. This year the expenditure in
prizes will be \$30 to the spring show, and \$50 to
the Industrial.

On motion, Messrs. John K. Macdonald, To-
ronto, and Adam Beck, London, were accepted
as members. Mr. Wade read a circular from the
parent society in London, England, offering silver
medals to affiliated societies. On motion of Mr.
Crossley, the secretary was instructed to corre-
spond with the secretary of the parent society on
the subject of offering medals at the Industrial and
the spring horse show.

The election of officers resulted as follows:
President, R. Beith, M.P., re-elected; first vice-
president, H. N. Crossley; second vice-president,
G. H. Hastings; vice-president for Ontario, A.
G. Ramsay, Hamilton; for Quebec, Jas. A. Coch-
rane, Hillhurst; for Nova Scotia, Mr. Black; for
New Brunswick, Hon. D. McLelland, St. John;
for Prince Edward Island, Hon. Jas. Clow, Mur-
ray Harbor; for Northwest Territories, Mr. Raw-
linson, Calgary; for Manitoba, A. J. Moore,
Swan Lake; for British Columbia, S. F. Tolme,
Victoria.

Directors, A. G. Bowker, Woodstock; R. Gra-
ham, Claremont; J. Holderness, R. Davies, J.
K. Macdonald, Toronto; N. Awrey, Hamilton;

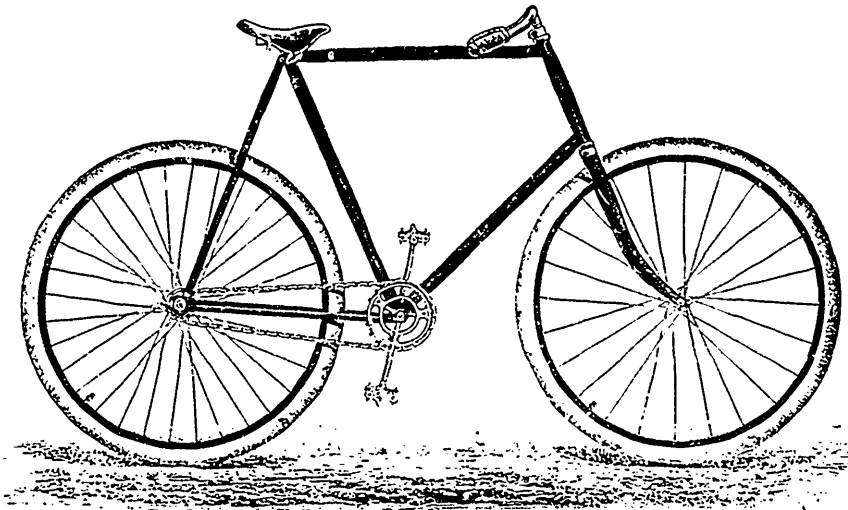
Who will be the next To Get One ?

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

There is nothing to compare for pleasure with "wheeling," and people are finding this out. The number of wheels being sold this year is enormous. They are already classed as necessities of life. Merchants, clergymen, men of every profession, trade, and calling, mechanics and artisans, all find that it pays to use them. Manufacturers are working night and day to supply the demand.

Many of the readers of FARMING have bicycles, and no doubt others would like to have them and could make use of them to very good advantage, but do not exactly see the way clear to laying out the amount of money required for that purpose.

Now, our arrangement with MESSRS. HYSLOP, SON & McBURNEY, one of the largest and most reliable bicycle manufacturing concerns in Canada, as announced in our June issue, has enabled us to give to our readers a *High Grade Wheel* in exchange for a little of their time and energy. The name of this wheel is the *Fleet No. 1*, and you will be able to get from the following engraving a fair idea of its general outlines.



FLEET NO. 1

A first-class high-grade wheel, designed for road use, and equal to any wheel made for general purposes. Judge of its merits by reading the following

SPECIFICATIONS

Latest model frame; highest grade English weldless steel tubing of large diameter; steel connections, reinforced at each joint; 28-inch wheels; wood rims; tangent spokes, tied at crossing; dust-proof bearings; detachable front and rear sprockets, square cranks, 6½-inch throw, tread 5½ inches; L seat post; Perry's chain; rat-trap pedals; Haysion's saddle; New York tires, unless otherwise specified. Height of frame, 23 or 24 inches; wheel base, 43½ inches, gear 64, 68, or 72.

Weight—25 lbs.

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

PRICE, - - - \$75.

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

133 new yearly paid-in-advance subscribers to FARMING; or
100 new yearly paid-in-advance subscribers to FARMING at \$1 and \$1; cash; or
50 new yearly paid-in-advance subscribers to FARMING at \$1 and \$1; cash.

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

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

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

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

FARMING,

20 Bay Street, TORONTO.

R. Bond, Toronto; Major McEwen, Byron; R. Miller, Brougham. Delegate to Industrial Exhibition, H. Wade.

A motion was passed requesting the Industrial Exhibition Board to grant the privilege of another delegate from the Hackney Society, and that, in that event, Mr. Hastings be the second delegate.

A valuable paper on Hackneys was read by Mr. Hastings.

Ottawa Exhibition.

The great Central Fair at Ottawa will be held this year from September 17th to the 26th. The large sum of \$14,500 will be offered in premiums, besides a great number of special prizes. Twenty-seven gold medals will be offered, mostly for horses and cattle, and two silver medals. The winners of the medals in certain of these special prizes have the option of receiving their prizes in cash. Send for a prize list at once to E. McMahon, secretary, 26 Sparks street, Ottawa.

Montreal Provincial Exhibition.

The fifth annual exhibition, under the management of the Montreal Exposition Company will be held from the 11th to the 19th of next September, and the directors confidently hope that the forthcoming fair of 1896 will be a worthy successor to the previous exhibitions.

The great interest felt in the Montreal Exhibition by farmers, stockbreeders, fruit-growers, and others was shown last year by the magnificent display of live stock and the splendid collections of horses, sheep, and swine, while the poultry show was a perfect gem.

Many well-known American experts and prominent Canadian breeders expressed the opinion that a finer display of Ayrshire cattle had never been seen on the continent.

It has been a source of great satisfaction to the management to know that since the inception of the annual exhibitions in 1891 the standard of excellence in all exhibits has been perceptibly raised and a great impetus given to the development and extension of the various branches of agriculture.

The syndicate competition of the important dairy centres of the Province of Quebec proved a valuable adjunct in stimulating the skill and energy of each individual engaged in the manufacture of butter and cheese, while the results as shown in the extensive display at last year's exhibition were most gratifying.

The prospects for the next fall exhibition are most assuring. A greater number of special prizes have already been voluntarily offered, and there is reason to believe that many more will be shortly received.

Horse Owners Should Try

COMBAULT'S Caustic Balsam

The GREAT FRENCH VETERINARY REMEDY

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Impossible to produce any soar or blenish. The Safest best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blenishes from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, Etc., it is invaluable.

WE GUARANTEE that one tablespoonful of **CAUSTIC BALSAM** will produce more actual results than a whole bottle of any liniment or spavin cure mixture ever made.

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THE LAWRENCE-WILLIAMS CO. TORONTO, ONT.

A prominent feature in the horse department next fall will be an exhibition of valuable animals from the famous stock farm at Burlington, Vt., owned by Dr. W. Seward Webb, president of the Wagner Car Co.

The classes in the cattle department have been altered, and instead of having a large number of sections greater prominence is given to the exhibitors' herds and young herds, thus giving breeders more encouragement in the displaying of their stock.

The greatest care and attention will be paid to provide for the accommodation and comfort of exhibitors, and every facility will be afforded them.

Exhibitors and others wishing for information concerning the exhibition can obtain the same by applying to S. C. Stevenson, the manager and secretary.

Jottings.

American Hereford Record.—Vol. xv. of the above record is to hand, embellished, as usual, with a number of fine cuts of animals.

Thornton's Circular.—We are in receipt of No. 112 of Thornton's Circulars, being a record of Shorthorn transactions in Great Britain for the first three months of the current year.

The Herring.
Canadian New
Model Mower.
Harvest Queen Reaper.



1896

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Perfection of
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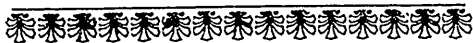
JOHN HERRING,
Napane Agricultural Works,
Napane, Ont.

Montreal Exposition Company

Friday, September 11th, to
Saturday, September 19th,
1896.



FIFTH
Montreal
Exhibition



GRAND AGRICULTURAL AND INDUSTRIAL FAIR.
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Manufacturers' Machinery in Motion.
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For all information apply to
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836 76 St. Gabriel Street, Montreal.

Jottings—Continued.

Poultry Reports.—We have received a copy of the report of the poultry manager of the Central Experimental Farm, Ottawa, for 1895. It is very full, and reflects much credit upon Mr. A. G. Gilbert. A copy may be secured by writing to the farm. We have also received a copy of the annual reports of the Poultry and Pet Stock Associations of the Province of Ontario for 1895. A copy may be obtained by writing the Minister of Agriculture at Toronto.

Woman's World and Jenness Miller Monthly.—The above paper, the subscription price of which is \$1 per annum, continues to keep up to its original high standard. The June number contains the first instalment of a story by the well-known Russian, Sergius Stepniak. There are articles on "Domestic Economy," "What to Wear and How to Make It," "Health Topics," etc., and everyone will find something to interest them.

The Wabash Railroad.—The Wabash Railway, with its superb and magnificent train service, is now acknowledged by travellers to be the most perfect railway system on this continent; all its cars are of the latest and best designs. New daily sleeping car line between Detroit, Indianapolis, and Louisville, via the Wabash-Pennsylvania short line. Study our map and ask any ticket agent for folders and tickets of this great railway, or J. A. Richardson, Canadian Passenger Agent, northeast corner King and Yonge streets, Toronto.

A Summer Cruise on Inland Seas.—"It is, indeed, the trip of a lifetime," said a lady traveller who had enjoyed the tour of the Great Lakes between Buffalo, Cleveland, Detroit, the Soo, and Duluth. But few people are aware that there is nothing like it elsewhere on earth; 2,100 miles on fresh water that is the greatest highway of commerce in the world. A more important point is the excellence of the service on the exclusively passenger steamships *North West* and *North Land*. Ask your local ticket agent about it, or write to A. A. Heard, G.P.A., Buffalo, N.Y.; or F. G. McMicken, general agent, Toronto, Ont.

Zimmerman Evaporator.—The Zimmerman Evaporator, manufactured by the G. H. Grimm Manufacturing Co., Montreal, possesses many points of excellence. It is made entirely of galvanized iron, which will not rust or corrode, requires no painting, and is constructed on scientific principles. Currents of heated air pass through and around the fruit, not only from the bottom, but also from the sides, gathering the moisture from the fruit and passing rapidly away. Each tray of fruit gets its heat direct, and all cure evenly. To the natural current of hot air, moreover, is added an artificial current which assists in conveying away the moist air. The evaporators are made in four sizes, No. 1 giving over twenty square feet of drying surface; No. 2 over forty square feet; No. 3 eighty-five square feet;

Jottings—Continued.

and No. 4 one hundred and seventy-seven square feet. Send for a catalogue to the Grimm Co., Montreal.

What They are Like.—Persons not familiar with travel on the transcontinental lines do not understand what the tourist cars are really like. Those in use on the Great Northern Railway are built on the same plan as the regular sleepers, but have not the same ornate finish. They have, however, similar berths and bedding, toilet accessories, and competent porters. In addition, there is a complete kitchen range, with the ample facilities for its use, and an adjustable table for each section. The Great Northern Railway runs these cars daily from St. Paul and Minneapolis to Pacific Coast points, to Portland *via* the scenic O. R. and N., from Spokane along the Columbia river, without change. Persons contemplating a trip to Manitoba, British Columbia, or any of the Pacific Coast states, please write to F. I. Whitney, G.P. and T.A., St. Paul, Minn., or H. G. McMicken, general agent, Toronto, Ont., for printed matter and notes.

Stock Notes.

Cattle.

MR. ARTHUR JOHNSTON, Greenwood, Ont., reports: Crops of all kinds, excepting hay and fall wheat, are looking very well. Cattle in general have done exceedingly well on uncommonly early grass. Our own Shorthorns are now in their finest dress and richest bloom. The young things have grown wonderful coats of fine glossy hair. We still have a few capital young bulls of serviceable ages for sale. The white Duchess of Glo'ster yearling bull is now as pretty as a picture, and exceedingly massive. Indian Brave is also in right, nice form. He will go into the show ring next September fully eight hundred pounds heavier than he weighed in the ring last September, and he carries it lightly and gaily. We have some yearling heifers that we think will not be easily turned down in Toronto next September. We have also a splendid lot of calves of both sexes fitting for exhibition. They are all for sale, and at very moderate prices.

MR. WM. BACON, Orillia, Ont., writes: I regard FARMING as one of the best counsellors—being up-to-date, well balanced, and brimful of well-timed and well-considered matter; conservative where it is well to be so, progressive in spirit and liberal in its views, safe in its forecasts, and a good advertising medium. I have had to spend three hours a day at a time answering correspondence about my Jerseys. I have sold all I wished except Thrice Welcome Pogis, a yearling bull of great merit, although a trifle small; and a two-months-old bull calf with the best development of anything I own, a pure

FARMERS

To save middlemen's profits and to get goods at first cost buy direct from us. Terms Cash with orders F.O.B. Toronto.

PARIS GREEN, in 50-lb. drums, 12½c. lb.; in 5-lb. parcels, 13½c.; in 1-lb. packages, 15c.

BINDER TWINE, Standard, 7c.; Imperial Manilla, 7½c.; Pure Manilla, 8c.

CASTOR GLYCERINE MACHINE OIL, 30c. gallon. This oil is equal to Peerless or Lardine Oil.

No. 1 TEAM HARNESS \$22, catalogue price \$24; No. 6 H. Single Harness \$13, list price \$15;

HARVEST TOOLS at about half price. For full description see our catalogue.

REDPATH'S GRANULATED SUGAR \$4.70, Light Yellow \$3.70 per 100 lbs.

STAPLE DRY GOODS, AND BOOTS AND SHOES at manufacturers' prices.

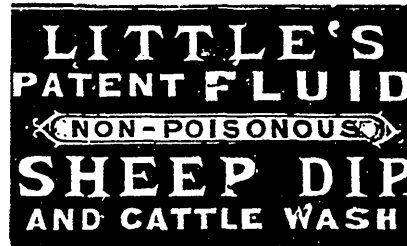
Everything a farmer wants at first cost.

Mail orders promptly attended to.

The People's Wholesale Supply Co.,

R. Y. MANNING, 35 Colborne St., TORONTO.
Manager.

TO STOCKMEN AND BREEDERS



For the destruction of Ticks, Lice, Mange, and all Insects upon Sheep, Horses, Cattle, Pigs, Dogs, etc. Superior to Carbolic Acid for Ulcers, Wounds, Sores, etc. Removes Scurf, Roughness and Irritation of the Skin, making the coat soft, glossy, and healthy.

The following letters from the Hon. John Dryden, Minister of Agriculture, and other prominent stockmen, should be read and carefully noted by all persons interested in Live Stock:

"MAPLE SHADE" HERDS AND FLOCKS.

BROOKLIN, ONT., Sept. 4th, 1890.

DEAR SIR,—I cannot afford to be without your "Little Sheep Dip and Cattle Wash." It is not merely useful for Sheep, but it is invaluable as a wash for Cattle, etc. It has proved the surest destroyer of lice, with which so many of our stables are infested, I have ever tried; it is also an effectual remedy for foul in the feet of Cattle. I can heartily recommend it to all farmers and breeders.

JOHN DRYDEN.

17 Gold, Silver, and other Prize Medals have been awarded to "Little's Patent Fluid Dip" in all parts of the world. Sold in Large Tins at \$1.00.

Special terms to Breeders, Ranchmen, and others, requiring large quantities. Ask your nearest druggist to obtain it for you; or write for it, with pamphlets, etc., to

ROBERT WIGHTMAN, Druggist, Owen Sound.

Sole Agent for the Dominion.

Stock Notes—(Continued.)

lemon color with white face, and of pronounced dairy type in every way. He is a grandson of old Massena, his sire being Massena's Darby, while his dam is a choice one, giving sixteen quarts a day. He is a bargain at \$25. L. Exile of Manorfield is in fine condition, and promises to be a fine sire. Kaiser Fritz, jr., is likely to prove himself one of the most meritorious bulls in Canada, as his sire, Kaiser Fritz 21139, unquestionably is. Several of my cows tested 6, 6.5, 5.8, and 5.4 from samples taken to the Ontario Agricultural College, and that on pasture without other feed. Nearly all my cows

Continued on page xxiii.

ONE THOUSAND FARMERS WANTED

To settle on one thousand choice farms on the line of the Chicago, Milwaukee & St. Paul Railway in Dakota.

These lands are located in twenty different counties, and are to be had now at prices ranging from \$7 to \$15 per acre; a few months hence their value will be doubled.

For a home or for investment no luckier chance in the West has never before been offered. Now is the time to invest. No better farming land exists any-

where. No greater results can be obtained anywhere.

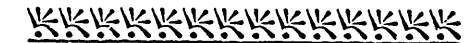
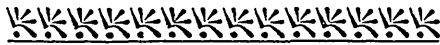
Schools and churches abound everywhere. Near-by markets for all farm products. South and North Dakota are the banner diversified farming and stock-raising states of the West. Everything grows in Dakota except ignorance and intemperance. A new boom is on. Take advantage of the tide which leads to Dakota and to fortune.

For further information address or call upon W. E. POWELL, General Immigration Agent, 410 Old Colony Building, Chicago, Ills.

ICE CREAM NOW MADE IN A MINUTE

I have an Ice Cream Freezer that will freeze cream perfectly in one minute; as it is such a wonder a crowd will always be around, so anyone can make from five to six dollars a day selling cream, and from ten to twenty dollars a day selling Freezers, as people will always buy an article when it is demonstrated that they can make money by so doing. The cream is frozen instantly, and is smooth and free from lumps. I have done so well myself and have friends succeeding so well that I felt it my duty to let others know of this opportunity, as I feel confident that any person in any locality can make money, as any person can sell cream and the Freezer sells itself. J. F. Casey & Co., 1143 St. Charles St., St. Louis, Mo., will mail you complete instructions and will employ you on salary if you can give them your whole time.

Attractive Auction Sale of



Ayrshires

AT OAK POINT STOCK FARM, KINGSTON, ONT.

ON THURSDAY, JULY 16th, 1896.

ON the above date there will be sold by Public Auction a choice selection of YOUNG REGISTERED AYRSHIRE STOCK consisting of ONE BULL, 3 years old, SIX BULL CALVES, from 1 to 12 months old, SEVEN HEIFER CALVES from 1 to 20 months, and EIGHT YOUNG COWS, all of best strains. Particulars can be had on application to J. B. CARRUTHERS, Kingston, Ontario.

TERMS—Twelve months' credit on joint note with 7 per cent. interest. Sale at one o'clock sharp.

Oak Point Farm is about 3½ miles from Kingston.

J. L. HAYCOCK, AUCTIONEER.

⊙ AGRICULTURAL COLLEGE ⊙

THE ONTARIO AGRICULTURAL COLLEGE WILL REOPEN ON OCTOBER 1st, 1896.

Full courses of Lectures, with practical instruction in Agriculture, Live Stock, Dairying, Poultry, Beekeeping, Veterinary Science, Chemistry, Geology, Botany, Entomology, Bacteriology, English, Mathematics, Bookkeeping, and Political Economy.

Send for circular, giving terms of admission, course of study, etc.

**JAMES MILLS, M.A., President,
GUELPH, ONTARIO.**

Stock Notes

and heifers are bred to come in in April and May. They are some of the richest marked and best producers in the country.

Sheep.

MR. HENRY ARKELL, Arkell, Ont., writes: I have sold 250 rams and ewes for show purposes, to be delivered between now and October, and the majority are for the western trade. I have 400 sheep on hand at present.

MR. C. T. GARBUTT, Claremont, Ont., writes: I have lots of inquiries, and find ready sale for all my stock. In answer to those who ask how I manage to sell, I say, "Advertise in FARMING." My Cotswolds and Berkshires were never in better shape. What stock I have to sell are fit to win anywhere. I intend exhibiting, as usual, if I do not get everything sold off previously. I have just shipped off a shearling ram to Mr. S. V. McDonnell, Fredonia, Pa. His weight is 220 lbs., and he has the best of quality. His dam was a Gillett-bred ewe, and his sire, Lord Lorne (imp.), now two years old, scales 335 lbs., and will be seen in Toronto next September. I expect a fair trade in sheep of good quality, for which there are many inquiries. I have sold most of my early pigs, but have a pair of good boars and sows on hand fit to win anywhere.

Swine.

MR. C. R. DECKER, Chesterfield, Ont., writes: I have now a large stock of Berkshires, which are all doing well, among them being a number of winter and spring litters from my show stock; four service boars from eighteen months to three years old, weighing from five hundred to seven hundred pounds, and sows over six hundred pounds, with some choice stock bred from them. The demand for Berkshires has been very good, considering the dull times, and, judging from the way feeders talk, stock hogs are very scarce and prices must go up.

A CHANCE TO MAKE MONEY.

I read how one of your subscribers made money selling Dishwashers; I ordered one, and my lady friends were charmed, as they hate dish washing. My brother and I commenced selling them, and have made \$1,700 after paying all expenses. We don't canvass any. Our sales are all made at home. People come or send for them. The Mound City Dishwasher is the best Dishwasher on the market. Our business is increasing, and we are going to keep right on until we make ten thousand dollars. We sell from five to fifteen machines every day, and some days more. The Dishwasher is lovely, every housekeeper wants one. There is no excuse to be poor when so much money can be made selling Dishwashers. For full particulars, address The Mound City Dishwasher Co., St. Louis, Mo. They will start you on the road to success.—A Reader.

Sept.
17 to 26
1896.

Entries close
Monday,
Sept. 14

**Central
Canada
Exhibition**
Association
Ninth Annual Exhibition
at

\$14,500
offered in Prizes

besides a list of "Specials," including 27 Gold Medals, 27 Silver and Bronze Medals, and Special Cash Prizes.

Exhibitors repeatedly assert that no other similar association in existence offers such an array of "Gold Medals" as does the CENTRAL CANADA, and each medal of different design.

GROUND AND BUILDINGS

Over \$40,000 expended on improvements since last exhibition. The entire grounds and buildings have been completely overhauled. New stables for horses, new stables for cattle, new buildings for sheep and swine; all constructed on the latest and most modern principles, and erected on south side of grounds. New and enlarged carriage building. Machinery hall capacity doubled. New half-mile track. Grand stand accommodation increased, now capable of seating over 8,000 persons, and rearranged to load from the rear with turnstile system. New art gallery. Main building enlarged, and new stove building added in connection therewith. Grounds graded, enlarged, and encircled by new 12-foot fence. New entrance from the "Elgin-street side." Agricultural and Horticultural halls improved, and made more attractive. New lavatories, and sanitary arrangements of the very best. In fact, nothing has been overlooked that would tend to the comfort and convenience of exhibitors and visitors.

The new buildings for horses and cattle all have proper plank walks down the centre, so that the public can pass through, view the stock on each side, and be under cover all the time.

Increased Prizes for Live Stock, including Poultry. The special attractions and races this year will be of the very best and excel all previous efforts.

EVENING ENTERTAINMENTS

Commencing on Saturday, September 10th, and continuing each evening till close of Exhibition, Magnificent Spectacular Drama, "THE SIEGE OF ALGIERS," and Fireworks, will be produced by Prof. Hand & Co., of Hamilton, Ont., who so successfully demonstrated the "Siege of Sebastopol" at last Exhibition

Visit Ottawa's Exhibition this year. "Better than ever, and the best of them all."

WM. HUTCHISON, Pres.

For Prize Lists and all information address, E. McMAHON, Secretary, Ottawa, Ont.

OTTAWA.

THE HYSLOP WHEEL
BEST ON EARTH

REGENT WHEELS
SECOND ONLY TO HYSLOP

FLEET WHEELS
BEST \$75 WHEEL IN CANADA

THE SPARTAN WHEEL
\$50. COMPARE IT WITH OTHERS AT \$75.

HYSLOP, SON & M^cBURNEY.
THE WHEELMEN OF CANADA.




HYSLOP



*Born in Mens. Womens,
or Childrens. Are the
best & Cheapest in Canada.*

MAKES
HYSLOP, REGENT, FLEET
SPARTAN & CRESCENT



WE CHALLENGE COMPETITION

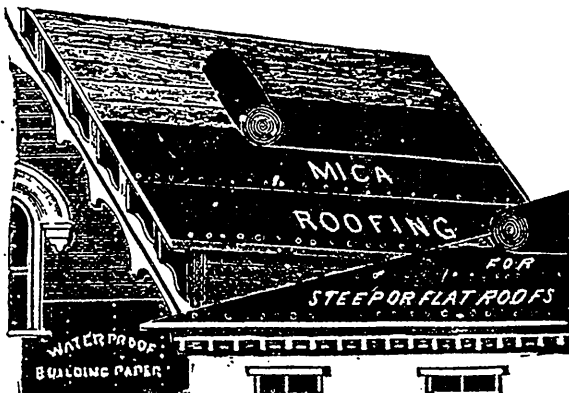


HYSLOP, SON & M^cBURNEY
TORONTO.

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

Toronto

Engraving

Company....

WOOD
ZINC
HALF-TONE
AND WAX

Engraving

53 KING STREET WEST,
COR. BAY.

364

CUTS FOR ALL ILLUSTRATIVE PURPOSES.

DON'T GET IN THE MUD

If you can help it. You can help it if you get one of Widdifield's attachments. You pull the string, we will do the rest—we will swing the gate away from your horse, and close it after you.

IT'S NOT NECESSARY

To get out of your wagon or buggy when you get to your gate if you have one of Widdifield's Attachments.

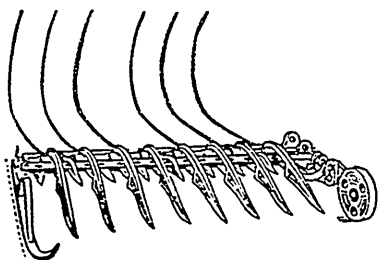
WE WANT

you to see one of our Patent Gates because we know you will buy one. Township and County rights for sale.

C. H. WIDDIFIELD, Pine Orchard, Ont.
J. W. LEON, Pottageville, Ont.

543

The Genuine



With Buncher Attached.
PATENTED FEBRUARY 4th, 1895.

No Pea Harvester complete without it, as it will save the work of one or two men every day it is used, also doing the work much better and cleaner. Can be furnished to suit any harvester now in use.

ALL OR ANY INFRINGEMENTS WILL BE PROSECUTED BY PATENTEE.

NO DRILLING OF HOLES IN MOWER BARS OR INSIDE SHOE

A WRENCH IS ALL THAT IS REQUIRED TO ATTACH THEM

Send in your orders early, or give them to our local agent.

TOLTON BROS.

GUELPH, ONT.

Tolton Pea Harvester

With up-to-date Patented Improvements.



Spramotor Stands at the Head

Patented in Canada and United States—
September 27, 1893; July 17, 1894.

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

AWARDS IN 1896.

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

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

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

TESTIMONIALS.

Windsor, April 20th, 1896.

Spramotor Co., London, Ont.

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

Yours very truly,
A. McNEIL.

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

Spramotor Co., London, Ont.

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

Yours faithfully,
R. J. BISHOP.

These are a few of the users of the Spramotor:

A. H. Pettit, Grimsby.
A. Bogart Newmarket.

J. L. Hilborn, Leamington.
Thos. Plunkett, Meaford.

A. C. Attwood, Vanneck.
John Davidson, Thedford.

NOW . .

Is the time to order your
Seed for the New Fodder
Plant

JAPANESE MILLET

And the best sub-
stitute for Hay

**THE SALZER
NORTH
DAKOTA
MILLET**



The
Finest
Strains of

**LONG
ENGLISH
BERKSHIRE PIGS**
Our own breeding.

For prices, etc., apply to
The BOW PARK COMPANY, Ltd.
Brantford, Ont

J. E. CASSWELL,

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

FLOCK BOOK No. 46.

THIS well-known flock has been established more than 100 years, and the pedigreed Lincoln long-woolled rams and ewes have been noted throughout the Colonies and South America for their "size, symmetry, and lustrous wool. Ewes from this flock have always passed from father to son, and have never been offered for sale. Mr. J. E. Casswell's grandfather, Mr. G. Casswell, of Laughton, was the first breeder in the county to let his rams by public auction. At Lincoln Ram Fair, 1895, Mr. J. E. Casswell made the highest average for 20 rams. During the last two years the following amongst other noted sires have been used: Bakewell Councillor and Baron Rigby, for each of which very high prices have been refused; Laughton Baron, Laughton Major, Laughton Style, Laughton Choice, No. 5; Ashby George, 60 guineas; Laughton Judge, 95 guineas; his son, Laughton Justice Lincoln, 200 guineas; Lincoln, 152 guineas; Welcott, 70 guineas; Lincoln, 72 guineas; and his sire, Laughton Riby. Shire horses, Shorthorn bulls, and Dorking fowls are also bred. Inspection and correspondence invited. Visitors met by appointment. TELEGRAMS: Casswell, Laughton, Folkingham, England.

PUREST AND BEST

**Windsor
Cheese and Butter
Salt**

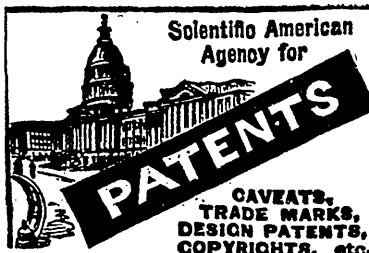
Has, during the season of 1895, given the best satisfaction on account of Purity, evenness of crystal, and splendid working qualities.

It is now used in all the largest cheese factories and creameries in Canada.

WINDSOR SALT WORKS,

WINDSOR, ONT.

428



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TRADE MARKS,
DESIGN PATENTS,
COPYRIGHTS, etc.
For information and free Handbook write to
MUNN & CO., 361 BROADWAY, New York.
Oldest bureau for securing patents in America.
Every patent taken out by us is brought before
the public by a notice given free of charge in the
Scientific American
Largest circulation of any scientific paper in the
world. Splendidly illustrated. No intelligent
man should be without it. Weekly, \$3.00 a
year; \$1.50 six months. Address, MUNN & CO.,
PUBLISHERS, 361 Broadway, New York City.

01



OUR \$1.00 PER DOZEN PHOTOS
CANNOT BE BEAT. BEST WORK
IN THE DOMINION. TRY US.

C. A. Muerrle

Photographer

11 King Street West.

NEAR YONGE STREET

TORONTO, ONT.

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

Freeman's HIGH-GRADE BONE Fertilizers

FOR SPRING CROPS

High-grade Bone Fertilizers furnish the cheapest and best plant food known. Freeman's Fertilizers furnish just the plant foods needed; they are of the right kinds for each stage of growth, so that there is rapid and healthy growth from germination to maturity.

Lay aside your prejudices, and do that which experiment and experience has determined to be the best.

You can restore the fertility and productiveness of your soil easier, cheaper, quicker, and more lastingly by a liberal use of our high-grade bone fertilizers than by any other known means.

Sixty per cent. more clean and smooth potatoes.

"Used your Potato Manure on potatoes at the rate of about 500 pounds per acre, which were planted on ground that had been sown to oats without manure the year previous, getting at least sixty per cent. more potatoes than where none was used.

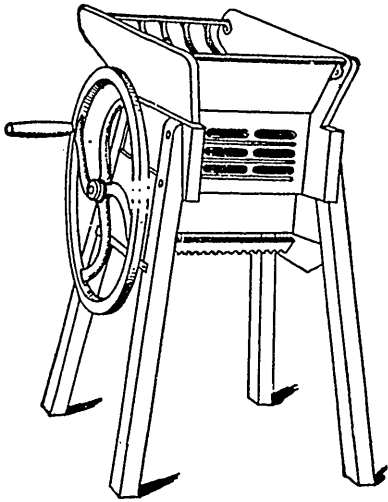
"Also used it alongside of stable manure, using about thirty dollars' worth per acre, and about ten dollars' worth of Freeman's Potato Manure per acre, the yield being about the same, but there was a wide difference in quality. Where Potato Manure was used the potatoes were clean and smooth; where stable manure was used they were very scabby.

"THOMAS CURTIS, Clappison, Ont."

Send your address for catalogue giving the experience of hundreds of our leading farmers and fruit-growers who have used our fertilizers.

THE W. A. FREEMAN CO., LTD.

HAMILTON, ONT.



Stock Raisers!

We manufacture a full line of

Root Pulpers and Slicers

(Single or Combined, and for Hand or Power.)

SEND FOR DESCRIPTION

SEE OUR DISK HARROW

DAVID MAXWELL & SONS

ST. MARYS, ONTARIO

Mention FARMING.

Agents wanted in all unoccupied territory.

USE

Queenston

Cement . . FOR BUILDING

CONCRETE OR OTHER WALLS, CISTERNS, STABLE FLOORS,
HOG TROUGHS, ETC.

Write for prices and particulars. When parties use our goods, when necessary we will send a skilled man, at our own cost, to give instructions how to build. Farmers can thus build their walls and save half the cost.

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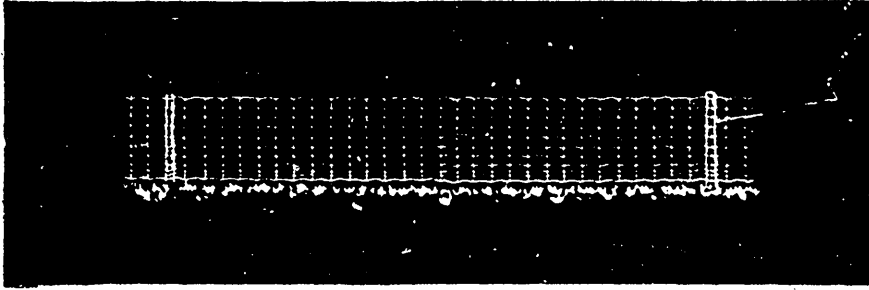
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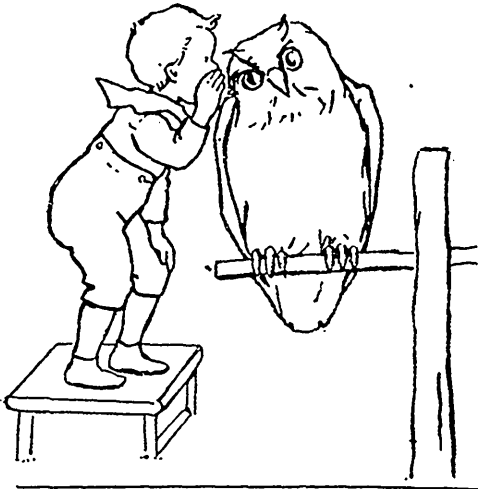
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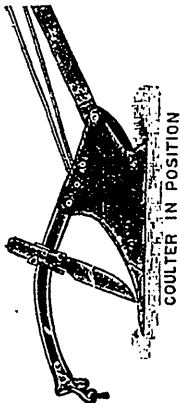
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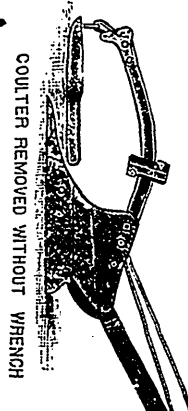


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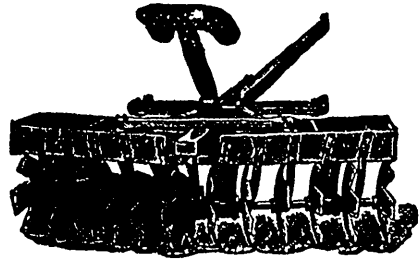
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