

PUBLISHED EVERY WEEK. \$1.50 PER YEAR.

THE FARMER'S ADVOCATE

AND HOME MAGAZINE

* AGRICULTURE, STOCK, DAIRY, POULTRY, HORTICULTURE, VETERINARY, HOME CIRCLE.*

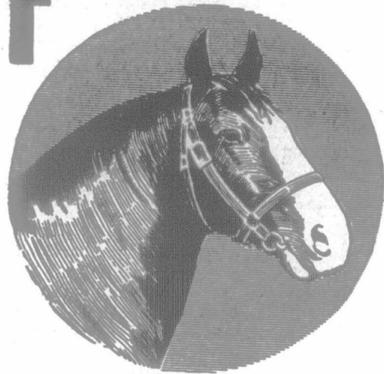
VOL. LI.

LONDON, ONTARIO, JANUARY 20, 1916.

No. 1217

FREE

We will give absolutely free to any farmer, stock or poultry raiser one of our new 80-page booklets, which tells how to balance rations for feeding stock, milch cows, horses, etc. This also deals with the common diseases in poultry, the symptoms, treatments, etc. Tells how to build poultry houses; how to avoid all kinds of diseases in both stock and poultry; tells how to raise calves without milk, and describes fully the high-class stock and poultry remedies and foods we manufacture.



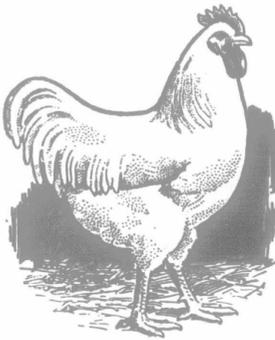
Royal Purple Stock Specific

Not a dope, but a pure unadulterated condition powder that can be fed according to directions every day. Will make the animal digest its food properly and secure the greatest good therefrom. There has not been a season in a decade when it will be so absolutely necessary to use condition powders as this coming season on account of the enormous amounts of musty grain and fodder that have been harvested. Unless farmers are extra careful, they will have many animals in bad condition due to coughs, heaves, indigestion, etc. Royal Purple Stock Specific will cause the animal to digest every particle of food and will make impurities pass through without injury. Royal Purple Stock Specific will fatten animals you have never been able to fatten before.

Mr. Dan McEwan, the veteran horse-trainer, says: "I have used your Stock Specific 8 years and have never had an animal out of condition more than a week in all that time. Your stock conditioner is the best I have ever used, and as for your Cough Powder, I can safely say it will cure any ordinary cough in 4 days."

Royal Purple Poultry Specific

Works entirely on the digestive organs of the poultry. When a bird's gizzard is working properly, it will be healthy, and when healthy will lay just as many eggs in winter as in summer. You can fatten turkeys and other fowl in just one-half the time on the same food when they digest their food properly. Royal Purple Poultry Specific should be used in the food once a day through the fall, winter and spring seasons. The cost to use it is so small that it will pay for itself 10 times over in actual results. No poultryman can afford to be without this excellent tonic. It is a hen's business to lay. It is our business to make her lay. Put up in 25c. and 50c. packages, \$1.50 and \$5.00 tins. A 50c. package will last 25 hens 70 days. A \$5.00 tin will last 200 hens for over four months.



Last year our horses were troubled greatly with coughs and I used 26 tins of your Cough Specific with excellent results."

It will increase the flow of milk from 3 to 5 pounds during the winter. It will help fatten steers a month earlier, thereby saving a month's feed and labor. You can raise and fatten pigs and market them a month earlier, saving a month's feed and labor. Malcolm Gray of Komoka, Ont., says: "In regard to the feeding of Royal Purple, I had two lots of hogs. To the first lot I fed Royal Purple Stock Specific and sold them when 6 months old and they averaged 196 pounds each. On the second lot I did not use Royal Purple Stock Specific and at the same age they averaged only 150 pounds. They were both the same breed and one lot had as good a chance as the other. We have also fed Royal Purple Poultry Specific with excellent results."

Norman C. Charlton, Scott, Sask., says: "I am from Ontario and fed your Royal Purple Stock Specific when in Brownsville. My cows made the largest average and tested 5 pounds over average at C. M. P. at Brownsville. I believe you make the best conditioner on the market."

Put up in 50c. packages; \$1.50 tins that hold as much as four 50c. packages, and \$5.00 tins which hold four times as much as the \$1.50 tins. A 50c. package will last an animal 70 days. A \$5.00 tin will last 10 animals nearly three months. The cost to use this condition powder is so small that no farmer can afford to be without it, as it will average less than 1/3c. a day if purchased in large tins.

Royal Purple Cough Cure

It will cure any ordinary cough in four days and break up and cure distemper in 10 days. The large quantities of musty grains and fodder harvested this year will start more horses coughing than in any year for a decade past. John Cartier, Bothwell, Ont., says: "I have used one tin of Royal Purple Cough Specific and found it excellent for distemper. One of my father's horses had distemper last fall and inside of two weeks the distemper was entirely cured by using your Royal Purple Cough Specific. I am recommending it to my neighbors."

Put up in 50c. tins; 60c. by mail.

Barrie, April 28th.

"The W. A. Jenkins Mfg. Co., London, Ont.: Dear Sirs,—In response to your request as to our opinion of 'Royal Purple' brands, beg to say that in two years, or rather two seasons (winter), we have sold it, we have found it the best and most satisfactory stock and poultry specific we have ever handled. We have had many testimonials from customers as to its good qualities. One lady customer told us that she used 'Royal Purple' in feeding her turkeys, and the result was that she got the highest price paid on our market for them. The buyer stated they were the best turkeys he had seen."

Respectfully yours, H. H. ORTON & SONS.

Royal Purple Roup Specific

Is a most excellent remedy and every poultryman should use it in the drinking water during fall, winter and spring months. Read over what Messrs. McConnell & Fergusson have to say about it.

"Gentlemen,—Enclosed you will find a photograph of one of our 'Dul-Mage' White Rocks. Isn't he a big-boned vigorous specimen? About three years ago we had a hen nearly dead with the roup, and after trying a number of remedies, sought the advice of Mr. Wm. McNeill, the well-known poultry judge, and he advised us to kill her at once, and we thought it better to experiment further, as we might have a more valuable bird to treat later on. We got a package of your Roup Cure, and it relieved her at once. At the end of a week's time she was completely cured. We have put a little of your Roup Cure in the water from time to time, and have only had one case of roup in our immense flock in the last three years."

(The bird shown in this advertisement is reproduced from McConnell & Fergusson's photo.)

Put up in 25c. tins; 30c. by mail.

Royal Purple Calf Meal

You can raise calves on this meal without using milk. It is without doubt the highest grade calf meal on the Canadian market. This year we gave two \$25.00 prizes at the Western Fair, London, Ont., for the two best calves raised entirely on our calf meal. Read what Mr. Lipsit, who won these prizes, has to say about this meal. Mr. Lipsit is probably one of the best-known Holstein cattle men in Canada.

Staffordville, Ont., Sept. 28, 1915.

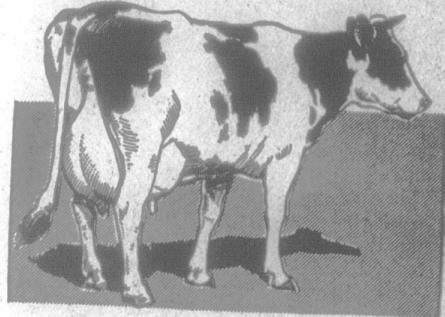
"The W. A. Jenkins Mfg. Co., London, Ont.: Dear Sirs,—Replying to your letter of Sept. 18th, my bull's name is Findexe King May Payne. I am having printed now an extended pedigree of him, which I will be pleased to forward you, along with his photograph, as soon as completed."

"The calves I won your two special prizes on were Forest Ridge Payne Elite and Forest Ridge Payne Calamity 2nd. They were both fed regularly on your calf meal, as well as the calf that won first at the Canadian National Exhibition, Toronto, this year in a class of 23. I also won first and your special prize at the Staffordville Fair here on another calf."

"The above I believe to be recommend enough for one breeder, as I have used several different calf meals, and have not found any quite so satisfactory."

Yours truly, L. H. LIPBIT.

\$4.00 a cwt. F.O.B. London, Ont.



Peace River Crossing, Alta., Oct. 4, 1915.

"The W. A. Jenkins Mfg. Co., London, Ont.: Dear Sirs,—I used your Roup Cure last spring and can safely say that it saved my flock. Previous to my getting the remedy I had lost 37 hens, and after I began using it I only lost three and the entire flock were affected. Many people here have small chicks and they all complain of the roup condition of their fowl. There seems to be something in the climate or soil that caused the disease."

Yours very truly, J. W. MARR.

We also manufacture:

Royal Purple Sweat Liniment—8-oz. bottles, 50c.; by mail, 60c.

Royal Purple Gall Cure—25c. and 50c. packages, 30c. and 60c. by mail.

Royal Purple Disinfectant—25c., 50c. and \$1. Royal Purple Worm Powder—25c. tins; 30c. by mail.

Royal Purple Lice Killer—25c. and 50c. tins; 30c. and 60c. by mail.

Royal Purple Linseed Meal.

Royal Purple Chick Feed—25c. packages, 100-lb. bags.

We sell only to the trade, but if you cannot get these goods from a merchant in your town, we will send any 25c. tin by mail for 30c. and any 50c. package for 60c. Larger packages will be forwarded by express or freight.

Made in Canada by Canadian capital and labor.

THE W. A. JENKINS MFG. CO., LONDON, ONT.

HYLO SILAGE IS "CANNED SUNSHINE" It Puts Your Cows on June Pastures in January

The GILSON HYLO SILO insures perfect ensilage, down to the last forkful—sweet, fresh and nutritious.

The HYLO SILO is the result of immense resources and facilities focussed in a steady effort toward perfection. It is not an ordinary silo—it is different.

The material used—Imported, Long Leaf Southern Yellow Pine—is naturally impregnated with preservatives, and is the one wood endowed by nature with all the requisites of silo service. This wood costs us twice as much as the material generally used in other silos, but it is our policy to use only the best, regardless of cost.

The HYLO SILO is purchased by the modern farmer, the man who farms on a business basis. He buys his silo for the money it will make him. He knows that a cheap, inferior silo is a waster and a continuous loss.

Some of the many advantages of the HYLO SILO are as follows:

Self-adjusting hoops, which auto-

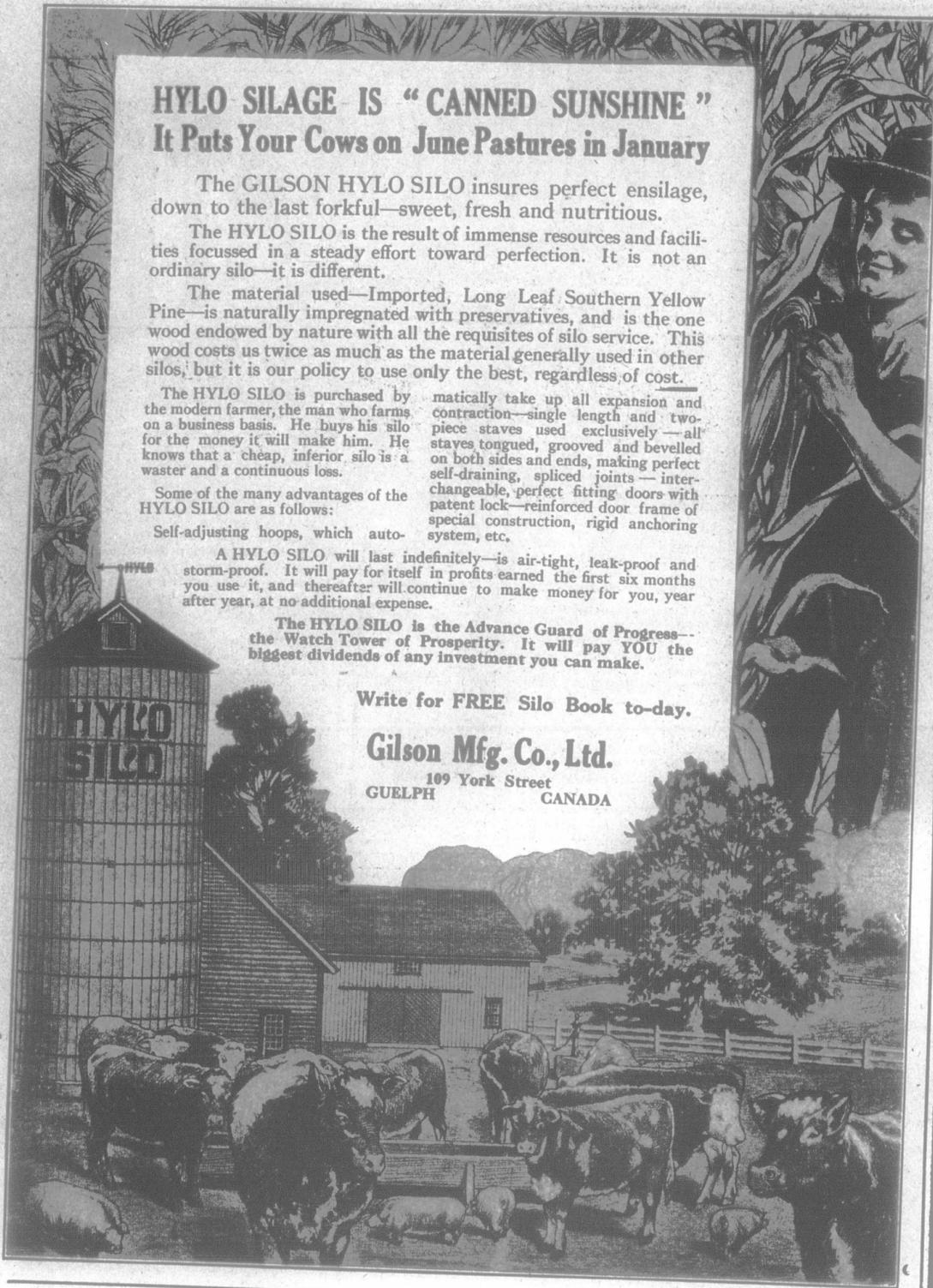
matically take up all expansion and contraction—single length and two-piece staves used exclusively—all staves tongued, grooved and bevelled on both sides and ends, making perfect self-draining, spliced joints—interchangeable, perfect fitting doors with patent lock—reinforced door frame of special construction, rigid anchoring system, etc.

A HYLO SILO will last indefinitely—is air-tight, leak-proof and storm-proof. It will pay for itself in profits earned the first six months you use it, and thereafter will continue to make money for you, year after year, at no additional expense.

The HYLO SILO is the Advance Guard of Progress—the Watch Tower of Prosperity. It will pay YOU the biggest dividends of any investment you can make.

Write for FREE Silo Book to-day.

Gilson Mfg. Co., Ltd.
109 York Street
GUELPH CANADA



GILSON
POWER plus SERVICE
After 9 years of Service
Mr. H. TUTTON, of Brantford, Ont., writes:
Gentlemen—As my 6 h.p. Engine has been such a big saving to me during the 9 years I have had it, I thought I would write you. I have my screen, keep a lot of stock, and do all my own chopping, feed cutting, wood sawing, etc. My engine is as good as new now, and compared with other makes around me, I am perfectly satisfied with its superior fuel economy, power and reliability.
Write for FREE catalogue and prices.
—ALL SIGNS—
Gilson Mfg. Co. Ltd. 59 York St. Guelph, Canada

Rebuilt Portable and Traction Engines and Threshers
All sizes for sale cheap. Complete threshing outfit, traction engine with cab, separator, wind stacker, in good operative conditions \$875
The Robt. Bell Engine & Thresher Company, Limited
SEAFORTH, ONTARIO

To the top of the highest silo
THE GILSON SILO FILLER is the one blower that can be successfully operated with as little power as 4 h.p. There is a Gilson Silo Filler for every purpose—for the individual farmer, for the syndicate, and our large capacity machine for the custom jobber.
GILSON ENSILAGE CUTTER
We guarantee every Gilson Silo Filler to cut and elevate more ensilage with the same power than any other blower cutter.
Write for Catalogue to-day.
Gilson Mfg. Co. Ltd. 59 York St., Guelph Ont.

CREAM
Where are you shipping now? And what are you getting for your cream?
We want more individual shippers and more men to gather cream for us.
Write for our proposition.
Silverwoods Limited
LONDON, ONTARIO

Westervelt School
Y.M.C.A. BLDG., LONDON, ONT.
BUSINESS AND SHORTHAND
Students assisted to positions. College opens Sept. 1st. Catalogue free. Enter any time.
J. W. Westervelt J. W. Westervelt, Jr., C. A.
Principal Vice-Principal 18

RAW FURS
Highest cash price paid for raw fur. Old-cut in trade. Write for price list and tags.—FREE.
C. H. ROGERS, WALKERTON, ONT.

Ear Tags FOR STOCK
Tag your stock—best and cheapest means of identification for Hogs, Sheep and Cattle. Name, address and number stamped on tags. Catalog and samples free on request.
F. S. Burch & Co., 172 W. Warr St. Chicago

Build Silos, Dwellings, or any class of building from Concrete Block. The London Adjustable Concrete Block Machine makes every kind and size of Block. High grade. Moderate price. We manufacture a full line of Concrete Machinery. Send for Catalogue No. 3.
LONDON CONCRETE MACHINERY CO.
Dept. B, London, Ontario
World's Largest Manufacturers of Concrete Machinery

CUT THIS OUT
Farmer's Advocate Pen Coupon, Value 4c
Send this coupon with remittance of only \$1.52 direct to the Fleet Pen Co. 119 Fleet Street, London, England. In return you will receive by registered post, free, a splendid British-made 14ct gold nibbed, self-filling Fleet Fountain Pen, value \$4 (16s. 6d.). Further coupons, up to 13, will each count as 4c. of the price, so you may send 14 coupons and only \$1. Say whether you require a fine, medium or broad nib. This great offer is made to introduce the famous Fleet Pen to Canada. Over 100,000 have been sold in England
Agents Wanted Liberal Terms
Please mention "The Farmer's Advocate."

SHIP YOUR
RAW FURS
To the Largest, most reliable and oldest house in Canada. We pay express and postage.
PROMPT RETURNS
We Want FOX, WOLF, SKUNK AND MUSKRATS
E. T. CARTER & CO., 84 Front St. East, TORONTO

CREAM
We pay express charges and furnish cans. Remit promptly. Take all you can make. Write us.
THE BERLIN CREAMERY CO.
Berlin, Canada

CREAM Mr. Shipper, Attention!
Reasons why you should send your cream to us:
1. We aim to pay the highest prices.
2. We give you a square deal.
3. We have the largest market in Ontario.
4. We are prompt in making remittances.
The market indicates a gradual advance. Act now. Write us for further particulars.
THE TORONTO CREAMERY CO., LIMITED
9 Church Street, Toronto, Ont.

CILSON
POWER plus SERVICE
After 9 years of Service

Mr. H. TUTTON, of Brantford, Ont., writes:
"As my 6 h. p. Engine has been a big saving to me during the 9 years I have had it, I thought I would write you. I have mowed, kept a lot of stock, and do all my own chopping, feed cutting, wood sawing, etc. My engine is as good as new now, and compared with other makes around me, I am perfectly satisfied with its superior fuel economy, power and reliability."
Write for FREE catalogue and prices.
ALL SIZES
Gilson Mfg. Co. Ltd. 59 York St. Guelph, Canada



built Portable and Traction Engines and Threshers

For sale cheap. Complete threshing machine engine with cab, separator, in good operative **\$875**

Get Bell Engine & Thresher Company, Limited
Brantford, Ontario

the top of the highest silo

GILSON SILO FILLER is the blower that can be successfully used with little power as 4 h.p. There is a Silo Filler for every purpose—for the individual farmer, for the syndicate, large capacity machine for the large farm.

GILSON ENSILAGE CUTTER

Get every Gilson Silo Filler to cut the more ensilage with the same power as any other blower cutter.

Write for Catalogue to-day.
Gilson Mfg. Co. Ltd. 59 York St., Guelph, Ont.



CREAM

Are you shipping now?
Are you getting for your
more individual shipping
more men to gather cream
for our proposition.

woods Limited
London, Ontario

Swivel School
BLDG., LONDON, ONT.
LESS AND SHORTHAND
to positions. College opens
catalogue free. Enter any time.
J. W. Westervelt, Jr., C. A.
Vice-Principal

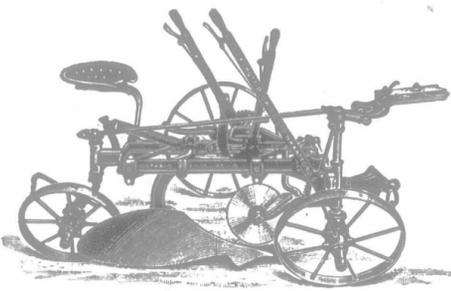
W FURS
Best price paid for raw furs. Old.
Write for price list and tags.
WALKERTON, ONT.

gs 515

Best and cheapest means of
Hogs, Sheep and Cattle.
and number stamped on tags.
copies free on request.
172 W. Huron St. Chicago

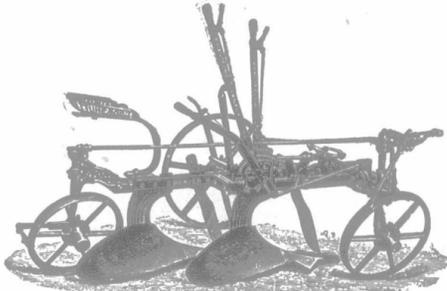
Buy a Cockshutt Plow

Any Cockshutt Plow you buy will cost you less in the long run than any other, because it is built of the very best and strongest materials, tested over and over again; it is designed from long, practical experience, so it does its work RIGHT; it will stand years and years of the hardest kind of usage. That's why more farmers want Cockshutt Plows than all other makes combined.



COCKSHUTT ONTARIO FOOTLIFT SULKY

Here's a plow that a boy can do a man's work with, it's so easy to use. A slight pressure on the foot lever brings the mould board out of the furrow or sets it to work again. Or, you can set it to rise automatically if working in rough ground. It's a pleasure to use the Ontario Footlift Sulky—it gives uniform plowing in any kind of soil, meaning uniform growth and ripening of crops. Fitted with either wide or narrow bottoms, and either Knife Colter, Rolling Colter or Jointer, as desired.



COCKSHUTT BEAVER GANG PLOW

Three horses and a half-grown boy can do more and better plowing with this light-draft Gang than two good men with four horses and two walking plows. There's your chance to make money! The levers are very easy to operate, and they give absolute control of your plow and its work on up-and-down or stubborn ground. A perfect giant for strength. Supplied in various bottoms, also with Knife or Rolling Colter or Jointer, as desired.



COCKSHUTT WALKING PLOW NUMBER 21

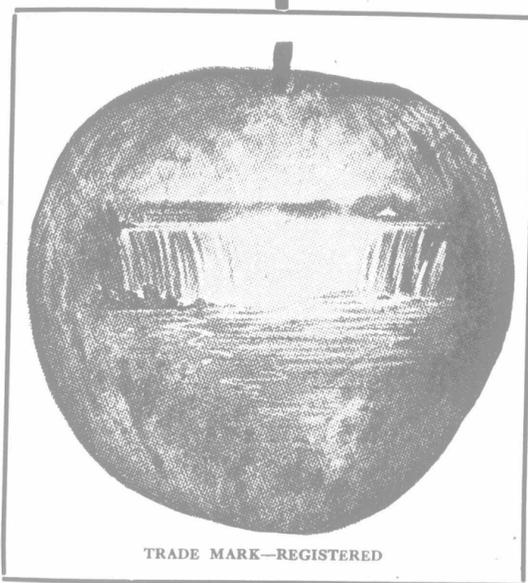
Without a doubt the most popular walking plow in Canada. The extra leverage given by the long handles makes the work easy. This plow will please you at a glance, and there's more than a man's lifetime of good hard service in it. Knife Colter, extra share and wrench.

Let us send you, to-day, pamphlet and full information about these or any of the Cockshutt Plows. We make 120 kinds, so there is sure to be one to suit you exactly.

Cockshutt Plow Co. Limited
Brantford, Ontario

Sold in Eastern Ontario
Quebec and Maritime
Provinces by

The Frost & Wood Co. Limited
Smith's Falls, Montreal, St. John



TRADE MARK—REGISTERED

Start Right

For Your 1916
Crop—By Using

- Niagara Soluble Sulphur
- Niagara Lime Sulphur
- Niagara Arsenate of Lead

YOU know that the best crops of fruit in Ontario for the last eight years have been produced with NIAGARA SPRAYS. Why experiment with imitations? Get the BEST. You need the best to control the Scales, Fungus, Codling Moth and other orchard pests. **Niagara always does the work. Niagara means profit.**

Niagara Brand Spray Co. Limited
Burlington Ontario

Make Your Own Will

In your home. No lawyer's fees.
BAX CORRECT WILL FORM
Sent with full instructions and specimen will for 35c. Sold by all stationers and druggists (take no substitute) or post free from Bax Will Form Co., Dept. 191, 257 College Street, Toronto.

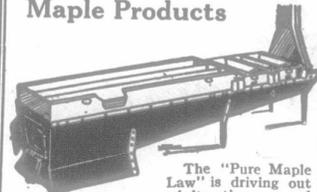
THOUSANDS Use Agricultural Lime

of farms and city properties for sale or exchange. Send to us for our catalogues—Free.
A number of Western farms to exchange for Ontario property. Tell us your wants.
THE WESTERN REAL ESTATE EXCHANGE, Limited
78 Dundas St. London, Ont.

Use Agricultural Lime

Manufactured by
Beachville White Lime Co. Limited
Beachville, Ontario
Our lime stone is highest grade in Canada.

A Big Demand For Maple Products



The "Pure Maple Law" is driving out adulterations—a demand you can now sell your pure maple syrup and sugar at better prices than ever before. The supply is exhausted, and 1916 will be an unusually good year for you to get a big share of the profits that will be made on high-grade maple products.

The Champion Evaporator

makes the highest grade syrup and sugar faster, easier and at less cost than is possible by any other method. Sold on easy terms.

Write to-day for full information.
Grimm Manufacturing Co., Limited
40 Wellington St., Montreal

Windsor Circular Saws

High grade. Low prices. All sizes. Fully warranted.

Windsor Stock Feed Cookers
A safe, simple and cheap means of cooking feed. Many superior points of merit. Price, \$8 up.
Windsor Combination Outfit
for repairing boots, shoes, harness and tinware. Practical tools, no toys. A useful and profitable outfit for only \$2.75.

Windsor Tank Heaters
filled with either wood or coal morning and evening will keep a 40-bbl. tank from freezing in zero weather. Price \$4.75.

Windsor Steel Wheels
for farm wagons. Highest quality. Low prices.

A full list of self-educational books.

Write for our Catalogue
Windsor Supply Co.
Windsor, Ont.

MAIL CONTRACT

SEALED TENDERS, addressed to the Postmaster-General, will be received at Ottawa until noon on Friday, the 21st day of January, 1916, for the conveyance of His Majesty's Mails on a proposed contract for four years, six times per week, over Dorchester Station, No. 1 Rural Route, from the 1st of April, 1916, next.

Printed notices containing further information as to conditions of proposed contract may be seen and blank forms of tender may be obtained at the Post Offices of Dorchester Station, Ingersoll and London, and at the office of the Post Office Inspector, London.

G. C. ANDERSON, Superintendent,
Post Office Department, Canada, Mail Service Branch, Ottawa, 10th December, 1915.

Clark Heaters for WINTER DRIVING



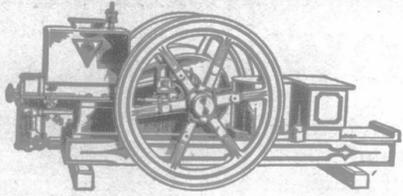
In Auto, Sleigh or Wagon a Clark Heater will keep you warm in coldest weather—no flame, smoke or smell—fits in at the feet in any vehicle. 20 styles, from \$1.50 and up—asbestos lined—carpet covered. Ask your dealer for a Clark Heater, or write us for FREE catalogue.
CHICAGO FLEXIBLE SHAFT COMPANY
A 610 N. La Salle St. Chicago, Ill.

MAKE YOUR BIKE A MOTORCYCLE

at a small cost by using our Attachable outfit. FITS ANY BICYCLE. Easily attached. No special tools required. Write today for our **FREE BOOK** giving list and free book describing the SHAW Bicycle Motor Attachment. Motorcycles, all makes, new and second-hand, \$25 and up.
SHAW MANUFACTURING CO.
Dept. 79 Galesburg, Kansas.

KANT-KLOG SPRAYER

9 sizes of sprays from one nozzle. Starts or stops instantly—saves solution and work. Send for catalog. Agents wanted.
Rochester Spray Pump Co.
196 Broadway Rochester, N. Y.



The cost of an ALPHA Gas Engine is less than the cost of doing without one

YOU plan to some day have a gas engine. You realize that you need one—that there are many jobs on your farm could be done quicker, easier and cheaper if you had an engine. Your idea is that it will save money and time, which is also money.

Very true; yet, if an engine will save you money, you ought to use it right now. That is the way to save the money that will pay for the engine. When you buy an Alpha Gas Engine you begin to save. As long as you put off buying one you are losing money that would soon pay for the engine.

It is not a question of how soon you can afford to buy an engine, but how long can you afford to do without one. You surely realize that during your lifetime you have in one way and another lost the price of several engines, by trying to get along without an engine. Good sense demands that you stop the loss at once.

Ask us for complete information and prices of Alpha Gas Engines. They are made in eleven sizes, 2 to 28 H.-P. Each furnished in stationary, semi-portable or portable style, and with hopper or tank cooled cylinder.

DE LAVAL DAIRY SUPPLY CO., Ltd.

LARGEST MANUFACTURERS OF DAIRY SUPPLIES IN CANADA. Sole distributors in Canada of the famous De Laval Cream Separators, and Alpha Gas Engines. Manufacturers of Ideal Green Feed Silos. Catalogues of any of our lines mailed on request.

MONTREAL PETERBORO WINNIPEG VANCOUVER
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

SYDNEY BASIC SLAG

Will Ensure You Larger Crops

WHAT Sydney Basic Slag has done for other Ontario farmers it will do equally well for you. Get in line with it this season. Your country needs bumper crops. If interested, and of course we know you are interested, write, and we will mail testimonials from users who are pleased with the results. Or perhaps you could assist us by disposing of 20 tons in your district this winter in your spare time. If so, you will be reasonably paid for your trouble.

Write us, and our general sales agent will give you territory.

The Cross Fertilizer Co.

LIMITED
SYDNEY - NOVA SCOTIA

This Book

Shows How to Make Better Farm Improvements.

A copy will be sent to you free of charge.

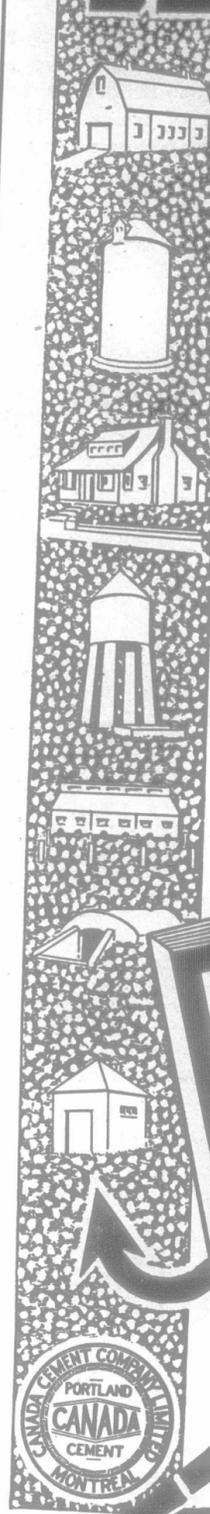
If you intend making any kind of farm improvements—the building of a house, barn, hen house, root cellar, tank, silo, walk, fence or the many other things needed on every farm—then you need this book.

It contains instructions for building every kind of structure better and more economical than is possible in any other way.

This book is the standard authority on farm building construction. It has proved of untold value to more than 75,000 progressive Canadian farmers.

Concrete is practically indestructible—it cannot burn or rot out and never needs paint or repairs. If you haven't a copy of this valuable book, send the coupon now.

Canada Cement Company Limited,
Herald Building, MONTREAL.



Sent Free

WHAT THE FARMER CAN DO WITH CONCRETE

CUT OUT AND MAIL TO CANADA CEMENT COMPANY LIMITED, Herald Bldg., Montreal, Quebec.

Please send me a free copy of "What the Farmer Can Do With Concrete".

Name _____

Street and No. _____

City _____

752

FREE LAND

Millions of acres of virgin soil, obtainable, free at a nominal cost, are calling for cultivation. Thousands of farmers have responded to the call of this fertile country, and are being made comfortable and rich. Here, right at the door of Old Ontario a home awaits you.

FOR THE SETTLER IN New Ontario

For full information as to terms, regulations and settlers' rates, write to HON. JAS. S. DUFF, Minister of Agriculture H.A. MACDONELL, Director of Colonization Parliament Buildings, TORONTO, ONT.

CENTRAL NURSERIES

For reliable Apple, Pear, Plum, Cherry, Peach and Ornamental Trees, Shrubs, Roses, Grape Vines, Berry Plants, Evergreens, Hedges, etc.—good ones, too. Also Seed Potatoes.

We ship direct to customers. Our apple trees are extra fine. Write us for prices on your lists for early Spring Planting.—36 years at it. No agents.

A. G. HULL & SON, St. Catharines, Ontario

LI.

ED

Keep the pi
Commercial
Have you h
Are the col
Do the cow
Never keep
If you are
put in plenty
amiss.

If you keep
the dairymen of
convention at

It is now
Britain will be
Things seem to
service.

Should farm
is their duty to
only help on th
must be consid

Planning is
necessary parts
creasing scarcity
this year than e

The embargo
the United Sta
may now be sol
and her allies.
to purchase in

Washington's
belligerents ha
Wilson was on
hurriedly. Eur
pudence from t

The results
those who have
it, should prove
who claim to b
results are publ

It has been
should volunteer
ing and summer
boys go to the f
the parsons a ch
ledge of farming

We have litt
methods alleged
cruits. Calling
and hounding th
under the volunt
scription let
there is no need
do their duty.

There are alw
but the man who
his stock accordi
meets fewer of th
breeder, who ma
view than another
be.



LI.

LONDON, ONTARIO, JANUARY 20, 1916.

1217

EDITORIAL.

Keep the pig pens dry.

Commercial wars are the worst wars.

Have you harvested your ice?

Are the colts out for exercise daily?

Do the cows get plenty of fresh, pure water?

Never keep the breeding ewes closely confined.

If you are building or remodelling the barn, put in plenty of box stalls. They never come amiss.

If you keep a cow you are interested in what the dairymen of Western Ontario said and did in convention at St. Mary's. This issue tells you.

It is now hinted that the wealth of Britain will be conscripted as well as the men. Things seem to be moving toward a more equal service.

Should farm boys enlist? Yes, if they feel it is their duty to do so, but the boy who is the only help on the farm has a duty at home which must be considered.

Planning is one of the most important and necessary parts of the winter work. With the increasing scarcity of labor it is more imperative this year than ever.

The embargo on horses going from Canada to the United States has been removed, and horses may now be sold to that country and to Britain and her allies. We hope buyers are encouraged to purchase in this country.

Washington's supply of literature for the belligerents having dwindled while President Wilson was on his honeymoon, he came back hurriedly. Europe may now expect much correspondence from the White House.

The results of experimental work carried on by those who have the time and inclination to do it, should prove interesting and valuable to those who claim to be too busy to experiment. Such results are published in this issue.

It has been hinted that country ministers should volunteer to help farmers with their seeding and summer work this year, and let the farm boys go to the front. Such would give many of the parsons a chance to gain some needed knowledge of farming and farm conditions.

We have little sympathy with some of the methods alleged to be practiced in getting recruits. Calling men cowardly and white-livered, and hounding them around, does not look well under the voluntary system. If we are to have conscription let us have the official brand. But there is no need of it in Canada. Canadians will do their duty.

There are always disappointments in breeding, but the man who studies the question and mates his stock according to the best laws of nature, meets fewer of them than the careless, indifferent breeder, who mates animals with little more in view than another calf or colt, as the case may be.

If You Don't Vote, Don't Grumble.

Reports following the recent municipal elections revealed the fact that in many instances an unusually small percentage of the electors cast their ballots. A "big vote" is not often polled. There are altogether too many voters who are ready to remark: "It doesn't make any difference to me who gets in." It does make a difference. It is always important. Did you ever stop to think that you, as an elector, are responsible for the kind of men elected to public office? You are. Every elector is whether he votes or not. What is the use of railing about the kind of men you get in your councils, and even in the Legislature, and in the Federal House, if you will not take interest enough to go out and vote and make sure you vote right. The men who hold the franchise are directly responsible, under our system, for the men elected, and the man who doesn't vote, while shirking his responsibility in one sense, cannot evade it all. If poor men are elected he must not grumble, for he did not go out and vote the other way. Some believe that a man who has the franchise and does not use it should be deprived of its advantages. In talking with a reader who feels very strongly on this question, he suggested that any voter who does not use his franchise at least once in three years should be deprived of it altogether. We would not care to see voting made compulsory, not because all voters should not vote, but we would not like to believe that intelligent Canadian citizens were so indolent, indifferent, careless and lacking in public spirit as to require force to bring them to the polls. It does not speak well for the people of a place, nor for the kind of government they are getting at the hands of their elected representatives when they do not turn out to vote one way or the other. Surely there is enough at stake in every municipality and in every constituency in Canada to warrant the best interests of the electorate, which means regular voting. The ballot is the surest road to good government, and the abuse of the privilege to use it, and exercise the franchise to the best advantage is the surest sign of decadence, bad management and unsatisfactory administration. Use the ballot, and to use it in the best interests of the people it is necessary to study and understand the public questions of the day. There is too much self-interest and not enough public spirit in most of us. The race for money, individually, has blinded many a citizen to the needs of the people as a whole, and so has given undue advantages to some at the expense of others. Read to understand, and do not sit grumbling at bad government municipally, provincially or federally, unless you study the questions and vote every time according to your honest convictions—not according to party, clique or class, but in line with what you believe to be in the interests of the people. Those having the franchise are the government. They are responsible for all. How can intelligent men continue to refrain from voting? The ballot is looked to as commanding the future destiny of our country. It is the expression of the people's will. The man who doesn't vote, silently gives consent to what those elected do, good or bad. You are either on one side or the other of every public question. No man can be wholly disinterested. What affects his neighbor affects him. He cannot do his duty unless he votes, and we would not pity the man too careless to go to the polls and cast his ballot when the privilege is his, if he were deprived

of the opportunity. However, all good, live, business-like Canadians interested in good government will vote.

The Farm Boy's Problem.

"Labor is becoming scarce on the farm, and it looks as if many of our farmers, who have been accustomed to keep men throughout the year, will be compelled to get along as best they can without any assistance."

In these words H. C. Duff, B. S. A., District Representative for Grey County, Ontario, in his recent report to the Assistant Deputy Minister of Agriculture, C. F. Bailey, summed up conditions as they are facing the farmers of his county. These conditions we know, from fairly intimate knowledge of the other counties in the Province, are by no means limited to Grey County, but are widespread over the Province. In recent Editorial articles we have endeavored to point out that, during the coming summer, it would be absolutely necessary for the farmers of this country to practice local co-operation, and to systematize their work as much as possible. The call has gone out for 500,000 men from Canada for our overseas forces. This means one in every fourteen of population. A large percentage of the available hired help for the farm has already been absorbed into the khaki-clad army which has gone forth, and which is going forth to help end this war on the side of the Allies. We quite agree with Sir Sam Hughes, that farm boys should not be discouraged from enlisting, but we are convinced that it would not be the best policy to strip this country of all its young farming population. By young we mean men of military age, whether single or married. True, some can go, but when it comes to taking practically every young man from the farm, agriculture, not only present agriculture, but the agriculture of the future, would receive a blow from which it would not recuperate readily. We believe that the farm boy or the young farmer who feels it his duty to remain at home at least for a time, and help his father with work which would otherwise be undone, should not be discouraged from doing his duty at home. This is a difficult question for the farm boy to decide. We agree with Peter McArthur, that individually farm boys are just as much called upon to fight as are the boys from any other walk in life, and we know that they have responded and will respond nobly to the call, but farm boys are very often in a position where much more depends upon them than are the young men from other walks in life. The farms must be worked in order that the older people on them get their living and add enough produce besides to provide food for the people who labor in the cities and for the army at the front, and every farm boy who does his work conscientiously is doing something to meet these needs. For those who can be spared for the army no one would say anything else than "Go!" but for those whose work lies at home we believe that it is just as important that they be encouraged in doing that work as in the seemingly more urgent work of beating the Germans in Flanders. This question of production is, after all, an important one, and in our zeal to raise and equip a large army, we must always remember that those left behind the army must be fed, and the army itself must be backed up by a production from the farm which will at all times ensure its safety.

ok
Better
nts.
to you
kind of
building
e, root
o or the
every
ok.
building
ter and
ossible
thority
on. It
o more
e
Sent
Free
CANADA
CEMENT
MPANY
TED,
g, Montreal,
a—
me a free
the Farmer
Comer".

The Farmer's Advocate AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN THE
DOMINION.

Published weekly by
THE WILLIAM WELD COMPANY (Limited).

JOHN WELD, Manager.

Agents for "The Farmer's Advocate and Home Journal,"
Winnipeg, Man.

1. THE FARMER'S ADVOCATE AND HOME MAGAZINE is published every Thursday. It is impartial and independent of all classes and parties, handsomely illustrated with original engravings, and furnishes the most practical, reliable and profitable information for farmers, dairymen, gardeners, stockmen and home-makers, of any publication in Canada.
2. TERMS OF SUBSCRIPTION.—In Canada, England, Ireland, Scotland, Newfoundland and New Zealand, \$1.50 per year, in advance; \$2.00 per year when not paid in advance. United States, \$2.50 per year; all other countries, 12s.; in advance.
3. ADVERTISING RATES.—Single insertion, 25 cents per line, agate. Contract rates furnished on application.
4. THE FARMER'S ADVOCATE is sent to subscribers until an explicit order is received for its discontinuance. All payments of arrears must be made as required by law.
5. THE LAW IS, that all subscribers to newspapers are held responsible until all arrears are paid, and their paper ordered to be discontinued.
6. REMITTANCES should be made direct to us, either by Money Order, Postal Note, Express Order or Registered Letter, which will be at our risk. When made otherwise we will not be responsible.
7. THE DATE ON YOUR LABEL shows to what time your subscription is paid.
8. ANONYMOUS communications will receive no attention. In every case the "Full Name and Post-office Address Must be Given."
9. WHEN A REPLY BY MAIL IS REQUIRED to Urgent Veterinary or Legal Enquiries, \$1.00 must be enclosed.
10. LETTERS intended for publication should be written on one side of the paper only.
11. CHANGE OF ADDRESS.—Subscribers when ordering a change of address should give the old as well as the new P. O. address.
12. WE INVITE FARMERS to write us on any agricultural topic. We are always pleased to receive practical articles. For such as we consider valuable we will pay ten cents per inch printed matter. Criticisms of Articles, Suggestions How to Improve "The Farmer's Advocate and Home Magazine," Descriptions of New Grains, Roots or Vegetables not generally known. Particulars of Experiments Tried, or Improved Methods of Cultivation, are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.
13. ADDRESSES OF CORRESPONDENTS ARE CONSIDERED AS CONFIDENTIAL and will not be forwarded.
14. ALL COMMUNICATIONS in reference to any matter connected with this paper should be addressed as below, and not to any individual connected with the paper.
Address—THE FARMER'S ADVOCATE, or
THE WILLIAM WELD COMPANY (Limited),
London, Canada.

The Need of Coming Out.

Why is it that farmers do not turn out in the old-time, enthusiastic manner to meetings and conventions? This question is causing no inconsiderable amount of worry and thought amongst those who have to do with agricultural propaganda and meetings by which those engaged in farming may be brought together. We do not care to mention any particular convention or character of meetings, lest readers might consider those particular organizations as no longer active, and look upon them as having served their usefulness, and now ready for that honorable roll that includes the names of many good movements long since relegated to history and seclusion. This is not the case. Several organizations there are to-day just as active and influential as they ever were, yet they are obliged to exert their influence through the Press and through their printed reports. A provincial institution or an organization covering a large territory probably will expect to reach the major part of its clientele in this way, but there are usually a number of farmers living in the neighborhood of the annual meeting place who could, under favorable circumstances, attend the different sessions. It appears that men active in the pursuit of farming, including the many lines which are considered by different associations organized to foster these interests, have lost zest either in their work or in discussions relative to their enterprise. Why is it? The church is gradually adapting itself to the needs and whims of a more modern people. Perhaps the modern program for the agriculturist must be brightened by the infusion of more color.

In one sense the present-day farmer is in a different position than was the man of one or two decades ago. Formerly there were more men and more boys; much of the labor was manual, and a pair of hands would not be missed so much at chore time as nowadays. Farmers of the present era do more work with mechanical assistance. The work formerly done by the boy is now accomplished with the aid of a milking machine, a wider drill, a two-furrow plow, an extra horse. The farmer is acquitting himself well in a time when the inducements held out by industrial life are having considerable effect upon the youth of the country. However, to keep things in order on the farm the owner must be there.

In spite of this apology for the small attendance so often seen at agricultural meetings, it appears that a few hours could be spent to meet others and enter into an earnest discussion of the matters that relate so closely to every-day work

and thought. There is a benefit to be derived from simply meeting and mingling with others, which farmers should not neglect or overlook. The keenness and alertness of the successful business man comes from his associations with other members of the same occupation and with men in all professions. The agriculturist should not fail to get the other man's viewpoint, and identify himself with all movements which tend toward better and more profitable life on the farm.

War Problems.

By Peter McArthur.

The new problems raised by the war seem to be endless. All the delicate machinery of civilization has been put to new uses, and, in some cases, the results are not only surprising but impossible to understand. In dealing with men and munitions we are dealing with concrete things of which we can know something, although the numbers and quantities involved in the war are beyond our comprehension. In describing the march of the German army through Brussels, Richard Harding Davis compared it to a cosmic force, and the best he could do was to record the stupefaction with which it overwhelmed him. And that army was only the vanguard of the thronging armies of Europe. I do not think that Napoleon, in his greatest efforts, ever tried to handle more than six hundred thousand men, and yet generals without a glimmer of his military genius are compelled to-day to try to handle armies of millions. Not only in handling men, but in handling provisions, supplies and munitions, tasks have to be undertaken that demand executive ability such as the world has never known. John D. Rockefeller probably held the world's record for business and executive ability, but his Standard Oil Company was child's play compared to the organizations that have been made necessary by this war. What wonder that there has been bungling and failure in some quarters. The marvel is that they have not been worse. Almost every phase of the war is beyond the grasp of any mind. All we are really capable of understanding is the suffering and misery caused in individual cases that come under our personal observation. The total sum of misery and suffering is as unthinkable as it is unpardonable. And when we reflect that this calamity that has fallen on man's kind is due to the ambitions of men we may be excused for quoting Browning's words:

"There may be a Heaven. There must be a Hell."

Of all the results of the war the development of finance is the most bewildering. Though we had become somewhat familiar with millions without understanding them very well, we now talk glibly of billions. But those billions do not represent money of the kind that we carry in our pockets. They represent credit. All the coined and printed money of the world would only make the small change of war finance. While trying to get some idea of wealth in its modern developments, it occurred to me that we might get a helpful analogy from chemistry. You know that practically all elements and substances may be dealt with in three forms, according to the heat or pressure to which they are subjected. Iron, for instance, may be dealt with as a solid at ordinary temperatures. When heated in a furnace it becomes a liquid, and under intense heat it may be resolved into a gas. But whether a solid, liquid or gas, it is still iron, though in each form it has different qualities and attributes. A more familiar instance is water, with which we are daily familiar as ice, water and steam. If you study wealth you will find that it undergoes similar changes. First, we have the solid or commodity form of wealth, gold, wheat, cattle, etc. By trading we change this wealth into money or currency. This is its fluid form in which it is made to flow into all sorts of places irrigate the prospects of financiers and make them blossom as the rose. These two forms of wealth are fairly well understood, but the third or gaseous form, known as credit, has been discovered so recently that its properties and peculiarities are still mysterious. About all we know is that, like all gases, it needs to be handled with care to keep it from disappearing. Before the outbreak of the war credit was largely used to send up all kinds of business balloons that were inflated with it, and from whose collapse many people got bad falls. But in the case of credit, the chemical analogy is not entirely true. You cannot develop a gas in chemistry without a solid or liquid to work with. But credit can be created from nothing, and if the man who gets it is clever enough, he can materialize it into liquid currency or solid commodities—which usually should belong to someone else. Credit more than fulfils the dreams of the alchemists of the dark ages. The alchemists tried to translate lead into silver and gold in their alembics, but they at least had lead to start with. The modern financial alchemist may have absolutely nothing material to start with, but if he can secure credit he can translate it into silver and gold aplenty. But this credit is not of the kind you get at the bank after you have given the manager a state-

ment of your assets and liabilities. While trying to explain credit to an investigating commission J. Pierpont Morgan asserted that he by no means confined himself to credit based on tangible assets. He told of an instance where a man who owned nothing came into his office with a scheme which he explained, and because the financier had faith in his ability to carry out his scheme he loaned him a million dollars on his personal note. The borrower had nothing but a convincing manner and an engaging smile, but these were sufficient to get him credit enough to make him a power in finance. And according to Mr. Morgan the man made good, paid back the money he borrowed, and won for himself a mass of solid wealth. Cagliostro was a stupid bungler compared with that alchemist of finance.

Financiers assert that the development of credit caused by this war is entirely beyond their comprehension. A New York banker, reported in the Evening Post, asserts that it belongs to "The Fourth Dimension" of finance. If that is true we had better not try to understand it, for it is said by mathematicians that when a man begins to dabble with problems of the fourth dimension, he is preparing himself for the Asylum or for that more fashionable substitute for the Asylum, the farm for the foolish, known as a Sanitarium. But we may be permitted to observe that the nations are expanding their credit to an extent that was undreamed of even a year ago. After the war is over the holders of this credit will try to transmute it into real wealth, or, at least, into a claim on the production of others that will practically enslave the people of the nations affected. Just how this will work out remains to be seen. Future generations may refuse to be enslaved because of the war madness of the present generation, and credit may be resolved again into the nothing from which it was conjured. The problems that will follow the war will doubtless be even more complex than those encountered during its progress.

Canada, with her almost unlimited resources of land, forests and minerals, is in a better position to meet the burdens of the war than most of the nations involved—if she can only get men to develop them. A great population is just as much a part of the wealth of a nation as territory, mines and forests. Without the population the undeveloped wealth will remain idle. For this reason it is becoming imperative that steps be taken to make Canada attractive to new settlers of the right kind. But to do this is a problem of the first magnitude. Even before the outbreak of the war, it was becoming apparent that the flood of immigration was being checked. The increased cost of living, largely due to trade combinations and special privileges, was making it impossible for settlers to come to the country as they did in pioneer days. Once it was possible for men with nothing to come to Canada and make homes for themselves, but now that is next to impossible. They must have money to get a start on the land, and they must have a considerable amount if they are to be successful. Much of the best agricultural land in Canada is now being held idle by speculators and by owners who are unable to work more than a small portion of their acreage. The taxes that will follow from the war will probably make it difficult for much of this land to be held and there will be a breaking up of large holdings, but it is doubtful if this will clear the situation. It will be necessary to eliminate the conditions that artificially increase the cost of living, so that we may get back to a normal basis. Assuredly we shall have enough to think about during the next few years, and we shall need a new class of public men who will be able to do more than shake hands warmly with the sovereign voter.

Nature's Diary.

A. B. Klugh, M.A.

In our study of the plant environment we have considered the factors of the air and the soil. We now have to deal briefly with the effect of a non-living covering on plants, a subject of considerable importance in a climate such as ours. The chief non-living coverings are snow and fallen leaves and dead grass.

The chief significance of a covering of snow is that it prevents plants from becoming dried out by the intensely dry winds of winter. It also keeps their temperature more even, and guards against their too sudden thawing out. Snow also acts as a protection against changes of volume in frozen soil, which would result in "heaving" and destruction of the roots.

A covering of snow shortens the vegetative season by preventing the soil-temperature from rising above freezing-point early in the spring, thus hindering plants from awakening into activity as early as on snowless spots.

The coverings of dead leaves and grass have much the same action as snow in diminishing the extremes of temperature, and keeping the soil moister. The covering of leaves over the soil

in forests, influence to suppresses

A cover production proves, and life in forest provides for Both circuit forest from

We now of a plant and animal that they plant find physical fa effects are

the soil, a the sun's both during compared soil is wa warmer in amount of some of the and thence the power reaches it ly, and wa absorbed in covered w bare soil, n it. The li der other p that, as we cluded from wind is d among tal marked effect underneath molster tha of soil are since some tain chemi other specie

Fungi pl tions to oth ing plants plants and into a mutu some plants in the soil a life.

Thus we another is r of a plant h not mean cr by reason of some other

The influ other hand is ably the ma is that the are the main plants, thou have represe animals whic jurious as fa some anima plants are u instance, bir seeds digest their alimente tered far an Squirrels bur forgotten h fruits which to dispersal Many anima place to plac feet. Many animals for another, th insects playin though humm animals, part on various pl humus to the of plants. Ea mals let air and mix the s

TI

We were pl nounce that United States Britain and he the Canadian some signs of mains to be se buy extensive our Governm encourage thi altogether too try at the pre done by way breeding will during the nex bright outlook

abilities. While trying investigating commission asserted that he by no credit based on tangible instance where a man who to his office with a scheme because the financier had carry out his scheme he dollars on his personal nothing but a convincing smile, but these were it enough to make him according to Mr. Morgan back the money he himself a mass of solid a stupid bungler com of finance.

the development of credit beyond their com- banker, reported in "The" it belongs to "The" If that is true- understand it, for it is that when a man Legins of the fourth dimen- the Asylum or for that te for the Asylum, the- known as a Sanitarium. d to observe that the- credit to an extent ven a year ago. After s of this credit will try wealth, or, at least, ion of others that will people of the nations will work out remains rations may refuse to e war madness of the credit may be resolved om which it was con- t will follow the war e complex than those gress.

st unlimited resources is, is in a better posi- of the war than most she can only get men population is just as of a nation as terri- Without the population remain idle. For this- trative that steps be- active to new settlers- do this is a problem en before the outbreak g apparent that the- ing checked. The in- ly due to trade com- ges, was making it me to the country as- Once it was possible me to Canada and- but now that is next have money to get a- must have a consid- to be successful. Much d in Canada is now and by owners who- n a small portion of hat will follow from it difficult for much here will be a break- ut it is doubtful if- It will be neces- sions that artificially so that we may get uredly we shall have of the next few years, class of public men- than shake hands- ter.

ary.

M.A. ent environment we of the air and the l briefly with the on plants, a sub- e in a climate sub- coverings are snow ass.

covering of snow is becoming dried out winter. It also even, and guards out. Snow also changes of volume sult in "heaving"

ns, the vegetative -temperature from ly in the spring, akening into activ- ots.

es and grass have in diminishing the keeping the soil ves over the soil

in forests, where it is very thick, has a great influence upon vegetation on the ground, as it suppresses mosses and lichens.

A covering of leaves powerfully affects the production of humus in soil, which it thus improves, and is further of significance to animal life in forest soil, since it conserves moisture and provides food for animals such as earthworms. Both circumstances prevent the humus soil of the forest from changing into raw humus.

We now come to the biotic, or living factors of a plant environment. These are other plants and animals. Considering other plants, we find that they exert influence upon any particular plant indirectly, that is by affecting some of the physical factors of the air of soil. Some of these effects are as follows: The temperature of the soil is modified, since a vegetable covering screens the soil, and, therefore, decreases the action of the sun's heat. Fluctuations of temperature, both diurnal and annual, are not so great, as compared with soil clad with vegetation, bare soil is warmer by day and cooler by night, warmer in summer and cooler in winter. The amount of water in the soil is influenced, since some of the rain water is deposited on the plants and thence evaporated, while on the other hand the power of the soil to retain moisture which reaches it is increased. Snow melts more slowly, and water derived from melting snow is absorbed in larger quantities by the soil. Soil covered with vegetation is less compact than bare soil, mainly because heavy rains cannot pack it. The light falling on plants which grow under other plants is much weakened, so much so that, as we shall see later, many plants are excluded from shaded situations. The action of wind is decreased among dense and especially among tall vegetation, and this has a very marked effect in retarding evaporation. The air underneath a vegetable covering is cooler and moister than outside air. The chemical relations of soil are influenced by a covering of plants, since some plants take larger proportions of certain chemical compounds from the soil than other species.

Fungi play an important part in their relations to other plants. Some species attack living plants and kill them, others live on dead plants and reduce them to humus, others enter into a mutual relationship with the roots of some plants and function as root-hairs. Bacteria in the soil are also of great importance to plant life.

Thus we see that the influence of one plant on another is an indirect one, and when we speak of a plant being crowded out by another we do not mean crowded out in a physical sense, but by reason of being deprived of water or light, or some other necessity of life.

The influence of animals on plants on the other hand is a direct one, in most cases. Probably the main influence of animals upon plants is that the plants are eaten by animals. Insects are the main agents in this work of destroying plants, though all the large groups of animals have representatives which live on plants. Those animals which feed on the leaves are wholly injurious as far as the plants are concerned, but some animals which feed on special parts of plants are undoubtedly of use to the plants. For instance, birds which feed on fruits having hard seeds digest the pulp, and the seeds pass through their alimentary tracts uninjured and are scattered far and wide in a fit state to germinate. Squirrels bury nuts and leave some of them in forgotten hoards, where they sprout. Certain fruits which we term burrs are specially adapted to dispersal by adhering to the coats of animals. Many animals, especially birds, carry seeds from place to place in the mud which clings to their feet. Many plants are entirely dependant upon animals for carrying pollen from one flower to another, thus bringing about cross-fertilization, insects playing the main part in this partnership, though humming-birds also do their share. Some animals, particularly insects, cause galls to form on various plants. The excreta of animals adds humus to the soil, and thus aids in the nutrition of plants. Earthworms and other burrowing animals let air into the soil, make the soil finer, and mix the soil and subsoil.

THE HORSE.

A Start Made.

We were pleased, last week, to be able to announce that the embargo on horses going to the United States has been removed, and that Great Britain and her allies would now have access to the Canadian market, which should begin to show some signs of the old-time activity. It still remains to be seen whether or not army buyers will buy extensively in this country. We think that our Government could do no better work than to encourage this in so far as possible. There are altogether too many surplus horses in this country at the present time, and unless something is done by way of brushing up the market, horse breeding will not be carried on very extensively during the next few years. We believe there is a bright outlook for the horseman, provided he can

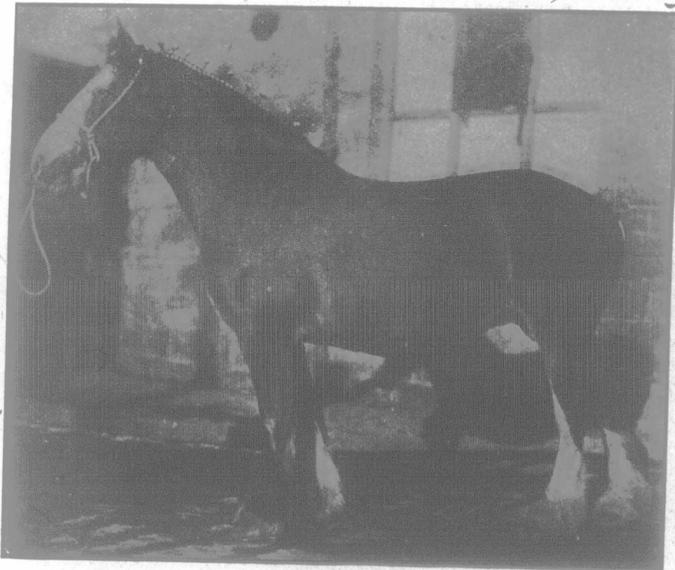
gain access to the world's market within the next few months. Surely Canada's horsemen are as much entitled to this market as are those of the country to the south.

On the Horse Question.

Editor "The Farmer's Advocate":

I read with a good deal of interest the article on the present state of the horse market in Canada, in your issue of Dec. 30, under the heading, "Making a start to improve the market." I should say the move was a very timely one. Why should the people be kept in this state of suspense in regard to the horse market? There has not been a buyer in Woodstock for months for army purposes, and no one seems to know the reason why.

I was somewhat surprised on meeting an old acquaintance a couple of weeks ago, who was formerly in the horse business here, and upon inquiring what he was doing, he informed me that he was up in the county of Lambton buying horses for the French Government for army purposes, transport and artillery. They were taking all suitable horses they could find from five years old up, weighing from 1,250 lbs. up to 1,600 lbs. About \$165 was the limit in price, running from \$125 up to that. Now, if horses are as high in price as your Old Country correspondent says they are in the Old Land, why do they not come here to buy? That is what the farming community would like to know. There are a great number of horses available for both army and commercial purposes, but the market seems to be



Royalette.

First-prize aged Clydesdale mare and grand champion female of the breed at the Guelph Winter Fair, 1915. Exhibited by W. W. Hogg, Thamesford, Ont.

dead for both. So that the horse business is in a very discouraging state at the present time for the Ontario farmer.

The manufacturers seem to be the favored people in the matter of securing contracts. Our factories in Woodstock are running night and day on army contracts. When it comes to contracts for horses they seem to go across the line for their supply. Train-load after train-load have passed through Toronto from the United States on the way to Europe for army purposes. The last time that buying for army purposes was carried on here, it, to the best of my recollection, came to a very sudden stop through an order from either the British or our own Government, and still it is claimed that buying has never been stopped. We would like to know why the contracts for horses go elsewhere when we have got the goods. Why does the Government keep so "mum" in regard to this matter?

If it is of such vital importance to the best interests of the Empire that they should not divulge the reason, they ought, at least, to take us into the their confidence, and not keep us in the present state of ignorance and suspense. And further, we think it is up to the Minister of Agriculture to get busy and see if he cannot mend matters along this line, by securing some of the orders that are going elsewhere. We consider it very unfair to the farming community to have been kept in the dark so long over this matter.

Oxford Co., Ont. WM. AMOS.
[Note.—Subscribers will have read ere this that the embargo has been removed, and horses may now go from Canada to the United States or to Great Britain and her allies. There is still work to do. Buyers must be encouraged to purchase in this country. The horse market should soon begin to pick up.—Editor.]

Lameness in Horses. V.

SPRAIN OR STRAIN.

A sprain or strain may be defined as violence inflicted upon a soft structure, with extension, and often rupture of its fibres. A sprain may be suddenly caused by violent extension or stretching of soft structures, or by repeated slight stretching without a rupture of fibres, in which case the repeated tension produces an altered nutrition, which results in inflammation of the part, and finally to a softening of some portion of the fibres, by which they lose their toughness and become practically broken across. A slight sprain may be practically merely a bruise, while violent or excessive tension may rupture the whole structure of the part. Extension is not always the cause of a sprain, a muscle may be sprained by the opposite condition, viz., violent contraction, by which the fibres may be broken across, or the tendinous fibres torn from their attachment at either end of the muscle. Sprains produced in this way are sometimes noticed as the result of the violent contractions of the muscles, we notice when a horse is being thrown with hobbles or side-lines, or by violent efforts to loosen himself after being thrown; in vain efforts to relieve himself when halter-cast, etc., etc. Sprain may be confined to the fibrous sheaths of the muscle (each muscle is enclosed by a fibrous covering, called a sheath), but these are of minor importance compared with sprain of muscular fibre, tendons or ligaments.

Sprain of muscles or tendons are found in various parts of the body or limbs; a horse may sprain the muscles of his neck by falling on his head. If the impact be severe, the sprain may be complicated by injury or even fracture of some of the bones of the vertebra, and this may cause sudden death. The muscles of the back may be sprained by the hind feet slipping forward. When a muscle is sprained, the accident is succeeded by pain, heat, swelling and more or less loss of function. An inflamed muscle cannot contract properly, the loss of contractile power being in proportion to the severity of the sprain; hence, in some cases the symptoms simulate those of paralysis. The swelling of an inflamed muscle is often followed by loss of structure, a wasting away, called atrophy; and sometimes by fatty degeneration of its fibre, whereby they lose their red, fleshy appearance and assume that of whitish threads of fat.

When examined by a microscope, the contractile tissue, called sarcolemm, is seen to have been replaced by glistening oil particles, so that the function of the muscle is temporarily completely destroyed. If the whole muscle is involved, its contractile power no longer exists. The loss of power will, of course, vary according to the extent of the muscular structure involved in the primary lesion.

Atrophy of muscular fibre, and consequently fatty degeneration of its contents (probably better noticed in cases of swiney than in other sprains) is often due to pressure by inflammatory exudate (which occurs to a greater or lesser degree in all sprains) formed in the spaces of the connecting tissue. It is well to remember this, as it teaches us that the sooner an exudate can be removed the less probability there is of degenerative changes taking place in the true muscular elements. The changes taking place in inflammation of muscular tissue, whether arising from sprain or other causes, are: First, swelling, caused by congestion of the vessels and the exudate that is thrown out into the tissues as a result of the same; second, atrophy, or a wasting away of the muscular tissue, from the pressure of this exudate upon the muscular fibres, and from loss of function. It is a well-known fact, that if from any cause, a muscle does not perform its function, it will gradually lose bulk from inactivity. If this want of function be accompanied by the pressure noted, the atrophy will be more speedy and better marked; third, fatty degeneration of the sarcolemm elements, and permanent loss of contractibility.

Treatment for sprain depends to some extent upon the seat of the accident and the tissues involved, but the general treatment may be said to be: First, locate the lesion, give rest,

make the patient comfortable as possible in a box stall, give a laxative, as 6 drams of aloes and 2 drams ginger, and feed lightly. If the sprain be very severe, causing complete loss of power in a limb or limbs, it is well to place in slings. Bathe the affected part long and often with hot water, and after bathing apply an anodyne lotion, as 1 fluid oz. of laudanum and 4 drams acetate of lead mixed with 8 fluid oz. of water. Continue this treatment until the acute inflammation and soreness has disappeared, then change to cold water and camphorated liniment made with 3 fluid oz. of alcohol, 2 fluid oz. oil of turpentine, 1 fluid oz. spirits of ammonia, 4 drams gum camphor, and water to make a pint. If lameness persists apply a blister made of 2 drams each of cantharides and biniodide of mercury, mixed with 2 oz. vaseline or lard. Clip the hair off the parts, tie the patient so that he cannot bite them, rub the blister well in once daily for

two days. On the third day apply sweet oil, and turn the animal loose into a box stall, oil every day until the scale comes off. It may be necessary to repeat the blistering every month for a few times. The blistering not only has a tendency to cure the lameness, but, by stimulating absorption, tends to reduce any chronic swelling that may remain, as a result of organization of the exudate that was thrown out during the inflammatory stage of the lesion.

WHIP.

LIVE STOCK.

How to Corn Beef.

Use the cheaper cuts of meat from the lower part of the body. Cut into convenient chunks of

about equal thickness. Pack the meat first in salt, using eight pounds of salt for each 100 pounds of meat. After the meat has remained eight to twelve hours in the salt pack, add a brine composed of four pounds sugar, two ounces baking soda, four ounces saltpetre, dissolved in four gallons of water. This should be enough to cover the meat, but if not, add more water. Put a weight on the meat to keep it beneath the brine, as any exposed parts will spoil.

Keep the vessel in a cool place, and leave the meat in a brine until you are ready to use it. If the brine appears ropy or thick, pour it off, wash the meat and repack in new brine. The brine or corned beef must be watched closely, as the slightest tainting of the brine results in soured meat, beef spoiling much more readily than pork.—G. E. Morton, Colorado Agricultural College.

Feeding Steers and Heifers to be Finished on Grass.

A bullock cannot be fitted for the block in a day; it must grow from calfhood to the required weight, by converting into bone, muscle and flesh the feeds supplied it by the feeder. Nor, can any kind of a calf, even with the best of care and feed, be made into a prime carcass. The successful feeder must be a judge of live stock; a man who can see in the calf, or thin frame of a two-year-old or a three-year-old steer, the possibility of a profitable increase in size, weight and fleshing. Owing to inability to select profitable feeders when buying, either for the pasture or stable, many a good farmer has fed his valuable feed to animals which did not turn the feed to good account. This has discouraged some, and they have dropped out of the business, claiming there was no money in beef raising. Others have seen how a certain type of animal, laid on flesh more evenly and more quickly than its stable mates on the same feed. This type was kept in mind in buying in the future, and the first lesson towards successful cattle raising was learned. Varied have been the experiences of cattlemen in the past. They have had difficulty in securing the type of animal desired; the price of feed has been high at times and the market fluctuated. Possibly at the time the animals were finished for market the price would drop, and with it the anticipated profit. Perhaps this affects the man who stable feeds more than the one who grazes his stock—the small feeder more than the large. The uncertainty of markets is a factor to be dealt with, and it behooves the feeder to buy the right kind of stock at the lowest figure. The market must be watched closely in order to take advantage of a rise in price when a load of cattle is ready for the block. Not only must one market be studied, but all markets. While one may pay a premium for finished, small cattle, another may demand a large bullock. A car load on the wrong market may mean a serious loss. A good rule to go by is to cater to the demands of the market, if the highest prices are to be obtained. The cattle feeder should have good judgment, be a careful feeder, a student of markets, and possess patience. While one hears of large profits being made, there is also the time when the balance is on the wrong side of the sheet. But, taking one year with another, there has been a good living for those engaged in the business. If the profits are not large, there is at least a satisfaction, to the man who loves stock, in watching the critters become fat and sleek.

Some men prefer feeding and finishing the 1,500-pound steer, others cater to the market calling for the lighter animal. Conditions and feeds available influence some feeders to aim at marketing their stock from the stable, others from the pasture. So, the markets are supplied the year round to the interests of the consuming public.

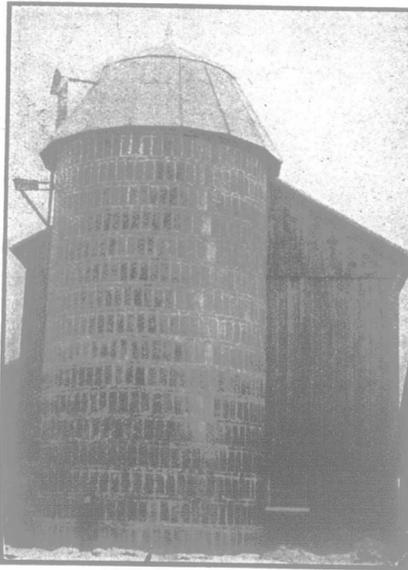
While most stockmen look for the same type of animal to feed, all do not feed in the same manner, although they may be good feeders. Each must adapt himself to his own conditions, and while one method of feeding may differ considerably from another, it is possible to secure the same gains in weight. A visit to Bogue Bros.' farm, Middlesex County, and information secured regarding their method of feeding bears this out. Their method of caring for and feeding cattle is here given, and may be of interest to stock feeders.

HOW BOGUE BROS. FEED STEERS TO FINISH ON PASTURE.

These men have been in the business for some years, and the class of cattle in their stables point to the good judgment in buying. In the stables of G. & J. Bogue are 49 head of steers rising three years old, being wintered over with the intention of finishing on grass. The average weight, when put in the stable about the first of December, was from 1,125 to 1,200 pounds. These steers are grade Shorthorn or Aberdeen-Angus, showing fairly good breeding. The preference is given to the Angus, but it is difficult to secure

very many. In filling the stables the stock is bought wherever it can be picked up at a right price. Sometimes, in order to secure a few choice steers from a man, a number of inferior animals must be taken, but these were nowhere to be seen in the stables. They had been culled out and sold again, thus leaving the uniform lot of thick, deep-bodied animals, as seen in the stables. Grading is carefully done, the black cattle being tied in one row; the reds and roans in another. If a few are better feeders than the rest, they are stable together, giving an evenness of appearance that is worth a good deal. If a prospective buyer is around. A small steer tied beside a large one makes the small one look smaller than he really is, thus decreasing the value of the whole lot.

Messrs. Bogue finish their cattle on grass, so like to feed the large animal, claiming that, where one can buy the steer with the large frame but little flesh, a greater gain can be made, and the price is usually higher than for the smaller animal. If they were raising the stock it would be different, then, they would try to have it ready for market as yearlings, or at most two-year-olds. However, they fancy the big cattle.



The Silo Has Come to Stay.

Silage forms the basis of all rations on the farms of Messrs. Bogue.

and they are easier to buy. If possible, dehorned cattle are bought, and if not, they are dehorned before being stabled, so as to minimize danger of injury, both to themselves and attendants. From experience, it was found that the cattle made better gains on the same feed when tied than when running loose. It was possible to watch the individual animal more closely, and see that each was fed according to its appetite. In a bunch running loose, no matter how even they were in size, there was always one or more that the rest had a pick at, and this lessened the gains. The stable is kept comparatively cool, as the cattle are healthier, and go on to grass in better condition than where wintered in warm quarters.

The feeding is mostly done by one man, in order that the animals may be studied individually. Both ends of the animal are watched closely by the successful feeder. The slightest illness is then noticed and remedies applied in time, thus often saving trouble later on. With the Bogue

Bros. great faith is pinned to the silo, as a means of storing, in an excellent condition, the most economical fodder grown on the farm. "Without it," said Mr. Bogue, "we could not produce the feed on our place to winter the number of steers we do." Consequently silage is the basis of the ration, and well-matured corn is preferred for the silo. They like to see the grain in the feed. The system of feeding followed with success is, to mix equal parts by bulk, of silage and cut straw one meal ahead. The straw is then somewhat moistened by the silage, and is more readily eaten. The aim is to feed a bushel of the mixture to each animal, but sometimes one steer will hardly clean up that much while another will eat more, so a close watch is kept, and each animal is fed according to its capacity and appetite. This is fed first thing in the morning with about two quarts of oat chop and shorts in equal proportions. The steers are all turned in the yard for water during the forenoon, and while they are out the stables are cleaned and the manure taken directly to the field where it is put into a large pile, and the spreader is used to spread it in the spring. At noon a good feed of clover hay is fed, and silage and chop again at night. Care is taken in feeding the grain when the cattle are first stabled, but after they are in a couple of weeks, the amount stated is fed continually during the winter, no increase in quantity, towards spring, being considered necessary unless it be an exceptional case. Salt is not mixed with feed, but is kept in a trough in the yard, so the stock may have what they require. It is considered that the curry-comb applied daily would pay, but time is a factor on this as on every other farm, so, with the shortage of help, it is not used.

The quantity of feed mentioned is sufficient to give a considerable gain in weight during the winter, and a blue-grass pasture puts on the finishing touch.

Experience leads these men to endeavor to have their stock ready for the market by July, when prices for grass-finished cattle are usually highest. From the time the cattle are stabled until they are marketed the average gain is from 300 to 350 pounds per head, depending somewhat on the condition of the animal in the fall. As high as 400-pound gains have been made. The markets are closely watched, and the cattle shipped to the highest. As they usually ship them themselves sometimes they go to Toronto, but more often to Buffalo, where the prices are usually higher for heavy steers.

For some years these men have been following the system of feeding outlined, with from 45 to 60 head in the stable each winter, and about 100 head on grass. If grain is not too high in price a little is sometimes fed to the cattle on grass, in order to force them for a special market. A large trough is built in the permanent pasture field for this purpose, and oat chop and shorts are considered the best.

DIFFERENT FEEDING FOR THE SAME RESULT.

For the same reasons outlined by his brothers, Wm. Bogue prefers the large-framed, typical beef animal for feeding. In his large, well-lighted stables are 20 thick, deep-bodied, grade Shorthorn steers rising three years old, and averaging 1,125 pounds each when stabled about the first of December. These had been bought from one man. Mr. Bogue aims to keep his cattle gaining in weight through the winter, and finishing them on grass for the July market. The custom has been to put on a gain of 350 to 400 pounds per steer in the eight or nine months. The method of feeding is a little different from that practiced by his brothers. Matured corn is preferred for the silo, and this enters largely into the ration. Silage and cut straw, using more silage by bulk than straw, is mixed each morning for a day's feeding. The cattle are salted regularly with their feed. The steers are turned to the yard every forenoon for water and exercise, and the manure drawn from the stable to the field with

a stone-b
spring's c

A well
straw is
It has be
a quant
noon, a s
considera
straw.

more of
eaten.

then grain
ture of o

fed two o
spring th

is built in
fed, if it

tle for th
always s

and steers
forced wit

Mr. Bogue

in price, p

selling, to

on investm

above th
fluctuate

what he v

times he i

price paid

manure us

to build u

PI

All com

men's in

While Edg

made feed

are such

ferable.

is only o

feeders on

all run to

ly kept on

money can

the feedin

sidered, s

dairying,

baskets a

swine, ho

stable, ea

heifers, r

up where

two at pr

from one

a number

steers. B

bunch of

turn locate

ent bunch

about 800

with reason

pasture in

from 1,050

aimed to

relled on

Like the

siderable

ly convince

ago he had

had barely

see but t

when fed

are mixed,

than corn

in the mor

water, and

silage and

straw is

what is le

In the eve

Grain is n

from the c

this feed,

ent time.

The co

the same r

cept that

fed twice

as twice me

These m

nor that

the best.

and this

with the

pasture

to satisf

year was

ce

Pack the meat first in salt for each 100 lbs of meat has remained in the salt pack, add a pound sugar, two ounces saltpetre, dissolved in this should be enough to add more water. Put to keep it beneath the salt will spoil. Cool place, and leave the meat ready to use it. If too thick, pour it off, and pack in new brine. The meat should be watched closely, as the brine results in much more readily than in Colorado Agricultural Col-

Grass.

fed to the silo, as a excellent condition, the grass grown on the farm. Bogue, "we could not face to winter the numerous silage is the well-matured corn is preferable to see the grain feeding followed with parts by bulk, of silage head. The straw is by the silage, and is aim is to feed a bushel meal, but sometimes one that much while a close watch is kept, according to its capacity first thing in the morning of oat chop and shorts steers are all turned in the forenoon, and tables are cleaned and to the field where it is spreader is used. At noon a good feed silage and chop again in feeding the grain stabled, but after they the amount stated is winter, no increase in being considered necessary. Salt is not kept in a trough in the what they require. Carry-comb applied daily factor on this as on the shortage of help,

tioned is sufficient to weight during the winter puts on the finish- men to endeavor ready for the market grass-finished cattle are time the cattle are keted the average gain s per head, depending of the animal in the pound gains have been osely watched, and the st. As they usually metimes they go to to Buffalo, where the r heavy steers.

n have been following ned, with from 45 to winter, and about 100 is not too high in fed to the cattle on m for a special mar- ulti in the permanent se, and oat chop and est.

FOR THE SAME

lined by his brothers, e-framed, typical beef his large, well-lighted bodied, grade Short- rs old, and averaging abled about the first een bought from one eep his cattle gaining er, and finishing them et. The custom has 50 to 400 pounds per months. The method t from that practiced r corn is preferred for rgedly into the ration. t more silage by bulk rning for a day's alted regularly with rned to the yard nd exercise, and the ble to the field with

a stone-boat, where it is spread ready for next spring's corn crop.

A well-filled bushel basket of the silage and straw is fed to two steers night and morning. It has been the custom for several years to save a quantity of oat sheaves, and these are fed at noon, a sheaf between two steers. This furnishes considerable grain, and the cattle clean up the straw. This year the straw is not so good and more of it is left for bedding, but the grain is eaten. The sheaves last until February, and then grain is fed at noon in the form of a mixture of oats and wheat equal parts ground, and fed two quarts per head once a day. Towards spring this is increased to three quarts. A shed is built in the pasture field, where grain may be fed, if it is necessary, in order to finish the cattle for the best market. The markets are not always satisfactory, but are carefully watched, and steers on grass may be held a few weeks or forced with grain, to obtain the highest price. Mr. Bogue claims it takes about one cent spread in price, plus the gain made between buying and selling, to give market price for the feed, interest on investment, and a fair price for labor. All above this is mostly clear profits. Markets fluctuate so much that the feeder never knows what he will clear until the cattle are sold. At times he is forced to sell for little more than the price paid per pound in the fall. Of course, the manure is worth a considerable figure, and tends to build up the farm.

PREFERS FEEDING HEIFERS.

All conditions are not the same, nor do all men's inclinations run in the same direction. While Edgar Bogue believes more money can be made feeding heavy cattle, conditions on his farm are such as to make the feeding of heifers preferable. His land lies in a block on which there is only one watering place, consequently, the feeders on grass, the young stock and cows must all run together. Seven or eight cows are usually kept on this farm, and it is believed that more money can be made from dairying than from cattle feeding. But the labor problem must be considered, so, instead of going extensively into dairying, Mr. Bogue carries his eggs in several baskets, and derives a revenue from his cows, swine, horses and fat heifers. It is usual to stable, each winter, from twenty to twenty-five heifers, rising two years old. These are picked up wherever they can be secured, and the twenty-two at present in the stable were got anywhere from one to six at a place. It is harder to secure a number of heifers at one place than it is of steers. But, if the "steer men" see a good bunch of heifers they inform Edgar, and he in turn locates steers for them at times. The present bunch of breedy, grade Shorthorns averaged about 800 pounds in the fall, and it is expected, with reasonable care during the winter and good pasture in the spring, they will tip the scales at from 1,050 to 1,100 pounds by July, when it is aimed to do the marketing. Again, the silo is relied on to aid in serving an economical ration. Like the other men, he rather prefers to see considerable grain in the silage, but is not thoroughly convinced that it is better silage, for a year ago he had occasion to put corn in the silo that had barely commenced to form ears, and could not see but that the cattle did equally as well as when fed more mature corn. Silage and cut straw are mixed, having a little more bulk of straw than corn. A little clover hay is fed first in the morning. The cattle are turned out for water, and when tied in receive about a bushel of silage and straw. About four o'clock a feed of straw is given, and after this is picked over, what is left is thrown in the stall for bedding. In the evening another feed of silage is given. Grain is not fed until spring, except what is got from the corn. The heifers appear to do well on this feed, and are in good condition at the present time.

The cows on this place are fed much the same roughage as outlined for the heifers, except that two feeds of hay are given. Grain is fed twice a day, and about two pounds of cottonseed meal per day is fed each cow.

These men do not claim to be expert feeders, nor that their rations and systems of feeding are the best. But, good results have been obtained, and this is proof that, under these conditions, with the roughage grown on their farms, and the pasture to finish the cattle, their methods are satisfactory.

Pleasure and Profit.

In renewing his subscription to "The Farmer's Advocate," Mason Shaver, of Dundas Co., Ont., writes.

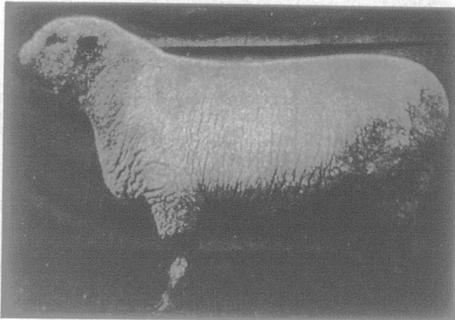
"I might say we have taken this paper for a number of years, and have taken much pleasure as well as derived a lot of benefit from its valuable columns. Your anniversary number this year was certainly a dandy."

FARM.

The Farmer and the War.

Editor "The Farmer's Advocate":

With the present very urgent requests on every hand to enlist for overseas service, farmers' sons and farmers' help generally, as well as the farmers themselves, in some cases, are beginning to feel that they will be classed as "slackers" if they do not answer to the call, and many are now enrolled. We must admit that answering to the call to assist to break the tyrant's power is a commendable act, yet, viewing the matter from every patriotic standpoint, I believe there is a greater duty for the farmers' sons, the Agricultural District Representatives, and even the Agricultural College student who spends his summers on the farm than to go into the trenches, and that duty is to work with double energy, if that be possible, to supply the needs of the Allies in the way of foodstuffs. The farms of Canada have only been about half manned for several



An American-bred Shropshire.

First-prize American-bred Shropshire ram at the Canadian National, 1915, for G. W. Gurney & Sons, Paris, Ont.

years. Within the past 15 months several thousands of the farm help, Canadian as well as British-born, have left us in the cause of freedom, and now many of the counties are endeavoring to raise within each the best possible battalion, which will, no doubt, be filled largely from the rural districts. About a year ago a Patriotism and Production campaign was so successfully inaugurated that, assisted by a kind Providence, it brought about the greatest production in foodstuffs in the history of our fair Dominion. Greater production in foodstuffs and munitions as well are more vital to-day than they were a year ago. The longer Britain is in the fight the greater the drain on her available resources, because of the great drain on her available supply of men. It is well said, and can be applied in more than one sense, that the soldier fights on his stomach, and I am sure none of us would like to think of him as fighting on an empty stomach, along with all the other hardships he has to contend with. To make a long story short, I think the first duty of the farmer is to supply the necessaries for his family, and the next duty is to produce all that he possibly can to supply the immediate needs of the Allies, which is not possible if the boys go away leaving only their fathers (already old men) to work the farm. It is a commendable act to enlist, and I think our Government should



A Few Good Dairy Shorthorns.

Two of them are first-prize winners at the London Dairy Show.

give every one some mark or badge of merit, and let every man who has enlisted from the farm, who is willing to go back to the farm and do his bit faithfully and well, go back and so increase production, that none will have to fight hunger as well as tyranny.

Middlesex Co., Ont.

R. H. HARDING.

A Farmer Objects to Automobile License.

Editor "The Farmer's Advocate":

I am a real farmer with a real farm, with a hired man and a sick cow; but, instead of the mortgage I have a motor car. Now, I suppose many would suppose that I ought to be satisfied and quite willing to pay the proposed \$10 license fee, but I am not, and would like an opportunity through the columns of your valuable paper, to explain why I am not. In the first place, I find that I have not occasion or time, during our short summer, to run my car more than 2,000 miles, nor do I believe that the average farmer uses his car to the extent of more than 2,500 miles per season; while, on the other hand, the average city or town motorist travels from 4,000 to 8,000 miles per season, for which privilege he pays \$10. Now, by the time I have used the roads to that extent, I will have paid about \$30 or \$40 for running over roads built entirely by farmers, and besides, I will have to do, in the three seasons, eighteen days' statute labor, and pay my share in taxes of the money expended by our county and township councils on road improvement, while the city or town motorist pays practically nothing toward the upkeep of our long stretches of country roads. It seems to me that so long as the use of motor cars was confined to the people of the cities and towns the license fee was far too small, but as soon as farmers begin to use them to any extent, then they must pay up for it. Now, I consider that if the fee for light cars is raised to \$10 and I have to pay that amount each season for using a motor car to do the travelling I formerly did with horses, that it is an imposition, and I would like to know what other farmers think of it. I have been speaking to several others in this vicinity, and they all think as I do.

Simcoe Co., Ont.

FARMER.

Best Cold Storage Temperatures.

It may be of interest to our readers to know the cold storage temperatures best suited for the keeping of many of the articles produced or kept on the farm. To maintain these, ice is absolutely necessary during the summer, and should be stored this winter. The Ontario Department of Agriculture, Bulletin 207, gives the best temperatures, F. as follows: apples, 42; asparagus, 43; berries, fresh, (few days only), 40; bulbs, 34; butter, 14; cabbage, 31; canned fruits, 40; canned meats, 40; carrots, 33; celery, 32; cheese (long carry), 35; cheese (cool cooling), 50; cider, 32; cranberries, 33; cream (short carry), 33; cucumbers, 38; currants (few days only), 32; cut roses, 36; dried fruits, 40; eggs, 30; ferns, 28; fish, fresh water (after frozen), 18; fish (salt water after frozen), 15; fish (to freeze), 5; fruit trees, 30; fur, 28; furs, (undressed), 35; game (after frozen), 10; game (short carry), 28; grapes, 36; hams (not brined), 20; hogs, 30; hops, 32; huckleberries (frozen, long carry), 20; ice cream (for few days only), 15; ice storage room (refrigerated), 28; lard, 40; maple sugar, 45; maple syrup, 45; meat, fresh (ten to thirty days), 30; meats, fresh (few days only), 35; meats, salt

(after curing), 43; milk (short carry), 35; nursery stock, 30; nuts in shell, 40; oatmeal, 42; oils, 45; onions, 32; oxtails, 30; oysters, iced (in tube), 35; oysters (in shell), 43; parsnips, 32; peaches (short carry), 50; pears, 33; plums (one or two months), 32; potatoes, 34; poultry (after frozen), 10; poultry (dressed, iced), 30; poultry to freeze, 0; raisins, 55; ribs (not brined), 20; salt meat curing room, 33; sauerkraut, 38; sausage casings, 20; shoulders (not brined), 20; strained honey, sugar, syrup, 45; tenderloin, etc., 32; tobacco and ripe tomatoes, 42; veal, 30; watermelons (short carry), 40; wheat flour, 42.

Does Not Spread Manure in Winter

Editor "The Farmer's Advocate":

If you will permit me I would like to take exception to some of your remarks in the editorial "Apply Manure in the Winter," in the Dec. 30 issue.

To my mind there is no question as to the advisability of drawing the manure to the fields in the winter time as you suggest, and it is the prevailing method in this part of the country at least. I know several farmers who, in the past, have bought manure spreaders, and who now draw the bulk of their stable manure out to the fields in the winter, and only use the spreader for what may accumulate late in the spring or in the summer. But we do not spread the manure on top of the snow, as you say you are doing this year. We have tried that and found it extremely wasteful. The last time I did it I lost, I think I am safe in saying, at least half the fertilizing material in the manure. The water which ran off the field during the spring thaws was almost black at a distance of three acres from where the manure was spread. Here it flowed into a creek, and was, of course, absolutely wasted. There is no method of telling just how much fertilizer may be lost in this way, but it is self-evident that there is a good deal.

My plan at the present time is this: I draw the manure from the stable to the field every day as made, and put it in small piles of perhaps a quarter of a ton each. Then, in the spring, as soon as the snow is off the ground, I go over the field and spread as much of the manure as has thawed out. In a few days, if the weather is warm, I go over it again, and then a third time, when the frost is usually out sufficiently to allow of the piles being completely spread. This method insures that the liquid part of the manure is not carried off by the melting snow, and also that the land gets the benefit as early in the spring as possible. The pile also thaws out more quickly, of course, when the outside is removed in this way. As far as I have been able to observe, there is less loss by this method than by any other, except, perhaps, where the manure is under cover and kept from heating. But the loss of time, as you observe, is, by this system of drawing to the field in the spring, too great to warrant its general adoption, especially when labor is scarce and high-priced as at present. Everything that can be properly done in the winter should be done at that time, and not left until the spring rush. The one weak spot in the system of labor on a good many farms is that at certain times of the year there is too much to do, while at other times a good deal more could be done than is done, without serious injury to either the farmer or his hired help.

Glengarry Co., Ont.

J. E. M.

[Note.—We are pleased to note that one correspondent who does not agree with the advised method of spreading manure on the snow, has written expressing his reasons. Our paper is open for discussions on all farm subjects, and when readers do not agree with statements in articles published, we are glad to publish their views, provided they are reasonable. Our farm is comparatively level. The manure is being spread on the snow. If we notice loss in spring run-off it will be stated later. We would not advise winter spreading on hilly land.—Editor.]

Cement Ice House.

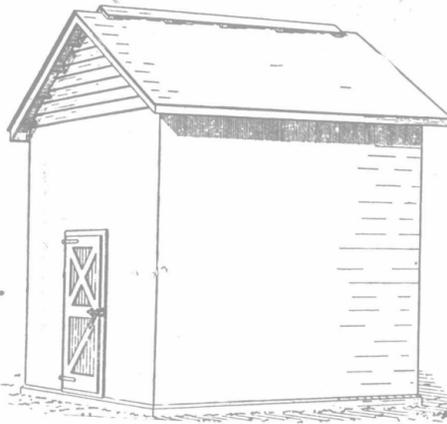
Following the lengthy illustrated article, "Cutting, Harvesting and Storing Ice," which appeared in our issue of Jan. 6, it might not be out of place to illustrate and describe a cement ice-house. Some of our readers may manage with a makeshift ice-house this winter and desire to build a better house next summer, and may possibly wish to use cement. A reader of "The Farmer's Advocate" told us a few days ago that on his farm a cement block ice-house has been used to good advantage for several years. He believed that there was a somewhat greater loss of ice, but found the building durable. He had experienced difficulty with wooden structures rotting. He places from eight inches to a foot of sawdust around the ice in the cement-block house.

The following plans for a small, concrete ice-house are from Farmers' Bulletin 623, United States Department of Agriculture:

The building may be constructed of solid concrete or of concrete blocks. The foundation

trenches should be dug 10 inches wide and 2½ feet deep, and filled with concrete proportioned one part cement, 2½ parts sand and 5 parts broken stone. Above the ground level the walls may be made either of concrete blocks, laid up in a one-to-two cement-sand mortar or of solid concrete. For the solid walls above the ground level the concrete should be proportioned one bag of Portland cement to three cubic feet of sand and five cubic feet of crushed rock, or one part cement to six parts bank-run gravel.

In building up the concrete walls, movable forms are used for holding the wet concrete in place until it hardens. These forms should be three feet high and extend entirely around the building. After filling the forms with concrete it



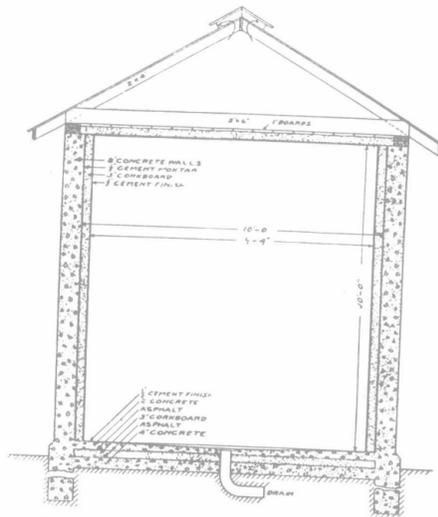
Exterior View of a Concrete Ice House.

should be allowed to stand for a day in order to harden, when the forms may be loosened, moved up, and again filled.

During the construction of the walls 3-8-inch reinforcing rods should be used, spaced 18 inches apart, running in both directions. Stagger the rods by placing half of them three inches from the outside edge, and the other half three inches from the side edge of wall. Embed two rods, or an old wagon tire cut in two and straightened, in the concrete two inches above the door opening.

For holding the plates on top of the walls sink a ½-inch bolt 10 inches long, head down, six inches into the concrete.

Lay a 4-inch concrete floor on the natural ground, and on top of this lay three inches of cork-board insulators embedded in hot asphalt,



Sectional View of a Concrete Ice House.

followed by two inches of concrete sloped one inch in four feet to trash drain. The floor should be finished with ½-inch Portland cement plaster.

The cork-board insulation should be erected on the walls and ceiling in a ½-inch bed of Portland cement mortar, mixed in the proportion of one part of Portland cement to two parts of clean, sharp sand. All vertical joints should be broken, and all joints made tight. A ½-inch Portland cement finish to be applied to the walls and ceiling as well as to the floor.

In many cases it will be cheaper to crib the walls to their full height instead of using sectional forms, as a part of the form lumber can be used in the roof and ceiling, and the remainder can generally be used to advantage on the farm.

Some Simcoe County Notes and Experiences.

Editor "The Farmer's Advocate":

The year 1915 will long be remembered by the farmers of Simcoe Co., Ont., not only on account of the unusual difficulties encountered as a result of the abnormal weather conditions prevailing throughout the seasons, but also more happily by reason of the fact that despite these conditions the yields of most farm staples have been very satisfactory.

The growing season opened early with a spell of very warm weather, which started things off with a rush. This April doldrum, however, proved to be about the hot weather of the season. May was a month of low temperatures. The frost of the 26th in some localities was of such severity that the top leaves of forest trees were frozen, and tomato plants, etc., unless protected by something better than tinware, were completely destroyed. Several frosts occurred in June—that of the 24th injuring potatoes and corn, half-formed strawberries, as well as blossoms, suffering severely. In the case of the latter crop the grower who carefully retarded his plants by mulching, in the hope of escaping injury by frost, lost most heavily, as this treatment left the fruit and blossoms in a very susceptible stage. The next severe frost came along on the morning of August 20, thus leaving a period of something less than two months frost-free. This reads something like a report from the experiment station at Fort Vermillion!

As regards rainfall—conditions up until harvest times were ideal. Then came the rains increasingly in greater downpours and greater frequency, culminating at corn-cutting time in one grand deluge—fields covered with water—binders sliding through the mud—silo-filling gangs working in mud and water half-way to knees, fishing badly decomposed corn bundles out of the sloughs. A glorious picnic indeed, and everyone happy, for silos were filled to overflowing, in some cases extra silos being erected to take care of the unexpected surplus.

In the case of potatoes, however, the long-continued soakings proved disastrous, particularly to crops on heavy land.

Peter McArthur remarked in the course of an article last autumn, that in his patch of mixed varieties, some of the hills showed a much greater percentage of disease than others, presumably because some varieties were more subject than others to the ravages of blight. We had a very interesting demonstration of this on our own farm last year, where the Empire State and Davies' Warrior varieties were planted side by side in a forty-rod-long patch. After digging, picking and sorting (especially sorting) the Empire State, it was a pleasant change, indeed, to work in the Davies' Warrior part of the field, there being practically no rot in the latter variety.

Cereals and roots were an abundant crop, although a great deal of wheat was damaged by sprouting.

Taken altogether 1915 was a big year for Simcoe farmers, even though the potato rot was bad.

The wet corn harvest taught us something about corn binders, something which may appear insignificant, but not in a season like 1915. Some makes throw the bundles parallel to the rows, and if, as is usually the case, the corn had been hilled up more or less, the sheaves then lie in the hollows between the rows, and get a super-soaking in case it rains heavily before the crop is drawn in. Other makes deposit the bundles at right angles to the rows, which makes for much better drainage, and, moreover, leaves the corn in a more convenient position for picking up. It might be well to bear this point in mind when purchasing a corn-harvester.

Having a considerable area to plant to strawberries last spring, the writer turned inventor to the extent of getting made to order, by the local blacksmith, a contrivance whereby the spade work is eliminated, or rather accomplished by horsepower. It consists of a simple knife or coultter two feet and a half in length. The upper end or shank is made of the corresponding part of a plow coultter, while the lower or cutting portion is composed of a number of flat, steel bars, welded together and shaped into a knife about six inches in width, and one and a half inches thick at the back, from which it is gradually tapered to a cutting edge in front. This implement is fastened to the frame of a riding corn-cultivator by means of a coultter clip, the cultivator shovels being first removed.

It must be given sufficient backward slant to prevent dragging obstacles in the soil. It must work clean to be of any use. Once properly adjusted and polished, it leaves a clean, smooth-sided, continuous opening in the soil about six or seven inches in depth by one and a half in width at the surface. This is just right to receive the plants—the opening being closed, and the soil firmed by the foot of the planter.

Three conditions are necessary for its successful working. The soil must be moist, otherwise it will all fall in and partially close the opening.

There must be smooth unevenly are usually berry grow readiness is made. We consider labor of pleasure in Simcoe

Agricu

Editor "The

It is Australian was provided Solicitor the Queens member. to money in of meat cleared aw facts. Su the first re being six o plained his why they p It is at drought, a yet.

It is ra

O

"Dad" the Ontario last week at Ont., but his interest in in 1915 and concerning th interested. absence. Ex the eager fa students an speakers to organization something sh more of the U ments over C stacked upon in the form of and from the giving the res soil, cultivati were made. attendance w full and free agricultural g only those on If this cannot the experimen It was a good information w only a little r found i pract cult to get fa completed, t thereby.

TH

Owing to necessary last on by the wa material was experiments in been steady sin ing figures, giv per annum ov 1886-1890, 71 1901-1905, 33 All told, there Ontario since t 30 years ago. ducted experin fourteen and si records of the 1915 as one w valuable. We from experiece forms a center as a whole can

THR

There are G. C. Creelman the O. A. C.— and the 1000-ac in attendance a pig-feeding an summer through grain for profi cows, tile drain tend to make keep some kind was established on the farm. I

County Notes and
Notes.

ate":
g be remembered by the
nt., not only on account
encountered as a result
conditions prevailing
ut also more happily by
despite these conditions
staples have been very

ened early with a spell
which started things off
il doldrum, however,
weather of the season.
temperatures. The frost
es was of such severity
est trees were frozen,
less protected by some-
e, were completely de-
occurred in June—that
atoes and corn, half-
ill as blossoms, suffer-
of the latter crop the
arded his plants by
capping injury by frost,
reatment left the fruit
ceptible stage. The
ng on the morning of
period of something
ost-free. This reads
m the experiment sta-

itions up until harvest
ame the rains increas-
and greater frequency,
g time in one grand
water—binders sliding
g gangs working in
knees, fishing badly
t of the sloughs. A
everyone happy, for
owing, in some cases
take care of the un-

however, the long-con-
trous, particularly to

l in the course of an
n his patch of mixed
hows a much greater
es, presumably be-
more subject than
ght. We had a very
of this on our own
e Empire State and
ere planted side by
ch. After digging,
pecially sorting) the
asant change, indeed,
ior part of the field,
rot in the latter

an abundant crop,
eat was damaged by

was a big year for
the potato rot was

ught us something
g which may appear
season like 1915.

les parallel to
e case, the corn had
the sheaves then lie
ws, and get a super-

ly before the crop is
osit the bundles at
ich makes for much
er, leaves the corn
on for picking up.

at this point in mind
ster.

to plant to straw-
turned inventor to
order, by the local
reby the spade work
mplished by horse-
ple knife or coultter

The upper end or
ponding part of a
or cutting portion
of flat, steel bars,
nto a knife about
and a half inches
ich it is gradually
front. This imple-

of a riding corn-
ter clip, the culti-
ved.

backward slant to
the soil. It must
se. Once properly
es a clean, smooth-

the soil about six
one and a half in-
s just right to re-
being closed, and
the planter.

ary for its success-
e moist, otherwise
close the opening.

There must be little or no clay present, as any soil clinging to the sides of the coultter renders it useless. Lastly, the surface of the soil must be smooth and level, otherwise the work will be unevenly done. Fortunately, all these conditions are usually met with in fields attended for strawberry growing. It is well to have the plants in readiness to plant immediately after the opening is made, to prevent the drying out of the soil. We consider that the contrivance reduces the labor of planting about one-half, and take pleasure in passing the idea along.

Simcoe Co., Ont. W. J. GALBRAITH.

Agricultural News from Australia.

Editor "The Farmer's Advocate":

It is out at last. The money in the Australian Meat Works, on the Brisbane River, was provided by six members of the Swift family. Solicitor Thynne, embarrassed by a statement in the Queensland Upper House, of which he is a member, to the effect that there was German money in the works and that the last shipments of meat had gone to Germany via America, cleared away the mystery and told the House the facts. Suspicion was lent to the idea, owing to the first registered shareholders of the company being six clerks in Thynne's office. He fully explained his business relations with the Swifts, and why they put a million sterling into the concern. It is at present closed down, owing to the drought, and likely to remain so for some time yet.

It is rather an anomaly that Australia's first

thousand-pound cow should come to light in a year of unexampled drought. Besides that, it is quite as unexpected that she should come from the Red Polls. The test is endorsed by the Victorian Agricultural Department, whose property, Muria is. In previous years she stood well up in the returns at the farm where she is stationed. In the twelve calendar months she yielded 14,972 lbs. of milk, 884.16 lbs. of fat, and 1,007 lbs. of commercial butter. The fat averaged 5.91 per cent. As her calf yielded £19, she was worth, for the year, £63. She was not specially fed, but was treated in the same way as the other members of the herd, which were all under the tester.

The bold character of the Federal Government's action in acquiring the whole of the exportable surplus of wheat for the season—1½ million tons—has created great interest. No doubt it is the most extensive Government coup on record, for it involves the handling and the marketing of the crop. Something of the kind became necessary when it was seen that the farmers were menaced by the buying ring and the shipping trust at an abnormal time, besides which so few bottoms were available for transport purposes. As the Imperial Government had last year asked for special efforts in wheat production, the farmers were patriotically spurred. It would have been hard lines, indeed, following after a bad drought, if the gains had gone to the exploiter. It may be that this will not be the last stroke of the kind. Long ago the Labor Governments threatened to found lines of deep-sea steamers, and as they now own a good many

of the German boats, which are used as transports, it is on the cards that they will continue to handle and market the entire wheat crop. The Labor party are, of course, delighted to know that their contentions, as public policy, are getting such a good advertisement.

There is a strong movement in Australia to introduce a system of compulsory fodder conservation. It is held that this has become absolutely necessary in the interests of the farmers and the nation. The drought which is not yet clear of Australia has taught the people another serious lesson, but it is recognized that unless there is Government interference, that the good resolutions will be forgotten directly a cycle of good seasons return. The idea is that the movement should be organized by the Federal Government, so that no State Government, for party purposes, may get a chance to evade the issue. The agricultural banks could get no better security than silos and pits. Instead of loans to the farmers to take up the scheme, it is suggested by some writers that the Federal Government should offer bonuses up to a total of £50,000 a year for three years. This would be distributed amongst the farmers who were enterprising enough to put up more than the maximum quantity. Even if the sum alone would account for 300,000 tons of fodder for the year, this would feed 600,000 sheep for a year. With the basis of cost, other calculations are easily arrived at. It is pretty certain that it will be only a matter of time when something will be done in this direction. The sooner the better.

Sydney, Australia. J. S. DUNNET.

Over Eighty-one Thousand Experiments is "Union" Record.

"Dad" was not present at the annual meeting of the Ontario Agricultural and Experimental Union held last week at the Ontario Agricultural College, Guelph, Ont., but his sons were there, and they took a keen interest in the results of experimental work carried on in 1915 and in the general addresses and discussions concerning the findings in which they are all vitally interested. The "Old Guard" was conspicuous by its absence. Ex-students were not out in numbers, but the eager faces of the receptive gathering of regular students and short-course young men aided the speakers to make the 37th annual meeting of this organization one of the best ever held. However, something should be done to encourage at least a few more of the upwards of 4000 men who conduct experiments over Ontario each year, and whose reports are stacked upon the table, averaged, and given out in the form of averages, to attend these annual meetings, and from their places in the audience discuss results, giving the rest of the meeting an idea of the kind of soil, cultivation, season, etc., where the experiments were made. These results are valuable, and those in attendance would reap a much greater benefit from a full and free discussion of them. Too many of our agricultural gatherings have become stereotyped, and only those on the program take part in the meetings. If this cannot be departed from, let us have more of the experimenters and farmers actually on the program. It was a good meeting throughout, and much valuable information was gleaned by those present. It requires only a little more of the elixir which would surely be found in practical discussion. We know that it is difficult to get farmers to speak, but if such could be accomplished, the "Union" meetings would benefit thereby.

THE SECRETARY'S REPORT.

Owing to the fact that increased postage was necessary last spring and to other conditions brought on by the war, a slight curtailment in sending out material was caused. However, there were over 4100 experiments in 1914. The growth of the work has been steady since its inception, as shown by the following figures, giving the average number of experimenters per annum over five-year periods from 1886 to 1915: 1886-1890, 71; 1891-1895, 1060; 1896-1900, 2992; 1901-1905, 3379; 1906-1910, 4278; 1911-1915, 4452. All told, there have been 81,070 distinct tests made in Ontario since the work began under the present system 30 years ago. Some of the experimenters have conducted experiments on their own farms for twelve, fourteen and sixteen years, and hundreds have authentic records of the work on their own places for five years and longer. Prof. Zavitz referred to the wet season of 1915 as one which has given results which should be valuable. We learn through abnormal years as well as from experiences in normal seasons. Each experiment forms a center of interest and the value of the work as a whole cannot be estimated.

THREE KINDS OF FARMERS.

There are three kinds of farmers, according to Dr. G. C. Creelman, who welcomed those in attendance to the O. A. C.—the acre-farmer, the 100-acre farmer, and the 1000-acre farmer. His address was to the boys in attendance at the short course—the winners of the pig-feeding and acre-profit competitions held this summer throughout the province. Growing an acre of grain for profit, feeding pigs in competition, testing cows, tile drainage—all these things and many others tend to make better farmers. Every farmer should keep some kind of accounts of his work. The O. A. C. was established to prepare young men for their life-work on the farm. Later came the demand for a four-year

course leading to the B.S.A. degree, a course which prepared men for professional agricultural work. The B.S.A. without capital, under present-day conditions, can scarcely go back to the land. Unless he gets the capital necessary to operate upon a scale commensurate with his ability, he cannot make the best success. The small farm, in Dr. Creelman's opinion, offers this class of man many difficulties. He cannot carry on any one branch of his operations on the scale which he would like to. He must start at the beginning, which handicaps him greatly. Here is where the 1000-acre farmer comes in. Monied men are showing a desire to buy farms and install in charge competent graduates of the O.A.C. as managers. Such managers are the 1000-acre farmers, and Dr. Creelman cited the work of P. E. Angle, B.S.A. at the Lynndale Fruit Farms at Simcoe, Ont., as evidence of the practicability of the scheme.

NO GOOD FARMERS TO SPARE.

We have no good farmers to spare for soldiering, in the opinion of Herbert Groh, President of the Union, who, in his presidential address, referred to the crisis through which our Empire is passing.

"We, who are farmers, may feel at times that our part is an humble one; but even granting it to be so, it is, nevertheless, an essential one, and by no means the least essential in ensuring the stability of our country in the present world-wide upheaval. We serve well by being good farmers—no mere plodders, content with a living and indifferent results, but aggressive men, with an agricultural instinct, and a sense of mission in our calling.

"As evidence of the potent part played by agriculture in national well-being, we need only instance the experience of the past trying year in Canada. At the outbreak of the war, and after, the business and financial situation was far from satisfactory. Farmers, as the great primary producing class, were urged to redouble their efforts in production with a view, I believe, of warding off still greater disaster. Farmers, east and west, responded with increased acreage, and closer attention to improvement at every point, and under the blessing of a kind Providence, brought to the rescue a record crop. Confidence in our national resources has been largely restored, and financiers are giving a good share of the credit to the tillers of the soil, where we think it rightly belongs.

"The question now is: can we repeat the achievement? The need remains perhaps as great as ever. Our means of meeting it are almost certainly going to be less than they were a year ago. In the first place untoward weather conditions, and other influences, have operated to prevent as large an acreage from being prepared for crop this fall. In the second place, every indication points to a shortage of suitable farm labor, even more serious than in past years. If to these handicaps there should be added a season unfavorable for crop production, the output of another year might easily be much reduced."

Mr. Groh urged farmers to put forth every effort to increase their output, and then went into the boy question and general economic conditions affecting the farmer.

"It should be remembered," he said, "that farmers are not beasts of burden, altogether devoid of minds of their own; in fact, if we observe their actions closely enough, noting how they are influenced by such worldly considerations as adequate remuneration for their labor, and the desire to fit well into the general scheme

of life about them, we are drawn irresistibly to the conclusion that they are after all, like other people, almost human. It is not surprising either to learn, when appealing to their finer sentiments, such as patriotism, that they are no more angels than are some war contractors, and other people. They are just normal individuals, or, taking them as a class, I should say a little above the average, in all that goes to make up true worth. If you show them the need for increased production, they will probably respond, as they did a year ago, because they reason that it will pay them to do so. If they find then that the improved demand for their produce has not been sufficient to compensate them for their undue exertions, you will have to depend thenceforth upon what altruism there is in them, for your increased production. I may be entirely mistaken, but I think, if we could get at the real psychology of the situation, it would be found that farmers are simply taking a little less interest in the whole matter than they were."

Mr. Groh desired to see farmers step forward and set the pace for every other class of the Empire's great home forces, and expressed it as his opinion that they are not a whit behind any others in sacrifice and unselfishness. "The farmer at any time leads a life of long working hours and frugality, such as is lived by few in the neighboring town. He does it for an interest on his investment of labor and capital, that the townsman of equal business capacity would scorn to accept."

As a solution for the great problem of boys leaving the farm, Mr. Groh advised farmers to quietly work along on their own account, and see what may be done in that way in the meantime. "You see," said he, "I have considerable faith in self-help. My faith is being constantly strengthened, as I look about, and realize how much of the farmer's acknowledged resourcefulness and stamina is the product of his forced reliance on his own powers. No bonus or tariff will ever robbed him of his power to stand alone. Rather, his tendency has been to become too individualistic, so that he does not co-operate well with his neighbor. This is a serious obstacle to effective self-help, for I believe organized and co-operative self-help multiplies its effectiveness manifold. However, as the years go by, I see evidence that farmers are learning the needful lesson. As young men with broadened vision and deepened enthusiasm go back from institutions like the Ontario Agricultural College, to the rural communities of the province, we see farmers' organizations springing up, groups of farmers getting together in Farmers' Clubs, and threshing out their views and experiences one with another. We find them discovering presently that they can just as well join forces in business transactions of mutual concern; and they are doing it."

Mr. Groh urged farmers to become leaders, and expressed his confidence in the old farm as a fit nursery for the rearing of men. Great efforts are required to develop leadership.

In discussion, J. B. Fairbairn of Beamsville, Ont., said that if Canada must raise and equip 500,000 men, greater efforts than ever before must be put forth in 1916. Agriculture, as the basis of the credit of the country, must not be neglected. Every dollar the farmer produces increases Canada's credit by that much. Farmers had done and were doing their part, and could not be expected to increase production and send the men from the farms to the front at the same time.

BEST VARIETIES.

The report on the co-operative experiments in agriculture for 1915 as given by Prof. C. A. Zavitz contained more valuable information than can be published in one issue. More of it will follow, but we wish to give

readers an idea of the best varieties of grains and roots, as proven by the upwards of 4100 tests made last year. Here are the varieties which have made a name for themselves as leaders: O.A.C. No. 72 oats; O.A.C. No. 21 barley; Marquis spring wheat; Pearce's Improved Tree beans; O.A.C. 61 spring rye; Yellow Leviathan mangels; Grimm and Ontario Variegated alfalfa; and a mixture of O.A.C. 21 barley and Daubeney oats as a feed crop. These were specially mentioned by Prof. Zavitz. There are other good varieties, among them being O.A.C. No. 3 oats, Wild Goose spring wheat, Canadian Beauty field peas; Rye buckwheat and American Banner and Imperial Amber winter wheat.

Perhaps the most outstanding variety of all is the O.A.C. No. 72 oat, which has beaten O.A.C. No. 3 and the old Banner variety. The average for the whole period of nine years of the O.A.C. No. 72 was 90.6 bushels and for the Banner, 72.5 bushels per acre. At the Provincial Winter Fair, held in Guelph last month, there were 137 entries of oats, divided as follows:—O.A.C. No. 72, 57; Banner, 13; Abundance and Regenerated Banner, each, 8; Sensation, 6; Lincoln, Improved Scotch and Joannette, each, 4; Regenerated Abundance, Early Yelder and White Wave, each, 3; Siberian and Daubeney, each, 2; and 16 other varieties, each, 1. Four entries were unnamed. There were, therefore, in all 29 named varieties. It will be seen that the O.A.C. No. 72 had more than four times as many entries as any other variety of oats. It took first prize in the entries in connection with the Field Crop Competition open to all varieties of white oats.

In the spring of 1915 two varieties of oats were used for the co-operative tests, viz., the O.A.C. No. 72 and the O.A.C. No. 3. The aim of the Experimental Union is to introduce as few varieties as possible and only use, in the co-operative work, those which have proved to be highly worthy as indicated by the results of the experiments at the Provincial experiment station at Guelph.

"The tabulated report shows that there were 126 complete and carefully conducted experiments with oats in 1915. The average results show that the O.A.C. No. 72 gave 52.9 bushels and the O.A.C. No. 3, 40.1 bushels of threshed grain per acre. The O.A.C. No. 72 was the most vigorous grower, producing two-fifths of a ton of straw per acre more than the O.A.C. No. 3. It was also the most popular variety, although ten days later in reaching maturity. In the average of three years, during which time we have tested these two varieties, the O.A.C. No. 72 gave 52.9 and the O.A.C. No. 3, 47.1 bushels per acre, or an increase of the former over the latter of practically five and one-third bushels per acre. We believe that the O.A.C. No. 72 variety will be worth millions of dollars to the Province of Ontario as an oat for general cropping, as it is a high yielder of grain and an abundant producer of straw, which is comparatively stiff, even though it lodged considerably in the past year owing to the abnormal weather conditions. The O.A.C. No. 3 variety is particularly suitable for those wishing a very early oat to grow by itself or more particularly to grow with barley when it is desired to grow the two grains in combination.

"Care is taken each year to distribute seed oats free from smut spores. In an examination of the reports received, it was interesting to note that the crops produced from the seed of the O.A.C. No. 72 and the O.A.C. No. 3 varieties were practically free from smut, and in many other cases, where home-grown seed of some other variety was used by the experimenters as a basis of comparison, the smut was very bad, being as high as twenty, twenty-five and even thirty-three per cent. As near as could be ascertained, there were forty to fifty times as much smut in the crops grown from seed supplied by the experimenters as in those grown from the seed distributed through the medium of the Experimental Union.

"O.A.C. No. 21 Barley and Common Emmer.—Extensive experiments at the College have shown that the O.A.C. No. 21 barley has given the most satisfactory results, even surpassing the Mandscheuri variety, which was introduced by the College 26 years ago and which has done so much in the improvement of barley-growing in Ontario. In the co-operative experiments throughout Ontario the Mandscheuri occupied highest place in each of a number of years, and surpassed nearly all other varieties in general cultivation throughout the Province. For four years in succession the Mandscheuri and the O.A.C. No. 21 varieties were used in the co-operative experiments, resulting in favor of the last-named variety. In each of the past three years the co-operative experiments have been confined to a test of the O.A.C. No. 21 barley and Common Emmer. Emmer is a type of spring wheat somewhat resembling barley. There is not a clear separation of the grain and the chaff in the process of threshing, and both are ground together for feed, which has given somewhat similar results to barley meal for feeding purposes. In the co-operative experiments over Ontario the O.A.C. No. 21 barley surpassed the emmer yield of grain per acre by 422 pounds in 1913 by 355 pounds in 1914 and by 349 pounds in 1915.

"In the barley experiments at the College and throughout Ontario the O.A.C. No. 21 still occupies highest place in yield of grain per acre. This variety has become exceedingly popular throughout the Province and is supplanting nearly all other varieties, even the Mandscheuri. It is now estimated that about 96% of all the barley which is grown in Ontario belongs to the Mandscheuri or the O.A.C. No. 21 varieties. In some parts of Ontario, however, the Common Six-rowed barley is still grown. According to the reports received from the experimenters, the Common Six-rowed barley is still grown extensively in some of the eastern counties,

such as Glengarry, Lanark and Addington. The Common Six-rowed is also reported as being grown quite extensively in the vicinity of Sudbury.

"Of the forty entries of barley at the Provincial Winter Fair, held in Guelph last month, not a single name occurred except the O.A.C. No. 21. According to the report of the Bureau of Industries for Ontario, the yield of barley per acre for the past sixteen years, as compared with the sixteen years previous has had an increase of about 23 per cent. This has undoubtedly been brought about largely by the introduction of the improved varieties, and it is estimated that the cash value of the increase to the Province of Ontario has approximated about thirty-five million dollars within the past sixteen years.

"Increased interest was aroused in spring wheat production the past year owing to the high price of wheat brought about through the war in Europe. In each of three years, we have distributed the Marquis variety of spring wheat along with the Wild Goose variety. In the average of three years' results, the Wild Goose gave 19.9 bushels and the Marquis 19.2 bushels per acre. The Marquis wheat is a superior variety for flour production, and was originated by Dr. Wm. Saunders, of Ottawa, and was selected and introduced by his son, Dr. C. E. Saunders, Cerealist at the Central Experimental Farm, Ottawa.

"Five varieties of winter wheat were distributed for the co-operative experiments in the autumn of 1914. The results of the winter crops were sent to all of the experimenters and to about 350 of the newspapers and agricultural journals of Ontario between the time of harvest and of seeding winter wheat last autumn. The Banatka, which has this year given a large yield per acre, is an excellent variety of milling wheat. In 1914 the Banatka came fourth on the list in yield per acre, and in former years has not been a particularly heavy yielder.

"The average results of eight successfully conducted experiments with corn show that the Golden Glow came at the top of the list in yield of grain per acre, surpassing the Longfellow and the Compton's Early varieties. In connection with this, however, it should be noted that the Longfellow was somewhat more popular with the experimenters than the Golden Glow. The Golden Glow is a dent corn and the other two varieties are flints, the Longfellow being an eight-rowed and the Compton's Early a twelve-rowed corn.

"The average results in growing grains in mixtures show that a mixture of one bushel of oats and one bushel of barley or a total of two bushels per acre has given the highest average yield in grain production in 1915, and also in the average of the past five years throughout Ontario. A study of the tabulated results shows that in two years a heavier seeding gave the highest yield. These years were fairly dry throughout the growing seasons, and each of the other years there was a greater amount of rainfall. In each year the lightest seeding gave the lowest yield of grain per acre. In the results of more extensive experiments carried on at the College, extending for a period of more than ten years, the combination of one bushel of oats and one bushel of barley has produced the largest yield of grain."

In mangels, Sutton's Mammoth Long Red surpassed the old standby, Yellow Leviathan by about one-tenth of a ton of roots per acre, but for a period of years the Yellow Leviathan stands at the head of the list and is the most widely grown mangel in Ontario.

Rennie's Tankard Cream surpassed Bruce's Giant White Feeding slightly in feeding beets, and Steele Briggs' Good Luck Swede turned topped the list of the crop.

In fodder production, Salzer's North Dakota corn stood ahead of Wisconsin No. 7 and White Cap Yellow Dent.

The cultivated row system was used in attempting to grow alfalfa for seed. Golden Bantam Sweet corn still leads Mammoth White Cory and Malakhoff.

"In 1915 an inquiry was made from the various experimenters regarding the most extensively grown varieties of potatoes in the separate counties of Ontario. In all, thirty-nine varieties were mentioned one or more times as being the most extensively grown in the different counties. As the result of a similar inquiry, fifty-one varieties were mentioned in 1914, fifty-seven in 1913, and fifty-eight varieties in 1912. It is to be hoped that the number of varieties is gradually decreasing in the Province, and that within a short time the potato growers will confine themselves largely to a few of the highest yielding varieties of the best quality. The following gives the names and the order of the varieties which were mentioned the greatest number of times in the average of the last three years: Rural New Yorker No. 2, 26; Irish Cobbler and Delaware, each, 22; Carman, 20; Green Mountain, 13; Empire State and Early Rose, each, 12; Carman No. 1, 9; Extra Early Eureka and American Wonder, each, 8; White Elephant, 7; Early Ohio and Dooley, each, 6; and Beauty of Hebron, 5. The two varieties which were mentioned the greatest number of times in each of the past four years were as follows: 1915, Irish Cobbler and Rural New Yorker No. 2; 1914, Rural New Yorker No. 2 and Delaware; 1913, Rural New Yorker No. 2 and Carman; and 1912, Rural New Yorker No. 2 and Green Mountain. As some reporters mentioned Carman No. 1 and others No. 3, and still others just Carman, it is difficult to classify these varieties. If we take into consideration the answers to inquiries in each of the past five years, we find that the Rural New Yorker No. 2 has been grown more extensively than any other variety.

"In the co-operative experiments conducted previous to 1913 it was found that the Davies' Warrior had made

the highest record of the late potatoes and the Extra Early Eureka of the early potatoes. It was, therefore, decided in the spring of 1913 to use only these two varieties for co-operative tests. The same two varieties were used in 1914 and again in 1915.

"The Davies' Warrior variety of potatoes has given the highest average yield per acre of all the varieties of potatoes grown at the Ontario Agricultural College in the average of the experiments for the past nine years. It is a late variety, and some people object to a particularly late potato. The Extra Early Eureka being an early variety is more popular with some growers, especially if they are anxious to secure early potatoes either for home use or for market. In the co-operative experiments in 1914 the Davies' Warrior gave an average of 153.2 and the Extra Early Eureka of 95.9 bushels per acre, and in the co-operative tests in 1913 the Davies' Warrior gave an average of 134.11 bushels and the Extra Early Eureka of 125.76 bushels per acre. It will, therefore, be seen that the varieties occupy the same order in yields per acre in each of the past three years. The yields for 1915 are practically 132 for the Davies' Warrior and 127 bushels per acre for the Extra Early Eureka. It should be remembered that the potato crop in Ontario in the past year was comparatively low. According to the reports of the Ontario Bureau of Industries, the average yield of potatoes per acre for the Province was only 76 bushels, which is the lowest yield for Ontario for the past 34 years. Of all the varieties which have been grown at Guelph, the Davies' Warrior and the Extra Early Eureka are amongst the freest from rot, the average for two years being less than one per cent., while that of a few other varieties was over fifty per cent."

THE POTATO ROT AND SEED POTATOES.

Prof. J. E. Howitt, of the O.A.C., discussed potato rot as it affects seed potatoes. A glance at the figures compiled by the Ontario Bureau of Industries regarding the potato crop of the past year makes us realize more clearly and forcibly the fact recognized by every farmer and every householder in Ontario that the potato crop for 1915 was far below the average in regard to quantity. These figures show us that the average yield per acre of potatoes in Ontario for the last thirty-four years was 116 bushels, while the past year (1915) the average yield per acre throughout Ontario was 76 bushels, and that the potato crop in 1915 was over 5,000,000 bushels below the average yearly crop for the last thirty-four years in Ontario, notwithstanding the fact that the acreage devoted to potatoes was much above the average. This shortage was to some extent due to the fact that climatic conditions were such that stem and leaf development were stimulated at the expense of tuber formation, so that the potatoes tended to run to tops. The chief cause, however, was an epidemic throughout Western Ontario of the fungus disease known as Late Blight and Rot. It is a conservative estimate, I think, to place the reduction of the potato crop in Ontario caused by this disease at 3,000,000 bushels, which, at 40c per bushel, would be worth \$1,200,000.

Late Blight and Rot of potatoes is a fungous disease which attacks both the leaves and the tubers. It causes a blighting of the tops and a rotting of the tubers. On the lower surfaces of the diseased leaves during wet weather large numbers of spores are produced. Some of these are washed down through the soil and infect the tubers. The disease is carried over from year to year by means of infected tubers. Many of these show some signs of rot and are thus readily recognized, but some of them appear sound and cannot be detected. It is thus clear that in a year following an epidemic of potato rot many of the seed potatoes will be infected. It will be a very difficult matter this coming season to secure seed potatoes which are not infected with the potato rot fungus. This does not necessarily mean that we will have an epidemic of potato rot in 1916. This will depend upon climatic conditions; if we have a comparatively dry summer, there will be, it is safe to say, little or no potato rot; if, however, we have another wet summer, the potato rot will in all probability be worse than in was it 1915. It is thus seen that epidemics of potato rot are brought about by a combination of infected seed potatoes and wet seasons.

The question is: how are we going to avoid using infected seed? At first thought one would be inclined to answer: by securing seed from localities where the rot was not serious the previous year. Those who are familiar, however, with the potato rot fungus know that it may be present in a field year after year without causing any epidemic of rot, and therefore that seed from fields which were almost entirely free from rot the previous year may to some extent be infected, and that the use of such seed may give rise to an epidemic of rot if weather conditions are favorable.

There is, however, one way by means of which seed potatoes comparatively free from infection can be secured. It is by growing varieties of potatoes which are not subject to Late Blight and Rot. Varieties of potatoes differ very much in regard to their susceptibility to this disease. Many excellent and extensively grown varieties, such as Empire State and Rural New Yorker No. 2, are decidedly susceptible to rot, while others are markedly rot resisting. The results of the experiments conducted by the Department of Field Husbandry in regard to the comparative susceptibility of different varieties of potatoes to rot are in this connection extremely interesting. "In 1915 two varieties showed less than 1% each of rot under similar conditions. Taking the average experiments for five years, it has been ascertained that those varieties which were freest from rot were the Davies' Warrior, the Extra Early Eureka, Stray Beauty and Hulborn's

ate potatoes and the Extra
potatoes. It was, therefore,
1913 to use only these two
sts. The same two varieties
in 1915.

variety of potatoes has given
er acre of all the varieties
Ontario Agricultural College
periments for the past nine
and some people object to
The Extra Early Eureka
re popular with some grow-
ious to secure early potatoes
arket. In the co-operative
Davies' Warrior gave an
Extra Early Eureka of 95.9
co-operative tests in 1913
average of 134.11 bushels
ka of 125.76 bushels per
e seen that the varieties
lds per acre in each of the
ls for 1915 are practically
and 127 bushels per acre
It should be remembered

ario in the past year was
ng to the reports of the
es, the average yield of
vince was only 76 bushels,
r Ontario for the past 34
which have been grown at
and the Extra Early Eureka
rot, the average for two
cent., while that of a few

SEED POTATOES.

O.A.C., discussed potato
A glance at the figures
au of Industries regarding
ear makes us realize more
recognized by every farmer
ario that the potato crop
rage in regard to quantity,
the average yield per acre
the last thirty-four years
st year (1915) the average
Ontario was 76 bushels,
1915 was over 5,000,000
yearly crop for the last
notwithstanding the fact
potatoes was much above
was to some extent due
conditions were such that
were stimulated at the
that the potatoes terded
cause, however, was an
Ontario of the fungus
and Rot. It is a con-
o place the reduction of
caused by this disease at
0c per bushel, would be

atoes is a fungus disease
and the tubers. It causes
a rotting of the tubers.
diseased leaves during
of spores are produced,
wn through the soil and
se is carried over from
ected tubers. Many of
are thus readily recog-
ar sound and cannot be
t in a year following an
of the seed potatoes will
ry difficult matter this
potatoes which are not
fungus. This does not
l have an epidemic of
depend upon climatic
paratively dry summer,
little or no potato rot;
et summer, the potato
se than in was it 1915.
f potato rot are brought
ected seed potatoes and

ve going to avoid using
one would be inclined
om localities where the
s year. Those who are
otato rot fungus know
year after year without
therefore that seed from
y free from rot the pre-
e infected, and that the
o an epidemic of rot if

y by means of which
e from infection can be
eties of potatoes which
and Rot. Varieties of
gard to their suscepti-
cellent and extensively
State and Rural New
susceptible to rot, while
g. The results of the
Department of Field
comparative susceptibility
to rot are in this con-
In 1915 two varieties
ot under similar con-
periments for five
that those varieties
the Davies' Warrior,
Beauty and Hulborn's

Abundance; and those most subject to rot were Early
Rose and Beauty of Hebron."

Prof. Howitt strongly advised those who are anxious
to avoid loss from potato rot to select varieties which
experiments have shown to be the least susceptible to
the disease, and, in addition to this, to spray thoroughly
every year.

SWEET CLOVER.

Prof. Zavitz opened the discussion on Sweet Clover
describing the white-flowering plant as a slow grower
the first year, but a rapid grower the second season.
He went away back to the year 1899, and, according
to his figures, Sweet Clover yielded less per acre for
pasture than either Common Red or Alsike, and the
report stated that the stock refused to eat it.

Prof. Fulmer stated that analyses showed Sweet
Clover to contain as many feed nutrients as other
legumes.

It was brought out in discussion that all the cattle
on some farms had been found to eat it readily, and
that the yield was heavy and the effect of the crop
on the soil beneficial. There is room for much more
work with this crop, about which there is such a differ-
ence of opinion.

Morley Pettit discussed the plant from the view-
point of the honey producer, claiming that it was not
always considered a valuable honey plant.

EXPERIMENTS IN BEE-KEEPING.

Four hundred and twenty-one experiments were
conducted in Apiculture in 1915—Covering: Swarm
Control, Spring Management, Methods of Introducing
Queens, Combless Packages for Transporting Bees,
Wire Cloth Bee Escapes, Wintering and Special
Experiments with Foul Brood. Those who
experimented owned 14,808 colonies. By holding the
colony together swarming was prevented in the produc-
tion of extracted honey. In comb honey production
artificial swarming meant more honey and less work.
The fasting method of introducing queens was successful
and so was the smoke method, but Morley Pettit, who
presented the report, cautioned that all details must
be carefully looked after. The shipping of bees in
combless packages had been found practicable, and
bees were successfully wintered outdoors in the four-
box hives.

ELEMENTARY AGRICULTURE IN SCHOOLS.

In the absence of Prof. S. B. McCready, his paper
on Nature Study and School Gardening was presented
by J. E. McLarty of the O.A.C. It simply outlined
the work as Prof. McCready left it.

Dr. Dandeno, the Director of Elementary Agricul-
tural Education in Ontario, discussed the subject,
offering little new on the problem, sticking to the old
belief that the country must be made a better place
in which to live and the teachers must have a more
thorough agricultural training.

FARM ACCOUNTING.

The meeting was favored with an excellent address
by P. E. Angle, B.S.A. of Simcoe, Ont., on farm account-
ing. Mr. Angle is no theorist. He is a practical farm
manager who has made a success of a big farming
proposition through system and efficiency. Efficiency,
according to Mr. Angle, should be the aim of all farmers.
Business methods are nothing more than the best
methods to assist to greater profit or to obtain the end
in view. Changes in farming conditions have made it
imperative that the farmer do some cost accounting.
Increased production does not necessarily mean increased
profit. The farmer must get at the difference between
what is taken in and what is paid out. System means
crop rotation, increased fertility, fewer fences—all the
things that aid in promoting efficiency. There must be
system in labor. The farmer must plan ahead. Every
competent farmer should be able to figure out a plan
for the year. He should be open to new ideas. Mr.
Angle referred to the tool bags which each of his team-
sters carries to the field with him each day with a com-
plete set of tools, so that if breaks occur no time is lost
running back to the buildings for wrenches, wire, etc.
The idea was taken from a similar tool-bag used by the
Bell Telephone Co. A belt similar to a lineman's belt
was also devised to carry pruning tools, so that the
pruner always had them handy.

There is a way to do everything. Mr. Angle
described how their spray tanks are filled in the orchard,
never leaving the tree-row, by the use of supply tanks
and compression.

And accounts must be kept. In these labor is
the first consideration—man-labor and horse-labor.
The speaker produced some forms for loose-leaf book-
keeping as practised on his farm, and also an ordinary
grocer's bill book in triplicate, in which transactions
are entered as made. It requires work to keep these
books on man time and horse time, but nothing of
value is accomplished without work. It was one of the
best addresses of the meeting, and interest in the
ruled forms for bookkeeping was shown after the meeting
adjourned.

A. S. Ma-nard, of Chatham, led in discussion.
He made some rather strong statements, most of which
were humorously taken by his hearers. He believed
that the gross returns from the farm should be each
year 25 per cent. of the original cost and the net pr fit
not less than one-third, and should be one-half of the
gross returns. His advice was: "Never buy anything
until you need it."

FINANCIALLY STRONG.

The report of the Treasurer showed the finan-
ces to be in good condition, with over \$1,500 on hand.
An extra grant of \$1,000 was given by the Government
this year.

EXPERIMENTS IN WEED ERADICATION.

Prof. J. E. Howitt gave the results of experiments
in weed eradication. These experiments have now
been conducted for four successive years. The weeds
experimented with are Perennial Sow Thistle, Twitch
Grass, Mustard, Bladder Campion and Ox-eye Daisy.
Five experiments in all have been tried, viz., the use
of rape in the destruction of Perennial Sow Thistle;
the use of rape in the destruction of Twitch Grass;
a method of cultivation for the eradication of Bladder
Campion or Cow Bell; spraying with iron sulphate to
destroy Mustard in Cereal Crops; a method of cultiva-
tion for the destruction of Ox-eye Daisy. Some fifty-
eight farmers have co-operated in this work during the
past four years. These experiments have not been so
successful this past year as in former years, but this is
due to the exceedingly wet weather of the past summer
preventing the carrying out of the experiments according
to directions. Those experimenters, however, who, in
spite of the bad weather, were able to give the experi-
ments a fair trial report results which confirm those of
the past three years. The results of the four years'
co-operative weed experiments show:—

1. That good cultivation, followed by rape sown
in drills, provides a means of eradicating both Perennial
Sow Thistle and Twitch Grass.
2. That rape is a more satisfactory crop to use in
the destruction of Twitch Grass than buckwheat.
3. That rape gives much better results in the
eradication of Twitch Grass and Perennial Sow Thistle
when sown in drills and cultivated than it does when
sown broadcast.
4. That thorough, deep cultivation in fall and
spring, followed by a well-cared-for hoed crop, will
destroy Bladder Campion.
5. That Mustard may be prevented from seeding
in oats, wheat and barley by spraying with a twenty
per cent. solution of iron sulphate without any serious
injury to the standing crop or to the fresh seedlings of
clover.

THE IMPORTATION AND DISTRIBUTION OF NOXIOUS WEED SEEDS IN ONTARIO.

Geo H. Clark, Dominion Seed Commissioner,
presented the report on the Prevention of the Importa-
tion and Distribution of Noxious Weed Seeds in Feed
Grain and Screenings.

Under the present conditions of international
grain trade, it is not to the advantage of the grain
grower whose land is foul with weed seeds to clean
his oats or barley before sending it to market. To
clean his feed oats would entail a dockage ranging from
10% to 20%, and since the Ontario feeders will pay
an advance in price of not more than 5% to 10% for the
re-cleaned oats, it is to the advantage of the Western
grower to ship his weed seeds to the Ontario feeder.
These feeders have not yet learned that 10% or 15%
of mustard and other weed seeds mixed with feed oats
or chop feed are not only useless as a feed, but are
actually harmful to the health of livery horses or dairy
cattle. The common spread in prices between No. 2
Canada Western oats and the lower grades of feed oats
available in the market is about one-half of the difference
between the actual feeding value of these grades, and
this because of the unwholesome nature of the weed
seed content of the lower grades. Efforts have been
and will continue to be directed toward securing better
methods of cleaning the grain in the Prairie Provinces
at the time of threshing; but progress in that direction
will of necessity be slow so long as the Ontario feeders
and feed manufacturers continue to buy for feeding
purposes grain that is badly contaminated with noxious
weed seeds.

It is important that Ontario feeders should more
clearly understand the actual value for feeding of the
re-cleaned grain as compared with the lower grades that
are polluted with weed seeds of all kinds. When the
demand for this grain makes a sharp discrimination in
price between the clean and the unclean, then it will
become unprofitable for the western grower to ship
his weed seeds to Ontario.

A representative carload was obtained by the
Seed Branch and provided to the Experimental Farms
Branch at Ottawa for feeding experiments. The experi-
ments show that in the practical process of separating
screenings, the finer weed seeds that were capable of
passing through a 1-14 inch perforated zinc screen were
not only useless as a feed, but were deleterious to the
health of all kinds of stock, except perhaps sheep.
After the fine weed seeds have been removed, the balance
of the screenings, when ground, make a wholesome feed
for all kinds of stock with a utility value equal to, and
for some purposes greater than, bran or chop feeds
made from coarse grains.

Following these experiments and the recommenda-
tions made as a result of them, the government terminal
elevators have adopted the plan of separating out and
destroying all of that part of their screenings that would
pass through a 1-14 inch perforated zinc screen. The
balance of the screenings, which consists largely of wild
buckwheat and small broken grains of wheat, are ground
in simplex grinders to make sure that the vitality of
all seeds is destroyed. The feed so manufactured is
now available to the public. It is the property of the
government terminal elevators and the revenue derived
from it is used for the maintenance and operation of
the elevators. It is the cheapest feed I know of in the
market to-day. At the present time private elevator
interests are carefully watching the operations of the
government terminal elevators in the handling of their
screenings. If the results indicate that larger returns
are to be obtained from their elevator offal by following
these methods, then I have no doubt the practice will
become more general. This year probably 150,000 tons
of grain screenings will accumulate at the terminal

elevators at the lake front, and while the great bulk
of this is exported to the United States, considerable
shipments are coming to feed manufacturers in different
parts of Ontario.

A lively discussion followed. Prof. Howitt brought
up the deficiencies of the Ontario Weed Act, and intro-
duced the same suggestions for its improvement that
were brought out last year. Finally, Mr. Clark moved
this resolution, which was carried: "That the Experi-
mental Union memorialize the Hon. Jas. Duff, Minister
of Agriculture in Ontario, to consider the advisability
of amending the Noxious Weed Act, or other law, to
declare unlawful the sale and distribution of feeds in
Ontario containing more than two per cent. of weed
seeds which will pass through a screen 14 meshes to the
inch."

CORN, THICK OR THIN. FOR SILAGE.

Prof. Fulmer read a paper on the feeding value of
corn, based on work described in Henry's Feeds and
Feeding. It was pointed out that the riper the corn
got the more carbohydrates it contained. Also that
thick sowing in rows gave higher yields of feed nutrients
than planting in hills. This bears out our own work
at Weldwood this year.

In discussion, it was brought out that the corn
sown in drills, provided it has the same number of days
to mature as hill-planted corn, will be equal to the
hill-planted in maturity, and even though it has no
ears, this year's analysis shows it to be of equal feeding
value. Remember, it must be mature. Because it is
sown thickly is no reason for anyone to believe that it
will not mature. Give it the same number of days
that the corn planted in hills gets, and be sure to give
it time to ripen, which it will do even though it hasn't
an ear.

MATURE AND IMMATURE CORN FOR SILAGE

Prof. G. E. Day outlined experiments now in pro-
gress at the O.A.C. on mature and immature corn for
silage. So far as the test has gone, ripe Longfellow is
giving much better results than immature Mammoth
Southern Sweet in feeding trials on dairy cows. This
has been generally believed for some time. These tests,
while still incomplete, show a decided advantage for
the mature corn. The results of this test will be more
thoroughly gone into in next week's issue. Again we
state that these results are not an argument against
sowing thickly in the row, because, by sowing early
and allowing time, the corn will mature in the thickly-
sown row. In fact, it should mature as quickly as in
hills if it is sown thickly enough. Look for Prof. Day's
results in full in next week's issue. They are valuable.
And we believe further work will bear out his findings.
In both thick and thin seeding and mature and immature
corn for silage further work is urgently required.

SEEDS FOR 1916.

In the absence of W. J. W. Lennox, Mr. Clark
discussed the outlook for seeds in 1916. Although the
quality may be somewhat below average, no shortage
is predicted in spring wheat, oats and barley. Rape
and vetch and beans and peas will be scarce. Alfalfa
seed will be scarce. Red clover seed is very scarce
and will be unusually high. Alsike is in fair supply,
but will be high, as more will be used in place of other
clovers. Timothy seed in quantity and quality is un-
certain. Seed corn of the best quality promises to be
scarce. There will be plenty of mangel seed, but
Swede turnips will not be plentiful. There will be
some shortages in garden vegetables of certain kinds.

FERTILIZER TESTS.

In bulletin form Prof. Zavitz outlined the results
of fertilizer tests.

Complete fertilizer with oats gave an increase of 9.8
bushels per acre at a cost of 42 cents per bushel.

Muriate of Potash with corn gave an increase of 1.2
tons per acre at a cost of \$3.33 per ton.

Nitrate of Soda with mangels gave an increase of 5.9
tons of roots per acre at a cost of 81.4 cents per ton or 2.5
cents per bushel.

Complete fertilizer with swede turnips gave an in-
crease of 5.4 tons per acre at a cost of 78.5 cents per ton
or 2.4 cents per bushel.

Complete fertilizer with potatoes gave an increase
of 3.8 bushels per acre at a cost of 11.2 cents per bushel.

Complete fertilizer with winter wheat gave an in-
crease of 5.2 bushels per acre at a cost of 82 cents per
bushel when applied in the autumn and an increase of
8.3 bushels per acre at a cost of 51 cents per bushel
when applied in the spring.

WHAT OF FRUIT-GROWING?

A part of the last afternoon was given over to the
discussion of fruit-growing in Ontario. Prof. W. T.
Macoun, of Ottawa, stated that he believed that a
good farmer can make more money out of fruit than
a poor fruit-grower can. In his opinion there is no
danger of over-production of the highest possible
quality of fruit. There is always danger for the grower
of poor fruit. Apples, in his belief, would be sold on
their merit. He advised growers to locate near a large
local market and sell fruit locally. He believed the
diversified fruit-grower had the best chance of success.
Summer apples pay close to town, and small packages
generally prove most profitable. Variety is most im-
portant. We have many good varieties, too many
poor varieties, and no ideal variety. There is no good
reason why we should not have apples as good as the
Wealthy, as free from scab, suitable for all seasons.
He pointed out the difference in yields from individual
trees, citing two McIntosh trees, one of which in 18
years has yielded almost twice as many apples as the
other. The one that bore heavily first kept it up

throughout. He advocated economy in production and advertising.

P. W. Hodgetts, of the Fruit Branch, Toronto, advocated more thorough pruning, and particularly emphasized more careful grading, citing cases of bad grading, which meant about a 50 per cent. decrease in sale price. He discouraged the practice of sending No. 3 apples abroad and advocated more system in marketing.

A paper by F. M. Clement, of Jordan Harbor, and read by his assistant, Mr. Robb, emphasized more uniform packages, more uniform packs and advertising of the fruit.

Prof. Crow, of the O.A.C., gave some startling figures showing the difference in cost of getting the fruit to the consumer. He placed the average cost, in Ontario, from the car to the retailers' hands from 20 to 35 per cent. of the value of the fruit. In New York State a commissioner has been able to do it for 5 per cent. and save money, the actual outlay being 3 per cent. A big auction company in New York handles citrus fruits from the car to the retailer at 1 5-8 per cent., and the commissioner stated that he believed it could be done for 1 per cent. Other figures were given to show that there is room for a great deal of investigation of marketing methods in this country.

At the evening session W. B. Roadhouse, Deputy Minister of Agriculture in Ontario, gave an interesting address on School Fairs and the work the Department has been doing among the children and young people.

The Hon. F. G. Macdormid, acting Minister of Agriculture, delivered one of his fine addresses, which was listened to with pleasure and profit by the large audience present.

NEW OFFICERS.

Pres., J. B. Fairbairn, Beamsville; Vice-Pres., Harry Sirett, Brighton; Sec., Prof. C. A. Zavitz; Assistant Sec., Prof. W. J. Squirell; Treasurer, A. W. Mason; Directors: Dr. G. C. Creelman; Hon. Nelson Monteith, Stratford; H. A. Dorrance, Orangeville; Harvey Webster, Science Hill; J. C. Neale, O.A.C.; Auditors: S. H. Gandier and R. R. Graham.

THE DAIRY.

Winter Feeding for Milk Production

Editor "The Farmer's Advocate":

There are few problems on the farm which call for the exercise of better care and sounder judgment, in their solution, than that of winter feeding of live stock. Particularly is this true in feeding for the production of winter milk. To produce, and utilize the fodders produced, on the average farm that they will give the best returns available; to procure the best supplementary feeds which profitable feeding necessitates; and to combine these to produce best results, is not the work of a novice. Of course, there are often instances where good results are had on farms whose owners nature has given a big start in the race; which produce luxuriant crops of choice, clover hay with such ease of production to the owner, that he has never felt required to energize himself to meet and solve difficulties in feeding, that less favorably circumstanced members of his profession have faced, and have successfully solved. Many of the natural disadvantages, under which many men have labored in soil and crop difficulties, have been turned to good account in the matter of economical milk production. And the conditions which make for the most successful winter milk production are those which presume the producer facing natural disadvantages, and in face of these producing at minimum cost that which will give a maximum return for feed and labor, and when natural advantages help so much the better.

Where winter production is the object of our feeding, we must begin by preparation of fodder for this purpose. We cannot switch one year to devote too much land for the weeds of even a "Patriotism and Production" campaign; nor next year to devote an extra acreage to some crop that has paid well this year in some other locality. The basis of our fodder supply must be kept constant. This we do by providing each year for sufficient acreage of corn to produce all the silage for which we have capacity. The fact that some corn is left is not a source of worry, as there is always an outlet for fodder of this kind.

Providing an assured supply of corn silage for winter also provides other conditions in crop rotation by which we are assured of a good crop of spring grains on our corn stubble, and a safe stand of seed for hay the second year from the corn crop, so that the basis of our coarse fodder supply is assured. How to utilize these to produce the most through their consumption is the feeder's problem.

There are two or three matters, that, in themselves, may seem insignificant in winter milk production, yet are very important. Just as in beef production, the most economical gain comes through not permitting the growing animal to lose its calf flesh, so cows should not be permitted to shrink in their milk flow in autumn months beyond the natural shrinkage. The feeding situation must then be carefully watched, and pastures of diminishing value supplemented. Once

the severe fall frosts have come, the grasses and clovers lose very materially in feeding value, and if cows are continued the run of the pastures, what they procure there must be supplemented fully by stable feeding. Nor must cows in milk be allowed exposure to fall rains. Nothing so surely causes shrinkage in milk flow as the cold, drizzling rains of autumn, and stabling must be provided night and day to guard against these effects. Sometimes the herd may inadvertently be caught by a rain, but as soon as possible get them inside. Then when stabling commences be on a sharp lookout for any vermin that may appear, and get rid of them to prevent their multiplication.

There are other important adjuncts to successful feeding throughout the whole stabling season. The scales are a necessity to remove the possibility of guess work as to what results are being obtained at the pail, not only to find out what the individuals of the herd are doing throughout the year, but to know what response is being made to the feed supplied from day to day. The feeder must understand the individual animals, for individual peculiarities show themselves, and only close observation on the part of the feeder will yield the response desired at the feeding end. The excrement must be watched. No cow can give best results if the bowels become constipated, and the feed in kind, proportion and quantity as well as watering and salting, be gauged to keep this condition as nearly such as we find when the scouring of early spring pasture has passed and succulent, June grass is giving best yields at the pail.

To produce this result in the winter, we need the nearest possible to June conditions in winter feeding—not only healthy stable surroundings, but succulent food of good quality. And here is where the difficulty comes of making practical what science has given us in balancing rations. The conditions are so variant under which feeds are produced, that analyses are at best only approximate, e. g., hay produced on mucky soil, though of abundant growth, is of much inferior quality to hay produced on heavy soil. The analyses recently submitted to your readers of two classes of corn silage, brought out a condition which heretofore has been dependent on the feeder's observation, as the ordinary analysis of corn silage was based on the well-earned corn from which the silage was produced. Individual samples of bran, gluten meal, and even oatmeal, vary considerably in nutritive ratio. The general knowledge of feed compositions must be supplemented in feeding by the feeder's observation of the effect of the ration on the animal fed. This judgment, aided by the scales, and the milk test as well, dictates the quantity of coarse fodder to be fed, and also the meal ration used as a supplement, which must necessarily be high in protein. The quantity fed is limited by the cows ceasing to respond to an increase.

In our practice we have found the consumption of individual animals to vary, generally due to weather conditions, but the greater variation is in the amount of feed consumed by different individuals, and the non-observant feeder is either not feeding to capacity, or is wasteful of feed, neither condition being desirable. We mix each morning a day's feed in advance—half silage, and half cut hay and straw, by bulk. In moderate weather this is as much as we have found safe to mix, as the mass heats throughout in about twelve hours, and is not so palatable if allowed to heat too long. The dry feed is moistened, and a succulence imparted thereto that cannot otherwise be obtained. We feed as a meal ration principally ground oats and bran, mixed equal parts by weight, sometimes strengthening this by the addition of oil cake meal when bran is too dear and oil cake available. We have not fed cottonseed meal, owing to danger of constipation. The quantity fed is from 6 to 9 lbs. per day per cow, according to capacity and response. In some cases the quantity is increased, but as we usually have a goodly quantity of ears on our silage corn, the grain and meal ration is not a stinted one. We do not make a practice of feeding barley meal to cattle, as we think the carbohydrates in our silage and coarse fodder quite sufficient, and barley would not narrow the ration very much.

If labor conditions permitted we would like to have a constant supply of mangers to add to this ration, for the effect on the animal's system, viz., an additional blood supply and a general tone that only roots seem able to give. We have not yet seen bran high enough in price to prevent us using some. We have paid \$32.00 per ton for it, and even at this price value it not only for its protein content but for its laxative effect on the digestive apparatus. In feeding meal we generally try to mix it sufficiently through the coarse feed that it may not be swallowed by itself, but with the fodder find its way to the rumen, to be re-masticated. All starch constituents in the meal rations of animals digest more perfectly by thorough mixing with the saliva.

We have not, in practice, been able to provide the quantity of alfalfa hay we would like to have for winter feeding, but our experience is the same

as that of all others who have used it. We cannot have too much on hand, nor can we find a better source of protein to narrow down rations that are ordinarily too wide.

One problem in feeding, concerning which we have not yet been able to satisfy ourselves, is as to whether the cow giving an ordinary flow of milk, of comparatively high quality, may not produce more economically and keep in better condition on a ration somewhat wider, than the ration required by a cow giving the same quantity or even larger quantity of milk of lower fat content. This and many other problems are recurring constantly in feeding operations, and the wisdom of science and of keen observation lending themselves to the solution will make feeding no less interesting but more highly profitable in the future.

Middlesex Co., Ont. CHAS. M. MACFIE.

Winter Exercise for Dairy Cows.

Editor "The Farmer's Advocate":

"I noticed an item in "The Farmer's Advocate" of January 6, in regard to keeping cows in during the winter months. I beg to be allowed to give my experience on this matter, as I made a thorough study of it.

I kept my dairy cows in during the winter months, from December 1 until about April 15, according to how early the spring opened up. I did this for three years, never letting them get out once during that time. They had the very best of fresh water before them, and the stable was well ventilated. Later I tried the idea of turning the cows out every day, that it did not storm, from about ten o'clock until three o'clock, or until they came to the barn. I run a winter dairy and ship the milk of my dairy to the city, and I keep a strict account of what my cost of feeding and my returns are. I have a large yard for them to exercise in. This I have tried for the past two years, and find the following results: The last two years that I let my cattle run outdoors during the day-time, it cost me on an average of about 15 per cent. less for grain; I fed about the same of rough feed and roots, and my increase in milk was about 20 per cent., and besides my cattle were never sick, always looking hardy and in good condition. On the other hand, when I kept them in altogether during the winter months, they were always thin in flesh and very stiff and clumsy in their legs, therefore, I came to the conclusion that stabling cows all winter weakens their constitution, and therefore, decreases their ability for producing. I consider that outdoor exercise in a suitable yard is very essential.

Waterloo Co., Que.

W. S. T.

Feeding the Farrow Cow.

Some cows are persistent milkers, while others cease giving milk at the end of seven or eight months. The former are the more profitable class to keep, but many dairymen do not give them a fair deal. Anxious to secure as much milk as possible, it is a temptation to continue milking a cow, that will give milk, until a few weeks of the time of freshening. While the present gain may be a few cents, the future loss, both in strength of calf and quantity of milk during the following lactation period, may be counted in the dollars. The dairy cow is a machine, and a profitable cow works harder seven days of the week, for a period varying from eight to eleven months, than the average horse. A good horseman likes to rest his horse. So a good dairyman knows that, by giving his cow a rest of six or eight weeks and feeding her well between lactation periods, she will produce more milk annually than if deprived of this rest. Because the cow is not giving milk, during the rest period, is no reason why she should not have the best of care and feed. Straw and roots alone do not contain sufficient nutriment to nourish the growing calf and allow the cow to gain in flesh. In order to ensure a heavy flow of milk, the cow must be in good condition at time of freshening, and with a cow in a thrifty condition there is less trouble in milking. A liberal quantity of clover or alfalfa hay, along with a mixture of corn, silage and straw, with two or three pounds of concentrates daily, is a suitable ration for a cow due to freshen in a few weeks. If the cow, due to calve, is stabled, she should have exercise, but not chased by dogs or allowed to go where it is slippery. A few days previous to the time of freshening she should be put in a comfortable, well-bedded box stall and watched closely, so that assistance may be given if necessary.

Enthusiastic Crowds Attend the Western Dairymen's Convention.

The forty-ninth annual convention of the Dairymen's Association of Western Ontario, held in the town of St. Mary's January 12th and 13th, was considered to be one of the best in the history of the Association. Producers, cheese factory and creamery men from all over the district gathered in large numbers at every session to discuss problems of vital interest to them and to learn how best to handle the raw material, that the highest quality dairy product might be put on the market. It is realized that competition on the market is becoming keener each year, and the discussions pointed to the fact that the time was about ripe for the dairymen of Western Ontario to inaugurate some system of grading the cream and butter. The step cannot be taken too soon in order to retain the highest market. The method of paying for milk, at the majority of cheese factories, known as the "pooling system," was severely scored as being unjust and offering no incentive to a man to build up a high testing herd. Paying for milk on a quality basis was considered to be the only fair way. The dairy instructors have rendered valuable service to the cheese and butter men in improving the product of their factories. During the past year weather conditions and prices have aided in making it a most successful one for the dairymen, and all are optimistic regarding the future. At the convention the discussions were entered into with plenty of spirit, and the keynote was for all to stand united, for any movement that tended to assist in increasing both the quantity and quality of Western Ontario dairy products.



James Bristow.
President Western Ontario Dairymen's Association 1916.

In his opening remarks, President Robt. Myrick, of Springfield, claimed that the year just closed had been a "Banner year for the dairymen of Western Ontario." While some phases of farming had suffered from unfavorable weather, the conditions were such as to produce an abundance of pasture, consequently increasing the production of milk. In fact, it might be termed, "the dairymen's made-to-order season." Although pleased with the high prices received for cheese, which averaged about 15½ cents per pound (the highest on record) regret was expressed at the cause of the abnormal prices. Mr. Myrick, who has followed the workings of the Association for the past 38 years, had many pleasant reminiscences of the meeting together of producers, cheese and butter makers to discuss their problems. Not only was the farmer advised how to produce the greatest quantity of milk of the best quality and deliver it at the factory or creamery in the most sanitary condition, but the cheese maker and creamery man learned how to handle the milk or cream, in order that the manufactured product might be of the highest quality. Many problems have been threshed out, and men have gone from the convention with new ideas that have worked out to their advantage. In this way the Association has done a good deal to help along the dairy industry. Educational work carried on by the dairy instructors has done much to improve conditions of factories and creameries, but the goal of perfection is not yet attained. In view of the fact that city milk dealers have a "standard" of butter fat, and Boards of Health demand certain sanitary conditions, the President thought it was time for creameries and cheese factories to set some standard so that they may receive all high-grade cream and milk, produced under sanitary conditions. The method of paying for milk at so much per hundred pounds, irrespective of its composition, was considered defective.

To show the upward trend in the production of dairy products, the following figures were quoted:— "Total receipts of cheese in Montreal for the seven months, May 1 to November 27, 1915, was about 158,842,956 pounds, an increase over 1914 for the same dates of 26,319,458 pounds. The increase in price and production for the period mentioned means a net gain over 1914 of \$7,256,454 to the cheese factory patrons. Between the dates mentioned the total receipts of butter in Montreal were 21,004,872 pounds, an increase over 1914 of 516,432 pounds. During the season of navigation for 1915 there was exported 54,495 boxes as compared with 7,300 in 1914; or, in other words, the exports of butter totaled 3,049,720 pounds, after supplying our own market."

THE DAIRY INSTRUCTOR'S REPORT.

The financial statement showed the affairs of the Association to be quite satisfactory. Although the customary grant was somewhat reduced, the work of the Association was carried on as usual and a balance of about \$300 remained on the right side of the ledger. The report of instruction work given by Frank Hens, Secretary of the Association and chief Dairy Instructor and Sanitary Inspector for Western Ontario, showed that he and his staff had accomplished a considerable amount of good work. The instructors were able to assist many of the makers in improving the quality of their cheese. Three hundred and seventy-four full day visits and 556 call visits, making a total of 930 visits, were made by the instructors to the 151 factories in the district. Ten new factories were built, seven of which replaced factories destroyed by fire during the last two years. Seven factories made butter and three made whey butter. The number of patrons was increased over 1914 by 1,570, bringing the total number supplying milk to the cheese factories up to 11,112. The average percentage of fat in the milk for the season is estimated at 3.4 and the loss of fat in the whey as .212%. Visits were made to 162 patrons. Only 22 factories paid for milk by test, and 12 factories have ice curing rooms in use. Two of the larger factories will be remodeled during the present winter

installed septic tanks for the disposal of wash water, and in every case they are working satisfactorily. A few factories are still in a rather poor sanitary condition, but 125 are reported as kept in good condition.

The prices for butter being remarkably good, brought the creameries their usual amount of business. A total of 20,116,104 pounds of butter was manufactured in 1914. The output for 1915 was slightly decreased owing to the high price of cheese. There were 32,523 patrons supplying milk and cream to the creameries, the average per cent of fat in the cream being 27.9. The 125 creameries and 40 cream shipping stations in the district were visited by the three creamery instructors, they having made 334 full days' visits and 52 call visits during the season. The average moisture for 630 tests was 14.66%. A proportion of these were made at each creamery and only 41 samples contained over 16% of moisture. Five hundred and forty-six salt tests were made, the average amount of salt used being 5.19%, of which 3.27% was retained in the butter. In 50 creameries the scale was used for weighing cream samples, only three creameries using the oil test. Thirty-six creameries pasteurized the cream; that being an increase of 11 over 1914. Coolers for cooling the cream were used in 52 creameries, and 45 degrees was the average temperature of creamery storages. Fifteen creameries used culture and twenty-one had septic tanks for the disposal of sewage, this being an increase of seven over the previous year. In order to secure information in connection with the grading of cream, a few experiments were conducted during August. As the cream came into the creamery, it was graded according to what was believed to be a practical standard. Butter was made from this cream and placed in cold storage. This butter was exhibited at the convention, and, according to the score, the butter made from graded cream was much superior in flavor to that made from average cream. One lot of first-grade cream being two-thirds fresh and sweet, the balance slightly sour, but of good flavor, gave butter that scored 41 in flavor and retained 1.6% of salt, there being 3.76% used. The total score was 94.5. Butter made from average cream the same day scored only 36 for flavor. Six per cent. of salt was used in the manufacturing and 2.2% of it was retained. The total score for this butter was 88. Other experiments were conducted with cream graded first, second and third quality, and in each case the butter made from first-grade cream was superior to the other grades. Work along this line will be continued, and in the near future a uniform system of grading will be worked out that will be practical for all creamerymen to use, and thus raise the standard for Western Ontario butter, that it may successfully compete in any market.

THE POOLING SYSTEM IS DOOMED.

"Paying for Milk at Cheese Factories" was the subject of an address given by Geo. H. Barr, Chief of the Dairy Division, Ottawa. From figures obtained through experimental work it was clearly shown that there are several methods of paying for milk that are more just than the ordinary way of paying each man so much per hundred pounds, regardless of the quality. It was known years ago that 100 lbs. of 4% milk would make more cheese than 100 lbs. of 3% milk, but still the majority of the cheese factories pay the patrons by weight. It was admitted by those in a position to know that, while paying by test was much fairer than by weight, it was not altogether accurate, as the casein of milk entered into the cheese as well as the fat, and the amount of this in the milk is not determined by the Babcock test. Consequently further experimental work had been conducted in an endeavor to formulate a method that would give value for both casein and fat. The milk from individual herds was made into cheese in small vats, the quantity varying from 350 to 800 pounds in each vat. The fat in the milk varied from 3.1% to 4%. It was found that the yield of cheese from 100 lbs. of milk varied from 8.29 lbs. to 10.75 lbs., or nearly 2.5 lbs. more cheese from 100 lbs. of 4% milk than from the same weight of 3.1% milk. The yield of cheese per pound of casein varied from 3.47 lbs. to 4.68 lbs., a variation of about 1½ lbs.

and cool curing rooms installed ready for next season. About 70% of the factories pasteurize the whey and five feed all or a portion of the whey at the factory. The cheese factories of the district produced in 1914, 21,009,065 pounds of cheese, and, in addition, turned out during the winter months 880,052 pounds of butter. For 1915 the output of cheese is estimated to be at least 20% greater. The average number of pounds of milk to make a pound of cheese in 1914 was 11.11, being somewhat lower than in the past. The price was 13.5 cents per pound, which was considered good, but the 1915 prices have reached the highest point ever realized in Canada. The quality of the cheese up to the end of June was extra good, but during a few weeks in July and the extremely warm days of September some open and coarse textured cheese were produced. From that time to the end of the season the cheese maintained the usual high grade. The season being very wet, there was a larger amount, than usual, of rain water in the milk, this is detrimental not only to the yield, but to the quality of the cheese, as it interferes somewhat with the proper coagulation of the milk by the rennet. As the law regarding milk adulteration makes no distinction as to how the extraneous water gets into the milk, it is advisable that patrons provide covered stands or in some way prevent the adulteration of the milk by rain water.

Mr. Hens hoped that the increased price of rennet would not induce some makers to "skimp" the proper amount. Insufficient rennet meant slow and imperfect coagulation, a loss in yield, and possibly coarse textured cheese. It was a mistake to cut down in the amount of rennet and risk injuring the quality of the cheese. Seventy per cent. of the factories turn the cheese in the hoops, and the instructors would like to see the other 30 per cent. fall in line. The milk sediment test had developed a special interest among the patrons, and better means was being provided to deliver the milk in a sweet, clean, cool condition. The co-operation of the cheese makers in assisting to get the sediment test "disks" to each patron would be appreciated. During 1915 the instructors attended 78 factory meetings, where there was a total attendance of 5,015. For some reason not known, the number of patrons pleading guilty to delivering deteriorated milk to factories was higher than usual. Twenty having to pay heavy fines. The general sanitary conditions around cheese factories is rapidly improving. Thirteen factories have

VALUE OF MILK FOR CHEESE MAKING.—CHEESE AT 15 CENTS PER POUND

% Fat in Milk	% Casein in Milk	Lbs. Cheese per 100 lbs. Milk	VALUE OF 100 LBS. OF MILK					Difference between Cheese made and Pooling Basis		
			Actual Cheese made	Fat and Casein Basis	Fat Basis	Fat +2 Basis	Fat + Calculated Basis		Pooling Basis	
3.40	2.30	8.95	\$ c. 1.34	\$ c. 1.36	\$ c. 1.31	\$ c. 1.34	\$ c. 1.32	\$ c. 1.39	+5 cts.	
3.50	2.00	9.02	1.35	1.31	1.35	1.36	1.35	1.39	+4 "	
3.50	2.20	9.19	1.38	1.36	1.35	1.36	1.35	1.39	+1 "	
3.60	2.10	9.00	1.35	1.36	1.38	1.39	1.38	1.39	+4 "	
3.70	2.20	9.39	1.41	1.41	1.42	1.41	1.42	1.39	-2 "	
3.70	2.30	9.73	1.46	1.43	1.42	1.41	1.42	1.39	-7 "	
3.70	2.35	9.64	1.45	1.44	1.42	1.41	1.42	1.39	-6 "	
3.80	2.00	9.57	1.43	1.39	1.46	1.44	1.45	1.39	-4 "	
4.00	2.30	9.83	1.47	1.50	1.54	1.49	1.51	1.39	-8 "	
4.10	2.10	10.17	1.52	1.48	1.58	1.51	1.54	1.39	-13 "	
Greatest Variation with Actual Cheese made.....					+3c.	+7c.	+4c.	+4c.	+5c.	
					-4c.	-3c.	-5c.	-4c.	-13c.	

no have used it. We can-
and, nor can we find a
to narrow down rations
wide.

ng, concerning which we
o satisfy ourselves, is as
ing an ordinary flow of
gh quality, may not pro-
and keep in better con-
mewhat wider, than the
w giving the same quan-
ity of milk of lower fat
y other problems are re-
ding operations, and the
keen observation lending
n will make feeding no
highly profitable in the

CHAS. M. MACFIE.

for Dairy Cows.

cate":
n "The Farmer's Advo-
gard to keeping cows in
s. I beg to be allowed
n this matter, as I made

s in during the winter
until about April 15,
the spring opened up. I
never letting them get
e. They had the very
e them, and the stable
ter I tried the idea of
y day, that it did not
lock until three o'clock,
barn. I run a winter
of my dairy to the city,
nt of what my cost of
re. I have a large
in. This I have tried
d find the following re-
s that I let my cattle
day-time, it cost me on
er cent. less for grain;
rough feed and roots,
s about 20 per cent.,
re never sick, always
d condition. On the
hem in altogether dur-
y were always thin in
clumsy in their legs,
onclusion that stabling
their constitution, and
bility for producing. I
ise in a suitable yard

W. S. T.

Narrow Cow.

t milkers, while others
nd of seven or eight
the more profitable
dairymen do not give
to secure as much
temptation to continue
ive milk, until a few
ing. While the pres-
ents, the future loss,
and quantity of milk
on period, may be
e dairy cow is a ma-
works harder seven
period varying from
n the average horse.
st his horse. So a
y giving his cow a
and feeding her well
e will produce more
d of this rest. Be-
milk, during the rest
he should not have
Straw and roots
cient nutriment to
allow the cow to
ensure a heavy flow
good condition at
a cow in a thrifty
ble in calving. A
alfalfa hay, along
ge and straw, with
ntrates daily, is a
to freshen in a few
lve, is stabled, she
chased by dogs or
serv. A few days
ning she should be
ided box stall and
dance may be given

The accompanying table shows the value of 100 lbs. of milk, containing different percentages of fat and casein, from the actual cheese made in 1915, and five different methods of paying for cheese milk. After perusing those figures, the question naturally arose: was it fair for all farmers to receive the same amount of money for their milk, when a 3.4% milk was worth \$1.34, while a 4.1% milk was worth \$1.52, or a difference of 18 cents per 100 lbs.

In summarizing the work, Mr. Barr concluded that the pounds of cheese per 100 pounds of milk increased as the per cent. of fat increased in the milk, although not always in the same proportion. The pounds of cheese per pound of fat tend to decrease as the fat in the milk increases, and the pounds of cheese per pound of fat and casein tend to increase as the per cent. of fat increases in the milk. Making the cheese in the large vats, as well as in the small vats, gave the fat, plus calculated casein, basis of payment as the nearest to the value of the actual cheese made, with the fat plus 2 method second. After considering the figures in the table, it was clear that those who continued to pay a uniform rate per 100 pounds of milk were choosing a method that is unfair. If there was any good reason for not adopting the quality basis method of payment, it would be the lack of qualified men to do the testing. This was a regrettable fact, yet, if the trade demanded it, the cheese makers would no doubt qualify. Mr. Barr was firmly of the opinion that if the dairy authorities would get together on this subject and advocate some one system of paying for milk at the cheese factories, the cheese makers, factory men and patrons would adopt it within a very short time. Any of the methods mentioned for paying for cheese milk was considered better than the "pooling system," and when the method fairest to all was decided on, it should be advocated over the whole district.

Geo. A. Putnam, Superintendent of Farmers' Institutes and Director of Dairy Instruction in Ontario, led in the discussion, and expressed his regret that after so many years of agitation for a just system of paying for milk, so few factories were paying on a quality basis. It was his opinion that something definite should be decided upon by the dairymen and that method advocated by all. An educational campaign along those lines might be necessary.

From a proprietors standpoint, J. G. Parsons, of Jarvis, stated that in his experience the fat plus 2 basis of paying for milk was a decided improvement over the paying by weight system. It tended to improve the quality of the milk being received.

Harry Mitchell, who is supervisor of the milk-testing work in the Maritime Provinces also took part in the discussion. In his remarks he stated that the keeping of individual records was responsible for the discovery of many a high-producing cow, and the work was progressing rapidly in his district. The "pooling system" of paying for milk was a back number in the East, and it was as much as a man's life was worth to advocate its return. Paying on a quality basis was the only fair way. And yet, while the dairymen of Ontario have been discussing this question for years, they have not arrived at anything definite. Mr. Mitchell thought any of the methods mentioned by Mr. Barr to be fairer than the old system. It is to the interest of the dairy industry that a universal method of paying for milk be adopted.

A RECORD SEASON.

The directors reported 1915 to be the most prosperous year for dairymen in the history of the Association. The average pounds of milk per cow for the season was higher than former years, owing no doubt to the abundance of pasture maintaining the heavy flow of milk to the close of the factory season. While at the beginning of the season considerable milk was diverted from other channels to the cheese factories, thus aiding in increasing the output of cheese, indications now point to a revival in other lines of milk consumption, as evidenced by two factories being taken over by the milk powder companies. However, the increased interest in the cheese industry was indicated by the large amount of money spent in factory improvements during 1915, it being considerably greater than for the past few years. During the season just closed ten new cheese factories had been erected and three new creameries opened. The price of cheese being the highest ever received in Canada may have had something to do in stimulating the industry. Considerable cheese and butter was exported, and it was a source of gratification to the dairymen to feel they were able to supply a valuable food to the Empire. The prices may decline somewhat after the war, but the directors felt that this should not influence the milk producers to decrease their herds, but to make dairying a permanent feature of their farm operations. The experience of the past had proven that there was no line of agriculture which would, over a period of years, pay better than dairy farming. Prospects were also bright for a steady demand for live stock, and when this world war ceases, every evidence pointed to a great demand for dairy products.

The export of cream had fallen off during the year, as the prices paid for creamery butter was high enough to make it more profitable to sell cream in Ontario. Several cream buying stations were started in the district by creamery companies. The high level assumed by the butter market throughout the year resulted in good prices for cream producers. The exhibit of cheese and butter, which was a feature of the annual convention, had been a strong factor in improving the quality and advertising the product on the home market. A small number of producers failed to deliver milk of the required quality, and to look after those cases a special officer was required. However, there was a gradual improvement in

the quality of both the milk delivered by the patrons and the finished product. Credit was due to the work of the instructors in aiding in bringing about this improvement.

During the year the dairymen started a Dairymen's Patriotic Fund, and the response they received was very gratifying. A total of \$4,883.73 having been received up to December 31, 1915. Of this amount \$2,706.88 was turned over to the Canadian Patriotic Fund; \$1,000 to the Belgian Relief Fund, and \$1,176.85 to the Canadian Red Cross. It was decided to keep the Fund open until the close of the war, and any factories or individuals who wish to contribute may do so at any time.

KNOW YOUR COWS.

The keeping of dairy records has revealed many high-producing cows in average herds, but there are many high producers yet to be discovered, and Chas. F. Whitley, of the Dairy Branch, urges the dairymen to know their cows by the use of the individual record and Babcock test. The labor required for this work is not great, but the results are a weeding out of inferior cows and a gradual filling of the stables with cows which pay good dividends. Every farmer was strongly advised to set a standard in milk and butter fat for his herd, and to get rid of all cows that do not come up to the standard. It has taken a long time to impress on many of the dairymen the value of keeping records, but the experience of those who have profited is having a leavening effect, and the number of converts is increasing. A few figures taken from record sheets of dairymen in the district proves the effectiveness of the work. The first year's records of one herd of 10 cows showed a variation from 5965 lbs. of milk and 197 lbs. of fat to 12,773 lbs. of milk and 401 lbs. of fat—a difference of 6,888 lbs. of milk and 204 lbs. of fat between the best and the poorest cows. Only the scales and tests could reveal this difference. These same records showed that the owner, after two years of keeping records, increased the average for his herd by 2,151 lbs. of milk and 65 lbs. of fat per cow, thus bringing it up to 9,519 lbs. of milk per cow. Where each individual cow in the herd was known to be good, the average could not be poor. Mr. Whitley also pointed out that a cow giving 9,519 lbs. of milk at a cost of \$60 for feed, would leave a profit of \$44.70 at the present price of milk, or 23 such cows would give a net return of \$1,000 per year. On the other hand, a man feeding cows giving only 4,490 lbs. of milk at a cost of \$44.55 for feed would only have \$3.84 for his work, consequently would have to keep 260 such cows to clear him \$1,000. The best cows possible to secure were none too good to keep. True, the records themselves would not make the cows produce more, but the knowledge of what each cow was doing would be an inspiration to the owner to weed out the poor cow and give the remainder more care and better feed, consequently lessening the labor without decreasing the profits.

A lively discussion regarding feeding for records followed the address. Some men believed that by feeding feeds rich in protein, as cotton-seed meal, that the percentage of fat in the milk could be increased. It was pointed out by Prof. Harcourt that a variation in the percentage of fat might be influenced for a short time by the condition of the animal. The flow of milk can be increased by feeding, but the percentage of fat was peculiar to the individual animal.

CLEAN MILK AND THE MILKING MACHINE.

In a carefully prepared address T. H. Lund, of the Bacteriology Department at Guelph College, dealt with the question, "How to get Clean Milk with a Milking Machine." This was one of the newer problems confronting a number of dairymen to-day, and a problem demanding the closest attention of milking machine users, of factory men, milking machine manufacturers and their agents. While evidence showed that the quality of machine-drawn milk in Western Ontario was not what it should be, it was believed that with proper care and attention, milk, satisfactory in every respect, could be produced by any of the leading machines on the market to-day, but better methods must be employed by the man handling the machine. With the advent of science "clean milk" has taken on a new meaning. Before it was considered that bacteria in milk might be numerous or harmful, the average sample of milk was looked upon as clean. The "bacteria count" and "sediment tests" have given a new meaning to the term "clean milk." The more that becomes known about milk and of the troubles that impure milk brings about, the more people will realize the need of improvement in the average milk. "Certified milk" is the nearest to clean milk that exists to-day. While clean milk, as herein defined, does not get the premium it deserves over milk of the average kind, everyone in the market for milk wants it of good quality if possible to secure it. Milk containing millions of injurious bacteria produces dairy products of an inferior quality, with an attendant financial loss for which the farmer in the end must pay.

According to the modern meaning of the term "clean milk," it can only be produced from clean and healthy cows in clean and sanitary stables by healthy and clean employees; it must be handled in clean utensils of suitable material and construction and in a satisfactory sanitary manner from the moment it leaves the udder of the cow. No farmer who fails to have his cows tuberculin tested can be sure of producing clean milk, as it may contain thousands of germs of this terrible disease. No farmer who fails to groom his cows daily can produce clean milk, as a continual shower of hairs and dirt particles loaded with bacteria falls into the pail at milking time. No farmer who fails to cool his milk promptly after milking can produce

clean milk, as at the warm temperature the germs which have already got in will grow and multiply very rapidly indeed. No farmer who fails systematically and regularly to wash his milking machine can produce clean milk, because the new milk is quickly contaminated with germs which lurk in every corner of a dirty machine. No farmer who leaves the rubber tubes and teat-cups of his machine soaking in a solution teeming with bacteria can produce clean milk, as every drop of milk he draws soon becomes contaminated with germs from these teat-cups and tubes. The porosity of rubber makes it difficult to keep it clean, especially when coming in contact with milk. Washing powder, hot water and brushes remove a lot of the dirt, but fail to dislodge the myriads of minute spores. Live steam cannot be used, as it will destroy the rubbers, so the users of milking machines must resort to some other method of keeping their machines clean. The usual method employed was to immerse the rubber parts in some sterilizing solution between milkings, the success of which would depend on the germicidal property of the solution employed. To secure information regarding the nature of solutions used, visits were made to 16 farms. Of these, seven were using water alone, five were using lime water, two salt, one baking soda, and at one farm where the people were absent from home the solution was not ascertained. Summarizing the bacterial content per cubic centimeter of the solutions, there was found in the water a variation of from 50,000 to 110,000,000; the lime water, 4,000 to 9,700,000; in the salt, from 3,500,000 to 10,000,000; the baking soda solution contained 6,500,000, and the unknown, 3,240,000 bacteria. A glance at these figures would convince anyone that something was radically wrong. In no case was any solution found to be sterile or anywhere near sterile, but, on the contrary, in practically every case, they were teeming with billions of bacteria, as the above figures very plainly show. It appears plain, on the face of it, that if a satisfactory quality of milk would be procured with machines, solutions such as these must go. They are absolutely useless for the purpose intended, and it would be merely a waste of time using them at all. Considering the solutions individually, water alone possesses no power to destroy bacteria, and so would be useless for sterilizing rubber tubes. Lime water has weak germicidal properties if made from unslaked lime; if made from air-slaked lime, it was useless, and that was the kind of lime that was usually used; the lime also tends to cake on the thin rubber parts of the teat-cups and inside the tubing, and for this reason it should not be used. The germicidal properties of even a 10% salt solution was very limited and in weaker solutions bacteria was found to flourish and grow.

From the investigation it was found that a solution sufficiently strong to destroy germs, both in the solution and tubes, was necessary before the quality of milk could be improved. Chloride of lime was found to meet these requirements. It was both a cheap and effective germicide from which a satisfactory sterilizing solution could be made. The solution was made by dissolving one pound of chloride of lime in ten gallons of water, and after stirring, the lime was allowed to settle and the clear solution used. A solution made up as above with full strength chloride of lime retains its germicidal properties for about two weeks in summer, and from three to four weeks in winter, depending on the temperature at which it was held. As long as it would turn blue, a strip of starch-potassium-iodide test paper dipped into it, its germicidal properties were O.K.; as soon as it failed to produce this change, its germicidal properties were gone, and it must be thrown away and a new solution made. Chloride of lime solutions made as above were used at the O. A. C. dairy barn during the past summer with every success, the solutions being found sterile at all times when they gave a blue coloration with the test paper, and the tubes were also found to be sterile on each occasion when a test was made. Both the metal and rubber parts appeared to be well preserved after lying in a chloride of lime solution for the greater part of a year. Care must be taken not to make the solution too strong by using too much chloride of lime or too little water, as the metal parts will become corroded and spoiled in too strong a solution.

The metal parts of the machine should be thoroughly washed and scalded each time after use, and then be put in a clean place. The teat-cups and tubing should be fitted on to the machine and well rinsed out before and after use every time; warm water should be used for rinsing before milking to remove all traces of the chloride of lime; warm water and washing powder should be used first after milking, and then hot water before putting the tubes in the sterilizing solution again. All teat-cups should be taken apart at least once a week and given a thorough scrubbing with hot water and washing powder, and the tubing well scrubbed out with the brushes provided. They should then be rinsed in hot water before putting together and returning to the chloride of lime. If this could be done twice a week, so much the better, but it must be done at least once a week if satisfactory results are to be obtained.

A point often overlooked was the necessity for having the teat-cups and rubber tubing completely immersed in the chloride of lime solution; a sufficiently large container and a sufficient quantity of solution must be used, as the required results can not be secured if these parts, as is often the case, are sticking up out of the solution. Along with care of the machine must go cleanliness about the stables and cows and a proper method of cooling the milk. To produce clean milk with the milking machine was not considered by Mr. Lund to be an easy matter, but with proper

warm temperature the germs which will grow and multiply very rapidly who fails systematically and his milking machine can produce new milk is quickly contaminated in every corner of a dirty machine. The rubber tubes and teat-cups in a solution teeming with bacteria as every drop of milk he draws is contaminated with germs from these. The porosity of rubber makes it clean, especially when coming in contact with washing powder, hot water and the dirt, but fail to dislodge the spores. Live steam cannot be used by the rubbers, so the users resort to some other method of cleaning. The usual method is to immerse the rubber parts in a solution between milkings, the success depending on the germicidal property of the solution used. To secure information regarding the solutions used, visits were made to 16 farms where water alone, five parts to two salt, one baking soda, and one part of potassium iodide were used. People were absent from home and the solutions were not ascertained. Summarizing the results: a cubic centimeter of the solutions, containing a variation of from 50,000 to 1,000,000 parts of water, 4,000 to 9,700,000; in the case of the baking soda solution, 1,000,000; the unknown, 3,240,000 parts. These figures would convince the users that the solution was radically wrong. In no case was it found to be sterile or anywhere near sterile, in practically every case the solution was found to be contaminated with billions of bacteria, as plainly shown. It appears plain, therefore, that a satisfactory quality of milk can be obtained only by the use of machines, solutions such as are absolutely useless for the purpose, it would be merely a waste of time. Considering the solutions used, the farmer possesses no power to destroy the germs, but is useless for sterilizing rubber tubes and teat-cups, whose weak germicidal properties if used, if made from air-slaked lime, was the kind of lime that was used, so tends to cake on the thin rubbers and inside the tubing, and for this reason should not be used. The germicidal properties of a 1% salt solution was very limited and the solutions bacteria was found to

it was found that a solution of chlorine, both in the solution and in the quality of milk, was found to be satisfactory. It was both a cheap and effective method of sterilizing. The solution was made by adding a few ounces of chlorine to ten gallons of water. The lime was allowed to settle. A solution made up of chlorine and lime retains its strength for about two weeks in summer, and for about one week in winter, depending on the temperature. As long as it would keep, it was used. The starch-potassium-iodide test for germicidal properties were used to produce this change, its strength was gone, and it must be thrown away. Chloride of lime was used at the O. A. C. last summer with every success, and sterile at all times when tested with the test paper, and it was found to be sterile on each occasion. Both the metal and rubber parts were preserved after lying in a chloride solution for a greater part of a year. Care should be taken to make the solution too strong by using too little water, as the metal parts become corroded and spoiled in

the machine should be thoroughly cleaned after use, and then be washed with hot water and teat-cups and tubing should be washed and well rinsed out before use; warm water should be used to remove all traces of the old solution, and then hot water and washing powder should be used for the sterilizing solution again. The machine should be taken apart at least once a week and scrubbed with hot water and the tubing well scrubbed out. They should then be rinsed out with clean water and put together and returning to work. This could be done twice a week, and must be done at least once a week to be obtained.

It was the necessity for the use of rubber tubing completely in a lime solution; a sufficiently efficient quantity of solution would result in not being secured in the case, are sticking up in the stables and cows and the milk. To produce clean milk was not considered a very easy matter, but with proper

care and attention to essential details it could certainly be done.

CREAM GRADING FROM THE PROPRIETOR'S STANDPOINT.

This subject was dealt with by J. Scott, of Exeter, and it was his opinion that grading and marketing the dairy products on their quality was the only proper way. A premium should be placed on the first class product. Mr. Scott was in favor of cream grading, but believes there are many difficulties to be overcome. If one creamery man grades the cream, the man with a low testing inferior cream immediately sends his cream to the creamery that does not grade. He believes the Government should take over a creamery and experiment to determine to what extent cream grading was practicable.

Mr. Robinson, of Belleville, continuing the discussion, lamented the fact that so little was known of cream grading in Ontario. If an improvement was not forthcoming, the dairymen of the newer Provinces would soon command the trade. If other Provinces can make a success of cream grading, why cannot Ontario? It was thought that where competition was not keen, cream grading could be done with little difficulty. Whatever system was adopted, it must be simple and easily understood by both creamery men and patrons. It was the belief that no rule would be applicable to all parts of the Province. Mr. Robinson considers that cream should be placed in two grades. The first grade taking cream that would make first-class butter, while the second grade would use all cream that would not make a first-class product. For making tests the old test churn should be eliminated, and the Babcock test only used. Further discussion brought out the fact that cream grading was one of the important problems before Ontario dairymen. Mr. Hens believed that if the dealers and creamery men could agree on some system of grading butter, it would aid in starting cream grading.

CHEESE EXPERIMENTS.

Prof. Dean confined his remarks principally to the work which had been done in an endeavor to determine the value of the casein and fat in relation to cheese manufacture. Practicable factory methods of milk and casein determination had been worked out and numerous tests were made, both at the College and different factories throughout the Province. It was found that while there was a slight variation in the per cent. of casein in milk, the average was 2.2. Consequently the method of paying for milk on the basis of the percentage fat plus 2 was as near the actual value of milk for making cheese as could be secured. A summary of the work done in 1915 on this question shows that milk testing an average of 3.35% fat and 2.13% casein produced 89.76 lbs. of cheese per 1,000 lbs. of milk. Milk testing 3.23% fat and 2.06% casein averaged 87.56 lbs. cheese per 1,000 lbs. of milk or a decrease of 2.2 lbs. cheese per 1,000 lbs. milk. This showed that a slight variation in either the fat or casein test made considerable difference in the weight of cheese from a given amount of milk.

Attention was also drawn to the fact that under present abnormal conditions it was of importance to have all material used in the manufacture of cheese "home-made or home-grown," and yet the great dairy industry of Canada was dependent on foreign countries for its supply of rennet. It was considered advisable to encourage the establishing of a home supply if possible.

INVESTIGATIONS WITH HAND SEPARATORS

In view of the fact that many dairymen have more or less difficulty in obtaining a uniform percentage of fat in cream from their separators, the deductions arrived at by Prof. Dean are timely. After trying out about a dozen machines varying in capacity from 350 to 850 lbs. milk per hour, it was found that turning the handle six times above or six below the number indicated on the machine made no difference to its capacity. In relation to the fat in cream, an increased speed of six revolutions above normal increased the percentage fat from 2 to 10%, while decreased speed lessened the percentage of fat from 2 to 8%. Decreasing the flow into the machine, as well as increased temperature, had a tendency to increase the fat content in cream. The percentage fat in the skim milk was not affected by either speed, feed or temperature within certain limits. Regarding the number of pounds of cream from a given quantity of milk, increased speed tends to decrease the number of pounds of cream, and decreasing the speed increases the amount of cream. Decreasing the flow of milk to the bowl lessens the number of pounds of cream, and increased speed tends to increase the amount of skim milk. In regard to the temperature of the cream, the speed of the separator had little effect. Although the tendency was for high speed to lower the temperature somewhat. To secure a uniform test was a problem. Separating the milk with the same machine at the same speed day after day does not guarantee the same grade of cream, as many things enter in to cause a variation in the test.

LIME FOR ONTARIO SOILS.

Prof. Harcourt reviewed carefully the results of lime investigations, as carried on throughout the Province, pointing out the great need for lime on some soils in order to produce maximum crops. A full treatise on the subject by Prof. Harcourt was published in the January 13th issue of THE FARMER'S ADVOCATE.

DAIRY HERD COMPETITION.

As in former years, the herd competition aroused considerable interest, although this year the number of entries was somewhat smaller than last, there being but three competitors in the class for cheese factory

patrons and none in the class for patrons of creameries. The results showed that those competing had high-producing herds, which must have been given every attention in order to produce the amount of milk they did. The winning herd averaged 7,175 lbs. of milk per cow from May 1st to October 31st. 1, Jas. Burton & Son, Sparta, Sparta Cheese Factory; 190 acres in farm; 18 Durham and Holstein cows; 129,147 total pounds of milk; 7,175 lbs. of milk per cow. 2, J. C. Harkes, Listowel, Molesworth Cheese Factory; 100 acres in farm; 10 Holstein cows (4 R. B. and 6 G.); 70,712 total lbs. milk; 7,071 lbs. of milk per cow. 3, S. H. Coneybeare, Listowel, Elma Cheese Factory; 100 acres in farm; 16 Holstein cows (1 P. B. and 15 G.); 108,901 total pounds of milk; 6,806 lbs. of milk per cow.

WINTER DAIRY EXHIBIT.

The exhibit of cheese and butter was a strong feature of the convention. The uniformity of structure in the cheese was particularly noticeable, and spoke well for the instruction work given in the past. The cheese buyers' cup offered in 1903 to the cheese maker receiving the highest score three times or twice in succession was won permanently this year by J. K. Brown and Sons of Brussels.

The exhibits sold by auction brought good prices, cheese bringing from 17½ to 18½ cents per pound, and butter, 31¼ to 33 cents. Stilton cheese sold for 19¾ cents.

The following are the prize winners in the different classes:—

September White Cheese—1, H. Youn, Listowel, 95.82 (won on flavor); 2, P. Callan, Woodstock, 95.82; 3, H. E. Donnelly, Strathfordville, 95.66 (won on flavor); 4, C. J. Donnelly, Scottsville, 95.66; 5, F. E. Travis, Eden, 95.65.

September Colored Cheese—1, P. Callan, Woodstock, 96.48; 2, F. E. Travis, Eden, 95.82; 3, H. E. Donnelly, Strathfordville, 95.49; 4, C. J. Donnelly, Scottsville, 95.32; 5, H. Youn, Listowel, 95.16.

October White Cheese—1, J. K. Brown & Son, Brussels, 96.49; 2, P. Callan, Woodstock, 96.16; 3, H. Hastings, Britton, 95.99 (won on flavor); 4, Connolly Bros., Thamesford, 95.99; 5, Wm. Zulauf, Brunner, 95.83.

October Colored Cheese—1, Wm. Zulauf, Brunner, 96.16; 2, C. J. Donnelly, Scottsville, 95.99 (won on flavor); 3, H. Youn, Listowel, 95.99; 4, N. Bell, Ripley, 95.66 (won on flavor); 5, H. Hastings, Britton, 95.66.

Winter 56-lb. Box Creamery Butter—1, W. B. Dinwoodie, Belmont, 95.50; 2, E. M. Johnston, Innerkip, 95.16; 3, D. Doan, Southwold, 94.99; 4, J. Cuthbertson, Stratford, 94.82; 5, J. E. Wilson, Forest, 94.32.

Twenty 1-lb. Creamery Prints—1, J. Cuthbertson, Stratford, 95.66; 2, R. C. Bothwell, Hickson, 95.; 3, Carter Bros., Stratford, 94.42; 4, H. J. Neet, Tavistock, 94.33; 5, J. E. Wilson, Forest, 94.32.

56-lb. Box Creamery Butter—1, Mack Robertson, Belleville, 94.83; 2, H. A. Clark, Warwick, 94.66; 3, J. E. Wilson, Forest, 94.65; 4, W. G. Medd, Winchelsea, 94.48; 5, W. B. Dinwoodie, Belmont, 94.33.

Three September Stilton Cheese (10 lbs.)—1, H. W. Hamilton, Thedford, 96.32; 2, H. Youn, Listowel, 95.99; 3, Garnet Bairn, Lakeside, 95.83.

Two September Flat Cheese—1, F. E. Travis, Eden, 95.66 (won on flavor); 2, H. Hammond, Moorefield, 95.66 (won on flavor); 3, H. E. Donnelly, Strathfordville, 95.66 (won on flavor).

A full house greeted the speakers of the evening, it being the largest crowd in attendance at the convention. In his address of welcome, Mayor Weir, of St. Mary's, spoke optimistically of the future of the dairy industry. It was his opinion that the shortest road to successful dairying was to weed out the "drone" cows. Dr. Creelman was listened to with intense interest as he gave a glowing account of "his trip to the Orient." After eulogizing Canada as an agricultural country he carried the audience with him across the broad Pacific to the overseas Dominions of New Zealand and Australia, which were fast becoming rivals of Ontario as producers of high-grade dairy products. After a brief study of the characteristics of the people and products of the land, a visit was made to China, and from there to Japan, which was a country fast imitating Western methods.

Hold the home markets and reach out for new markets, always keeping in mind the production of a first-class article, was the advice given by W. Bert Roadhouse, Deputy Minister of Agriculture for Ontario, in his address. It was also thought that Ontario dairymen would do well to adopt the grading of cream and butter; then endeavor to produce high-grade products, and that the commencement of this work during the coming season would be a step in the right direction. Local talent added to the enjoyment of the evening's program.

OFFICERS FOR 1916.

The election of officers resulted as follows:—President, Jas. Bristow, St. Thomas; First Vice-Pres., R. W. Stratton, Guelph; Second Vice-Pres., W. A. Bothwell, Hickson; Third Vice-Pres., J. N. Paget, Canboro; Sec.-Treas., Frank Hens, London. Other members of the Board of Directors are: T. Ballantyne, Stratford; J. H. Scott, Exeter; Jas. Donaldson, Atwood; J. MacHoover, Burgessville; Geo. E. Booth, Ingersoll, and Robt. Snell, Norwich.

Could Not Do Without It.

Editor "The Farmer's Advocate":

I am a little backward in sending renewal, but I could not get along without your paper. Always glad when Friday comes to read it. I have built a hen-house from it, something like you have at the Weldwood farm, 20 by 24 feet square, and I like it well.

Que.

THO. H. TAYLOR.

Individual Cow Records.

On practically every farm a few milk cows are kept, ranging from two or three on one hundred acres in some sections, to ten, fifteen or even twenty-five in a dairy section. These cows are milked morning and night by different members of the family, and the milk disposed of. In less than one per cent. is the individuality of the cows known. But, a set of spring scales, and one-half minute of time per cow night and morning will tell exactly what each cow is doing per day, month or year. The main reason given for not keeping dairy records is, "it's too much bother." This seems a lame excuse when one considers the many advantages.

One minute per cow per day, or ten minutes for an average herd! A set of spring scales costing anywhere from twenty-five cents to five dollars, according to the kind, and a sheet of paper, without cost, is all the equipment necessary to keep track of the yield of milk. If it is desired to test the milk, one can have it done at their District Representative's Office free of charge, or purchase a four-bottle tester and do the testing themselves.

What is the advantage of this work? It teaches one to know the cows, and instead of telling the visiting neighbor that "Rose" or "Dot" is a pretty good cow, or their mother was a heavy milker, one can say exactly the number of pounds of milk that "Rose" gave during a certain year, or her highest daily record. If one has tested the milk it is known definitely whether it is high or low in butter-fat. When a record is kept, the boy, if not the father, takes a pride in showing the good cows to the neighbors and telling all about them. But, the "boarder cow" is kept in the background or is soon disposed of. From outward appearance a cow may look equal to the one standing beside her; both eat about the same amount of feed, but the scales may show a difference of five pounds of milk per day, a quantity hardly noticeable in the pail, yet at the present prices paid for milk it would amount to about fifteen dollars for the year, a difference of profit or loss.

Dairymen, who are keeping individual records, have stated that the first year of weighing the milk, showed that cows they thought their best were actually the poorest milkers. In some cases a few of the cows were kept at a loss, and a higher profit was made with less work from half the herd.

"Like tends to produce like," then, individual records should be kept in order to know the heifer calves to keep for breeding purposes. In case of a sale, it will mean many dollars more, if the owner has the individual records to show the purchaser. A male animal of the dairy breeds will not find ready sale unless the records show his dam and granddam to be high producers and high testers.

Keeping individual records is business. It interests the whole family; helps the boys to take a pride in the herd; allows the dairyman to know his cows and weed out the unprofitable individuals; indicates if the cow is off her feed or if it would pay to feed a little heavier on concentrates. Once records are kept, they will always be kept. If other men find the time spent on keeping records returns a large dividend, it will do the same for you. Why not start this winter and know your cows?

Believes in Fresh Air for Cows.

Editor "The Farmer's Advocate":

I have often been helped by the experiences given through the columns of your paper by other farmers, and as I noticed in the December 16 issue, you hinted in the Editorial Department that it would probably be helpful to others if some would give their opinions concerning the exercising of cattle during the winter months; I decided to send, in a few words, my experience.

I have been in dairy work for thirty years, and have managed herds of ninety cows down to smaller herds. I have, at the present, about fifty head in my care. The question, should cows be exercised in winter, can be answered very sensibly under different opinions, but as each individual can only express his own, it is with an unprejudiced mind that I make my statement. That fresh air is essential to good health no one would deny, but circumstances sometimes alter cases. So much difference exists in stable accommodation, and as some are without water, and cattle have to be driven to the creek or well to drink, this necessity gives daily exercise, but is it not sometimes, especially on stormy days, a very drastic method, to say nothing of the danger to the cows after twenty-four hours in, often times, a very hot, stuffy stable, which naturally means that they are just famishing with thirst, and take in so much water that it endangers their lives? I have known cases where cows have died in this way. Again, it may be, that the yard in no wise gives sufficient shelter from the bleak winds. If so there is a possibility of heavy milkers getting swollen quarters, leading to inflammation and sometimes loss. It is not unreasonable to believe it possible for a

cow, with large udder, coming from the warm stable to a zero temperature that the cold penetrates the very tender skin of the udder with serious consequences. And very few yards are free from ice and slippery places, which are very dangerous to the cows from half time to freshening. These are a few out of many excuses that may be brought forward against daily exercise. But, on the contrary, if the water be laid convenient, there is no danger of their wanting to drink outside, and if the yard is favorably located and care taken of the icy places (covered with ashes or with some other material that would prevent slipping), I am decidedly convinced that to ensure good health there is nothing better than an hour or so in the open if the weather is reasonably fine, but on no account would I turn them out when it is storming. I may give at least two reasons for my conviction: The first is that cows are heavy breathers, and at night, by taking a dim light into the stable and noticing the vast amount of steam proceeding from each cow's nostrils, it will be easy to come to the conclusion that, there is continued inhaling of each other's breath, and, though this cannot be detected so easily in the day time it, nevertheless, continues, hence the need of open air and ventilation. It may be that certain of the herd are suffering from tuberculosis, unknown to the proprietor, and the danger of spreading the terrible disease exists, more so if no change of air be given. With sound judgment the cattle may be exercised on mild and sunny days in the open yard, not allowing them to get humped up, showing the effects of the cold, taking the best part of the day for the purpose. My second reason is that it is beneficial to a real sanitary stable to have it clean of the stock for awhile as often as possible, for, however good the ventilation may be, there is bound to remain that "cowy" smell if the stable is never free of the cattle. But the open windows and doors, and the absence of the cattle for only one hour, together with a thorough good clean-up, make a wonderful difference to the health and pleasure of the stock.

In conclusion my method is to exercise on favorable days an hour or so before noon. While the cattle are out I place the silage all in readiness, and when convinced it is time they were in just let them come, and it is a pleasure to see how heartily they enjoy their feed after their airing. On cold, stormy days open the door on the sheltered side for a while, allowing sufficient air from the opposite side to cause a transfer of odor and steam, but taking care not to get the stable chilly. I find the herd in a very satisfactory state of health, but, of course, the exercising and fresh air is only part of the requirements for keeping them in this state.

Labelle Co., Que.

CHAS. GOULD.

HORTICULTURE.

Are the Young Trees Protected?

During a winter when there is plenty of snow there is considerable danger that young trees will be girdled by mice, unless protected in some way. But, whether there is snow or not the rabbits appear to enjoy the tender bark of a young tree, and in a short time can work havoc in an orchard. A sharp lookout should be kept for them, in an endeavor to rid them from the premises. If they are doing any damage, a protection may be put around the trees. Some use building tar paper, which may be made to extend the full length of the trunk if necessary, and is a cheap and efficient protection. Others use a thin board veneer to wrap around the trees, while others in the vicinity of a tile yard might pick up enough split or cracked tile to place around the trunks and prevent injury. It is best to be fore-armed and have this work done early in the fall, but, if it was neglected and there is danger of injury, any of the protections mentioned might be put on any time. If an injury is noticed, it is wise to wrap it carefully to prevent the injured part drying out too much, then if the injury is not right into the wood there is a chance of nature healing the wound. Where the trunk is girdled through the cambium layer all around, the tree may be saved by grafting. This should be done about the time the sap starts to flow, by cutting young growth from the tree, long enough to bridge the wound. These are made wedge-shaped at the end and inserted into a clean cut made with a sharp chisel, in the uninjured bark, both above and below the wound. Care must be taken to have the cambium layer of the graft come in contact with the cambium of the trunk. This will carry the sap over the wounded area to nourish the tree. Grafting wax should be used to prevent the air from getting at the place where the grafts are inserted. This method usually saves the tree, and apparently does not weaken it to any great extent.

Black Knot of Plums and Cherries.

Black Knot is found on the cherry and plum trees, to such an extent as to make the trees worthless in some orchards. Not only does it infect the cultivated varieties, but attacks wild plums and cherries. As the spores of the disease spread from tree to tree, there is little use trying to eradicate it from the orchard if infested trees are allowed to grow in the vicinity. During the winter is a good time to destroy all worthless trees that might be a means of harboring the disease. The whole community should take an interest in this, and see that wild plum or cherry trees, along the roadside, in the fence corners or in the woods, that are infested with the black knot, are cut down and burned. Then commence to destroy the disease in the orchards. Black knot is a fungus, and the spores of the old knots are spread in the winter or early spring. If a spore finds lodgment in a crack or wound of any kind it may infect the part and cause the development of black knot, as it is known, which, in time, may check the flow of sap, causing the entire limb to die. The most effective means of control is to prevent the production of spores. As they are matured and commence to blow about during the winter or early spring, no time should be lost in cutting the infected parts out of the tree and burning them. Removing them from the tree is not enough, because the spores will ripen in a knot taken away from a tree as well as on it. The diseased parts must be burned.

There are two stages of the disease, one in the winter and another in the summer. While the tree may be clean in the spring, there is a chance that the disease may appear during the summer. If so, cut it out as soon as seen, and the disease may be reduced to a minimum. Bordeaux mixture assists in controlling the disease, but the knife and saw are the most effective. All cuts made would be better painted with tar, white lead or grafting wax.

POULTRY.

Short Course in Poultry Raising.

A great awakening is coming in the poultry industry of the Province of Quebec, and the country is beginning to realize the value of a well-kept flock of fowls. At present Quebec does not hold an enviable position as a poultry-producing province, since vast importations of eggs and dressed poultry are made every year, these coming from Ontario, the Western Provinces and the United States. In 1914 Quebec imported 1,103,118 dozen eggs, valued at \$280,429.00, and unless production with the Province is greatly increased the importations will increase annually. Efforts are being made, however, to encourage farmers and town poultry keepers to increase the size of their flocks, and to give them better attention in order that larger and more profitable returns may be secured. The people of the Province are very favorably situated for poultry raising, since eggs and dressed poultry are in constant and increasing demand, and Montreal is one of the best markets on the continent. Furthermore, the Province is well situated to undertake exportation of eggs and dressed poultry to Great Britain. This market is being developed gradually, owing to the change in market conditions brought about by the great war. As far as supplying Great Britain with eggs and dressed poultry is concerned Quebec has a decided advantage over Ontario and the Western Provinces, but unless she takes advantage of the opportunity she will always be behind her sister provinces in poultry production. Quebec should be an exporter of poultry products instead of an importer, but this will not take place until the number of the fowls in the Province is greatly increased, and better methods in poultry raising are undertaken.

It is very evident, however, that Quebec is going to make an attempt to redeem itself in matters of poultry production. Greater interest than ever before is being shown by farmers and others who keep fowls. Farmers are giving their flocks better attention, and there are a large number of town people who are anxious to start in the poultry business.

In order to give farmers and others a chance to acquire more knowledge in poultry raising, the Poultry Department of Macdonald College, at Ste. Anne de Bellevue, is putting forth every effort to provide a good program for its annual Short Course, which will be held at the College from Feb. 14 to March 3. This Course of three weeks is intended to assist in supplying the demand for practical knowledge, combined with a lecture course on the more important phases of poultry culture. It will be full of up-to-date information designed for practical poultry keepers, and it should enable all interested to become more familiar with the principles of successful poultry keeping.

The Course is being given under the direction of M. A. Jull, B. S. A., Manager and Lecturer; assisted by S. A. Bergoy, B. S. A., and A. G.

Taylor, B. S. A., Assistants in Poultry Department; W. A. Brown, Poultry Division, Central Experimental Farm, Ottawa, Ont.; the Professors of Biology, Cereal Husbandry, and Horticulture; the College Veterinarian, and the Demonstrator to Homemakers' Clubs.

Men and women students will be received, but none under 18 years of age. There is no other age limit. A registration fee of \$1.00 is required in advance. Rooms and board may be obtained in the village of Ste. Anne de Bellevue at \$5.00 to \$6.00 per week. A list of suitable places may be obtained from the Bursar's Office. There will be no examinations for entrance or at the end of the courses. Write for illustrated bulletin to the Principal, Macdonald College, P. Q.

The Farm Flock in Winter.

On a few farms there is a liberal supply of fresh eggs daily, but on the majority of farms, the complaint is made that the hens will not lay during the winter months. There is no particular breed that refuses to lay, but all come in for condemnation. If a few farmers can secure the much-prized hen fruit the year round, and especially when prices are high, why cannot all do the same? Yet, the same breed of fowl has been kept in the same style of pen and fed the same rations by two men living not over twenty rods apart, and the one flock was laying while the other was idle. The reason is hard to account for.

If eggs can be produced anywhere it should be on the farm, where every facility is present for rearing strong, healthy birds, and the feeds grown to give a ration suitable for egg production. If the chicks are hatched the last of April or the first part of May, they should be developed enough to commence laying by November. The hen is particular that her winter quarters are clean, well-ventilated, free from drafts, light, and dry. If a suitable pen is not already provided, there is frequently an old building around that could be fixed up, at very little cost, to answer the requirements mentioned. A cotton front appears to give the most satisfactory ventilation, and a window in the south end of the building allows sufficient light. The ventilator in the roof is not satisfactory, as it allows the heat to escape without a complete change of air, consequently there is a clammy odor in the building, and a certain amount of dampness. These conditions can be improved by closing the ventilator, and putting cotton on a portion of the front. It does not make so much difference what kind of a floor is put in the pen so long as it is dry. In order to allow the hens as much floor space as possible, a dropping board can be placed under the roosts, high enough from the floor to allow the hens room underneath to scratch. Where the dropping board is used it must be cleaned regularly.

A mistake frequently made, is limiting the fowl to one or two kinds of feed. Like everything else, they like a variety, and nowhere is this available to the extent it is on the farm. Wheat is considered the best all-round feed, but is not enough in itself. On every farm oats are grown, and yet few feed them to the hens, claiming the hull to be too thick. They may not be picked up as readily as other grains, but if crushed just enough to show the white kernel, they are readily eaten and are almost equal to wheat for producing eggs. Corn is a very good winter feed but is of too heating a nature to be fed to any extent during the summer. Buckwheat is also a good egg-producing feed, but must be fed carefully. Green feed, as cabbage or roots, should enter into the daily ration. These are usually grown in abundance on the farm, but are often forgotten when feeding the hens. Another feed generally available is clover leaves, which are exceptionally good for the birds, and can be fed either dry or steamed. The city poultry keeper often pays a good price for these things during the winter, but where they cost the least their value is seldom recognized. During the summer the fowl pick up grit and shell when on free range, when winter comes and they are confined to closed quarters they have no means of securing the material to grind their feed, nor make shell, unless it is supplied them by the feeder. Grit and oyster shell should be before the birds all the time. It is surprising the quantity of shell the hens will eat once they start laying. Another feed found on most farms is skim-milk, this has a high value, especially when soured before feeding to the hens. It takes the place of beef scrap, and serves as a drink.

In feeding for best results a mixture of grains should be fed in a deep litter of straw, this makes the birds work and the blood is set in circulation. If the feed can be easily secured, the birds are on the roosts too much of the time. A fairly good winter ration would be two parts wheat, one part corn, one part buckwheat, and all the crushed oats they will eat. No hard and fast rule can be given as to the quantity to feed, but about one handful of grain fed in the litter to two birds night and morning is considered sufficient by some poultrymen. The rolled oats should be fed from a hopper. Some kind of

assistants in Poultry Department, Poultry Division, Central Ottawa, Ont.; the Professors of Husbandry, and Horticulture; Marian, and the Demonstrator.

Students will be received, but of age. There is no other contribution fee of \$1.00 is required. Rooms and board may be arranged for at the Bellevue Hotel. A list of suitable names from the Bursar's Office. Applications for entrance or admission. Write for illustrated bulletin, Macdonald College, P. Q.

Flock in Winter.

There is a liberal supply of fruit on the majority of farms, made that the hens will not starve in winter. There is no paraffin to lay, but all come from a few farmers can secure fruit the year round, and prices are high, why cannot all the same breed of fowl have the style of pen and fed the same men living not over twenty one flock was laying while the reason is hard to account.

Reduced anywhere it should be every facility is pressing, healthy birds, and have a ration suitable for egg chicks are hatched the last part of May, they should be commenced laying by November, free from drafts, suitable pen is not already frequently an old building fixed up, at very little cost, vents mentioned. A cotton the most satisfactory vent in the south end of the vent light. The ventilator in store, as it allows the heat complete change of air, consequently odor in the building, and dampness. These conditions closing the ventilator, and a portion of the front. so much difference what in the pen so long as it is low the hens as much floor popping board can be placed enough from the floor to underneath to scratch. board is used it must be

made, is limiting the fowl of feed. Like everything plenty, and nowhere is this it is on the farm. Wheat all-round feed, but is not every farm oats are grown, to the hens, claiming the They may not be picked grains, but if crushed just white kernel, they are almost equal to wheat for is a very good winter feed, but must be fed to summer. Buckwheat is feed, but must be fed as cabbage or roots, should be used. These are usually the farm, but are often the hens. Another feed cover leaves, which are expensive birds, and can be fed.

The city poultry keeper for these things during they cost the least their feed. During the summer and shell when on free and they are confined have no means of securing their feed, nor make them by the feeder. should be before the birds comprising the quantity of once they start laying. most farms is skim-milk, especially when soured because. It takes the place of as a drink. results a mixture of grains litter of straw, this and the blood is set in can be easily secured, roosts too much of the ration would be two corn, one part buckwheat, they will eat. No hard as to the quantity to of grain fed in the and morning is considered. The rolled a hopper. Some kind of

green feed and sour milk should be fed every day, and occasionally a hot mash by way of variety. The oyster shell and grit may be placed in a box or hopper attached to the side of the pen. Besides the milk as a drink, it is well to keep a dish of clean water in the pen, and if any of the birds have a cold, a little potassium permanganate added to the drinking water will often prevent the colds and roup from spreading; or some of the preparatory preventives and cures advertised in these columns may be used. A box of ashes or road dust should be placed in every pen for the birds to dust in, this is only a small matter but it aids in destroying vermin on the birds.

Winter egg production is a problem, but it is believed that by paying attention to little things in feeding and housing more eggs can be secured during the winter. A model pen but poor feeding will not produce eggs, neither will the best feeding in a pen that is damp or drafty.

To Prevent Egg-Eating.

Editor "The Farmer's Advocate":

Now that the hens are in winter quarters, and we are up against the problem of saving the high-priced, winter eggs from the feathered egg-eater, it occurred to me that a method that has proved thoroughly successful with my flock for the last two winters, and so far this winter, might be of value to other farmers also.

My nests are simply rows of boxes, in single or double rows as space permits, with a foot-board in front about four or five inches wide. I drove staples in the partition board at about every third or fourth nest, and attached a wire to each staple. I then took mangels and cut in pieces, with one thin and one thick end, past the end of a wire through the thin end of the mangel, turned up the wire to make a hook so that the thick end of mangel rested on the foot-board, and watched results, leaving the eggs in the nests in plain view. Mrs. Mischief-Hunter jumped up on the board and walked along looking for eggs, found the nice, juicy-looking, white side of the mangel in her path, stopped to investigate, next, sampled it and found it to her liking, and straightway forgot all about the eggs. That ended the loss of eggs for me. I keep cabbages also hung up in the hen-house, and feed all the clover leaves I can gather up.

I had never been much bothered by feather-pulling, but the method that stopped the egg-eating stopped the feather-pulling also. Middlesex Co., Ont. C. B.

FARM BULLETIN.

Acre-Profit Competitions.

Fifty-nine acre-profit competitions were conducted in 1915 by the Ontario Department of Agriculture through its District Representatives. The winners in these contests will this month take the Short Course at Guelph at the expense of the Department of Agriculture, and the 67 thus favored at the conclusion of the Course pass an examination to discover the best all-round man in live stock and seed judging. The young man obtaining the highest marks will receive a gold watch donated by the Deputy Minister of Agriculture and the Assistant Deputy Minister.

The results of the competitions on the farms are very much above the average yield of the Province, and are another evidence of the possibilities that may be developed through system, thoroughness and labor.

In estimating the cost of operation, \$5 per acre was allowed for the rent of the land, 15 cents per hour for manual, and 10 cents per hour for horse labor.

The contestant producing the greatest yield of potatoes was Milton H. Goltz, in the Muskoka District. The yield was 514 bushels, and the cost of production \$42.02. Valuing marketable potatoes at 75 cents per bushel, and unmarketable potatoes at 37 1/2 cents per bushel, the profit amounted to \$336.72. The next highest yield was 421 bushels and 30 lbs., while others ranged from 408 bushels down to very small quantities.

In oats the greatest yield was produced in Lanark County. The exact quantity was 104 bushels and 10 lbs., which cost \$17.75 to produce. Calculating oats at 40 cents per bushel, the profit was \$23.98. This crop was produced on a clay loam following potatoes, the land had been farmed for 75 years.

The exceptionally good yield of 1,652 bushels of mangels was produced in Halton County. The cost of production in this case amounted to \$42.33, and estimating mangels at 12 cents per bushel, the profit was \$155.91.

Some of the contestants reported phenomenally high yields of silage corn. In Oxford County the greatest yield was recorded, namely 89 tons and 1,400 lbs. the cost of production was \$18.15, and calculating silage corn at \$3.00 per ton, the profit was \$100.95.

A contestant in Lambton County produced 154 bushels of corn for seed; this was accomplished at an expense of \$12.32, and estimating the product at \$1.25 per bushel, the profit amounted to \$180.18.

In the vicinity of Fort William, 994 bushels of turnips were produced. \$21.94 was the cost of production, while the profit amounted to \$97.42, calculating turnips at 12 cents per bushel.

Forty-six bushels and 45 lbs. of spring wheat, produced at a cost of \$15.18, was recorded for that crop. Another produced 51 bushels of barley for \$17.28, and 22 bushels and 20 lbs. of beans were grown at a cost of \$21.55.

The Best Yet.

Editor "The Farmer's Advocate":

Speaking from the standpoint of a continuous subscriber for nearly thirty years, I can safely say that the Jubilee Number of "The Farmer's Advocate," both in the literary merit of the articles and the splendid illustrations, is a great credit to your publishing company, marking as it does the advance along agricultural as well as all other lines during the half century just passed. "Persevere and Succeed," the motto of the grand old founder of "The Farmer's Advocate," is a good motto for all to-day. The old Advocate has been one of the greatest factors in giving Canada the proud position she to-day occupies as the greatest self-governing dominion in the greatest empire of the past or present. P. E. I. WALTER SIMPSON.

Helping Bear the Burdens.

An old reader writes: "In connection with the renewal I can say without hesitation that I regard 'The Farmer's Advocate' as necessary a part of our farm outfit as a plow or a good cow, and base this judgment upon many years' experience. When I consider the long and splendid service its pages have been to myself personally and my family, I should feel ashamed to see the rural mail man come to the box without the yellow-backed old Advocate. Our crops have been good and prices likewise. The war has brought burdens but the paper helps us to bear them, and its example and counsel has encouraged our liberality toward all good causes."

Couldn't Work In The Dark.

Editor "The Farmer's Advocate":

Please send me "The Farmer's Advocate" for the next 12 months, starting January 1, 1916. I took it before and quit for a year, but I have to take it again. Being without the Advocate is like being in the dark trying to work without a light. I have read your good hints which have helped. I also have a dandy good dog which I thank the Advocate for, and I only wish I knew the man's name so that I could get another. Wellington Co., Ont. H. W. BURROUGH.

Toronto, Montreal, Buffalo, and Other Leading Markets

Toronto.

The receipts of live stock at the Union Stock Yards, West Toronto, from Saturday, Jan. 15, to Monday, Jan. 17, numbered 162 cars, comprising 2,719 cattle, 62 calves, 1,219 hogs, 565 sheep and lambs, and 392 horses. Market steady. Choice butchers', \$7.40 to \$7.85; good, \$7 to \$7.40; medium, \$6.50 to \$6.90; common, \$6 to \$6.50; cows, \$3.50 to \$6.65; bulls, \$4.50 to \$7; stockers, \$5 to \$5.75; feeders, \$6 to \$6.50; calves, \$5 to \$10.50; milkers, \$70 to \$100. Lambs, \$11 to \$11.75; cull lambs, \$7.50 to \$8.50; sheep, \$4 to \$8.50. Hogs, \$9.25 fed.

REVIEW OF LAST WEEK'S MARKETS

The total receipts of live stock at the City and Union Stock Yards for the past week were:

	City.	Union.	Total.
Cars	46	469	515
Cattle	484	4,111	4,595
Hogs	1,211	11,685	12,896
Sheep	435	1,738	2,173
Calves	18	339	357
Horses	58	2,017	2,075

The total receipts of live stock at the two markets for the corresponding week of 1915 were:

	City.	Union.	Total.
Cars	51	330	381
Cattle	645	4,224	4,869
Hogs	952	8,841	9,793
Sheep	770	1,966	2,736
Calves	36	286	322
Horses	19	29	48

The combined receipts of live stock at the two markets for the past week show an increase of 134 carloads, 3,103 hogs, 35 calves, and 2,027 horses, and a decrease of 274 cattle, and 563 sheep and lambs, compared with the corresponding week of 1915.

Last week presented a very active

trade, and a steady advance in prices. At the close the market was a strong 25c. per cwt. above the previous week. Choice butchers' were quoted at \$7.50 in bulk, and one car of 1,100-lb. steers, with good dressing prospects, brought \$7.90. The majority of the selling was between \$7 and \$7.50. Fat cows and bulls were in a good market throughout, and choice cows sold readily at \$6.25 to \$6.50, with bulls in the same class at \$6.50 to \$7. The stocker and feeder division, by its tone seemed ready for a renewal of activities. The demand from United States greatly influences this trade, and already buyers, especially from Pennsylvania, are on hand for the best of the Ontario products, but to date the supply is away short, and some selected animals reached \$6.90, with the general price for loads being from \$6 to \$6.75. Milkers and springers were sky-high again, and, though limited in numbers, \$90 to \$100 have been frequent. One choice Holstein springer made \$115, and would have made more if a little earlier with her calf. Calves have not changed appreciably, though grassers did a little better, selling at \$4.50 to \$5.50. Choice veal also sold up to \$11, but the numbers were very small, and a market cannot be established over \$10.25 for any quantity. Lambs were in an exceptionally strong trade until Thursday, when they weakened some and became draggy. The mid-week "top" was \$11.75, but the "top" at the close was \$11.50. Sheep also did well, selling at \$7.75 to \$8.25 for the best light brands, and \$6.50 to \$7.25 for the heavies. Hogs held at \$9.50 fed and watered, mainly due to outside buying, for the local packers did not seem over anxious. At the close, packers wanted to purchase at \$9.25, but there was not enough to satisfy outsiders present, and practically all deals were completed at the larger figure. Butchers' Cattle.—Choice heavy steers

at \$7.75 to \$8; choice butchers' cattle at \$7.50 to \$7.75; good at \$7 to \$7.35; medium at \$6.60 to \$6.85; common at \$6 to \$6.50; choice cows, \$6.25 to \$6.50; good cows, \$5.75 to \$6.15; medium cows, \$5 to \$5.50; common cows, \$4.25 to \$4.75; canners and cutters, \$3 to \$4.50; light bulls, \$4.25 to \$5; heavy bulls, \$5.75 to \$7.25.

Stockers and Feeders.—Choice feeders, 900 to 950 lbs., \$6.50 to \$6.75; good feeders, 800 to 900 lbs., \$6.25 to \$6.50; stockers, 700 to 800 lbs., \$5.50 to \$6.25; yearlings, 600 to 650 lbs., \$6 to \$6.75; light Eastern steers and heifers, \$4.50 to \$5.

Milkers and Springers.—Choice milkers and springers at \$90 to \$100; good cows at \$70 to \$80; common cows at \$45 to \$65.

Veal Calves.—Extra choice veal, \$10 to \$10.75; best veal calves, \$9 to \$10; good, \$7.25 to \$8.50; medium, \$5.75 to \$6.75; heavy fat calves, \$5.75 to \$7; common calves, \$4.75 to \$5.25; grassers, \$4.50 to \$5.50.

Sheep and Lambs.—Light sheep at \$7.50 to \$8; heavy sheep at \$5 to \$7; lambs at \$10 to \$11.50.

Hogs.—A good percentage of the hogs were over-sized. Selects, fed and watered, at \$9.50; 50 cents is being deducted for heavy fat hogs, and thin light hogs; \$2.50 off for sows, and \$4 off for stags, from prices paid for selects.

BREADSTUFFS.

Wheat.—Ontario, No. 2 winter, per car lot, \$1.04 to \$1.06; slightly sprouted, \$1.01 to \$1.04, according to sample; sprouted, smutty and tough, 92c. to 98c., according to sample. Manitoba, No. 1 northern, \$1.18, Fort William; No. 2 northern, \$1.15, Fort William; No. 3 northern, \$1.12, Fort William.

Oats.—Ontario, No. 3 white, 39c. to 40c., according to freights outside; commercial oats, 38c. to 39c.; No. 2 Canada Western, 43c., in store, Fort William;

No. 3 Canada Western, 41c., in store, Fort William; extra No. 1 feed, 41c., in store, Fort William; No. 1 feed, 40c., in store, Fort William.

Barley.—Ontario, good malting, 58c. to 62c.; feed barley, 53c. to 55c., according to freights outside.

Rye.—No. 1 commercial, 88c. to 90c., according to freights outside; rejected, 70c. to 80c., according to sample.

Buckwheat.—Nominal, car lots, 76c. to 78c., according to freights outside.

American Corn.—No. 3 yellow, new, 81c., track, Toronto.

Canadian Corn.—No. 2 yellow, old, nominal, track, Toronto.

Peas.—No. 2, nominal, per car lot, \$1.80, according to freights outside; sample peas, according to sample, \$1.25 to \$1.75.

Flour.—Winter, \$4.60 to \$4.80, according to sample, seaboard or Toronto freights, in bags, prompt shipment. Manitoba flour—First patents, \$6.80; second patents, \$6.80 in jute; strong bakers', \$6.10 in jute; in cotton, 10c. more.

HAY AND MILLFEED.

Hay.—Baled, car lots, track, Toronto, No. 1, \$17.50 to \$18; No. 2, \$13.50 to \$15, track, Toronto, per ton.

Straw.—Baled, car lots, \$6.50 to \$7, track, Toronto.

Bran.—\$24 in bags, Montreal freight; shorts, \$25, Montreal freight; middlings, \$26, Montreal freight; good feed flour, per bag, \$1.60, Montreal freight.

COUNTRY PRODUCE.

Butter.—Prices remained stationary on the wholesales during the past week. Creamery pound squares, fresh made, 35c. to 36c.; creamery cut squares, 34c. to 35c.; creamery solids, 34c.; separator dairy, 33c. to 34c.

Eggs.—New-laid eggs were not in demand on the wholesales, and have declined to 40c. per dozen; cold-storage

THE ROYAL BANK OF CANADA

Capital Authorized - - \$ 25,000,000
 Capital Paid up - - - 11,500,000
 Reserve Funds - - - 13,000,000
 Total Assets - - - 180,000,000

HEAD OFFICE: MONTREAL
 Branches throughout every Province
 of the Dominion of Canada

Accounts of Farmers
 Invited
 Sale Notes Collected

Savings Department at all
 Branches

eggs, 30c. to 33c. per dozen; cold-storage seconds, 24c. to 25c. per dozen.
 Beans.—Primes, \$4.20; hand-picked, \$4.50 per bushel.
 Potatoes.—Ontario, per bag, car lot, \$1.50; New Brunswick, per bag, car lot, \$1.90.
 Cheese.—New, large, 18c.; twins, 18½c. per lb.
 Honey.—Extracted, 11½c. to 12½c. per pound; combs, per dozen sections, \$2.40 to \$3.
 Poultry.—Live weight: Chickens, 14c. per lb.; ducks, 14c. per lb.; geese, 12c. per lb.; turkeys, young, 18c. per lb.; turkeys, old, 15c. per lb.; fowl, heavy, 14c. per lb.; fowl, light, 11c. per lb.

HIDES AND SKINS.

City hides, flat 18c.; country hides, cured, 16c.; green hides, part cured, 15c.; country hides, green, 14c.; calf skins, per lb., 18c.; kip skins, per lb., 16c.; sheep skins, \$1.50 to \$2; lamb skins and pelts, \$1.20 to \$1.25; horse hair, per lb., 35c.; horse hides, No. 1, \$3.50 to \$4.50. Wool, washed, 40c. to 44c.; wool, rejections, 33c. to 35c.; wool, unwashed, 28c. to 32c.
 Apples.—Spys, \$4 to \$6 per barrel; Greenings and Baldwins, \$3 to \$4.50 per barrel; Russets, \$3 to \$4.50 per barrel; Ontario, boxed, \$1.50 to \$2.50 per box.
 Bananas.—\$1.75 to \$2.15 per bunch.
 Lemons.—California, \$4 to \$4.25 per box; Messina, \$3.50 to \$4 per box.
 Oranges.—Navels, \$2.25 to \$3.50 per case; Floridas, \$2 to \$2.75 per case.
 Strawberries.—40c. to 50c. per box.
 Tomatoes.—Hot-house, 22c. to 27c. per lb.; Floridas, \$5 per six-basket crate.
 Cabbage.—\$1.25 per barrel.
 Beets.—60c. to 80c. per bag.
 Carrots.—75c. to 80c. per bag; new, 75c. to \$1 per dozen bunches.
 Celery.—30c. to 75c. per dozen bunches; California, \$6.50 per case.
 Lettuce.—20c. to 30c. per dozen; head, imported, \$2.75 to \$3 per case.
 Onions.—\$1 to \$1.50 per bag; Spanish, \$1.75 per case.
 Parsnips.—75c. to 80c. per bag.
 Potatoes.—New Brunswick Delawares, \$2 per bag; British Columbias, \$1.75 to \$1.85 per bag; Ontarios, \$1.75 per bag; new, imported, \$3.50 per bushel, \$10 per barrel.
 Turnips.—35c. per bag.

Montreal.

Live Stock.—The trade in the local cattle market showed some improvement. Butchers were pretty well sold out of the stocks they purchased for sale during the holiday period, and it became necessary for them to fill their requirements once more. The supply was not large, and as a consequence the tone of the market was quite firm. Choice steers sold as high as 8c. per lb., the range being from 7½c. to 8c. Good steers ranged from 7½c. to 7½c., while lower grades ranged down to 5½c. per lb. Butchers' cows brought 6½c. to 6½c. for choice, and down to 4½c. while bulls ranged from 5c. to 7c. per lb., according to quality. Demand from packers for canning stock was good, and cows sold at 3½c. to 3½c., while bulls brought 4c. to 4½c. per lb. The price of lambs continued high, and Ontario stock was firm at 10c. per lb. for best stock, while Quebec lambs sold freely at 9½c. to 9½c. per lb. Ewe sheep brought 6½c. and

bucks and cows 6½c. per lb. There was a good demand for calves, but offerings were not extra large. Sales of milk-fed calves took place at 9½c. to 10c. per lb., while grass fed sold at 5c. to 6½c. per lb. There was a firm feeling in the market for hogs, and prices advanced from 10½c. to 10½c. per lb., weighed off cars.

Horses.—The market for horses showed a little more activity, but trade was still dull, and neither offerings nor demand were equal to what they usually are this time of the year. Prices showed practically no change. Quotations were: Heavy draft horses, weighing 1,500 to 1,700 lbs., \$225 to \$275 each; light draft, 1,400 to 1,500 lbs., \$175 to \$225 each; small horses, \$100 to \$150 each; culls, \$50 to \$75 each, and fine saddle and carriage animals, \$200 to \$250 each.

Dressed Hogs.—The weather was steadier last week, and, except for a few days, was fairly cold, and favorable for the dressed-log trade. Prices held firm. Receipts of country-dressed were moderately large, and prices ranged from 12½c. to 13c. per lb. for light-weight hogs, and from 11½c. to 11½c. for heavy-weights. Abattoir-dressed, fresh-killed hogs still sold at 14c. to 14½c. per lb.

Poultry.—Demand for poultry was moderately active, particularly as the weather continued favorable, being moderately cold. Prices showed no change last week, choice turkeys being quoted at 24c. to 25c. per lb., and ordinary stock at 22c. to 23c. Old fowl were in good demand, from 12c. to 14c., while geese sold from 14c. to 16c. per lb. Chickens and ducks ranged all the way from 15c. to 19c.

Potatoes.—The price of potatoes continued to advance. The crop was not particularly good, and it is difficult to obtain finest quality. Supplies continued light and prices advanced about 25c. per bag. Best quality of either Green Mountains or Quebecs sold at \$1.75 to \$1.80 per bag of 90 lbs., in carloads, ex track. Jobbers expect to get an advance of 15c. per bag on these figures.

Honey and Syrup.—The market for honey strengthened, and 15c. to 16c. was quoted for white-clover comb, and 11½c. to 13c. for brown. White extracted was 11½c. to 12½c.; brown extracted, 10c. to 10½c., and buckwheat honey, 8c. to 8½c.

Eggs.—Strictly-fresh stock was quoted slightly lower, at 45c. to 48c. per dozen, but some claim this is not the real thing. Selects were 33c.; No. 1 candled 30c., and No. 2, 27c. to 28c.

Butter.—The market was firm and unchanged, with finest creamery quoted at 34½c. to 35½c.; fine, 33½c. to 34½c.; seconds, 32½c. to 33½c., and dairy, 29c. to 30c.

Cheese.—There was not much interest in the market, and prices were unchanged, at 18½c. to 18½c. for finest colored, 4c. less for white, and 17½c. to 17½c. for Eastern.

Grain.—Wheat showed little change, but oats were firm, at 46½c. to 47c. per bushel for No. 2 white; 45½c. to 46c. for No. 3, and 44½c. to 45c. for No. 4, ex store.

Flour.—Prices were unchanged, at \$6.90 per barrel, in bags, for Manitoba first patents; \$6.40 for seconds, and \$6.20 for strong bakers'. Ontario patents patents were \$6.50 per barrel; straight rollers, \$5.80 to \$5.90 in wood, and the latter in bags at \$2.80.

Baled Hay.—Prices were steady, at \$21 per ton for No. 1; \$20.50 for No. 2 extra good; \$20 for No. 2, and \$18.50 for No. 3, carloads, ex track.

Seeds.—There was no change in this market, dealers quoting \$7 to \$10 per bushel for alsike, at country points, and \$10 to \$13 for timothy, per 100.

Hides.—Beef hides declined ½c., and were quoted at 20c., 19c. and 18c.; calf skins were 2c. and 18c. per lb., and horse hides, \$1.50 and \$2 each. Lamb skins were up to \$2.30 each. Rough tallow was 1c. to 2½c. per lb., and rendered 6½c.

Chicago.

Cattle.—Beeves, \$6.50 to \$9.20; cows and heifers, \$3.30 to \$8.50; calves, \$7.25 to \$10.75.

Hogs.—Light, \$6.60 to \$7.10; mixed, \$6.75 to \$7.30; heavy, \$6.80 to \$7.25; rough, \$6.80 to \$6.95; pigs, \$5.50 to \$6.50; bulk of sales, \$6.80 to \$7.15.

Sheep and Lambs.—Sheep, native, \$7.30 to \$7.85. Lambs—Native, \$8.40 to \$10.90.

Buffalo.

Cattle.—Cattle prices were light and prices ruled very high at Buffalo last week. No week has been better in many weeks past. Shipping steers, of which there were from twelve to fifteen loads, sold a full quarter to forty cents above the preceding week, best natives running from \$8.75 to \$8.85, with Canadians showing a range of from \$8.50 to \$8.70. The top steers were of high quality and fat, and the best Canadians were rather desirable, though not as desirable as the natives. On handy, butchering steers prices ranged up to \$8.25 to \$8.50. Best heavy, fat, Canadian heifers sold up to \$7.90, going in with steers at the price. Good, handy, butchering heifers showed a range of from \$7.25 to \$7.50, fancy higher. General run of butchering cattle sold a dime to fifteen cents higher, with canners strong. Bulls were a dime to fifteen cents above the week before, meaty kinds finding rather better sale than the fancy, fat grades, and little, common ones were stronger sale than for some weeks past. There were few stockers and feeders, some Pennsylvania buyers for the better kinds failing to get what they wanted, went to Toronto. Milchers and springers generally are showing rather unsatisfactory sale, and especially where they are on the medium order, or the springers are backward. Receipts last week were 4,425 head, as against 3,875 for the week before, and 4,675 head for the corresponding week last year. Quotations:

Shipping Steers.—Choice to prime natives, \$8.75 to \$9; fair to good, \$8.25 to \$8.50; plain, \$7.75 to \$8; very coarse and common, \$7 to \$7.50; best Canadians, \$8 to \$8.25; fair to good, \$7.25 to \$7.75; common and plain, \$6.50 to \$7.

Butchering Steers.—Choice, heavy, \$8 to \$8.25; fair to good, \$7 to \$7.75; best handy, \$7.75 to \$8.25; common to good, \$6.25 to \$7.50; light, thin, \$5.50 to \$6; yearlings, prime, \$8 to \$8.75; yearlings, common to good, \$7 to \$7.75.

Cows and Heifers.—Prime, weighty heifers, \$6.75 to \$7.25; best handy butchering heifers, \$6.75 to \$7.25; common to good, \$4.50 to \$6.50; best heavy fat cows, \$6 to \$6.50; good butchering cows, \$5.25 to \$5.75; medium to good, \$4.75 to \$5.25; cutters, \$3.75 to \$4.50; canners, \$3 to \$3.60.

Bulls.—Best heavy, \$6.75 to \$7; good butchering, \$6.25 to \$6.50.

Stockers and Feeders.—Best feeders, \$6.50 to \$7; common to good, \$5.25 to \$6.25; best stockers, \$6 to \$6.50; common to good, \$4.50 to \$5.75; good yearlings, \$6 to \$6.75.

Milkers and Springers.—Good to best, in small lots, \$75 to \$85; in car loads, \$60 to \$70; medium to fair, in small lots, \$45 to \$55; in car loads, \$45 to \$50.

Hogs.—Very heavy receipts the first two days of last week resulted in a break in prices, and the following three days the market was considerably stronger. Monday the bulk of the good hogs sold at \$7.25, with pigs landing at \$7. Tuesday best grades ranged from \$7.15 to \$7.25, and pigs \$6.75 to \$7; Wednesday, good hogs sold from \$7.25 to \$7.35, and pigs remained the same as Tuesday. Thursday the better weight grades were jumped to \$7.55 and \$7.60, with pigs selling mostly at \$7, and Friday packers' grades and pork weights reached up to \$7.75, one deck \$7.80, and pigs were slow at \$7. Roughs the fore part of the week sold down around \$6.25 and \$6.35, and Friday they brought from \$6.50 to \$6.75. Receipts last week were approximately 58,900 head, being against 54,989 head for the previous week, and 49,600 head for the same week a year ago.

Sheep and Lambs.—Prices held to a very high level again last week. Monday top lambs sold from \$11 to \$11.15, Tuesday nothing brought above \$11, Wednesday's top was \$10.90, Thursday they again reached \$11, and Friday best lambs sold from \$11 to \$11.15, with one deck making \$11.25. Cull lambs went mostly from \$10 down, and light skips landed down to \$7.50. Best yearling wethers sold at \$9.75, top wether ewes went from \$4 down, and past week were 19,000 head, as compared with 17,154 head for the week before, and 34,500 head for the same week a year ago.

Calves.—Trade was active last week,

but market was rather erratic. Monday best veals sold at \$11.50, Tuesday tops ranged from \$11 to \$11.25, Wednesday's market was steady with Tuesday, Thursday best lots brought \$11.50, and Friday the bulk of the top native calves sold at \$12. Cull grades went from \$9.50 down, and fed calves, unless very desirable, are not quotable above a nickel. Some top Canadian veals sold Friday at \$11.75. Receipts last week footed up 2,050 head, as against 2,050 head for the previous week, and 1,600 head for the corresponding week a year ago.

Keep in mind the fifth annual sale of the Southern Ontario Consignment Sale Co., to be held at Tillsonburg, on February 8. It will be a splendid opportunity to buy Holsteins. Refer to the advertisement, and write the Secretary for full particulars.

We wish to direct our readers' attention to the advertisement of J. Ransom, appearing in these columns, re his livestock sale of January 25. The Clydesdale stallion, Present Fashion, will be sold; also Aberdeen-Angus cattle, both male and female. Address Mr. Ransom, at Fergus, Ont., and get particulars regarding this live stock.

COMING EVENTS.

Ottawa Winter Fair, January 18-21, 1916.

Convention of the Ontario Fruit Growers' Association at Toronto, January 19, 20 and 21, 1916.

Live Stock Association meetings at Toronto, Jan. 31 to Feb. 4.

Ontario Corn Exhibition, Chatham, Ont., February 1 to 4, 1916.

Convention of United Farmers of Ontario, St. James Parish Hall, Toronto, February 2 and 3.

Conference on Road Construction, Parliament Bldg's, Toronto, February 8 to 11, 1916.

At the annual meeting of the Canadian Bank of Commerce, referred to elsewhere in these columns, the President, Sir Edmund Walker reviewed Canada's condition financially. He went into details, showing how the trade balance, in a few short years, had swung around in our favor, Canadian exports being now greater than imports, though the latter were nearly double exports in 1913. The Dominion's credit has vastly improved, and her financial condition is now very strong. The General Manager, John Aire, pointed out that the profits of the Bank, though somewhat smaller than the preceding year, were still adequate to meet all charges, and maintain the usual dividends as well as permit of a 20 per cent bonus. The assets of the Bank had been revalued, and the large sum of one million dollars set aside against any possible depreciation in value due to the war. With regard to the future, Mr. Aire referred to the bountiful harvests of 1915, cultivated acreages had been increased, and our factories had been entrusted with large contracts for army equipment, munitions and foodstuffs.

SALE DATES CLAIMED.

Jan. 25.—J. Ransom, Fergus, Ont., Aberdeen-Angus and Clydesdale.

Jan. 25, 1916.—Victoria Pure-bred Stock Association, Lindsay, Ont.; A. A. Knight, Secretary.

Jan. 26, 1916.—Brant District Holstein Consignment Sale of Holsteins, Brantford, Ont.; G. P. Sager, St. George, Ont., Secretary.

Jan. 27, 1916.—Bertram Hoskin, Grafton, Ont.; Sale of Holsteins at Coburg.

Jan. 27, 1916.—Wm. A. Rufe, Hespeler, Ont.; Holsteins.

Feb. 2, 1916.—Canadian Sale of Scotch Shorthorns, Union Stock Yards, Toronto; Robt. Miller, Stouffville, Ont., Manager.

Feb. 8.—Southern Ontario Consignment Sale Company's Annual Sale of Holsteins at Tillsonburg; R. J. Kelly, Culloden, Ont., Secretary.

Feb. 10, 1916.—C. E. Trebilcock, London, Ont.; Holsteins.

Feb. 16, 1916.—Norfolk Holstein Breeders' Sale, at Simcoe; W. A. Mason, Simcoe, Secretary.

March 1.—Guelph Fat Stock Club sale at Guelph. J. M. Duff, Secretary.

March 29, 1916.—Western Ontario Consignment Sale, London; Harry Smith, Hay, Ont., Manager.

April 19.—James Benning, Williams-town, Ont.; Ayrshires.

Market was rather erratic. Monday
 sales sold at \$11.50, Tuesday tops
 from \$11 to \$11.25, Wednesday's
 was steady with Tuesday, Thurs-
 day lots brought \$11.50, and Fri-
 day bulk of the top native calves
 \$12. Cull grades went from
 \$10.50 down, and fed calves, unless very
 good, are not quotable above a
 \$10. Some top Canadian veals sold
 at \$11.75. Receipts last week
 were 2,050 head, as against 2,050
 the previous week, and 1,600
 the corresponding week a year
 ago.

mind the fifth annual sale of
 the Ontario Consignment Sale
 to be held at Tillsonburg, on
 January 28. It will be a splendid op-
 portunity to buy Holsteins. Refer to the
 advertisement, and write the Secretary
 for particulars.

to direct our readers' atten-
 tion to the advertisement of J. Ransom,
 in these columns, re his live-
 stock sale of January 25. The Clydes-
 dales, Present Fashion, will be
 a feature. Aberdeen-Angus cattle, both
 males and females. Address Mr. Ransom,
 100 St. George Street, Toronto, Ont.,
 and get particulars re his
 live stock.

COMING EVENTS.
 Winter Fair, January 18-21,

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

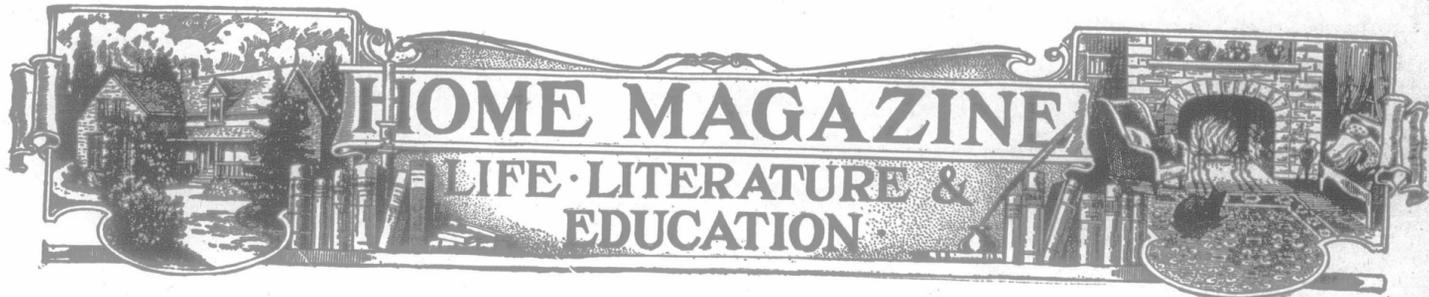
of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.

of the Ontario Fruit Grow-
 ing Association at Toronto, January
 21, 1916.



HOME MAGAZINE
 LIFE · LITERATURE &
 EDUCATION



General Sir Douglas Haig.
 The new Commander of the English forces
 in France and Belgium.

The House of Never Again.

Oh Never Again is in Fairyland,
 It lies just past the reach of your hand;
 Out of reach in the Long Ago,
 Yet plain to see in the afterglow—
 And girl with gardens you used to know,
 Dear gardens you used to know!

And oh, you long for the things you
 miss,
 Just out of reach, for a baby's kiss;
 For a smile that blessed, a touch that
 thrilled,
 The flower that's crushed, the wine that's
 spilled;
 A hope that died and a joy that's
 killed;
 A beautiful joy that's killed.

And turn to look at the olden way—
 And long and long for a bygone day—
 And wish you might fare by field and fen,
 By winding pathway and greening glen,
 Back to the lands of Never Again;
 Lost lands of Never Again.

There is no way back by path or trail,
 Not ever a way to that fairy vale;
 But this you may have, if you will it so,
 You may build again in the afterglow,
 If Love came safe from the Long Ago—
 Safe out of the Long Ago.

—Grace Stone Field.

The Home Light.

Banks piled deep to the window's ledge,
 A roof weighed down with white,
 Icicle fringe at the shingles' edge,
 Window agleam with light.
 Path of light from the window's glow,
 A rooftop all my own,—
 What care I for the banks of snow?
 Miles I have tracked alone.

Love waits under the snow-heaped roof,
 Fire on the hearth burns warm;
 Want from that board stays far aloof,
 Barred are the cold and storm.

Bright is the path where the home light
 leads,
 Heart to my own beats true;
 Nothing else in the world man needs,
 With warmth and food and—you!

C. M. D.

Browsings Among the
 Books.

[From "The Story of an African Farm,"
 by Oliver Schreiner.]

A new life begins for us—a new life, a
 life as cold as that of a man who sits
 on the pinnacle of an iceberg and sees
 the glittering crystals all about him.
 The old looks indeed like a long, hot
 delirium, peopled with phantasies. The
 new is cold enough.

Now we have no God. We have had
 two—the old God that our fathers hand-
 ed down to us, that we hated, and never
 liked; the new one that we made for
 ourselves, that we loved; but now He
 has fitted away from us, and we see
 what He was made of—the shadow of
 our highest ideal, crowned and throned.
 Now we have no God.

The fool hath said in his heart, "There
 is no God." It may be so. Most
 things said or written have been the
 work of fools.

This thing is certain—he is a fool who
 says, "No man hath said in his heart,
 There is no God."

It has been said many thousand times
 in hearts with profound bitterness of
 earnest faith.

We do not cry and weep; we sit down
 with cold eyes and look at the world.
 We are not miserable. Why should we
 be? We eat and drink, and sleep all
 night; but the dead are not colder.

And, we say it slowly, but without
 sighing, "Yes, we see it now; there is
 no God."

And, we add, growing a little colder
 yet, "There is no justice. The ox dies
 in the yoke, beneath its master's whip;
 it turns its anguish-filled eyes on the
 sunlight, but there is no sign of recom-
 pense to be made it. The black man is
 shot like a dog, and it goes well with
 the shooter. The innocent are accused,
 and the accuser triumphs. If you will
 take the trouble to scratch the surface
 anywhere, you will see under the skin a
 sentient being writhing in impotent
 anguish."

And we say further,—and our heart is
 as the heart of the dead for coldness,—
 "There is no order; all things are driven
 about by a blind chance."

What a soul drinks in with its mother's
 milk will not leave it in a day. From
 our earliest hour we have been taught
 that the thought of the heart, the shap-
 ing of the rain-cloud, the amount of
 wool that grows on a sheep's back, the
 length of a draught, and the growing of
 the corn, depend on nothing that moves
 immutable, at the heart of all things;
 but on the changeable will of a change-
 able being, whom our prayers can alter.
 To us, from the beginning, Nature has
 been but a poor plastic thing, to be
 toyed with this way or that, as man
 happens to please his deity or not, to
 go to church or not, to say his prayers
 right or not, to travel on a Sunday or
 not. Was it possible for us in an in-
 stant to see Nature as she is—the flow-
 ing vestment of an unchanging reality?
 When a soul breaks free from the arms
 of a superstition, bits of the claws and
 talcans break themselves off in him. It
 is not the work of a day to squeeze
 them out.

And so, for us, the human-like driver
 and guide being gone, all existence, as
 we look out at it with our chilled, won-
 dering eyes, is an aimless rise and swell
 of shifting waters. In all that welter-
 ing chaos we can see no spot so large
 as a man's hand on which we may
 plant our foot.

Whether a man believes in a human-
 like God or not is a small thing.
 Whether he looks into the mental and
 physical world and sees no relation be-
 tween cause and effect, no order, but a
 blind chance sporting, this is the might-

est fact that can be recorded in any
 spiritual existence. It were almost a
 mercy to cut his throat, if indeed he
 does not do it for himself.

We, however, do not cut our throats.
 To do so would imply some desire and
 feeling, and we have no desire and no
 feeling; we are only cold. We do not
 wish to live, and we do not wish to
 die. One day a snake curls itself round
 the waist of a Kaffir woman. We take
 it in our hand, swing it round and
 round, and fling it on the ground—dead.
 Everyone looks at us with eyes of ad-
 miration. We almost laugh. Is it
 wonderful to risk that for which we
 care nothing?

In truth, nothing matters. This dirty
 little world, full of confusion, and the
 blue rag, stretched overhead for a sky,
 is so low we could touch it with our
 hand.

Existence is a great pot, and the old
 Fate who stirs it round cares nothing
 what rises to the top and what goes
 down, and laughs when the bubbles
 burst. And we do not care. Let it
 boil about. Why should we trouble our-
 selves? Nevertheless the physical sen-
 sations are real. Hunger hurts, and
 thirst, therefore we eat and drink; inac-
 tion pains us, therefore we work like
 galley-slaves. No one demands it, but
 we set ourselves to build a great dam
 in red sand beyond the graves. In the
 gray dawn, before the sheep are let out,
 we work at it. All day, while the
 young ostriches we tend feed about us,
 we work on through the fiercest heat.
 The people wonder what new spirit has
 seized us now. They do not know that
 we are working for life. We bear the
 greatest stones, and feel a satisfaction
 when we stagger under them, and are
 hurt by a pang that shoots through our
 chest. While we eat our dinner we carry
 on baskets full of earth, as though the
 devil drove us. The Kaffir servants
 have a story that at night a witch and
 two white oxen came to help us. No
 wall, they say, could grow so quickly
 under one man's hands.

At night, alone in our cabin, we sit
 so more brooding over the fire. What
 should we think of now? All is empti-
 ness. So we take the old arithmetic;
 and the multiplication table, which with
 so much pains we learned long ago and
 forgot directly, we learn now in a few
 hours, and never forget again. We take
 a strange satisfaction in working arith-
 metical problems. We pause in our
 building to cover the stones with figures
 and calculations. We save money for a
 Latin Grammar and an Algebra, and
 carry them about in our pockets, poring
 over them as over our Bible of old.
 We have thought we were utterly stupid,
 incapable of remembering anything, of
 learning anything. Now we find that all
 is easy. Has a new soul crept into this
 old body, that even our intellectual
 faculties are changed? We marvel; not
 perceiving that what a man expends in
 prayer and ecstasy he cannot have over
 for acquiring knowledge. You never
 shed a tear, or create a beautiful image,
 or quiver with emotion, but you pay for
 it at the practical, calculating end of
 your nature. You have just so much
 force; when the one channel runs over,
 the other runs dry.

And now we turn to Nature. All
 these years we have lived beside her, and
 we have never seen her; now we open
 our eyes and look at her.

The rocks have been to us a blur of
 brown; we bend over them, and the dis-
 organized masses dissolve into a many-
 colored, many-shaped, carefully-arranged
 form of existence. Here masses of rain-
 bow-tinted crystals, half-fused together;
 there bands of smooth, gray and red,
 methodically overlying each other. This
 rock here is covered with a delicate sil-

ver tracery, in some mineral, resembling
 leaves and branches; there on the flat
 stone, on which we so often sat to weep
 and pray, we look down, and see it
 covered with the fossil footprints of
 great birds and the beautiful skeleton of
 a fish. We have often tried to picture
 in our minds what the fossil remains
 of creatures must be like, and all the
 while we sat on them. We have been
 so blinded by thinking and feeling that
 we have never seen the world.

The flat plain has been to us a reach
 these years we have lived beside her, and
 every handful of sand starts into life.
 That wonderful people, the ants, we
 learn to know; see them make war and
 peace, play and work, and build their
 huge palaces. And that smaller people
 we make acquaintance with, who live in
 the flowers. The "bitto" flower has
 been for us a mere blur of yellow; we
 find its heart composed of a hundred
 perfect flowers, the homes of the tiny
 black people with red stripes, who move
 in and out in that little yellow city.
 Every bluebell has its inhabitant. Every
 day the karroo shows us a new wonder
 sleeping in its teeming bosom. On our
 way to work we pause and stand to see
 the ground-spider make its trap, bury
 itself in the sand, and then wait for the
 falling in of its enemy. Farther on
 walks a horned beetle, and near him
 starts open the door of a spider, who
 peeps out carefully and quickly pulls it
 down again. On a karroo-bush a green
 fly is laying her silver eggs. We carry
 them home, and see the shells pierced,
 the spotted grub come out, turn into a
 green fly, and flit away. We are not
 satisfied with what Nature shows us, and
 will see something for ourselves. Under
 the white hen we put a dozen eggs, and
 break one daily, to see the white spot
 wax into the chicken. We are not ex-
 cited or enthusiastic about it; but a man
 is not to lay his throat open, he must
 think of something. So we plant seeds
 in rows on our dam-wall, and pull one
 up daily to see how it goes with them.
 Alladen buried her wonderful stone, and
 a gold n palace sprang up at her feet.
 We do far more. We put a brown seed
 in the earth, and a living thing starts
 out—starts upwards—why, no more than
 Alladen can we say—starts upwards,
 and does not desist till it is higher than
 our heads, sparkling with dew in the
 early morning, glittering with yellow
 blossoms, shaking brown seeds with little
 embryo souls on to the ground. We
 look at it solemnly, from the time it
 consists of two leaves peeping above the
 ground, and a soft, white root, till we
 have to raise our faces to look at it;
 but we find no reason for that upward
 starting.

We look into dead ducks and lambs;
 in the evening we carry them home,
 spread newspapers on the floor, and lie
 working with them till midnight. With
 a startled feeling near akin to ecstasy
 we open the lump of flesh, called a heart,
 and find little doors and strings inside.
 We feel them, and put the heart away,
 but every now and then return to look,
 and to feel them again. Why we like
 them so we can hardly tell.

A gander drowns itself in our dam.
 We take it out, and open it on the
 bank, and kneel, looking at it. Above
 are the organs divided by delicate tissues;
 below are the intestines artistically
 curved in a spiral form, and each tier
 covered by a delicate network of blood-
 vessels standing out red against the
 faint blue background. Each branch of
 the blood-vessels is comprised of a trunk,
 bifurcating and rebifurcating into the
 most delicate hair-like threads, sym-
 metrically arranged. We are struck with
 its singular beauty. And, moreover—
 and here we drop from our kneeling into

a sitting posture—this also we remark: Of that same exact shape and outline is our thorn-tree seen against the sky in mid-winter; of that shape also is delicate metallic tracery between our rocks; in that exact path does our water flow when, without a furrow, we lead it from the dam; so shaped are the antlers of the horned beetle. How are these things related that such deep union should exist between them all? Is it chance? Or are they not all the fine branches of one trunk, whose sap flows through us all? That would explain it. We nod over the gander's inside.

This thing we call existence—is it not a something which has its roots far down below in the dark, and its branches stretching out into the immensity above, which we among the branches cannot see? Not a chance jumble; a living thing, a ONE. The thought gives us intense satisfaction, we cannot tell why.

We nod over the gander; then start up suddenly, look into the blue sky, throw the dead gander and the refuse into the dam, and go to work again.

And so it comes to pass in time that the earth ceases for us to be a weltering chaos. We walk in the great hall of life, looking up and around reverentially. Nothing is despicable,—all is meaningful; nothing is small,—all is part of a whole, whose beginning and end we know not. The life that throbs in us is a pulsation from it,—too mighty for our comprehension,—not too small.

And so it comes to pass at last that, whereas the sky was at first a small blue rag stretched out over us, and so low that our hands might touch it, pressing down on us, it raises itself into an immeasurable blue arch over our heads, and we begin to live again.

Hope's Quiet Hour.

The Church in Time of War.

One of my Christmas presents this year was Bishop Ingram's new book—"The Church in Time of War." As some of you may not have the chance to read this book, I will to-day give you some extracts from it. You know, I like to share my good things with you.

"We have got to defend our country with fortitude. I believe more and more in that Christian virtue of fortitude, in that power of bearing things, bearing bad news, bearing casualty lists. Our soldiers in the trenches, frost-bitten and standing up to their waists in water, have to bear it, day after day, night after night. Men I have spoken to have stood it for eight days and eight nights, never out of the trenches, with not more than one hour's sleep night after night. They have borne this: we must show equal fortitude at home."

We must give up, for very shame, that old saying about an Englishman's right to grumble. How dare we make a fuss over some trifling pain or discomfort, when our soldiers are enduring hardships cheerily?

In the chapter on "National Honor" we find this ringing call to accept the cup of sorrow bravely, in thankfulness that we have no cause to be ashamed of our nation:

"We do not hide from ourselves the great tide of grief and anguish that is sweeping over thousands of English homes to-day; and the thought of this brings me to my point: There is one thing which would be worse—National dishonor. . . . We had to stand by our friends. We looked round, and saw eyes looking back on us from all over Europe. Here was France, who had taken her ships away from the Channel largely to put them in the Mediterranean, on the understanding that her friend would guard her coasts. And, sad as it is to see those thousands of lives lost, I should feel a sadder man to-day if I were standing by, as an Englishman, and seeing the German fleet harrying the French coast. France was looking to her friend. Russia was looking across the Northern Sea to see if England really was that decadent, peace-at-any-price-loving nation of shopkeepers she was said in Germany to be. But, most pathetic of all, Belgium, whose whole fortune and future was at stake—

Belgium, with its king, looked across in its hour of trial to see whether it could depend on the word of Englishmen. Here was the treaty signed by Great Britain. But it was also signed by Germany. Would Great Britain, as Germany did, call it a scrap of paper? This was what the whole of Europe was waiting to see. And in that awful twenty-four hours (before England declared war), I know there were some of us who were simply trembling lest the honor and the glory and the tradition of our country should be laid in the dust for ever. If we had given the wrong answer, not all the glories commemorated in this Guildhall, not Waterloo, not Agincourt, not any of our great victories, could have saved us from the reproach, the eternal disgrace, of having failed in our word. . . . And although it was an awful moment, it was with a deep sense of relief that we saw the British Lion, always slow to move, slowly rouse himself—and, as it turned out, with all his cubs following him—and, placing his paw upon the treaty, say: 'My word is my bond; I stand by my friends. God defend the right.'"

is safe to say that the youngest private in the ranks, as he set his teeth for the advance, knew the task in front of him, and the youngest subaltern knew all that rested upon its success. It did not seem that any human being could live in the shower of shot and shell which began to play upon the advancing troops. . . . The great contest went on for five days and five nights, Friday, Saturday, Sunday, Monday, Tuesday, and by Wednesday morning, Canada, with exactly half her troops killed or wounded, still stood undaunted, facing the foe. . . . And what are we to say about these glorious young lives flung down so readily for king and country, for the freedom of the freest thing in the world, the Dominion of Canada—nay, for the freedom of the world, for international honor, and for Christian principles as governing the future conduct of the world, instead of the pagan gospel that Might is Right? As I have said, you had only to look at these ten thousand free, fresh faces, whom I addressed in a certain country town in France—with all their officers round me, a third of whom are now dead—to see the madness and folly of

8. That, so far from GOD disappointing the young soldier when he dies, He more than satisfies him. In other words, we must be able to look up to GOD and say:

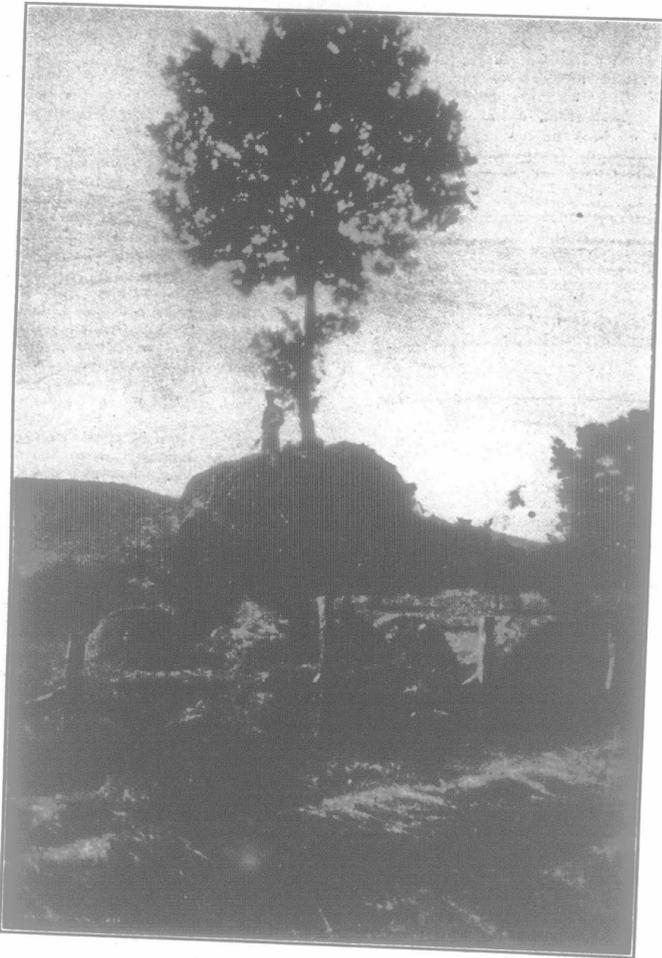
"He asked life of Thee, and Thou gavest him a long life: even for ever and ever."

"I come round, then, to my question, Has GOD failed the trust of these young men?"

They did not want to die; they loved life; they looked forward to a happy life here; they were planning out a useful and interesting future; they were not all soldiers in the ordinary sense, though they died a soldier's death; THEY ASKED LIFE, 'AND THEY WILL HAVE IT.' He has given them a long life, even for ever and ever."

I don't think any of us can read the words of Bishop Ingram without feeling that there is something in life far more worth striving for than our own surface prosperity. There is a story of a storm which swept through a forest and tore down some splendid pine trees. A traveller, surprised that they could not withstand the gale, asked a forester for some explanation of the mystery. His answer was: "These pines seemed strong, but their roots found water too near the surface of the ground. If the roots had struck deeper for moisture, the trees would still be standing, able to defy a hurricane." So it is sometimes with human lives. If success comes too easily and swiftly, if life has ease instead of struggle, the soul does not grow strong and is easily conquered by temptation and trial. Let us not lament too much over the evil days which we are called upon to endure. "Souls mount swiftly on the ladder of pain."

DORA FARNCOMB.



A Stack Half-way Up a Tree.

Serbian farmers were accustomed to protecting their hay from floods in this way. Doubtless there are still numbers of these to be seen in the desolated country.

We certainly should have felt ashamed if our friends—who leaned on our great Empire in their day of awful need—had found us a broken reed. How much worse than our present sorrow it would have been if friends had said mockingly, the taunt once hurled at Egypt: "They have been a staff of reed to the house of Israel. When they took hold of thee by the hand, thou didst break, and rend all their shoulder; and when they leaned upon thee, thou brakest."

One of the sermons in Bishop Ingram's book was preached at the Canadian Memorial Service in St. Paul's Cathedral, after the Battle of Ypres. The text chosen was: "He asked life of Thee, and Thou gavest him a long life: even for ever and ever."

"When the French had been overpowered by the poisonous gas, the manhood of Canada was tested and came out as pure and unadulterated gold. . . . It

talking about ours being a 'Robber' Empire. Who could tame these children of the prairie? They had drunk in freedom with their mother's milk, they were children of the free, and would have been fathers of the free, and gladly they flung down their lives rather than that the Juggernaut car of German despotism should crush under foot the freedom which they loved better than life."

"But did GOD fail these young men? That is the really crucial question: it is the unexpressed fear of this which takes away the joy of sacrifice, and bows still deeper the mourner's head."

"Toll the bell for Percy Birchall! If I ring it at all, it will be a peal," wrote his nearest relative. But to be able to say this you must be certain in your mind of these things:

1. That honor is more precious than life.
2. That 'one crowded hour of glorious life is worth an age without a name.'

News of the Week

Canada's war expenditure so far has totalled \$145,000,000.

The Women Suffrage Bill passed its second reading in the Manitoba Legislature.

Great Britain has warned neutral nations that she will permit no interference with her blockade of Germany.

Many Chinese revolutionaries have been killed in recent uprisings, consequent upon the assumption of a monarchy by Yuan Shi Kai.

The Kaiser's villa in Corfu is being used as a convalescent home for wounded Serbians.

A motion to reject the Military Service Bill in the British Parliament was rejected by a vote of 431 to 39. The Labor Members who had resigned withdrew their resignation, and so a troublesome crisis passed.

During the week a French submarine sank an Austrian cruiser in the Adriatic. Two Italian transport steamers, the Brindisi and Citta di Palermo, were sunk by Austrian submarines, half of the passengers on the Brindisi being lost.

Sir Percy Lake has taken the place of General Nixon as commander-in-chief in Mesopotamia. Gen. Nixon resigned because of ill health.

Bad weather has caused a lull in operations on the Western war-front. In the East the British have been completely withdrawn from the Gallipoli Peninsula, and the Bulgars and Austro-Germans are reported as moving towards Salonika, a preliminary skirmish having taken place at Doiran. Whether the Germans will launch their next great attack, however, upon Salonika or upon Egypt and the Suez Canal, is as yet a matter of conjecture. In the meantime Cetinje, the capital of Montenegro, has fallen into the hands of the Austrians. From Mesopotamia comes the news that on Jan. 9th the Turks were in full retreat, with the British under Gen. Townshend, to whom reinforcements have been sent, following. Notwithstanding the few temporary reverses, optimism increases everywhere among the Allies, and it is expected that the spring will mark a momentous turn in the war.

The Beaver Circle

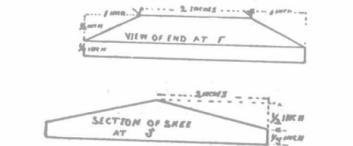
OUR SENIOR BEAVERS.

[For all pupils from Senior Third to Continuation Classes, inclusive.]

Skees and How to Make Them.

Those who know the pleasure of skeeing cannot understand why this sport has not been more general; but it is becoming popular in many parts of Canada. As a matter of fact, this pastime is very practical in any section of the country where snow is found, and in those where there is a crust it is the best way to travel.

During several winters spent on a farm, I found my skees almost a necessity. With their help I was able to go and come from my work in the woods much quicker than I would on snowshoes. Frequently I was able to cross small streams and swampy places that were

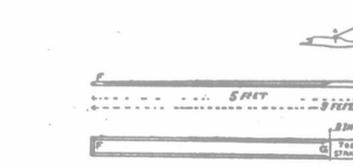


absolutely impassable in any way except on skees. Often when the public highway was blocked because of the snow, I could easily make a trip to the town and back when otherwise I should have been completely without means of communication.

Skees are so cheap that it is almost impossible to understand why they are not in more general use. While a good pair may be purchased even cheaper than skates, I prefer to make my own. I have found that hickory is the best wood, though both hard maple and black cherry make durable skees. Basswood—if of good quality—may also be used, but in this case the skees should be heavier.

Skees should be four inches wide on bottom and nine feet long. The toe-strap should be four feet from the curved tip. In no instance should a buckle be used on the toe-strap, because leather stretches and shrinks so easily. When the toe-strap is laced together, one may always have it fit tightly. Care should be taken to see that the strap does not touch the instep, as the foot must have a free movement up and down, making a perfect hinge at the back of the toes.

The edges of the skee are beveled, as shown in the illustrations, save where the foot rests; here it is full thickness—one and one-eighth inches. From G, where the skee is one and one-eighth



inches thick, it tapers evenly back to F, where it is three-fourths of an inch thick. In the same way the skee tapers evenly from H to J. The next four inches are thinned down on a concave to three-eighths of an inch—an even thickness to the end of the skee.

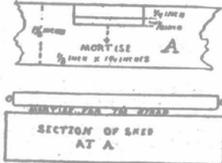
The four-inch bend on the front end of the skee is made by steaming the wood for ten minutes or by boiling it for twenty. To prevent the bottom of the skee from splintering during the operation, a piece of sheet iron—as wide as the skee—is first clamped on four inches back of where the curve is sprung. The curve is kept in place by a steel wire fastened at (Fig. 3) to a screw (which, by the way, must not extend through the skee) and at B to a metal plate across the top of the skee.

A mortise for the toe-strap is made at A. The strap comes up at O, but should not extend beyond the sides of the skee. Four holes in each end of the strap (for the lace to run through) will be sufficient—if placed far enough apart.

It is especially important to have the bottom of the skees absolutely true and

smooth. Some prefer skees with grooves on the bottom, but unless these grooves are perfect, the skees will run hard and will wear out faster than those with flat bottoms.

The secret of travelling on skees is to throw the weight of the body ahead so as to slide on one foot and to keep the other foot with its skee alongside. Then before the motion is lost, the weight is thrown on the other foot. Keeping both



skees on the snow will not only enable one to keep one's balance better, but also will allow one to acquire a steady and an even gait. Besides, there will be no loss of energy in lifting the skees.

The staff should be of good material, preferably hickory, because of the strength of this wood. It should be about six feet long and about one and one-eighth inches thick. It should have a three-inch wooden washer at the end through which the iron spike projects. While the staff is used to push with, it is also very convenient to use as a brake. By holding it between the legs and sitting down on it, if necessary, one may stop at will.

In travelling, one should try to make the skees run close together—two to four inches apart is about the right distance. A word of caution about keeping the feet firm while coasting will possibly save trouble for those who bear the fact in mind. When the skees get too far apart, one may, by putting the weight on one skee, lift the front of the other skee from the snow and draw it back to the proper position. Another word of advice by way of conclusion: In climbing heavy grades, it is much better to take them on an incline.—Albert Newton, in Suburban Life.

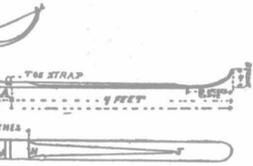
Funnies.

The nurse was giving small Mildred her morning bath.

"You must keep your mouth closed while in the water," said the nurse. "If you don't you will swallow some of it."

"Oh, that wouldn't matter," replied Mildred. "There's lots more in the pipes."

"I wouldn't drink out of that cup," said little Johnnie to the immaculate young visitor. "That's Bessie's cup, and she's very particular who drinks out of it."



"Ah," said the young man gallantly, as he drank the cup dry, "I feel honored to drink out of Bessie's cup! Bessie is your elder sister, isn't she?"

"Oh, no," replied the small boy, "Bessie is my dog, and she's very particular who uses that cup."

OUR JUNIOR BEAVERS.

[For all pupils from the First Book to Junior Third, inclusive.]

Peekaboo Stories.

SNOWDROPS.

Would you like to hear something more about fairy Iceandsnow, of whom we told you last time?

One day in March, before it was time for her to go back to the great white country of the Ice King at the North Pole, her mother sat weeping.

"Dear Iceandsnow," she said, "how I wish it had been possible for you to live with us always! How I wish you had

loved the warm sunshine! It makes us so lonely to see you go."

"And it makes me lonely to leave you, dear mother," said Iceandsnow, "but the Ice King has told me that had I stayed longer with you I should have died. Do not weep, dear mother. It is delightful that I can visit with you so long every year, for I know that you all love the wintertime too, when I come upon the snow-furries, with snow-birds hopping and flying about me. I would stay longer, but, you know, there are also Fairies of the Summer, who would never come to dance and work in your beautiful valleys if the snow-drifts lingered."

"And now, mother dear, I must tell you something wonderful. Last night, what seemed a dream came to me; yet I do not think it was a dream. I think one of the Summer Fairies really appeared to me. However that may be, I thought I was sitting in the doorway of a snow-cave, thinking about leaving you all, when suddenly a beautiful fairy, dressed in a long, green robe, stood before me. She carried a golden wand, and upon her hair was a crown of flowers—hepaticas and spring beauties."

"Who are you, beautiful fairy?" I asked.

"Oh, I am called Love-o'-the-Springtime," she said. I am one of those who help to deck the trees with leaves and the ground with green grass and flowers when you and your snow-birds go away."

"Why so thoughtful, Iceandsnow?" "I was wondering," replied I, "what I could leave to my parents and my brothers and sisters as a parting gift."

"That is a kind thought," said she, "and don't you know that kind thoughts should take form in kind deeds?"

"But," said I, "I can't stay to do kind deeds."

"That does not matter at all," was the reply, "for perhaps I can carry your thought on and give it a body when you are far away. Think hard about something that you would like to leave as a gift for your dear parents and brothers and sisters, and leave the rest to me."

"How good you are, dear Love-o'-the-Springtime!" I exclaimed, and then I put my hand over my eyes and thought hard. And soon I saw with my mind a fringe of white bells growing all along the borders of the melting snow banks which follow me as I go back to the country of the Ice King. You know, mother dear, that white is the color I love most, and so, I thought, if these white flowers grow on when I leave, my dear ones will think of me, and come and dance about them in the moonlight, and love them for the sake of Iceandsnow."

"When I took my hands from my eyes, the Green Fairy was still there, looking at me."

"Well," she said, smiling, "what is your thought?" and I told her all. "She waved her wand. 'Be it as you wish,' she said; and then I saw her no more. So, mother dear, whether it will be as she said, or whether I merely dreamed, I do not know; but keep watch when the snow-drifts melt, and you know that Iceandsnow is travelling back to the country of the Ice King."

"I will keep watch," said the mother. Time went on. There came a day soon when the bright sunshine became warm. Wet drops dripped from the trees, and the sap began to creep merrily up into all the branches. The buds began to swell, and far down on the ground little rills of water began to gurgle everywhere, running down to the rivers, to be carried to the lakes and to the sea."

It was wonderful to see how quickly the great snow-banks disappeared, and the brown earth could be seen, covered, here and there, with patches of fern and pigeon-berry that had lain all winter quite green under the snow."

You may imagine that Iceandsnow's parents and brothers and sisters kept close watch, and one day just as the last banks were shrinking down, with water drops dripping from their edges, one of the little fairy sisters began to dance with joy. "I have found it! I have found it!" she said.

Sure enough, there at the edge of the bank, like a pure white, up-turned bell on the brown earth, was a flower, growing taller and taller on a green stem.

"Here's another!—And another!—And another!" cried all the fairies. Yes indeed, there was the whole fringe

of white bells, just as Iceandsnow's thought had formed them. The Green Fairy had kept her word.

"What shall we call them?" asked the mother.

The tiniest fairy of all, Peepapeep, who had been sitting very still, started, as though surprised.

"Snowdrops," she said, "someone whispered it in my ear."

"Snowdrops shall be their name," said the mother. "It was the Green Fairy who whispered to you. She has brought to us Iceandsnow's sweet thought,—the dear white bells; and the little green stems are a loving thought of her own."—Juju.

Junior Beavers' Letter Box.

Dear Puck and Beavers,—This is my first letter to your charming Circle. I go to school every day. My teacher's name is Miss Howard. There are about twenty-three pupils going to school. Our school was one of the competing schools in the School Fair last fall. I took first prize on my corn plot. My school is Collins' Bay school.

I have read quite a few books, some of which are: "Bad Little Hannah," "Francis Kane's Fortune," "Betty of the Rectory," "Alice in Wonderland," and many others. Hoping this letter will escape the w-p. b., I will close.

P. S.—I wish some of the Beavers about eleven years old would write to me. ISABELLA TRIP, Collins' Bay, Ont.

Dear Puck and Beavers,—This is my first letter to your charming Circle. As my father has taken "The Farmer's Advocate" for a number of years, I thought I would write to your Circle. I ride on the back of one of our cows. For pets I have a dog, Nornie, and a cat named Trixy. I go to school every day, and like it very much. Our teacher's name is Miss Ralph. I will end with a riddle.

As I looked through a pail I saw a ship sail, "Ann" in it, the captain's daughter; if you don't tell me her name, it's your own self's to blame, for I told you in the middle of my story. Ann—Ann was the captain's daughter. MARGARET ALLEN, Magog, Que.

Dear Puck and Beavers,—This is my first letter to your Circle. For pets I have two dogs, Feck and Bowser. My father has taken "The Farmer's Advocate" for fifteen years, and likes it fine. My brother and I go to school. The school is two miles and a half away. I live in Comox Valley, one of the oldest farming districts on Vancouver Island. I am eight years old, and am in the Second Reader. We have the telephone. I will close, hoping the w-p. b. is asleep.

I would like some of the Beavers my own age to write to me. EDITH CROCKETT, Sandwich, B. C.

Dear Puck and Beavers,—This is my third letter to the Circle, so I guess I will write again. I have a colt; its name is Princess Pat. We have the threshing mill now. Yesterday I stayed home from school to attend to the telephone. My father has two black foxes, and a pretty, big horse, called Sedgeford. I am in the Fifth Grade at school. Well, I guess I will close, wishing the Beaver Circle every success. JEAN SMITH, Central Pond, Box 30.

Dear Puck and Beavers,—This is my first letter to your charming Circle. My father has taken "The Farmer's Advocate" for as long as I can remember. School is not far from our place; it is on the banks of the Ottawa. Our teacher's name is Miss Beatty. I am in the Fourth Grade. I have a brother and sister. I am what you call a bookworm, and have read these books: "Black Beauty," "Little Curiosity," and many others. I will close now, for my letter is getting long. IVY GRAHAM (age 9), Grenville, Ont., R. R. 1.

The Windrow.

Boy Scouts in Japan are being trained to handle rifles.

China has adopted compulsory military service in two Provinces.

Lloyd George, Britain's Minister of Munitions, has found a very efficient woman chauffeur, a Miss Marsh. She drives the Minister's car at all times.

In seven States, Iowa, Colorado, Oregon, Washington, Idaho, Arkansas, and South Carolina, at midnight on the last day of the old year, the sale or manufacture of intoxicating liquors was prohibited by law. The number of prohibition States is now eighteen. A few exceptions are generally made for medical, sacramental and scientific uses.

General Castelnauf, the French Chief of Staff in the East, pronounces Salonika impregnable.

"The Terror of the Sea," as the Germans have named their submarines, has been thwarted by the use of nets. In the narrow waters, between England and Ireland, and in the English Channel, ships ply to and fro without a thought or care of the submarines of their enemies. Human ingenuity has closed these narrow seas at either end by huge nets, some of them forty miles long, in which the submarine, submerged and blind, becomes entangled and perishes.—Literary Digest.

Readers who are acquainted with David Grayson's delightful books, "Adventures in Friendship," "Adventures in Contentment," and "The Friendly Road," will be interested in the following item from The Bookman: "An interesting development in the increasing David Grayson following is the organization of a Graysonian Club in a little town in Florida. So popular has the idea become that plans are now on foot for the organization of chapters in a number of States. The first club, which was founded by Mrs. Neal Wyatt Chapline in Sarasota, Florida, met with such success that Mrs. Chapline has received letters from people in seven States asking her advice as to how to go about organizing a Graysonian Club. David Grayson himself has received many letters inviting him to attend the organization of these institutions, which are designed to spread broadcast the Graysonian ideals."

Julia Ward Howe, author of "The Battle Hymn of the Republic," was undeniably witty, although there was a sting to her wit. A conceited, dilapidated bachelor once said to her: "It is time for me to settle down as a married man, but I want so much; I want youth, health, wealth, of course, beauty, grace—" "Yes," she interrupted sympathetically, "you poor man, you do want them all." Of a conceited young man airing his disbelief in a magazine article, she said: Charles evidently thinks he has invented atheism." When Charles Sumner, refusing to meet some friends of hers at dinner, explained languidly: "Really, Julia, I have lost all my interest in individuals," she retorted: "Why, Charles, God hasn't got as far as that yet." Once walking the streets of Boston with a friend, she looked up and read on a public building, "Charitable Eye and Ear Infirmary." She said: "I did not know there were any charitable eyes and ears in Boston."—The Bookman.

Bouck White, author of "The Call of the Carpenter" and other books, who is now serving as pastor of the Church of the Social Revolution in New York, has followed the example of Tolstai in wearing the smock of the workman. "I refuse to dress in the fashion of a world that permits war," he says. Mr. White is convinced that money-lust is the real cause of war—and may be discovered as that by going back far enough and down deep enough. "Nowhere in history," he says, "not in Babylon in its prime, not in the Rome of magnificent decadence,

can I find another era when the money-lust was so unrestrained and universal as now. And this orgy of militarism is the result. War is a combination of the money-makers in one country to tread down and exploit the money-makers in another country." . . . "Today leisure class ideas are dominant," he says, "and leisure class clothing is therefore, the fashion. I have thrown in my lot with the toiler class. And I give notice of the fact that by wearing a garb that has been consecrated to toil by many thousand years of association therewith. Only by an overturn that will put labor at the top and leisure at the bottom can the world be saved from the red Niagara toward which it is at present swinging. Mammonism, the messenger of militarism, comes up only when men cease to be laborers and seek to exploit other men who are laborers."

Many United States editors and others are expressing the mind of a certain percentage of the people by opposing the stampede in'o militarism, under the name of "preparedness," that is seizing the Republic. "It is not against preparedness in the true meaning of the word," says Governor Capper, of Kansas, in The Independent, "that we protest, but against the evident attempt to stampede the American people into a hasty and ill-considered adoption of that policy of militarism which has demonstrated so tragically its futility and wickedness in Europe. . . . Let the United States arm itself to the teeth, and straightway the rapidly-growing republics of South America, with their enormous natural resources and teeming populations, will

between individuals. The combined forces of the powers, economic and military, against any one of their number who fails to take its case before an international court, could hardly fail to keep the peace. A cycle of preparedness in Europe, and of the very sort now demanded with such a clamor for the United States, has resulted in the greatest cataclysm of history. Are we prepared to pay that price?"

The Ingle Nook.

[Rules for correspondence in this and other Departments: (1) Kindly write on one side of paper only. (2) Always send name and address with communications. If pen name is also given, the real name will not be published. (3) When enclosing a letter to be forwarded to anyone, place it in stamped envelope ready to be sent on. (4) Allow one month in this Department for answers to questions to appear.]

After the War.

Do you ever try to imagine what conditions will be after the war? From the fact that in many of the better-class magazines, articles of a prophetic or analytic nature are appearing in increasing numbers of late, it would seem that such speculations are becoming very general. And, indeed, it could scarcely be otherwise. We think we live in the present; as a matter of fact, we live very much in the future, and when a great world-shaking cataclysm such as the present war arrives, there are problems ahead that allure yet defy the strongest minds and the most acute prophecy. To some it appears that civilization has been put back for a hundred years

ugliness of war; service shall take the place of competition, and the slogan henceforth shall be, instead of the old, despicable "Every man for himself and the devil take the hindmost," a clarion call, penetrating even to the hearts of the most stupid and the most selfish, "Liberty, Equality and Fraternity! The Brotherhood of Man!"

It is a beautiful dream, this last, and one that must eventually come to pass even on this earth, else creation shall have been in vain. Nevertheless, "the mills of God grind slowly." At times one is tempted to marvel at the patience of the Infinite, in whose eyes, indeed, "a thousand years are as a day." When one thinks of the millions of years required in evolution from the first simple cells of organic matter to the complex vegetable and animal forms of to-day, even man himself, one has some faint conception of that Infinite Patience. When one reflects that the work of evolution is still going on, slowly, and silently, yet surely as before, one stands dumb before the possibility of what yet may be. It is hard to realize, perhaps, that each one of us must partake of that evolution, be a part in it, and eventually know and understand all; yet so it must be, or the creation of us shall have been the "devil's dance" that some pessimists have portrayed it.

The possibilities of the future make life well worth the living, no matter what our lot here may be; yet since it is clear that the events of the Universe do, as a rule, move slowly, it may be that we have before us a period of more militarism, more autocracy of wealth, more burdens to bear, before the final liberation. Thinking of such a possibility, it may help us, at times, to reflect that the rough way may be needed to put the iron into our souls that we may be strong to rise. At such times it may help us to realize the spirit of the words of Browning, the fighting poet,

"Then welcome each rebuff
That turns earth's smoothness rough,
Each sting that bids nor sit nor stand,
but go!
Be our joys three parts pain!
Strive, and hold cheap the strain;
Learn, nor account the pang; dare, never
grudge the throe!"

It isn't an easy doctrine—this being willing to take rebuffs so that we rise by them—but we can never be really free until we so look upon them.

At the same time—to return to our subject—although "the mills of God grind slowly," there is no law to prevent an impetus at any time. There have been events in the world that have made for very great progress within a very short period, even a few years; and it may be that the end of this war may see just such a period. I rather think the Infinite is well satisfied when such leaping forward occur.

But in order that such rapid advancement may be made, one thing seems absolutely necessary—concerted movement forward on the part of all the people, all the masses of the people; and those in the most civilized countries must lead. Upon them lies the burden. It is impossible for a few prophets and a few leaders to do everything themselves. They must have at their backs the great majority of the folk living everywhere, in the shops, in the schools, away out on the farms. Not one can evade the responsibility, not one can say, "I do not count." Not one can say, "No chance to help comes to me," for the ballot, at least, goes everywhere, and may be the sword of the future,—a more effective weapon than the sword of finest steel or the most terrible modern Howitzer. It is not hard to believe firmly, with Bouck White, that "the ballot-box is going to be discovered as probably the one greatest spiritual contribution to mankind,"—he means in "raising" mankind in general,—the ballot the instrument, not the cause. Yes, that opportunity will come to everyone capable of thought before long, for it is only a stone's throw until women also will have legal permission everywhere to vote.

But it is not sufficient that everyone have the power to vote. That will not be a cure-all. In order that the leaders,



Try a Pulley Clothes Line.

By having a pulley at each end of the line, and an "endless" rope, to go double, the clothes can be put on at the door, and the line drawn along until filled with them. This little plan, which any handy man can carry out, will save wading through snow on winter wash-days.

take up arms in self-protection. They never have trusted us, never have understood us. If we begin arming now, history will see the Old-world blunder repeated in this hemisphere. We are human. We shall soon be carrying a chip on our shoulders; the bully in us will assuredly assert itself and will be the means of turning these western nations into armed camps, just as occurred in Europe. Then a coalition against the feared and misunderstood United States by these South American Latins will bring about the inevitable conflagration we now see as a result of this policy in Europe. But long before this we shall lose their trade. They will fear to build up a dreaded rival by buying goods of him. . . . But more than the commercial loss, a greater calamity even than the loss of human lives which attends warfare, is the deterioration of national character which follows the policy of militarism. We now are a peaceful people, loving the ways of peace. Given over to the rule of jingoes, we shall become a swaggering, aggressive, bullying nation that puts its trust in might rather than right. . . . I have great faith in the efficacy of economic pressure as a defensive measure. I do not think that the idea embodied in the proposal of a "League to Enforce Peace" is at all visionary. An international court is as possible among civilized nations as are courts for the adjustment of disputes

or more; that art and beauty have been slain; that, on the excuse of "preparedness," militarism will be more rampant than ever, the very "Prussianism" that the Allies are to-day trying to kill, coming thus to the fore in every land; that because of the great wealth now flowing into the hands of munitions manufacturers, democracy will receive a stunning blow, and a plutocracy will be established, more powerful, more crushing than the worst imperial autocracy.

Upon the other hand, there are those who cling to the idea that right must win out in the end, however it come; that evolution cannot cease in things political any more than in things physical. Out of the very throes of the war, say these, will come a larger democracy. Socialism will again rear its head, making for an internationalism that has been hitherto unknown. Disgusted with war's ruin, the nations will unite in a strong league, pledged to oppose, by ostracism of trade and other measures, any single nation that shall, in the future, dare to make trouble; and so the only forces needed will be for policing, and the crushing cost of keeping up huge armies and fleets will be forever done away with. Animated by a new humanitarianism, and assisted by fruits that were formerly swallowed up by militarism, all peaceful arts shall flourish; beauty shall mount to the throne from which has been driven the

of war: service shall take the competition, and the slogan shall be, instead of the old, "Every man for himself and take the hindmost," a clear, penetrating even to the most stupid and the most liberty, Equality and Fraternity Brotherhood of Man!"

Beautiful dream, this last, and must eventually come to pass this earth, else creation shall in vain. Nevertheless, "the grind slowly." At times noted to marvel at the patience, in whose eyes, indeed, "a year are as a day." When of the millions of years revolution from the first simple organic matter to the complex and animal forms of to-day, himself, one has some faint of that Infinite Patience. reflects that the work of evolution still going on, slowly, and surely as before, one stands the possibility of what yet it is hard to realize, perhaps, one of us must partake of on, be a part in it, and now and understand all; yet be, or the creation of us been the "devil's dance" that artists have portrayed it.

ilities of the future make the living, no matter what may be; yet since it is clear of the Universe do, as slowly, it may be that we is a period of more military-ocracy of wealth, more before the final liberation. such a possibility, it may times, to reflect that the may be needed to put the our souls that we may be. At such times it may alize the spirit of the words the fighting poet,

me each rebuff
birth's smoothness rough,
at bids nor sit nor stand,
three parts pain!
old cheap the strain;
count the pang; dare, never
the three!"

easy doctrine—this being
e rebuffs so that we rise
we can never be really free
ok upon them.

time—to return to our
"the mills of God grind
is no law to prevent an
y time. There have been
world that have made for
gress within a very short
few years; and it may be
of this war may see just
I rather think the Inf-
lified when such leaping

that such rapid advance-
ade, one thing seems ab-
ary—concerted movement
part of all the people,
of the people; and those
lized countries must lead,
the burden. It is im-
few prophets and a few
everything themselves.

at their backs the great
folk living everywhere,
the schools, away out
Not one can evade the
ot one can say, "I do
ot one can say, "No
comes to me," for the
goes everywhere, and
d of the future—a more
than the sword of finest
most terrible modern
s not hard to believe
uck White, that "the
ng to be discovered as
greatest spiritual con-
nkind,"—he means in
d in general,—the ballot
not the cause. Yes,
will come to everyone
t before long, for it is
row until women also
mission everywhere to

ufficient that everyone
vote. That will not
order that the leaders,

the few advanced ones who step out from the crowd, may have any efficient help from the masses, it is necessary that the masses themselves stand on a firm foundation. If they don't, they must inevitably wallow back into the old confusion. It is simply impossible for any country to advance greatly if ninety-nine per cent. of its people are intent each on building up his own little pile in bank accounts and lands, utterly oblivious of everything else that goes on around him. The people must learn, each and all, to be public-spirited. "The Brotherhood of Man," must cease to be but an empty call.

I hate to give this illustration, but it is so pertinent that I cannot leave it out: When on the train recently I could not help overhearing the conversation of two men behind me, one a man of perhaps fifty, the other a mere lad of twenty or more. Both, evidently, were coming to visit relatives during the Christmas holiday. Naturally the conversation turned on the war and when it might end. "Well," said the older man, "I don't know, but the longer it keeps on the better for us fellows out West." It was fine how the mere lad sprang upon him—a mere lad, yet really older than the other, older in intellect and in heart. "Some of you fellows," he said, indignantly, "would sell your country for twenty-five dollars!"

Think of it!—Anxious for a war to go on, with all its loss, all its suffering, all its agony of mind, all its maiming of limb and crushing out of young lives, so that "us fellows out West" may mass more money in a bank! I don't think such supreme selfishness is by any means universal, yet so long as even a modified form of it exists at all generally, how can any country advance really in the things that count?—There must be a better foundation than selfishness. The world must, somehow, get higher ideals.

So the question comes down to this: "How can a better foundation be built? Granted that the ballot is to be the strong power of the future, how shall it be made really effective?"

When a house is built the foundation is laid stone by stone. When the ideal nation is built, the process, surely, must be similar. The building must be carried on, not from the top downward, although directed from there, but WITH the bricks or the stones and the mortar. Similarly must world-building be carried on, by means of the atoms, the individual human beings who make up all the peoples.

We have not builded altogether aright in the past. We have laid the foundations of selfishness among the people. If we are altogether honest, we must admit that, on the whole, we have made "Getting" the God Over All. This thing has obtained in all countries. Like people, like nations; rivalries, aggrandizement, armaments, wars. If it is possible to lay a new and different foundation everywhere, then this terrible climax may mark the end of one "dispensation" and the beginning of a far different and very much better one.—We, ourselves, each individually, and all together, whether we will or not, have to lay the foundation. Its kind shall be as we make it. We can't drop back into the same old way, else the same things will happen again. We must do better, learn more, see further, exert ourselves for other, and humanitarian interests as well as our own. We must exercise conscientious effort to make things better, and never forget that our influence on the children of to-day is making the men and women of to-morrow.

After all, aren't nations and individuals very much alike. One man takes another man's horse, or cow,—and the owner objects, one nation, on some trivial excuse takes a piece of another's territory,—war. One man shakes his fist over his back fence at his neighbor every day for a month, and some day the neighbor hits him; two nations build up armaments against each other for half a century and the day comes when they fight. So the story goes. And yet there is a point where the similarity ends, for one nation will do against another what would be considered too mean a trick to countenance in private

life, and do it quite barefacedly at that. And men will do in war, and even hold it glorious to do them, things that would be held in private life too despicable for consideration. For what is modern war, but one long series of efforts to outwit by every hidden advantage that can be devised?

It's all strange, and incomprehensible. Yet it does not seem too much to believe that the rules of honor that hold between individuals should hold between nations also. The trouble is that we are all too national; we have not yet even considered the possibility of the International Mind.

Perhaps I have tired you with all this, but I had to get it out of my system. Next day I want to talk a little of what I should like to see right here when the war is over.—But before I close, why do not more of you help me to talk? I want the Ingle Nook to be a "really and truly" Round Table, you know.

JUNIA.

Old Socks for New.

Toronto has started a movement requesting Canadian soldiers to return their old socks in exchange for new ones. The old ones are then to be sent back to Canada to be re-footed, and in this way it is expected that the task of keeping a constant supply of warm foot-covering will be greatly assisted.

Yesterday (Jan. 13th) there was an exhibit of work for the soldiers at Hyman Hall in this city,—work as perfect as it can be made. Red Cross workers from all over Ontario were present, and examined the different supplies with much interest—shirts, pyjamas, socks, bandages, knee-caps, Balaclava caps, scarfs, etc. Especial interest was shown in the method of closing the toes of the socks, something quite new in this country evidently, and so smooth and soft for the toes of marching soldiers.

"You just follow the directions on the slips EXACTLY," I heard one woman explaining to another.

To those who are interested, I may say that these directions for sizes III and IV, brought by Lady Beck from England, were printed in our issue of "The Farmer's Advocate" for July 15, and may be found by referring back to that number.—I do hope you keep your "Advocates."

In his afternoon address, Mr. Noel Marshall, head of the Red Cross in Toronto, said that he believed every woman in Canada was working,—he thought he himself had had letters from most of them. Incidentally, he remarked that during the last three months (during which shipments were permitted) 85 tons of jam had been sent from Canada. Also, from the Toronto Red Cross, 300,000 pairs of socks had been sent altogether. He emphasized, however, that the need, especially for socks, is as great as ever. As yet the end of the War is not in sight.—JUNIA.

The "Grippe" Epidemic.

Quite possibly the so called "grippe" epidemic that has been sweeping over many cities in the United States, and some of those in Canada, has penetrated also in parts of the rural districts. Fearing this, I asked Dr. H. W. Hill, of the Institute of Public Health, over the telephone this afternoon what should be done when the disease appears.

He replied that the present epidemic is not really the old-time "grippe" at all. A specialist in Chicago, who has been making an exhaustive study of the disease, has failed to find the grippe "germ" in any of the cases. He has, however, found a streptococcus, evidently the cause of the epidemic. As, then, the disease is very contagious, it is necessary to isolate all cases at once. Those who are attacked should at once go to bed and stay there until better, both for their own sake and the sake of their neighbors. All precautions in regard to cleanliness and avoidance of breathing or coughing in the faces of others should be strictly observed. Only in this way can the epidemic be prevented from spreading still further. As yet no cure has been discovered.

Makes Fine Bread



EVERYONE who bakes bread should know about Cream of the West Flour. It is without a peer as a bread flour. With every four 98-lb. bags of Cream of the West Flour and our other guaranteed flours we give an interesting novel or cook book free. Make out your order now.

Cream of the West Flour

the hard wheat flour guaranteed for bread

GUARANTEED FLOURS

	Per 98-lb. bag.
Cream of the West Flour (for bread).....	\$3.65
Toronto's Pride (for bread).....	3.45
Queen City Flour (blended for all purposes).....	3.25
Monarch Flour (makes delicious pastry).....	3.15

CEREALS

Cream of the West Wheatlets (per 6-lb. bag).....	.30
Norwegian Rolled Oats (per 90-lb. bag).....	3.00
Bob-o-link Cornmeal (per 98-lb. bag).....	2.50

FEEDS

	Per 100-lb. bag.
"Bullrush" Bran.....	\$1.35
"Bullrush" Middlings.....	1.40
Extra White Middlings.....	1.55
"Tower" Feed Flour.....	1.75
Whole Manitoba Oats.....	1.80
"Bullrush" Crushed Oats.....	1.85
Sunset Crushed Oats.....	1.70
Manitoba Feed Barley.....	1.85
Barley Meal.....	1.90
Geneva Feed (crushed corn, oats and barley).....	1.80
Oil Cake Meal (old process, ground fine).....	2.25
Chopped Oats.....	1.85
Feed Wheat.....	1.80
Whole Corn.....	1.95
Cracked Corn.....	2.00
Feed Corn Meal.....	1.95

Prices on Ton Lots—We cannot make any reduction on above prices, even if you purchase five or ten tons. The only reduction from the above prices would be on carload orders.

Terms Cash with Order—Orders may be assorted as desired. On shipments up to five bags, buyer pays freight charges. On shipments over five bags we will prepay freight to any station in Ontario, east of Sudbury and south of North Bay. West of Sudbury and New Ontario, add 15 cents per bag. Prices are subject to market changes.

TWO GREAT WAR BOOKS

From the Trenches, by Geoffrey Young. A thrilling and authoritative book written by an eye-witness of the retreat of the Army of France. This book includes the battle on the Marne and should be of great interest to readers wishing an authentic description of the early part of the war.

The Evidence on the Case, by James M. Beck, Late Assistant Attorney General of the United States. While this book is by one of the ablest jurists of the United States, it is written in an intensely interesting style. It reviews the evidence presented in the official papers, British, German, Russian and Belgian, in regard to the causation of the war. The conclusions presented by Mr. Beck have been accepted by leaders of thought as constituting a most notable contribution to the literature of the War. The work will be accepted as belonging to lasting history. It should be in every home library in Canada.

Ye Olde Miller's Household Book—Over 1,000 tested recipes, and large medical section. Enclose 10 cents to pay postage and packing on this book. No postage asked for on other books.

The Campbell Flour Mills Company

LIMITED

(WEST) TORONTO, ONTARIO

Why Pay \$100 Too Much for a Piano?

You may do just that unless you first investigate the genuine factory-to-user method of buying a Sherlock-Manning.

Because we save each purchaser fully \$100, and deliver a quality piano second to none in the world, with a positive ten-year guarantee, we are justified in calling the

Sherlock-Manning 20th Century Piano

"Canada's Biggest Piano Value"
At least, see the proofs, before spending \$100 needlessly.

Get Our Catalogue
Write Dept. 4 for our fine Art Catalogue "L" to-day. It shows and describes all our beautiful models and tells how we save you that \$100.

The Sherlock-Manning Piano Co.
London, 83 Canada
(No street address necessary)



Colonial-Style 70

10 Cents
KEROSENE
or Coal Oil will keep this lamp in operation for 30 HOURS and will produce 300 Candle Power of the finest, whitest and most efficient light ever known. Nothing to wear out or get out of order. Absolute satisfaction guaranteed.

AGENTS MAKE \$25
per week in their spare time. You can do the same. Send for our offer while your territory is open.

KNIGHT LIGHT CO.
487 Knight Bldg., CHICAGO

OTHELLO TREASURE
THE WONDER BAKER
LARGEST RANGE ON THE MARKET
WRITE FOR BROCHURE
The D. Moore Company
Hamilton Canada
AGENTS EVERYWHERE

CHALLENGE COLLARS
WATERPROOF ECONOMICAL ALWAYS DRESSY
NO EXPENSE FOR LAUNDRY BILLS
DULL FINISH, JUST LIKE BEST LINEN
AT YOUR DEALER'S, OR DIRECT, for 25c

SO EASY TO CLEAN
MADE IN CANADA

THE ARLINGTON CO. OF CANADA LIMITED
54 56 FRASER AVE. TORONTO

"1900" Gravity Washer
Sent free for one month's trial. Write for particulars.
"1900" WASHER COMPANY
357 Yonge Street Toronto, Ont.
(Factory 79-81 Portland St., Toronto)

PATENTS AND LEGAL SOLICITORS—FETHERTONHAUGH & CO., PATENTS Solicitors—The Old Established Firm, Head Office Royal Bank Building, Toronto, and 5 Elgin St. Ottawa, and other principal cities.

Socks for the Red Cross.

This afternoon an enthusiastic Red Cross worker exhibited a bundle of socks which had been given her at the Red Cross rooms to "do over." Some of the socks had little hard knots or ridges at the toes, very likely to produce soreness in the feet of men obliged to take long marches; other "pairs" were not pairs at all, one sock having been made much larger than the other—quite oblivious of the fact that, in all probability, a man's two feet are of the same size. At each Red Cross branch, because of mistakes like this, some of the women are obliged to give their whole time to "doing over" things. This is quite too bad in view of the great immediate necessity for sending socks to the Front as soon as possible. Will those, therefore, who have anything to do with making supplies, be good enough to exercise care in the work? It will be very much appreciated—most of all by the men who are needing warm clothing just as soon as they can get it.

About Bird-Boxes.

A letter from Prof. Crow, of the O. A. C., has been received stating that he cannot send printed instructions individually to the public, but that he will send them to "The Farmer's Advocate" for publication, hence all can get the benefit at once. We thank Prof. Crow, and will be pleased to devote some space to bird-boxes in an early issue.

GLUTEN BREAD.

Please give, through "The Farmer's Advocate," a reliable recipe for making gluten bread. I have never made it, and now have to make it for one of the family.

Gluten Wafers.—Take 1/2 cup cream and enough flour to make a stiff dough. Roll out very thin, prick with a fork, and sprinkle lightly with fine salt. Bake until crisp and brown.

Gluten Bread.—Make a sponge of 2 cups milk or water, 1 cake compressed yeast softened in 1/2 cup lukewarm water, and about 5 cups gluten flour. When light add 1 egg, 1/2 teaspoon salt, 2 tablespoons melted butter, and (if permitted), 1 or 2 tablespoons sugar, also gluten flour to make a dough that may be kneaded. Knead until smooth and elastic and shape into loaves. When light, bake one hour.

Things to Eat.

Baked Onions.—The following is a little-known but very good way for cooking onions: Select fairly large onions of similar size, put them in a deep pan, top side up, and bake 2 hours or more in a hot oven; then skin very quickly, open each with a fork and put in a bit of butter. Sprinkle with salt, and serve very hot on hot plates.

Jelly Roll.—Take 3 eggs, 1 1/2 cups sugar, grated rind of a lemon and 1 tablespoonful of the juice, 1/2 cup cold water, 1 1/2 cups flour, 1/2 teaspoon soda, 1 slightly-rounded teaspoon cream of tartar. Beat the eggs, then gradually beat in the sugar and grated rind. Next add the flour with soda and cream of tartar, alternately with the water. Bake in a buttered, shallow pan. Turn upside down upon a cloth and trim off the edges. Spread with beaten jelly and roll at once. At last roll the cake in the cloth.

Buttermilk Waffles.—1 1/2 cups flour, 1/2 teaspoon salt, 1/2 teaspoon soda, 1 cup buttermilk or thick sour milk, 2 eggs, 4 tablespoons melted butter. Sift together dry ingredients; add the yolks of the eggs, beaten and mixed with the sour milk and melted butter. Mix all well, then fold in the whites of the eggs, beaten dry.

Baked Apple Dumpling.—Butter a baking-dish and into it slice tart apples to fill to the top. Add a dash of salt and 3 tablespoons cold water. Make a soft biscuit dough with 1 1/2 cups pastry flour, 3 teaspoons baking powder, 1/2 teaspoon salt, 3 tablespoons butter, 1 egg (may be omitted), 1/2 cup milk (scant). Spread the dough over the apples and bake in a quick oven about 25 minutes. Serve very hot with butter and sugar, or syrup.

Bran Bread.—Soften half a cake of compressed yeast in 1 1/2 cups lukewarm

water and mix thoroughly. Add to 1 1/2 cups scalded-and-cooled milk. Add also 1 tablespoon shortening, a teaspoon of salt, 2 tablespoons molasses, 2 cups bran, 3 cups white flour. Mix all together thoroughly and turn into two bread-pans. When light, bake about 50 minutes.

Another.—Take 1 quart bran (not packed down), 1 pint white flour, 1 pint buttermilk, 1/2 cup molasses, 1 teaspoon soda, 1 teaspoon salt. Stir all together, and bake one hour.

Griddle Cakes.—Into a mixing-bowl break 1 egg and beat till light, adding 1 teaspoon salt, a generous pint of thick sour milk, a teaspoon of soda. Beat thoroughly and add 2 cups sifted flour. Bake on a well-greased griddle and serve with syrup.

Syrup.—Two cups granulated sugar, 1 cup brown sugar, 2 cups boiling water. Boil a short time, and when cool add 5 drops vanilla extract. This is delicious to serve with griddle cakes, Johnny cake, or hot biscuits.

Marlborough Pie.—Line a large pie-plate with good pastry. Mix together 2 cups grated apple, grated rind and juice of 1 lemon, 1 1/2 cups sugar, 2 eggs (beaten), 2 tablespoons melted butter, 1/2 teaspoon salt, 1 cup thin cream. Turn this mixture into the pastry-dish, wet the edge and put strips of pastry about and criss-crossed over the top. Bake until firm in the center.

Sausage with Fried Cereal and Bananas.—Prick the required number of sausages freely with a fork, and set them, covered with cold water, in a saucepan over the fire. Let simmer ten minutes, then drain, and set into the oven to brown. Heat some fat, from a previous cooking of sausage, in an iron frying-pan, and in it cook thin slices of cold breakfast cereal, dredged with flour. Let the cereal become brown on one side, then turn, and let brown on the other side. At the same time have ready bananas removed from the skin and cut in halves lengthwise, and then crosswise. Dredge these on both sides with flour, and let cook in the hot fat until brown on one side, then turn, that the other side may be browned.

Devil's Food.—Melt half a cake of chocolate in a double boiler; add 1 cup brown sugar, beaten yolks of 2 eggs, and 1/2 cup milk, and stir and cook over hot water until the mixture thickens. Let cool and add to the cake mixture just before it is turned into the pan. For the cake mixture, beat 1/2 cup butter to a cream; gradually beat in 1 cup brown sugar, beaten yolks of 2 eggs, and 1/2 cup milk. Sift some soda, measure out 1 level teaspoonful and sift again into the sifted flour, then sift the flour and soda into the cake mixture. Beat thoroughly, add the whites of 2 eggs beaten dry, and the chocolate mixture. Beat thoroughly, and bake. Cover with a boiled frosting made with the whites of the eggs left over from the chocolate part of the cake.

How to Make Good Tea, Coffee, and Other Drinks.

A great deal of the quality of tea and coffee depends upon the quality of the water used. For this reason, the teakettle should be thoroughly washed every day to prevent the accretion of lime and other substances inside of it; if these are left on, the water becomes too hard. In making tea, the aim should be to retain the stimulating principle, theine, and the essential oil which gives fragrance, rejecting the bitter, astringent constituent called tannin. To make the best tea use a teapot of china, earthenware or silver, and if possible, have a silver or aluminum tea-ball. Have the pot and tea-ball both hot, and put the required number of cupfuls of boiling water into the pot. Next put a teaspoonful of tea (level) for each cup into the ball and immerse, leaving the ball in the water for not longer than five minutes. The water should be actually boiling, and should have just come to the boil; if it has boiled even five minutes too long the flavor of the tea will be flat. It is a mistake to pour boiling water over the "spent" tea leaves that have been left standing in a teapot. "Tea" so made is a slow poison, from the amount of tannin developed in it.



MOTOR QUALITY

The Standardized Automobile Upholstery

DU PONT Fabrikoid, Motor Quality, is used on more than half of all 1916 automobiles.

Several years' use on hundreds of thousands of cars has proved its superiority over coated splits, commonly called "genuine leather."

Popular motor car prices are low because every detail of their manufacture is of standard guaranteed quality and cost.

Coated splits, weak and irregular in quality, durability and price, cannot be standardized.

Motor Quality Fabrikoid, uniform in quality, price, durability and handling costs, is standardized.

Insist upon Fabrikoid upholstery. Buy a standardized car and get the most for your money.

Send for samples and booklet No.

DU PONT FABRIKOID COMPANY
Wilmington, Delaware
Factory at Newburgh, N. Y.
Canadian Sales Office, Toronto



The Perfect Piano for the Home.
WILLIAMS
NEW SCALE
The choice of the World's Great Artists
THE WILLIAMS PIANO CO.
Oshawa, Ontario.

CHURCH BELLS
CHIMES AND PEALS
MEMORIAL BELLS A SPECIALTY
FULLY WARRANTED
McSHANE BELL FOUNDRY CO.
BALTIMORE, Md., U. S. A.
Chicago Office: Room 84, 154 W. Randolph St.
Established 1856

Louden Barn Equipments
SAVE Time—Save Labor—Save Expense
Our new catalogue describes every kind of device for money making and labor saving on farms. Write to:
Louden Machinery Company
Dept. 1 Guelph, Ont.

London Engine Supplies Co., Limited.
Our L. E. S. Water Works System will give you the comfort of High Pressure Water System for your home or about the farm. Refer to the Christmas Number for details.

MAPLE LEAF OIL CAKE MEAL
Contains over 35% protein
Contains over 33% carbohydrate
Keeps all live stock healthy if fed daily

WRITE TO-DAY FOR FREE SAMPLE & PRICES
THE CANADA LINSEED OIL MILLS, LTD.
TORONTO & MONTREAL

"Nothing But Leaves" Not Tea Leaves intermixed with Dust, Dirt and Stems but all Virgin Leaves. "SALADA"

has the reputation of being the cleanest,
and most perfect tea sold.

BLACK, GREEN OR MIXED. SEALED PACKETS ONLY.

February 8 REMEMBER THE DATE February 8

Of the Fifth Annual Quality Sale of the

SOUTHERN ONTARIO CONSIGNMENT SALES CO.
AT TILLSONBURG, ONT.

50 Head of Choice Holsteins

Remember there is never any reserve on any animal at this sale. This Company has a reputation for fair dealing to maintain, and they never were in a better position to give you a good square deal than they are this year. Everything sold subject to inspection. We are in this business to stay. Plan to be with us. A day's outing at this, the greatest annual sale in Canada, will do you good.

Catalogues ready soon to be had from:

R. J. KELLY, CULLODEN, ONT.

WANTS & FOR SALE

Advertisements will be inserted under this heading, such as Farm Properties, Help and Situations Wanted and Pet Stock.
TERMS—Three cents per word each insertion. Each initial counts for one word and figures for two words. Names and addresses are counted. Cash must always accompany the order. No advertisement inserted for less than 50 cents.

FOR Sale: 100 acre farm, 3 miles west of London, Ont., in London, Tp., with 2 bank barns, room for 40 head of horses and cattle. Brick house with hard and soft water, well at barns and piped spring in pasture. Six acres of bush. For full particulars address W. R. Cooper, R. R. No. 3, London, Ont.

FOR Sale: Farm of 100 acres. Lot 15, Con. 2, West Oxford. Good buildings; one of the most desirable farms in West Oxford. Close to condensing factory, cheese factory, church and school. Present owner wishing to retire. For further particulars apply on the premises or address: John Leigh, R. R. 5, Ingersoll, Ont. No Agents need apply.

FARM Property: good 200 acre farm for sale in the county of Perth and the Township of Elma. Good buildings; well watered, fenced and drained; soil, clay loam. Wm. Fisher, R. R. No. 1 Atwood, Ontario.

WANTED: Married man to work on farm. W. C. Good, Paris, Ont.

WANTED, man and wife—for Holstein herd. Man to take charge of stables, milking, feeding, etc. Wife to make some butter and board one or two men. Most of milk goes to city. Position open March 1st. House has bath and furnace. Good wages and permanent place to right parties. Must give reference. Apply to Box "A" Farmer's Advocate, London, Ont.

WANTED, man and wife. Man must be good farmer and capable of taking charge—also have a good knowledge of horses, Shorthorns and pigs—wife to board men. Prepared to pay good wages to suitable parties. Brick house with running water. References required. Apply to Box "C" Farmer's Advocate, London Ont.

WANTED—Man for Holstein herd, must be good milker and reliable. Apply Manor Farm, Clarkson, Ont.

J. VICAR MUNRO, ARCHITECT and C. E. Now is the time to have your plans and specifications drawn. Obtain competitive estimates and save money. Homes, churches and schools. No extras. Address Room 54, Bank of Toronto Building, London, Canada.

Wanted Custom Tanning. Horse hides and Cattle hides for robes and coats and also all kinds of skins and furs. Send them to me and have them tanned soft and pliable. Address B. F. BELL, Delhi, Ont.

Shorthand and Typewriting taught thoroughly by mail. Write Canadian Correspondence College, Limited, Dept. E.E., Toronto, Canada.

Sweet Clover Seed Wanted 12 Bushels home-grown, white, scarified, Govt. standard "1", 1915 growth. Send samples with prices.
WM. S. GAGE, R. R. No. 3, Waterford, Ont.

WANTED a pure-bred Clydesdale stallion, must be black, rising 3 years old; state price. Box "G," Farmer's Advocate, London, Ont.

Good Looking Harness

Stays good looking—and old harness looks like new when you give it regular applications of

EUREKA HARNESS OIL

Prevents cracking. Puts life into the harness. Makes it strong, pliable, last longer. One application will convince you.

Dealers Everywhere

The Imperial Oil Company Limited

BRANCHES IN ALL CITIES

THE well-known Imported Clydesdale Stallion, Present Fashion. He is a dark brown, good bone, and a good all-round horse. Sure and a good stock-getter. One of his colts in 1914 beating winning 33 first prizes; also several others of his stock never have been beaten in a ring. One Pure-bred Aberdeen-Angus cow, due in March, and one Aberdeen-Angus heifer rising two years, one calf rising one year, one bull calf 12 months old. All these cattle are registered, and are a first-class herd of good stock. All the above will be sold at a large stock sale, without reserve, on January 25th, at the Royal Oak Farm, two miles from Belwood, C. P. R., and five miles from Fergus. Arrangements can be made to meet intending purchasers at either station. **J. Hefferin, Auctioneer**, J. RANSOM, Prop., Fergus, Ont.

O. A. C. No. 72 OATS
FOR SALE
Grown from the best of my hand picked stock, carefully weeded while growing. The season of 1915, not only at Guelph where the yield was over 103 bush. per acre, the next highest being 10 bush. less, but all over Ontario. O. A. C. 72, was by far the leading variety for quality and quantity. My experience last year was very encouraging for after exercising the greatest possible care to produce seed of high-testing quality, I found both dealers and growers willing to pay 20c. to 30c. per bush. more than for ordinary clean seed, and did not have enough to fill the orders. Samples, prices, Government test etc. on application.
A. FORSTER, MARKHAM, ONT.

THE BALANCED RATION.
The importance of the proper selection and preparation of the food served in our families can not be rated too high. By simply turning over the pages of your favorite cook book or culinary publication and picking out something that sounds as if it might taste good, your full duty to your family is not done. No single book or magazine contains all the help the average housekeeper needs for this task. First of all, one should acquire an elementary, but sound, knowledge of the properties and values of as wide a variety of foods as possible, and, also, a knowledge of the best ways of cooking the same. To this knowledge should be added, day by day, here a little and there a little.

In business pursuits no concern is satisfied with an employee who has reached the limit of his growth. To be valuable, a man must be able to initiate new schemes; he must know what other firms, in similar lines of business, are doing, and be able to suggest better ways of doing the same things. As women, are we not too self-satisfied? Do we condemn ourselves enough when members of our families are not in sound health or at the height of their efficiency? To keep ourselves and our families always at this high point of efficiency is our especial concern. Are we making in this matter a pronounced success? How many of us take the trouble to note whether we are supplying the proper food properties at the three daily meals? Do we know that we are providing something of protein, fats, carbohydrates and waste material each day, to say nothing of supplying these principles in the proper proportion? Let us take time to master this important subject. Then let us give attention to the cooking of the food we buy, to the end that the values we have at hand may not be entirely dissipated in the process of cooking.

Twenty years ago, when the writer first met the noted chemist, Dr. Wiley, he said, "I am glad to know you, for I, also, am interested in cookery. Cooking has more to do with the future prosperity of this country than the tariff." That Dr. Wiley has not changed his views on this subject is evident from the reports of a recent lecture by him. He said, in substance, to the women's club he was addressing, that it was all very well to be interested in pure food, but the thing to which you should give your best thought and attention is good cooking.

Too many women, it seems, are shirking this important duty, and the thin limbs, colorless lips and complexion of countless anemic children, whom we see daily on our streets, bear testimony to great wrong or neglect somewhere. Food in abundance, and of the right kind, is needed during the years of growth, and the lack of it can, in no wise, be made up later on in life. Small frames, undeveloped muscles, imperfect teeth and other defects, are direct results of malnutrition in youth. And here money is not the one and only thing needful; for the woman in moderate—even poor—circumstances, who has an elementary yet sound knowledge of the properties and values of different foods, and who knows how best to prepare these for the home table, is less likely to fall in reaching the desired goal than her more prosperous neighbor, who is without this knowledge.—J. M. H., in "American Cookery."

The Dollar Chain

A fund maintained by readers of "The Farmer's Advocate and Home Magazine" for (1) Belgian Relief; (2) Soldiers' Comforts; (3) Red Cross Supplies.

Contributions from Jan. 7th to Jan. 14th: Edna H. Wilson, R. 6, St. Mary's, Ont., (on behalf of School Section No. 3 Blanshard), \$2.00; Mary Dell, Port Robinson, Ont., \$2.00; "Unknown," \$15.00.

Previously acknowledged\$1,953.10
Total to Jan. 14th.....\$1,972.10

Kindly address contributions to "The Farmer's Advocate and Home Magazine," London, Ont.

Learn Music At Home!



Free Lessons **New Method—Learn To Play By Note—Piano, Organ, Violin, Banjo, Mandolin, Guitar, Cornet, Harp, Cello or to sing.** Special Limited Offer of free weekly lessons. You pay only for music and postage, which is small. No extras. Beginners or advanced pupils. Everything illustrated, plain, simple, systematic. Free lectures each course. 16 years' success. Start at once. Write for Free Booklet Today—Now **U. S. SCHOOL OF MUSIC, Box 230 225 Fifth Avenue, New York City**

Save Money and Buy Your Seed Now

Gov't Standard No. 1 Red Clover.....\$17.00 per bush.
" " No. 1 Alsike..... 14.00
" " No. 1 Timothy..... 5.90 " "
(almost Extra No. 1 for purity)
" " No. 1 Timothy.....\$ 5.65 " "
" " No. 2 Timothy..... 5.65 " "
(slightly hulled, but Extra No. 1 for purity.)

We have a small quantity of Grimm or Variegated Alfalfa. If interested, write for prices. Railway freight paid on all orders in Ontario and Quebec of \$25.00 or more.

We are buyers of Red, Alsike and Alfalfa Clover and Timothy, Spring Rye, Hairy Vetch. Write us for samples.

After fifty years of service to the farmers we submit our 1916 Golden Jubilee Catalogue. It is free for the asking. It will help you to make the farm pay more. Drop us a line for one now.

Geo. Keith & Sons,
124 KING ST. EAST, TORONTO

Re The Patriotic Song.

Mrs. Boomer tells me that she forgot to ask that, in addition to the 25 cents for Mr. Sippi's song, "Canadian Forever," whose proceeds are being given to the Red Cross, one cent be enclosed for postage. So far she is paying all the postage herself, and orders are flowing in rapidly. Her address, as given before, is 513 Dundas street, London, Ont.

Genevieve.—I want to give Jack some books. He's ill, you know, and I can't decide just what kind to give.
Gertrude.—Why not give him something religious?
Genevieve.—Oh, my, no! He's convalescent now.

During a military review at Aldershot last summer one of the foreign attaches had made himself obnoxious to several staff officers by asking ridiculous and often impertinent questions. Turning to an old infantry officer, he said: "How is it, Colonel, that your bugle call 'Advance' is so short while the 'Retreat' is just the reverse?"
"Because, sir," replied the veteran, "when a British soldier goes into action it only needs a single note from a bugle to make him advance anywhere, but it takes a whole brass band to make him retire."

With the boundless enthusiasm of his kind, the food faddist harangued the mob on the marvellous results to be obtained from eating nut butter and a few other things like that.
"Friends," he cried, swelling visibly and clapping his chest, "two years ago I was a walking skeleton—a haggard, miserable wreck. What do you suppose brought about this great change in me?"
He paused to see the effect of his words. Then a voice rose from among his listeners: "Wot change?"

"In Belgium," said War Correspondent Will Irwin, "I knew an artillery blacksmith who carried on the sleeve of his uniform the hammer and pincers—the insignia of his calling.
"Wot's them things on your sleeve mean?" a civilian asked him one day.
"They mean I'm an army dentist," he said, with a wink at me.
"The pincers, then, are to pull the teeth out with. But the hammer—wot's the hammer for?"
"The hammer," said the blacksmith, "is for use in bad cases to chloroform the patients."

Home Music

Free New Method—Learn To Play By Note—Piano, Organ, Violin, Banjo, Mandolin, Guitar, Cornet, Harp, Cello or to sing. Special Limited Offer of free weekly lessons. You pay only for music and postage, which is small. No extras. Beginners or advanced pupils. Everything illustrated, plain, simple, systematic. Free lectures each course. 16 years' success. Start at once. Write for Free Booklet Today—Now U. S. SCHOOL OF MUSIC, Box 230 225 Fifth Avenue, New York City

Buy Your Seed Now

No. 1 Red Clover.....\$17.00 per bush.
No. 1 Alsike..... 14.00 " "
No. 1 Timothy..... 5.90 " "
Extra No. 1 for purity)
No. 1 Timothy.....\$ 5.65 " "
No. 2 Timothy..... 5.65 " "
Extra No. 1 for purity.)
all quantity of Grimm or Varley interested, write for prices.
paid on all orders in Ontario and more.
of Red, Alsike and Alfalfa Clover Spring Rye, Hairly Vetch. Write

Keith & Sons, TORONTO

Patriotic Song.

tells me that she forgot in addition to the 25 cents song, "Canadian Forever," are being given to the cent be enclosed for postage is paying all the postage orders are flowing in address, as given before, street, London, Ont. JUNIA.

want to give Jack some all, you know, and I can't at kind to give. y not give him some- my, no! He's con-

ary review at Aldershot of the foreign attaches if obnoxious to several asking ridiculous and t questions. Turning to officer, he said: Colonel, that your bugle so short while the 'Re-verse'?" replied the veteran, soldier goes into action single note from a bugle vance anywhere, but it ass band to make him

less enthusiasm of his Maddist harangued the rvellous results to be ing nut butter and a like that. ried, swelling visibly chest, "two years ago skeleton—a haggard, What do you suppose his great change in see the effect of his voice rose from among t change?"

id War Correspondent w an artillery black- on the sleeve of his mer and pincers—the ing. gs on your sleeve asked him one day. an army dentist," he at me. said the civilian, are to pull the teeth the hammer—wot's the said the blacksmith, cases to chloroform

CANADA'S FINANCIAL SITUATION

As disclosed by the addresses of the President and General Manager of the Canadian Bank of Commerce at the annual meeting of that Bank. Sir Edmund Walker, President of The Canadian Bank of Commerce, speaking at the annual meeting of his bank thus reviews the changes brought about by the war in Canada's trade position.

PRESIDENT'S ADDRESS.
When in 1913 we came to the end of a period of expansion we found ourselves like a healthy but overgrown youth, still dependent upon the mother. We had to sell over 400 millions of securities in order to settle our foreign debit balance for the Dominion fiscal year ending March 31st, 1913. During the year ending March, 1914, the difference between our exports and imports decreased by 130 million, but still left over 300 millions to be provided by the sale of securities in a market very much more difficult than that of the year before. More than one-half of the year ending March, 1915, was affected by the war, and the situation was still further improved to the extent of over 144 millions. For the six months ending ending September, 1915, there is a further improvement of 80 millions as compared with the previous year, but this same half year, when compared with the corresponding period in 1914, shows an improvement of 109 millions. For reasons explained a year ago, coin and bullion are left out of our totals.

INTERNATIONAL POSITION.
The following figures will illustrate the astonishing change in our international position:—

	Imports.	Exports.	Excess imports.	Excess exports.
1913	\$686,515,536	\$377,068,355	\$309,447,181	
1914	635,383,222	455,437,224	179,945,998	
1915	497,376,961	461,442,509	35,934,452	
6 months	228,335,678	273,377,082		\$45,041,404

In order to estimate our true position, we must add to the excess of imports the interest due upon Canadian securities held abroad, now estimated at about 140 to 150 millions, and we may count upon any excess of exports as available to pay this interest. During the last half of the present Dominion fiscal year, the effect of the export of our great crops, of our manufactured munitions, prepared foodstuffs, cattle, horses, etc., will be felt, and the excess of exports by 31st March, 1916, should be about equal to our interest charges payable abroad.

In 1913 we knew that we had used our credit to the available limit, but we hoped gradually to move into safer conditions. If anyone had suggested that we could so adjust matters within three years as to have a credit balance in our foreign trade, instead of a debit, and that this credit balance would be large enough to offset our interest payable abroad, our answer would have been that it was folly to indulge such hopes.

CREDIT STRENGTHENED.
This demonstration of what we can accomplish under pressure has, of course, greatly strengthened the credit of Canada, so that, while, for obvious reasons, we cannot at the moment sell securities in Great Britain or in Europe, we are building up a market for them in the United States which, when we consider the enormous increase in wealth taking place in that country at the moment, we may well hope is not of a temporary character.

In Canada, the building of almost all private or public works, causing a lock-up of capital, has stopped for the moment; individuals are buying less extravagantly, even if there is not sufficient effort to economize; everybody who has not enlisted can find work to do; and for a very large part of our national production, from the farm to the machine-shop, there is a persistent demand by the Allies. All this tends to produce a condition of prosperity, with ease in the money market, and if, like the United States, we were a neutral country instead of one engaged in the war, our national wealth would be increasing at a pace undreamed of in our past history.

We are proud, however, that we are not among the neutrals, but among those who are fighting for the liberty of the world, and for this, in addition to

the loss of life which our honor roll represents, we ourselves must bear now and must ask our children to bear, a great cost in money.

THE GREAT CROP.
A year ago everybody in Canada was urged to put into his particular effort in life an energy and seriousness of purpose adequate to the needs of the great war. If we cannot fight we should help in the countless other ways that are open to us. Nature smiled on our efforts, and we have been blessed with the greatest crops ever known in any new country. This has silenced the pessimists, and our great West is more sure of its future than ever. Indeed, for loftier reasons, all Canada feels much more sure of its future than it has ever done before. That overgrown youth, leaning upon his mother, has suddenly found himself, and to the call to play the man, has responded so well that his place among the younger nations and his influence in the greatest empire in the world are assured. The war, however, is still at its height, and there is little sign of such an end as we must attain if we are to follow our natural course in peace. We cannot afford to relax our energies for a moment; such efforts as we made in 1915 should be increased in 1916, and

the need for personal and public economy is not lessened a jot by the prosperity incidental to the war. I notice that when some citizen takes the trouble to indicate particular forms of economy he is met with criticism. Of course, economy for one man would be a great indulgence for another, and each must settle for himself the scale on which he can lessen his expenditure. We are exceedingly fortunate that such an income tax as that in Great Britain does not settle the question most drastically for each of us. It must be clear that every time we buy something outside of Canada we weaken our national finances, unless our purchases consist of material which will in some form or other be exported again. This does not mean that we can avoid making large purchases abroad, but that we can avoid unnecessary purchases. It must also be clear that when any man avoids expenditure which it would be quite natural to make in times of peace, he can invest the amount saved in war loans, and every dollar saved and thus invested is a blow struck on behalf of the Allies. So well is this need for personal economy understood in England that some of the great banks who have not heretofore had savings departments like those in Canadian banks have now established them.

CLEARING HOUSE RETURNS.
The contraction in ordinary business, which began in 1913, and was greatly increased by the war, is most forcibly illustrated by the figures of the building permits in our four principal cities. For the last four years they are as follows:

	1912	1913	1914	1915
Montreal	\$19,642,000	\$27,032,000	\$17,619,000	\$7,495,000
Toronto	27,401,000	27,038,000	20,672,000	6,651,000
Vancouver	19,388,000	10,423,000	4,484,000	1,593,000
Winnipeg	20,475,000	18,621,000	12,160,000	1,826,000

A drop from \$87,000,000 to \$17,500,000 in three years is so great as to affect severely almost every branch of trade, particularly those directly connected with building, but it is a matter for congratulation that we have been able to withstand this sharp readjustment and still maintain our prosperity, the very thing we feared we might not be able to do with credit to ourselves.

SUPPLYING OF MUNITIONS.
Few things, except the actual fighting at the front, recruiting, and the financing of the war, have interested us more

than the supplying of munitions, and especially Canada's share in that vitally important work. In a general way we know that we have done more than was expected, and have done it better and more quickly, but just how much we have done is not known to the general public. I am glad to be able to give a few facts which will at least help us to a better understanding of the matter. The Imperial Munitions Board have given orders in Canada for 22,800,000 shells, having a value of \$282,000,000. If we add to this the orders for cartridge cases, primers, forgings, friction tubes, etc., a total of \$303,000,000 is reached. For this work there had been paid out by the end of the year about \$80,000,000, and the monthly output is now valued at more than \$30,000,000. There are 422 plants working directly on these orders, and how much employment is indirectly due to them is beyond our skill even to suggest. The work of the War Purchasing Commission is not so easy to sum up. This body does not deal with shells, but it deals with almost every other requirement of the army, and purchases about five thousand different kinds of articles. As the appropriation for the year just past amounted to \$100,000,000, we can form some idea of the importance of its operations, although there are no figures available to show how this has been spent. The pay of officers and men, the cost of all engineering operations and other large items, coming under the direction of the Department of Militia and Defense, are met out of this appropriation. It is estimated that about one million pairs of boots have been purchased at a cost of more than \$3,500,000. Our woollen and knitting industries have received large orders, larger even than they could conveniently execute within the specified time. Up to the present all the cloth used for our soldiers' uniforms has been made in Canadian mills, but it is not clear that our mills can continue to fill all our requirements. From figures gathered from various sources, we estimate that the value of the clothing ordered for the use of the Canadian troops since the creation of the Commission in May has been from \$10,000,000 to \$12,000,000, while orders from Great Britain and the cost of clothing the earlier contingents should make the total at least \$20,000,000. The British orders in Toronto at the moment amount to nearly \$1,000,000. The demand for articles made of leather has been very extensive, and while most of the leather used is tanned in Canada, our trade reports record the importation of considerable quantities of hides and leather. Socks have been ordered by the million pairs at a time, and they mills are far behind in their deliveries. I cannot more than refer to such items as rifles and small ammunition, telephone equipment, tools, rubber articles, camp, barrack and hospital equipment, etc., but perhaps what I have said will help us to understand that the purchases for the Canadian army at the moment are almost as great as those required for the army equipment of Great Britain in times of peace. We have during the year sold in Great Britain canned corned beef to the value of about \$3,300,000, frozen beef about \$6,000,000, and bacon about \$9,000,000. The bacon would have been sold in the British market in any event, but the canned and frozen beef represents new trade. We cannot ascertain the number of horses or of live cattle sold (the latter mainly to France)

for army purposes, nor can we estimate the value of the shipments of wheat, four, oats, hay, etc., attributable to the war, or of the orders for munitions from France and Russia which have been placed in Canada, but if outstanding contracts are filled and the war continues throughout 1916, it seems clear that during 1915 and 1916 there will have been spent in Canada for war supplies considerably more than \$50,000,000. You may be interested to know something regarding the Bank's part in this work. We have as customers 22 of the largest shell-makers, 20 makers of

clothing and of leather goods, eight of the largest suppliers of provisions, besides many who supply other classes of munitions. Including the farmers, the number and variety of people among our customers who benefit by the supplying of munitions is beyond calculation. We have learned in meeting the sudden demand upon our industrial capacity to do many things which should count in our future. We have learned to shift our machinery rapidly to new uses, to make objects of a more complicated character which allow less margin for bad workmanship, to smelt copper, lead and zinc; indeed, to do many things which before the war did not seem possible in the present stage of our development.

READY FOR THE FUTURE.
In a new country like Canada, it is as natural to try and forecast the future as it is to breathe. Without such a form of enjoyment life would often be unbearable. Every day, however, since the war began, has shown us how unable we are with our previous narrow experience, to look ahead even for a month. We are living amid events so tremendous that it is our duty to be steadfast and ready for any new turn in the kaleidoscope of fate, and not to waste time in guesses regarding peace and the aftermath of the war; still, there are some important questions which press upon minds whenever the strain of the war lessens for a moment. When the war ends and orders for munitions cease, throwing many out of employment, when the Canadian soldiers begin to come home, and the discharged soldiers of the Allies follow them to this land of opportunity, with many others who wish to forget the horrors of Europe, how shall we find ourselves prepared for them? We shall probably have been enriched in some respects by the war, and the demands upon our industries are likely to increase, although not to the extent which will absorb their full output for some time to come. In any event, we shall probably not be so much engaged in building for the future as endeavoring to turn our products which will justify what we have already done. We shall therefore hope that our soldiers and our immigrants will turn to the land far more generally than have the immigrants of the last ten years. As Canada is the last great area with unplowed lands in the temperate zone, and under a Democratic Government, and as the returning soldiers will, as a rule, wish for outdoor work, we may hope that they will very generally become farmers. If so, should we not, despite the overwork incidental to the war, be preparing for a great settlement on the land?

The shareholders of the Bank were also addressed by the General Manager, Mr. John Aire. His remarks dealt principally with the business of the Bank during the year.

GENERAL MANAGER'S ADDRESS.
The statement presented to you to-day is a striking illustration of our policy during the year. The net profits amounted to \$2,352,085, or 8.25 per cent, upon the moneys which belong to the shareholders of the Bank, that is, upon the total of the paid-up Capital and Res. We have, as usual, appropriated \$80,000 for the Officers' Pension Fund, and after paying the war tax of 1 per cent, upon our note circulation, amounting to \$122,906, subscribing \$5,000 to the British Red Cross Fund, and reserving as a special appropriation the sum of \$1,000,000 against possible further depreciation in the values of the stocks, bonds and similar securities owned by the Bank, we have been able to carry forward \$461,892 at the credit of Profit and Loss Account.

AN ADDITIONAL PRECAUTION.
It is the time-honored custom and wise precaution of every general manager of a Canadian bank upon first assuming the responsibilities of his position to assure himself that each individual asset of his bank represents the value assigned to it in its books and published statements. Upon undertaking this important duty, I found that the conditions brought into being by the war, and particularly the restrictions placed upon the leading security markets of the world, had made the task one of unusual difficulty. The hazards of war have not only seriously

Take Care of Your Hair

If you want to keep your "Crown of Glory" looking right, or if it isn't in good condition and you want it made so at home

Our Scalp Treatments will do it. They make hair grow, stop it falling, retard greyness, remove irritation and dandruff, and correct scalp troubles. Consultation invited at office or by letter. Write describing the case fully.

Superfluous Hair, moles, warts, etc., permanently eradicated by Electrolysis. Come for treatment during holidays if you live out of town. Booklet "F" mailed on request, with sample of Hair Rejuvenator for coloring hair not more than half grey. Send 5 cents to pay postage and packing.

HISCOTT INSTITUTE, Limited
61 COLLEGE ST., TORONTO
Established 1892

Harab-Davies Fertilizers Yield Big Results

Write for Booklet.
THE ONTARIO FERTILIZERS, LTD
West Toronto

POULTRY AND EGGS

Condensed advertisements will be inserted under this heading at three cents per word each insertion. Each initial counts for one word and figures for two words. Names and addresses are counted. Cash must always accompany the order for any advertisement under this heading. Parties having good pure-bred poultry and eggs for sale will find plenty of customers by using our advertising columns. No advertisements inserted for less than 50 cents.

BARRED Rock, Buff Orpington and White Wyandotte cockerels, two dollars and up. Pure-bred, true-type, our own bred-to-day strains, the result of years of careful selection and breeding for winter eggs. "Ingleside Farm," Rural 1, Ancaster, Ont.

BRAHMAS, Black Spanish, Partridge Rocks Partridge Wyandottes, Indian Runner Ducks Choice trios at five dollars. White Leghorn cockerels, \$1, bred from winners at Guelph, Ottawa and Detroit. John Annesser, Tilbury, Ont.

BARRED Rock cockerels and Pekin ducks of high-grade stock. Prices low. Leslie Kerns Freeman, Ont.

BARRED Rocks, laying strain, prize-winners Cockerels, \$1.50 to \$2.00. Females \$1.25 to \$1.50. Central Poultry Yards, Colborne, Ont.

FOR SALE—Bronze turkeys—win at Western Fair six first prizes; also Guelph, on nine entries, nine prizes and special for best collection. W. H. Beattie, Wilton Grove, Ont.

FOR Sale, Anything in "Snowflake" White Leghorns. Two to five dollars. E. W. Burt, Ont.

FOR SALE—Emden Gander, Rouen ducks and drakes. C. Maier & Son, Riverview Farm, Delaware, Ont.

MAMMOTH Bronze turkeys for sale, bred from prize-winning stock, heavy weights. Angus Beattie, Wilton Grove, Ont. R. R. No. 1.

WHITE Wyandottes (Martin strain) Prize Winners. Dunc. McTavish, Chesley, Ont.

WHITE Wyandotte Cockerels. Dandies. Two Dollars each. Thos. K. Hand, R. R. No. 3, Mansfield, Ont.

Free to Stockmen and Poultrymen, our 80-page illustrated booklet on feeding; how to construct a house which will accommodate 100 hens, gives dimensions and measurements of every piece of lumber required. Deals with the common diseases of stock and poultry and the remedies. Tells how to cure roup in four days. Contains full information about Royal Purple Stock and Poultry Foods and Remedies.

THE W. A. JENKINS MFG. COMPANY
London, Canada

Chickens 19c.

We will pay the above price for crate-fattened chickens, bled, and picked clean to the wing-tips. Chickens must be good size, straight-breasted and white in colour, not torn. These birds are for select trade, so must be A No. 1.

Waller's, 700 Spadina Ave., Toronto

\$7.00 for this Collins Natural Incubator. Hatches biggest percentage of eggs. Money back if you don't like it. Write to-day. C. W. Collins, 417 Symington Ave., Toronto.



SHOEMAKER'S BOOK ON POULTRY

and Almanac for 1916 has 200 pages with many colored plates of fowls true to life. Tells all about chickens, their prices, their care, diseases and remedies. All about incubators, their prices and their operation. All about poultry houses and how to build them. It's an encyclopedia of chicken-dom. You need it. Only 15c. C. O. SHOEMAKER, Box 980 Freeport, La.



lowered the prices of all securities, but they have introduced an element of doubt into existing values which it is difficult to allow for in dollars and cents. As a matter of additional precaution, therefore, we have taken the step of reserving out of Profit and Loss Account, as a special provision against these contingencies, the sum of \$1,000,000. After the war has been successfully prosecuted to a close, it is probable that some, if not all, of this amount will come back sooner or later into profits.

NO UNNECESSARY EXPENDITURES.

The note circulation stands in the balance sheet at \$16,397,907, an increase of \$1,455,350 as compared with the figures of a year ago, and only a few thousand dollars short of the record figures of 1912. This is due to the demands made upon us for moving the large grain crops of the country. The deposits of the Bank show a satisfactory increase distributed under every heading, the total increase being slightly over \$18,000,000. Bills Payable again show a considerable decrease, the figures being \$1,501,442, as against \$3,924,151 a year ago, or a decrease of \$2,422,708, due largely to the effect of the war upon our foreign exchange business and to the unsatisfactory conditions which have prevailed in the exchange markets during the year. In view of the general situation, we have thought it prudent to keep strong in cash reserves, particularly in gold, the medium for the settlement of international obligations, and that it might be the more readily available for such purposes we have carried an unusually large proportion of our holdings at points outside of Canada. Our total holdings of coin and legal's are \$39,961,993. If to this amount we add the balances due us by other banks and correspondents, our holdings of government and municipal bonds and stocks, and Call and Short Loans, our liquid assets amount to \$101,178,357, or 47.62 per cent. of our liabilities to the public.

CURRENT LOANS INCREASE.

Total Current Loans show an increase of \$2,037,254, more than accounted for by an increase of \$3,704,464 in Call and Short Loans, due to the policy of keeping our assets in the most liquid shape possible during the unstable conditions which are the outcome of the war. The fact that our loans show an increase despite the shrinkage which has taken place in general business, bears witness to our earnest efforts to assist the business community to the utmost of our ability consistent with prudence, and should be sufficient answer to those persons who assert in the press and on the public platform that the banks have failed to provide the necessary financial assistance for the commerce of the country. There are some who go further, and by quoting the figures of Canadian bank deposits without setting alongside these figures those of the loans, mislead the public and cause them to look upon the banks as enemies to the public welfare. To all such, I say, the figures of our balance sheet are sufficient answer. There has been a reduction of \$7,935,233, or over 37 per cent., in the total of securities held, occurring principally in those classes as railway and other bonds, debentures and stocks. In view of the extent to which we have been, and are still likely to be, called upon to assist in the various measures taken to finance the war, it seemed wise to take every reasonable opportunity of realizing upon our holdings of securities. Total assets show an increase of \$5,057,441, which may be considered very satisfactory growth under the conditions which have prevailed.

TURNOVER OF \$15,000,000,000.

Our records show that on the average we handle every dollar of our assets over 60 times a year, so that the figures at which they stand indicate a turnover of 15 billions of dollars during the year. In return for the immense labor and heavy responsibility involved in handling this huge sum, we have earned slightly more than one and a half cents on every hundred dollars.

As indicated in our remarks on the figures of the balance sheet, we have joined with the other banks in subscribing for our proportion of the \$25,000,000 of the Canadian 5-per-cent. War Loan, taken by the banks in order to ensure the success of the issue. The

exact amount of our subscription was \$3,426,000, and in this connection I am sure that the success of our able Finance Minister, Sir Thomas White, in obtaining through this domestic loan the sum of \$100,000,000, or twice the sum asked for, must be a source of pride to every Canadian. The loan marks a notable turning-point in the economic history of Canada.

In addition, this Bank has participated in the various British war loans and other measures adopted to finance the war, and has subscribed \$250,000 to the French 5-per-cent. War Loan just floated. We also placed at the disposal of our Italian Allies the facilities of this Bank and its branches for the purpose of accepting any subscriptions which Italian residents in Canada might desire to make to the 5-per-cent. War Loan of their native country. Nor do these various contributions constitute the whole of our share of the financial burden of the war. Of the special taxation imposed by the Dominion Government as a result of the war, our share has so far amounted to over \$160,000, apart altogether from additional real estate and other taxes imposed for the same purpose, the amount of which is not readily arrived at.

THE BANK'S TAXATION.

There is an impression abroad which appears to exist even among many who should be better informed, that the banks do not bear their just share of taxation. During the year we paid in taxes, Dominion, Provincial and Municipal, over 27 per cent. of our net profits, or, to make the statement in more concrete form, inclusive of the special war taxes, we paid no less than six hundred and fifty thousand dollars in taxes. These figures surely show that this Bank bears at least its fair share of taxation; probably there are not many other businesses in which the proportion of taxes to net income is so high.

OFFICERS ON MILITARY DUTY.

The members of the staff number 2,828, made up as follows:—

Officers.....	2,187
Stenographers.....	407
Messengers.....	234
	<hr/>
	2,828

In addition to which we have 369 janitors, making a total of 3,197 persons permanently employed by the Bank. The number of officers who had taken up military duty at December 31st was 748, representing 27 per cent. of our staff, 30 per cent. of our male staff, and over 34 per cent. of those of military age, that is, from 18 to 45 years of age. We have seen the actual figures in connection with only a few of the other banks and corporations, but we have yet to learn of anything which approaches the sacrifice which we have been called upon to make either in extent or in the proportion of the figures. We have made many sacrifices in order to allow officers to take up military duty without delay, and have placed no restrictions in the way of their doing so, although this policy has resulted in our losing the services of those officers whose special training made it difficult for us to replace them.

Twenty-five of our officers have already laid down their lives on the battlefield, and a further 50 to 60 have appeared in the casualty lists. When the war is over, it is our intention to erect a suitable tablet or some other form of permanent memorial to these brave and loyal young men. We have already communicated with the families of those who have laid down their lives, and it only remains to express in a general way our regret at their loss and our appreciation of the fact that the members of the staff of this Bank are made of such stuff that they can be counted upon to do their duty no matter in what form that duty may be presented to them.

We have recently taken the forward step of issuing a Monthly Commercial Letter dealing with conditions of trade and commerce at home and abroad, and pointing out when possible the bearing of current events on the business outlook. The first number was issued last month, and as it is prepared by competent authorities, we commend it to the careful perusal of those into whose hands it may come. We shall be glad to send

it on application to anyone whose name is not now on our mailing list.

We also desire to draw attention to the very copious and authentic portrayal of the conditions which have prevailed in the various parts of Canada, Great Britain, and in the foreign countries where this Bank does business, which is given in the Review of Business Conditions for 1915, of which copies have been distributed to you. The various parts of this Review will be found worthy of careful study.

OPTIMISTIC ON FUTURE.

With regard to the future, our view on the whole cannot but be optimistic. Thanks to the ability of our public men to cope with an unprecedented situation, and the determination of our people to effect personal and public economies, we have been able to bring about a most amazing adjustment from the prosperous enjoyment of an abounding flow of borrowed capital to a condition of severe trade contraction. Our harvests have been bountiful, our cultivated acreage has been increased and our factories have been entrusted with large contracts for army equipment, munitions and food-stuffs. While this terrible war must bring us much anguish and sorrow, it is clear that in proportion to her population no country will benefit economically to a greater degree than Canada.

THE LATE GENERAL MANAGER.

I cannot close these remarks without referring to my predecessor, Mr. Laird. Since his untimely death we have received numberless testimonials, not only to the high esteem in which his business talents were held, but also to that strong note of personal affection which his human qualities evoked in all those who knew him. Fully charged though his mind was with other matters appertaining to the interests of the Bank, the subject of the staff was always uppermost in his thoughts, and he was ever the first to evidence gratification in their success, sympathy in their misfortunes, and leniency towards their shortcomings. In him the Bank has lost a staunch and fearless leader, and the staff, particularly, a great and good friend.

HUNT'S
Established 1854
A never varying combination of the best wheats of Manitoba and Ontario. You can depend on it—always the same. 1675



DIAMOND FLOUR

Do you want to earn \$10 a week or more in your own home?

Reliable persons will be furnished with profitable, all-year-round employment on Auto-Knitting Machines, \$10 per week readily earned. We teach you at home, distance is no hindrance. Write for particulars, rates of pay, send no stamp.



AUTO-KNITTER HOSIERY CO.
Dept. 221 257 College St. - Toronto
(Also at Leicester, England)

Scouting on
One of the most British humor is reducing affrighting and to this traiting the war, playing sible manner. Gchilling "Hymn o mark for British mediately a host depicting vindict their teeth till th ing the "Ym Atkins pronounces utterance, "Gott this Tommy and were supposed to

anyone whose name mailing list. to draw attention to authentic portrayal which have prevailed in of Canada, Great the foreign countries is business, which is of Business Condi- which copies have been The various parts be found worthy of

ON FUTURE. future, our view on but be optimistic. y of our public men recedented situation, n of our people to public economies, we bring about a most from the prosperous unding flow of bor- condition of severe Our harvests have ultivated acreage has our factories have large contracts for unitions and food- terrible war must h and sorrow, it is ion to her popula- benefit economically than Canada.

RAL MANAGER. the remarks without ecessor, Mr. Laird. death we have re- imonials, not only which his business ut also to that nal affection which voked in all those ly charged though her matters apper- s of the Bank, the was always upper- and he was ever ratification in their their misfortunes. lost a staunch and staff, particularly, nd.

ITS 1854 ying com- nation of e best heats of anitoba d Ontario. ou can de- nd on it— always the me." 1675

OND UR

to earn or more home? furnished with d employment Auto-Knitting chimes, \$10 per ck readily earn- We teach you home, distance no hindrance. site for particu- rates of pay. d ac. stamp. SHERY CO. St. - Toronto (England)

BARGAINS FOR YOU!

EATON'S

SEMI-ANNUAL SALE

SUPPLEMENT TO FALL & WINTER CATALOGUE

YOUR BOOK OF BARGAINS

A CATALOGUE OF ALWAYS-USEFUL MERCHANDISE AT CLOSE-TO-COST PRICES.

The outstanding feature of this Sale is that we are offering goods that you will be more than pleased to have, and save quite a bit even on the smallest purchases. This is, undoubtedly, a chance to buy economical many surprise values should you decide to send us your orders. But note this: You'll do well to act now, and when, because of the saving each item now cost than you have an opportunity such as you thought might not be possible, and maybe will not be repeated for some time to come.

WE PAY THE SHIPPING CHARGES ON 10.00

ORDERS ON OVER 10.00 IN ONTARIO AND THE EASTERN PROVINCES

2 FOR 89¢

VALUE EXTRAORDINARY

SALE ENDS FEB. 29th

YOU NEED THIS BOOK OF WONDERFUL BARGAINS WRITE FOR IT TO-DAY!

DON'T HESITATE—write for it right away or you will regret it, because this book contains articles that you will have to buy this week, and that you will in nearly every case have to pay more for if you don't buy them here. You can save on groceries. You can save on shoes for the children. You can save on stockings, gloves, kitchenware, harness, farm needs and clothing of all kinds, because you will find all these things and many more in this book, priced so low that you will be astonished at the values.

Don't forget that the quality is there, too. This is one of the most remarkable features. In spite of the great confusion into which the war has thrown the raw material markets of the world, our buyers have succeeded, by placing orders far ahead, and by other means, in maintaining a high standard of quality that you will find most difficult to duplicate. This accounts for many of the astoundingly low prices that you will find in this Sensational Book of Bargains.

If you want to get some Real Bargains—some Amazing Values—if you want to Save Money—write for this book NOW!

If you already have a copy we are sure you will find good use for it and we will treat your order with every courtesy and give prompt service.

If you haven't a copy, send us your name and address without delay.

T. EATON CO LIMITED
TORONTO - CANADA

HERE ARE TWO ROUSING BARGAINS

Chums 98c

Over 950 pages of some of the most fascinating boy's stories ever written! And they are large size pages at that, 8 1/2 x 11 1/4. Stories of the great war. Stories of adventure. Boy Scout stories. Stories of the Aviation Corps. Twelve beautiful full-page color plates. Hundreds of other illustrations. There is no boy in the land that will not be stirred to enthusiastic delight by this immensely popular volume. Size 9 x 12 x 2 1/4 inches. Very strong cloth binding.

34-X22. Chums. Regularly sold, for \$1.65. Our Big Bargain Price, (add 25c for postage, see below)..... **98c**

We prepay shipping charges on the above books when they are included in any order amounting to \$10.00 or more for goods in any of our catalogues.

BOOK OF GROVER DRAWINGS 10c

Here is a book for lovers of art, for those who like to have nice pictures to look at. An interesting book to show others, a book that almost anybody will be delighted to have. It is the work of the Canadian pen and ink artist, Trevor M. Grover, and depicts highly entertaining events in the life of a "bummer" starting from a "junior" and at last becoming a manager—showing his trials, his happiness, and his love affairs. Substantial board binding.

34-X31. The Career of John Silverthorne, 20 illustrations, size of book 11 x 15. Published to sell for much more. Big Bargain Price, (add 12c for postage, see below) **10c**

Scouting on the "Strafers"

One of the most distinctive forms of British humor is the delightful pastime of reducing affrighting things to absurdity, and to this trait the Germans have, during the war, played up in the best possible manner. Germany's grim, blood-chilling "Hymn of Hate" was a shining mark for British wit, and produced immediately a host of impudent cartoons depicting vindictive Germans gritting their teeth till the sparks flew. Following the "Ymn of 'Ate," as Tommy Atkins pronounces it, came the stern utterance, "Gott strafe England!" With this Tommy and his friends at home were supposed to be deeply impress—but

they weren't a bit. It gave them instead all the delight of a new toy. That word strafe—an admirable word! Tommy at once bent it to his uses, fashioning it mercilessly into noun, verb and adjective, and finding it marvelously pliant and adaptable. Being an unknown word to start with, it could be used to mean nearly anything. It could be brought into every sentence, to give a new quip to worn-out phrases. Had Tommy's deep appreciation for that word been crystallized into action, he would doubtless have gone to the nearest "Strafer" with tears in his eyes in an honest effort to express his inexpressible gratitude. As it is, however, he merely whiles away the tedium of the trenches

by finding new ways to employ it in general conversation. Of all this we are given knowledge by the American war-correspondent, Frederick Palmer, who has stumbled on the etymological pastime while observing the ways of the British forces in the trenches. In the New York Sun he furnishes a few examples of the uses to which the new word may be put:

"What do you think I am? A blooming traffic policeman!" growled the cook to two soldiers who had found themselves in a blind alley in the maze of the trench streets back of the firing-trench. "My word, is his Majesty's Army becoming illiterate? Strafe that sign at the corner! What do you think

we put it up for? To show what a beautiful hand we had at printing?"

And again:

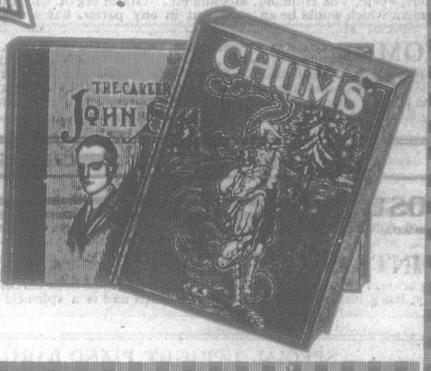
The soldier-cook brought on the roast chicken, which was received with a befitting chorus of approbation.

Who would carve? Who knew how to carve? Modesty passed the honor to its neighbor till a brave man said:

"I will—I will strafe the chicken!"

"Gott strafe England!" "Strafe" is the great word of the trenches. It has become a noun, a verb, and adjective, and a cuss-word, and a term of greeting. Soldier asks soldier how he is "strafing" to-day.

When the Germans are not called "boches" they are called "strafers."



experience. It was he had used a fusilade test. ed to the mess-hall. rolled his puttees up knees again; for the withdrawn his permish-machine-gun expedition. black and blue in also—well, there is not washing purposes in the crawling through the in the faint moonlight ch of Germans in the machine gun on them ne on you. a stray bullet," said n. let go th-ip into the t through his leg, er. recruit, and he had im out the first time doirg. I promised he got about the us."

ing through the travnification-trench seemth himself. The soft not a bad place to est.

ial Story

APERON."

. M. Williamson. ghted. STARR'S POINT OF EW. nued.) XXXII. ggard, and hoped I hen I appeared in otel after breakfast inutes before the re to start for Rot-

ns, talking to Nell. e, studying a map ere was the L.C.P. hich for days he ning to learn; there e Viking wrapt in elusion of a corner. e Menela?

on aloud, and self- unced the lady who

Hague. She had s obliged to leave train, instead of wly with us."

ing, hypocritically, er pretty mouth of ward, so I suppose

id she. but I felt that the d the twins was ords.

ne the first giddy life, and was sure my feet, I dared ject. I asked if for Freule Menela, that it had not, eing deprived of a

e," explained the off—as was my ot care to disturb the morning. You er confidence. I you had all gone ram might come, did, to go with emind me to give we've started."

felt instinctively n deep meaning in t hidden by their sity to know the ductance to hear well that at this us for a start, no chance for in the ca-riage, of the twins, and to the Rowing where "Mascotte" ed us. This re-

spite gave me time to get on my armor, and fasten up several, if not all the buckles—some of which I realized were lamentably weak.

On board, there was the usual business of putting our belongings to rights after an absence on shore; and when I came on to "Mascotte" from "Waterspin," already Amsterdam—with its smoke cloud and widespreading mass of buildings, like gray bubbles against the clear sky—was sinking out of sight. We were teuf-teufing comfortably along a modest canal, leading us southward, and Alb was expaining to the L.C.P. and the van Buren girls that, to reach Rotterdam by the shortest way, he meant to avoid the places we had seen: Aalsmeer, with its menagerie of little tree-animals, and the great Haarlemmer-meer Polder. Suddenly, as the motor's speed increased, after taking me on, Phyllis left Robert and Nell, to come to my side. A look from her beautiful eyes warned me that something interesting was due, and by one accord, we moved as far as possible from our friends.

"Best of brothers," she whispered; "I've been dying to thank you. At last my chance has come. You are wonderful! You said you would, you know, and that I was to trust you; but I never thought you could. How did you do it?"

"With my little hatchet," I answered dreamily.

Her eyes opened wide. "Your—what?"

"It needed a sharp instrument," said I. "But how did you know it was mine?"

"You were with her so much, and had so many private talks. I felt you had a plan. But I could only hope, not expect. Do tell me everything."

"Suppose you tell me everything," I bargained. "We may be playing at cross purposes. What has happened to you?"

"I'm engaged," said Phyllis. "Isn't it glorious?"

"I don't know that I should go so far as to say that," I replied, wondering why my heart was not aching harder. "Perhaps, then, you've never been in love?" she suggested. "Oh, haven't I? I've been in nothing else lately—except hot water."

"You do say such odd things. But I bless you, if I can't understand you. You've made me so happy."

"You didn't tell me you were in love with Robert."

"Of course not—then. It would have been too bold, even to tell myself, when he was engaged to some one else. But pity's akin to love, isn't it? And there was no harm in pitying him because he was bound to a creature, who could never deserve his love."

"Even if he hadn't given it to you." "That was fate, wasn't it? But if it hadn't been for my clever brother, we could never have belonged to each other."

"Some men are born brothers, some achieve brotherhood, others have it thrust upon them," I muttered. "You and he had better take advantage of the lull to be married," I said aloud.

"The lull?"

"In Freule Menela. She'll be hailing and thundering and lightning soon."

"Oh, do you think she'll try to get Robert back again?" gasped Phyllis.

"Unless another and riper fruit drops into her mouth."

"As if it would! You frighten me. Robert did beg last night that I'd marry him almost at once, and not go back to England—unless on our honeymoon. I told him I wouldn't think of such a thing. But—perhaps—oh, we couldn't lose each other now. I do believe we were made for one another."

"I begin to believe so, too," said I.

And as that belief increased, so decreased the pain of my loss. Phyllis still is, and ever will be, a Burne-Jones Angel; and when, with her sleeves rolled up, she makes cake in the six-foot-by-six kitchen of "Waterspin" among the blue china and brasses, she is enough to melt the heart of Diogenes. Nevertheless, I cannot break mine at losing a girl who was born for a Robert van Buren. After all, Nell is more bewilderingly beautiful, and has twice Phyllis's magnetism. She has too fine a sense of humor to fall in love with a man's inches and muscles. That one speech of Phyllis's taught me resignation, and

showed me in a flash that, despite her charms, she is somewhat early Victorian.

I glanced toward Nell, on whose brilliant face indifference to her good-looking cousin was expressed, as she stood talking to him—probably about himself—and wondered how, for a little while, my worship could have strayed from her to Phyllis. A girl born for Robert van Buren—A sense of calm, beatific brotherliness stole through my veins. Nell had never been so lovely or so lovable, and I resolved to find out from my sister if she still thought there might be hope for me in that direction.

"I shouldn't keep Robert waiting," I went on, without a pang. "There's no telling what Freule Menela mightn't do. She's clever—as well as spiteful."

"And poor Robert is so honorable," sighed Phyllis. "If he'd known that you were working to—to free him, he might have felt it was a plot, and have refused to accept his release. You don't think I ought to tell him, do you?"

"Certainly not," said I. "That's our secret."

"How good you are! Well, I'll take your advice. Yet it does seem so strange—to be married, and live in Holland, when I never thought that anything could be really nice out of England. But Robert seems to me exactly like an Englishman: that's why I love him so dreadfully."

"And I suppose you seem to him exactly like a Dutch girl; and that's why he loves you so dreadfully," was the answer in my mind; but I kept it there. It might have dashed Phyllis's happiness to realize this truth.

"If I let Robert make arrangements for our marriage almost at once, Freule Menela couldn't get him back, could she, for he would be more bound to me than he ever was to her," said my sister.

"In that line alone lies safety," I replied. "Have you told Miss Van Buren—your stepsister, I mean?"

"Oh yes, as soon as it happened, of course. Nell and I never have secrets from each other—at least, we haven't lately. I thought she would have guessed, but do you know, she didn't? She fancied, from things I'd said, that I was making up my mind to—that is, to try and learn to care for another person. She disapproved of my doing that, it seems, which is the reason she's been so odd. Not that she didn't consider us suited to each other—the other one and I—but she thought, with all his faults, he was so much of a man that it wasn't fair for a girl to accept his love if she had to try and learn to care for him simply because he happened to be there. I see now, in the light of this new happiness, that she was quite right. But I didn't dream then, that the one man I could really care for, could ever be more to me than a dear friend. And a girl feels so humiliated to be thinking of a man who's engaged to some one else. She gets the idea that the best thing would be to occupy her mind with another man, if there's anybody who likes her very much. And Lady MacNairne has always been hinting this last fortnight—but, oh no, I'm not thinking what I'm saying! Even though you are my brother, I've no right to tell you that."

"Sister, I insist that you shall tell me," I said, with all my native fierceness. And Phyllis is not a girl to rebel, if a male person commands.

"Well, then—but she is perhaps mistaken. I hope now that she is."

"In thinking what?"

"That—that Jonkheer Frederode cares more for me than for Nell."

"I wonder," said I.

"Of course," went on Phyllis modestly. "Nell's a hundred times prettier and more interesting than I am (though, thank goodness, Robert doesn't think so), but she snubbed the Jonkheer so dreadfully at first, and then, after she'd changed and been nice to him for a day or two, she got worse than ever. At least, she hardly ever speaks to him at all. She just keeps out of his way, and leaves him to—others. So his self-respect may have been hurt (I can't say vanity as I might with some men, because Jonkheer Frederode isn't a bit vain, though he has a right to be) and he may have turned his thoughts toward one who sympathized with him. Several little things lately have looked

The Great Canadian Annual Sale of
Scotch Shorthorns

Will be held at the Union Stock Yards, Toronto, Ont., on
Wednesday, February 2nd, 1916
Sale commences promptly at 12 o'clock (noon).

There are a lot of bulls fit for the best herds in the land, and they should be sold to go there. There are some bulls that will get great, thick, easy feeding cattle, and there are a few bred from great milkers, making the best big lot of good bulls ever sold in Toronto. There are cows with calves at foot, cows and heifers near calving, heifers bred for the first time and others ready. A grand lot of Shorthorns of the very choicest Scotch families, bred by men that have been in the business all their lives.

Ask for Standard Certificate when you buy a single ticket to come to the sale, you will be returned free. Write for catalogue now.

J. A. Watt, Kyle Bros., John Miller, Jr. and Robert Miller are the contributors to sale.

Robert Miller, Stouffville, Ont., Manager of Sale

Give Your Horses a Chance



You can't expect them to do a full day's work when their necks and shoulders are galled, bruised or sore. Every day you try to make them do it you're losing money. Use Tapatec Pads and

Get a Bigger Day's Work.

These pads fit any collar. Prevent galls, bruises, chafes and sores. Our own specially prepared composite stuffing is soft and springy. Absorbent and porous. Ask the dealer for Tapatec book of emergency horse remedies free. We also make a complete line of riding saddle pads.

The American Pad & Tackle Co., Chatham, Ont.



When you buy Milton Brick there is a sense of comfort and security in the knowledge that you have not only followed the example of many of the most prominent and successful brick buyers in this country, but that you have secured for yourself the highest quality of brick made—and it costs no more than ordinary brick.

Prices will not be lower. Catalogue free on request.

Toronto Showrooms: 50 Adelaide Street West

The Milton Pressed Brick Co., Limited Dept. B Milton, Ont.

MILTON BRICK

DO YOU NEED FURNITURE?

Write for our large Photo-illustrated Catalogue No. 7—it's free to you. THE ADAMS FURNITURE CO., Limited Toronto, Ontario

Sarnia Creamery

Pays express, furnishes cans and remits weekly Pay Highest Price. Write for particulars. Sarnia Creamery Co., Ltd. Sarnia, Ont.

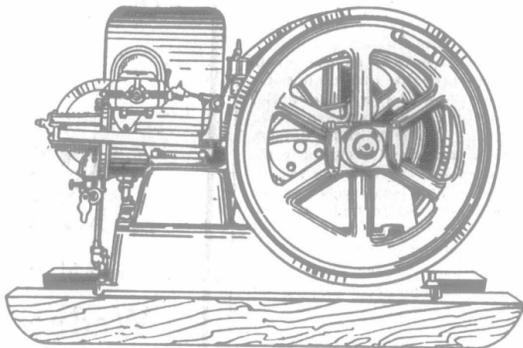
With never so much as a grunt of complaint—

The PAGE Engine does the farm work.

Does it, too, in about one-half the time—and at much less cost—than a hired man.

Never ask a man to do what you can get done by gasoline power. It pays to use a gas engine wherever possible. And it pays biggest when you use a PAGE.

This simple, powerful engine—especially designed for farm work—will grind your feed, run your separator, operate your thrasher, fill your silo. These are but a few of its duties. If interested in knowing ALL it will do, write us.



Note These Prices :

1 1/4 H.-P.	\$ 46.50
3 H.-P.	68.00
5 H.-P.	113.50
6 H.-P.	168.00

THE FARM POWER INFORMATION BUREAU

THE PAGE WIRE FENCE COMPANY LIMITED.

1143 King St. W., TORONTO

as if it were so; but I do pray it's not, now that I'm so happy. It would be too hard if he were to bear a double disappointment, after the trouble he has taken, and the sacrifices he has made—leaving his beautiful home and all its luxuries, and the friends who appreciate him as a splendid fellow and a grand sportsman, to be skipper week after week on this little boat."

"You forget that he has had the privilege of my society," I reminded her.

"Oh yes, I know you must be great chums, or he wouldn't have come. But Robert says—"

"What does Robert say?"

"Nothing. Only that he and Jonkheer Brederode have known each other so long, he thinks it odd never to have heard him mention your name as his friend."

"Alb is singularly reserved," I remarked.

"So I said to Robert, and he admitted it. But it was rather a coincidence that he wanted to know us, wasn't it? However, I suppose your friendship must have made up to him for everything he's suffered. I did dread his learning about Robert and me, for fear it might hurt him, and Robert did too, a little; for Robert is so adorably foolish, he thinks every one must care for me. But he told him this morning."

"What did Alb say?" I asked.

"He congratulated Robert as sweetly as possible; but Robert said his face changed when he heard the news. I didn't dare to look up when the Jonkheer came and made me nice wishes, for fear he might be looking sad, and there was a heavy sound in his voice, I thought. Oh dear, life's very complicated, isn't it?"

"Yes," I admitted. "Even in Holland."

Perhaps these women are right. Perhaps Alb's heart has been caught in the rebound; but, lest it hasn't, and he undertakes to cut me out with Nell, it is necessary that I lose no time in using my best wiles with her.

While Phyllis was hanging in the balance, she was as desirable as a rosy apple just out of reach; but now that she is smugly satisfied to be in the hands of another her ethereal charm is fed.

"I must congratulate van Buren," I said, "or he will believe I'm jealous."

So I shook hands with the Viking, having blessed the pair, and was in the act of annexing Nell when the allied Lady MacNairne found it convenient to give me Frede Menela's card.

"You wanted to hear about Phyllis," she asked, when Nell had passed away to the twins, whose society, though not enlivening, she apparently preferred to the poor Alb's.

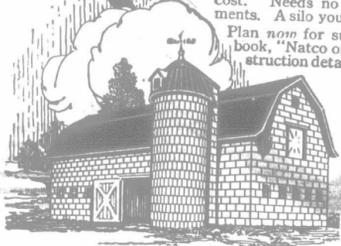
Business Men and Business Farmers Agree

In the great McGill Building in Montreal, where men of big business meet daily, immense quantities of Natco hollow tile were used. On many prosperous Canadian farmsteads the same hard-burned clay tile is the favorite for silos and farm buildings. Business men and business farmers alike agree on the material that is weatherproof, decayproof, frostproof, verminproof and fireproof. Such is the

Natco Imperishable Silo

"The Silo that Lasts for Generations"

A perfect silage preserver, when the mercury is low, or summer pastures wither. Its salt glazed hollow vitrified clay tile are impervious to air and moisture. It is safe under severest wind or silage pressure. Convenient attractive and economical. First cost is the only cost. Needs no repairs or painting, no adjustments. A silo you'll be proud of.



Tell us what you are thinking of building. We have plans for barns, corn cribs, garages, etc., free.

Plan now for such a silo. Send for our free book, "Natco on the Farm." Describes construction details of all types of farm buildings. Fully illustrated.

A book you should have before planning a new building. Also be sure to send for our catalog describing fully the Natco Imperishable Silo.

Natco Silo Wall. Note perforations providing firm anchorage for mortar joints.

National Fire Proofing Company of Canada, Limited
1202 Dominion Bank Building
Toronto Ontario

Eat more bread, the most economical food. For best results use—

PURITY FLOUR

"More Bread and Better Bread"

"I've waited so long, that I could have waited a little longer," I said, following the copper-gold head with wistful eyes.

"This is your gratitude!" exclaimed the L.C.P. "You don't seem to realize that I've saved you."

I looked at her, only to be baffled as usual by the blue barrier of glass.

"You don't deserve all the trouble I've taken," she went on. "Or that I should tell you anything about it. Come, Tibe, let's go below. Darling doggie, you've spoiled me for everybody else. You are always appreciative. Nobody else is."

"You think that, because he happens to have a tail to wag, and others haven't," said I. "I consider myself as good as Tibe, any day, though handicapped in some ways. I'll soon show you that I'm not ungrateful, when you've let me know exactly what cause I have for gratitude. Have you murdered the late fiancée, and thrown her out of your hotel window into the canal?"

"I've got rid of her just as effectively," returned the L.C.P. "I went and talked to her in her room last night, when she was undressing. Ugh! but she was plain in her wrapper. It was a pink flannellet one. Imagine it, with her skin."

"I'd rather not," said I.

"If it weren't for me, probably you'd often have had to see her in it. Well, I made an excuse that she looked tired, and complained of the noise under her windows preventing her sleeping. I offered her some trional, and then I just lingered. She thought it wise to be nice to your aunt, and I turned, the conversation to you. She said you were charming. I said you would be, if you hadn't such a terrible temper. I said you were almost mad with it sometimes, when you were a little boy. Yes, I did, really—you ought to thank me. I dare say you were a horrid little boy. But she didn't seem to mind that much. She told me that she got along splendidly with bad-tempered people: they were always nice to her. That discouraged me a tiny bit, but I hadn't played any really high trumps yet. I went on to say you were very delicate, but she seemed quite pleased at that, although, if she only knew it, she'd be hideous in black. She said she thought delicate men were the most interesting, so that drove me to desperation, and after I'd praised you a little, just enough to be realistic for an aunt, I said what a shame it was about that will of your father's. She pricked up her ears then, and wanted to know what I meant. 'Hasn't he told you?' I asked. And I was shocked to hear you hadn't, because, I said, it would be more honest to let people know how one stood, the position being so peculiar. Your father had left every red cent away from you, I said, in case you married a foreigner; and it was such a blow that she didn't even notice that I'd committed an Americanism. She couldn't speak for a whole minute, and then she asked if you hadn't tried to dispute that will. That would have been no use, said I. It wasn't the kind you could dispute. You often fell in love with girls, not Americans, but you were bound to marry a compatriot in the end, unless you could find a foreigner with enough money to support you. Ever after all that she held on to you by the ragged edge. Couldn't you make a lot of money, she asked, with your pictures, which are so famous? They weren't popular, I said, and though the critics always praise them, you could hardly ever sell. 'Besides,' said I, 'he's so lazy, he doesn't paint a decent-sized picture once in three years.'

"Good heavens!" I exclaimed. "What a character you gave me. It's a wonder she didn't rush to Robert van Buren's door, and cry to him that she'd reconsidered."

"I saved him, too, for Phyllis's sake. It was too late for her to go to him at that hour, or even send a note, as I saw by her eye she thought of doing. I stayed with her till after twelve, on purpose. And the last thing I said was, that I thought her decision not to accept Mr. van Buren so wise, as such an intelligent woman as she might marry any one. It showed, said I, how undeserving he was, that the minute she took

herself from to be his w screamed. know? He Rivers, with and a telegr mother, telli

This was forgave the I her interrupt "Who told gagement to

"No one. to be engag knew they r weren't got

"But about Buren—"

"The minut sent for a w out signing i came from he citement, he name."

"She'll be Menela told —that her fut everything sh match."

"Perhaps.

proud of R. Once she kno threw him o to have anyt again. And

less, you kno ous half of th which, it see left to her w most of that; dred and fifty sides. She'll money, when ried; and she ter great-gre count, or bar will appeal to she finds it o

"And if Nel a rich man, h something fo sister," I add

The L.C.P. "You seem to suppose you j think Nell's American?"

"I hope so, ous one. Bu promised to p less grateful f not have as eff Strange little thank you for that, if it wei der Windt at secured a ric matter with M be. I do reali and fancies, I man, for cert been equal to woman. By th if by nothing earned your "That ring yo night—"

"Don't go o "Didn't I tel you were offer didn't want any it—not a diam nor even a ru think me a me that you've p time only beca out me; whil you're only an I'd like you haven't done th get out of it. Please rememb counting up ho this trip. Cou too."

"By Jove, I that!" said I. ed by my bein bear dwelling o have the ring. afternoon and e up to on my b ring on purpos pulled me thro you would."

"It was born ment ring," she the girl you're

"I haven't ash "You mean to "I suppose so cept me. Do y

I've waited so long, that I could have waited a little longer," I said, following the copper-gold head with wistful eyes.

"This is your gratitude!" exclaimed the L.C.P. "You don't seem to realize I've saved you."

I looked at her, only to be baffled as I saw the blue barrier of glass.

"You don't deserve all the trouble I've given you," she went on. "Or that I should tell you anything about it. Tibe, let's go below. Darling, you've spoiled me for everybody else. You are always appreciative. No more is."

"You think that, because he happens to have a tail to wag, and others don't," said I. "I consider myself as Tibe, any day, though handed in some ways. I'll soon show that I'm not ungrateful, when you let me know exactly what cause you have for gratitude. Have you murdered the late fiancée, and thrown her out of your hotel window into the sea?"

"I've got rid of her just as effectively as I returned the L.C.P. I went and told her in her room last night, she was undressing. Ugh! but she was plain in her wrapper. It was a flannellet one. Imagine it, with a kin."

"Rather not," said I.

"It weren't for me, probably you'd have had to see her in it. Well, she made an excuse that she looked tired, complained of the noise under her feet, was preventing her sleeping. I gave her some trional, and then I lingered. She thought it wise to go to your aunt, and I turned the attention to you. She said you were charming. I said you would be, hadn't such a terrible temper. I thought you were almost mad with it some-when you were a little boy. Yes, really—you ought to thank me. I say you were a horrid little boy. She didn't seem to mind that much. I said she got along splendidly with bad-tempered people: they were nice to her. That discouraged her any bit, but I hadn't played any high trumps yet. I went on to say you were very delicate, but she was quite pleased at that, although she only knew it, she'd be hideous in it. She said she thought delicate people were the most interesting, so that she went to desperation, and after I'd told you a little, just enough to be a nuisance for an aunt, I said what it was about that will of your mother. She pricked up her ears then, and wanted to know what I meant. I told you? I asked. And I looked to hear you hadn't, because, said, it would be more honest if people know how one stood, the being so peculiar. Your father was every red cent away from you, in case you married a foreigner; and was such a blow that she didn't notice that I'd committed an act of violence. She couldn't speak for a minute, and then she asked if I hadn't tried to dispute that will. It would have been no use, said I. At the kind you could dispute. I fell in love with girls, not with you, but you were bound to marry a patriot in the end, unless you had a foreigner with enough money to support you. Ever after all she held on to you by the ragged end of the thread. I couldn't make a lot of it, she asked, with your pictures, how so famous? They weren't I said, and though the critics praise them, you could hardly be famous. 'Besides,' said I, 'he's so old he doesn't paint a decent-sized portrait in three years.'"

"Heavens!" I exclaimed. "What a man you gave me. It's a wonder I didn't rush to Robert van der Meer, and cry to him that she'd married him, too, for Phyllis's sake. I'd better late for her to go to him at once, or even send a note, as I saw she thought of doing. I stayed in the hotel after twelve, on purpose. The last thing I said was, that I had decided not to accept Mr. Robert van der Meer, so wise, as such an intelligent man as she might marry any day, showed, said I, how undeserving she was, that the minute she took

herself from him, he asked another girl to be his wife. 'Has he?' she almost screamed. 'Yes,' said I. 'Didn't you know? He is now engaged to Miss Rivers, with the approval of his sisters, and a telegram has been sent to his mother, telling her all.'"

This was news worth hearing, and I forgave the L.C.P. the inopportune-ness of her interruption with Nell.

"Who told you about van Buren's engagement to Phyllis?" I asked.

"No one. But I thought they ought to be engaged, if they weren't, and knew they never would be if Menela weren't got rid of."

"But about the telegram to Mrs. van Buren—"

"The minute I went to my room, I sent for a waiter, and wrote one, without signing it. I hoped she'd think it came from her son, and that, in his excitement, he'd forgotten to put his name."

"She'll be furious," said I. "Freule Menela told me—and probably it's true—that her future mother-in-law had done everything she could to bring about the match."

"Perhaps. But she's tremendously proud of Robert, so the twins say. Once she knows that Menela deliberately threw him over, she'd never want him to have anything to do with the girl again. And Phyllis Rivers isn't penniless, you know. You've paid a generous half of the expenses of this trip, for which, it seems, some money she'd had left to her was to be used. She's kept most of that; and she has about a hundred and fifty pounds sterling a year besides. She'll have enough for pocket-money, when she and Robert are married; and she comes of very good people; her great-great-grandfather was a viscount, or baron, or something. That will appeal to old lady van Buren, when she finds it out."

"And if Nell should happen to marry a rich man, he would be charmed to do something for the sweet little step-sister," I added.

The L.C.P. turned on me shrewdly. "You seem to be very sure of that. I suppose you judge him by yourself. You think Nell's husband may be a rich American?"

"I hope so," said I. "And a generous one. But talking of generosity—I promised to prove to you that I am no less grateful than Tibe, though I may not have as effective ways of showing it. Strange little stage-aunt of mine, I do thank you for saving me. I do realize that, if it weren't for you, Freule van der Windt at all events, would have secured a rich American husband, no matter with Miss Van Buren's luck may be. I do realize that, but for your fibs and fancies, I should have been a lost man, for certainly I should not have been equal to saving myself from that woman. By this one night's work alone, if by nothing else, you've more than earned your aunt-salary and extras. That ring you helped me choose last night—"

"Don't go on," she cut me short. "Didn't I tell you the other day when you were offering me a bribe, that I didn't want anything, and wouldn't have it—not a diamond ring, a pearl ring—nor even a ruby ring. I know you think me a mercenary little wretch, and that you've put up with me all this time only because you couldn't do without me; while as for you, of course you're only an episode in my life. Still, I'd like you to understand that I haven't done this thing for what I could get out of it. I've done it—for you. Please remember that when you're counting up how much I've cost you on this trip. Count what I've saved you, too."

"By Jove, I'm not likely to forget that!" said I. "If the thing had ended by my being the fiancée—it doesn't bear dwelling on. But I want you to have the ring. I saw, all yesterday afternoon and evening, what you were up to on my behalf, and I bought the ring on purpose to give to you, if you pulled me through, as I half thought you would."

"It was born and bred for an engagement ring," she said. "Give it to the girl you're going to marry."

"I haven't asked her yet."

"You mean to, I suppose."

"I suppose so. But she may not accept me. Do you think she will?"

"If I have an opinion, I'm not going to tell you. Only—keep your ring."

So I had to keep it. And all day, while again we passed flowery Boskoop (not so flowery now) quaint Gouda, and the other little towns which carried me back in mind to the beginning of our trip, I wondered and puzzled over the change in that lady of mystery, the L.C.P.

Chapter XXXIII.

We slept in Rotterdam, at the old hotel in the park where the Angels were staying when first they came into my life.

The next day was a memorable one in van Buren annals, for the new fiancée was to be received as such, into the bosom of the family.

Robert and the twins had left us on our arrival in Rotterdam, for the town house is still closed for the summer, and the "residence" is at Scheveningen. It was for the brother and sisters to pave the way for Phyllis, and solve (if they could) the mystery which must have wrapped the unsigned telegram announcing the engagement.

In the morning, before any of us had had breakfast, back came Robert in one of Brederode's cast-off automobiles (Alb seems to shed motor-cars and motor-boats along the path of life as most people shed old shoes) bringing a note from Madame at the Villa van Buren.

What it said I shall probably never know, but Robert's too handsome face was a shade less tranquil than usual, and I guessed that, as Nell would say, he had had to be very Frisian before he succeeded in persuading his still more Frisian mother that Phyllis Rivers is a desirable substitute for Freule Menela van der Windt.

In any case, he had persuaded her—he wouldn't be the Viking that he is, if he hadn't; and though by the shadow round his calm gray eyes, it had probably taken half, or all of the night, the note he produced must have been satisfactory, for Phyllis brightened as she read it.

Soon after, the visit to Scheveningen was arranged; but Robert had, no doubt, prepared the girls for the necessity of making it, for Nell and Phyllis both came down to breakfast in their prettiest dresses, looking irresistible. And an hour later, with motor-vels over their hats, they went off with Robert in the automobile.

They were to spend the day, for people in the Hollow Land enjoy their pleasures as much by quantity as quality, especially their friends' society; and I could only hope that a certain wistfulness of expression, as she looked back from the tonneau of the red car, meant that Nell would rather have remained with some of those who were left behind.

If she had stayed in Rotterdam, and relied upon me for entertainment, I should certainly have proposed to her. As it was, I passed the day somewhat gloomily, reflecting on the time I had wasted, while I had her by my side. Now, I reminded myself, the trip as planned was drawing to a close. There remained the visit to Zeeland—an affair of a few days. After that, what? Getting back to Rotterdam again, for the last time. Good-bys. Selling the boat, perhaps—at least, Nell used to talk of that in the first days, when the end seemed far-off and vague.

The L.C.P. kept to her sitting-room on the plea that she had "a lot of writing to do," and Tibe was on guard. As for the Albatross, he went off without excuse to seek the friends of his past, with which the Mariner has no connection.

A premonition of the future came upon me. I remembered the Prince in the fairy tale, who was given by the Fates three magic citrons, and told that each one contained a beautiful sylph, who would appear to him as he cut the rind of her prison. She would ask for a drink of water, and if he wished to keep her for his wife he must instantly obey or she would vanish, never to return, even in response to the most fervent prayer. When the Prince cut the first citron, the fairy vision which flashed before his eyes was so dazzling, that, bewildered, he let her go. With the second the same thing happened, and it

CALDWELL'S

When It's a Question of Diet

When your stock or poultry are not doing as well as you think they should, perhaps the feed is at fault. Maybe all that is required is to put them for a while on one of

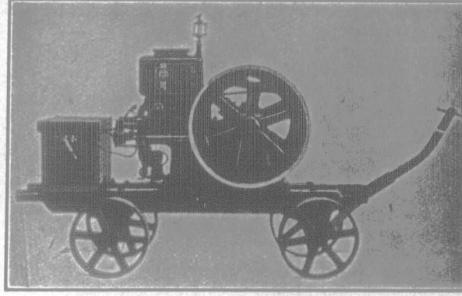
CALDWELL'S STANDARD FEEDS

"Caldwell's" Molasses Meal	"Caldwell's" Molasses Hog Feed
"Caldwell's" Molasses Horse Feed	"Caldwell's" Mixed Chop
"Caldwell's" Alfalfa and Molasses Horse Feed	"Caldwell's" Poultry Laying Meal
"Caldwell's" Molasses Dairy Meal	"Caldwell's" Poultry Scratch Feed
"Caldwell's" Dry Dairy Meal	"Caldwell's" Chick Feed
"Caldwell's" Cream Substitute Calf Meal	"Caldwell's" Growing Mash
	"Caldwell's" Developing Feed

Write for descriptive matter, anyway, on any of these tested feeds. If your dealer hasn't them, we will get them for you; or get in touch with us by writing direct to

The Caldwell Feed & Cereal Co., Limited
Dundas, Ontario

STANDARD FEEDS



1½ H.P. Horizontal Hopper Cooled

This engine built specially for small jobs around the farm and in connection with our intermediate pulley takes care of the churning, washing, pumping, etc. Being mounted it is easily moved from place to place.

Canadian Engines Co. Ltd., Dunnville.
Dear Sirs.—I bought from your agent Mr. Roe a six H.P. Monarch Engine. I have had it two seasons and I ran a chopper, circular saw, corn blower and also a threshing machine; this engine has given me great satisfaction and I think there is no engine on the market will equal it.
Yours truly, J. G. Carter

Write for catalogue and prices to—
Canadian Engines Ltd., Dunnville, Ont.
FROST & WOOD Co., Limited, exclusive sales agents east of Peterboro, Quebec and the Maritime Provinces.
Good live agents wanted in unrepresented territory.

Direct from the Factory to the Farmer

Made in Canada

Monarch Gasoline Engines

1½ to 35 Horse Power

Grain Grinders, Ensilage Cutters, Saw Frames and Pump Jacks

Greenock, Nov. 1, 15.

SEED PEAS AND BEANS

We are desirous of arranging with practical farmers located in good pea-growing sections, that are free from Pea Bug or Weevil, to grow seed peas for us on contract. We supply the seed at your nearest station. For further particulars regarding our interesting proposition, address:

W. P. NILES, Limited, Wellington, Ont.
GROWERS OF SEED PEAS AND BEANS

Imp. Percheron Stallions and Mares Imp.

In buying a Percheron stallion why not buy the best, one that has a ton weight to back up his claim to being a draft horse and that has underpinning of life-long wearing, quality and strong enough to carry him. I have the biggest selection of Percheron stallions in Ont., every one a proper good one, also mares of high quality. Come and see them whether you buy or not.

J. B. HOGATE WESTON, ONTARIO



The Maples Herefords. For this season we are offering, without a doubt, the best bunch of young stuff we ever handled, both sexes, including our imported herd bull, 3 years old, undefeated this year, and a sure stock-getter. Prices right.

W. H. & J. S. HUNTER, Orangeville, Ontario

When writing advertisers, will you kindly mention "The Farmer's Advocate."

Don't Buy a Sprayer Until You Read This:

At the PANAMA PACIFIC EXPOSITION held at San Francisco in 1915

The Bean Spray Pump Company

Were awarded Gold Medal on Barrel Pumps, Gold Medal on Hand Pumps, Gold Medal on Power Sprayers and the Grand Prize on Power Sprayers by the International Jury of Awards.

REMEMBER, these prizes were won in competition with the whole world in 1915. Not 20 years ago, when Spray Pumps were mere experiments.

These awards prove conclusively that BEAN PUMPS lead the world in POWER—CAPACITY—HIGH PRESSURE and DURABILITY.

Over a thousand of Ontario's best fruit growers are using BEAN PUMPS, and every one tells the same story of EFFICIENCY.

YOU NEED THE BEST SPRAYER. BUY THE WORLD'S BEST.

WRITE FOR OUR CATALOGUE. LET US REFER YOU TO USERS YOU KNOW.

NIAGARA BRAND SPRAY CO., LIMITED, Burlington, Ontario

was only by the greatest effort of self-control that he preserved the third beauty for his own, eventually marrying her, as a virtuous Prince should.

"Now," said I to myself, "I'm not as well off as that Prince. Being only a commoner, I ought to consider that I'm lucky to have two citrons, where he had three. I've let the first sylph vanish, and if I don't secure the second, I need never hope to get such another present of fairy citrons, for they'll have run out of stock."

The thought of going gray-haired to my grave, bereft of Phyllis and Nell citrons, all through my own folly, made me feel elderly at twenty-seven; and perhaps my day of gloom was not wasted, because, long before the red car brought back the girl I have lost and the girl I have still to win, I had made up my mind to propose to Miss Van Buren before I should be twenty-four hours older.

When Alb appeared, it seemed that he had been among his aquatic friends, tactfully seeking news of Sir Alec Mac-Nairne and "Wilhelmina." But he had learned nothing; and we had to console each other by saying that "no news is good news." There's a chance, of course, of running across him again in Zealand; but it's only one in ten, for there are other places where he is more likely to be pursuing us, since he lost the trail in Leeuwarden.

Or perhaps he has given up the idea that Aunt Fay is on Rudolph Brederode's boat, and has gone to search for her in some other less watery country. In any case, the trip will be over in a few days now; and once the L.C.P. has vanished with Tibbe into the vast obscurity whence she emerged in answer to my advertisement, poor hot-tempered Alec may pounce upon me when he likes.

If I can persuade Nell that she and I were born for each other, as Robert seems without difficulty to have persuaded Phyllis in his regard, it ought to be easy to convince her that a sin for her sake is no sin. Having confessed all, and been forgiven, I can defy Alec to do his worst.

As for Alb, he has had his fun for his wages. And there are many beautiful girls in Holland and other countries, who ask nothing better than to become Jonkheeresses.

(To be continued.)

Gossip.

The Victoria Pure-bred Stock Association, Lindsay, Ont., have failed to procure a reduction on railroad fares for passengers coming to the sale to be held on Jan. 25, 1916. However, other arrangements will not be changed, and a successful sale is assured. The advertisement appears in this issue. Communicate with the Secretary, A. A. Knight, and get all particulars.

High-Class Clydesdale Mares and Fillies

a big selection of stallions.

SMITH & RICHARDSON

Columbus, Ont.,

Myrtle, Brooklin and Oshawa Stations

Clydesdale Stallions and Mares

stallions, and mares in foal. Write or call on

We are now offering for sale a number of extra good

JOHN A. BOAG & SON, Queensville, Ontario.

Rosedale Stock Farm

offers for quick sale at low prices one 2-year-old Shire yearling Hackney stallion, both imp. and both first at Toronto. One 2-year-old and one champion at Toronto. Two Clyde horse foals, sire and dam imp. Ten Shorthorn bulls. A few choice Leicester ram lambs.

J. M. GARDHOUSE, Weston, Ont. G.T.R., C.P.R. and Electric Line.

Percherons and Holsteins

We have Percheron Stallions from yearlings up, 1st prize winners at Toronto, also mares and fillies from yearlings up, quality and type unsurpassed. In Holsteins we have for sale, cows, heifers and young bulls, come and make your selection.

W. G. HILL & SON, Queensville, Ontario, P.O. and Station, Toronto and York Radial Line

ORCHARD GROVE HEREFORDS

Have several young bulls and heifers for sale. Satisfaction guaranteed.

L. O. CLIFFORD,

Oshawa, Ont.

Meadow Lawn Shorthorns

We are offering a select lot of Scotch bulls and heifers, from 10 to 18 months old, from the Claret Wimples Marth, Roan Lady families. Sired by Proud Monarch No. 78792 by Blood Royal (imp.) You are invited to inspect this offering. Bell telephone. G.T.R. and C.R.R.

F. W. EWING

R. R. No. 1, Elora, Ontario

WOODLAND HORSES AND BROWN SWISS CATTLE

We are now offering for sale the Clydesdale Stallions, Lord Charming, Imp. [2264]. Barons Charm, Imp. [9238]. The Hackney Stallion, Warwick Model, Imp. 304. Two registered Clyde. Mares. High-class Shetland Ponies, and Brown Swiss bulls of serviceable age.

RALPH BALLAGH & SON, Guelph, Ont.

The Old Sorby Farm

Walnut-Grove Shorthorns

Sired by the great sire Trout Creek Wonder and out of Imp. cows and their daughters of pure Scotch breeding and others Scotch topped. For sale are several extra nice young bulls and a few heifers. Let us know your wants.

DUNCAN BROWN & SONS,

R. M. D. Shedden, Ont., P. M. & M. C. R.

Spring Valley Shorthorns

Herd headed by the two great breeding bulls, Newton Ringleader (imp.) 73783, and Nonpareil Ramsden 83422. Can supply a few of either sex.

KYLE BROS., Drumbo Ont. 'Phone and Telegraph via Ayr.

Northlynd R. O. P. Shorthorns and Jerseys

For Sale—Our noted sire of big milkers, St. Clair = 84578 = a Clara bred son of Waverley. Several of his sons out of R.O.P. dams; also Shorthorns and Jersey females. Official records are our specialty.

G. A. JACKSON, DOWNSVIEW P.O., ONTARIO, WESTON STATION.

IRVINEDALE SHORTHORNS

Bulls and heifers of the very best quality. Sired by Gainford Select (One of the great sons of the celebrated Gainford Marquis).

JOHN WATT & SON, R. R. No. 3, Elora, Ont.

Willowbank Stock Farm Shorthorn Herd

Established 1855. This large and old established herd has at the head the two great bulls: Imported Roan Chief = 60865 = a Butterfly and the prizewinning bull, Brownale = 80112 = a Mina. An extra good lot of young stock to offer of either sex. Splendid condition. Good families of both milking strain and beef.

James Douglas, Caledonia, Ont.

Shorthorns

RICH IN BREEDING, HIGH IN QUALITY My herd of Scotch and Scotch-topped Shorthorns was never stronger in number nor in quality than now. I have the most fashionable blood of the choice Yorkshires, both sexes. A.J. Howden, Myrtle, C.P.R.; Brooklin, G.T.R.; Columbus, R.M.D.

Shorthorns Shropshires

Have still left one Bull (15 mons.) by Sittyton Victor 19 = a few young cows; and a few heifers among which is a junior yearling show proposition. Will see them. Also 16 ram lambs around 100 lbs. Come and

Wm. D. Dyer R.R. 3, Oshawa, Ont. 2 1/2 miles from Brooklin G.T.R. 4 miles from Myrtle C.P.R.

Questions and Answers.

1st—Questions asked by bona-fide subscribers to "The Farmer's Advocate" are answered in this department free.
2nd—Questions should be clearly stated and plainly written, on one side of the paper only, and must be accompanied by the full name and address of the writer.
3rd—In veterinary questions, the symptoms especially must be fully and clearly stated, otherwise satisfactory replies cannot be given.
4th—When a reply by mail is required to urgent veterinary or legal enquiries, \$1.00 must be enclosed.

Miscellaneous.

Pathmasters—Communicable Diseases.

1. We have a municipal by-law prohibiting all stock running at large on public highways. All pathmasters are required to see that this by-law is not violated. I asked our pathmaster by letter to observe the requirements of this by-law and to prosecute any farmer who habitually pastures the road with his stock, but he does not enforce it. What steps should I take to compel him to carry out his instructions?

2. What are the duties of public-school trustees regarding the permitting of or prohibiting of children suffering from chicken-pox, measles, or whooping cough, from attending school?

3. Are they liable to a fine?

Ontario. FAIR PLAY.

Ans.—1. You should lay the matter before the council of the municipality.

2. They should promptly report the matter to the medical health officer or local board of health.

3. We do not think so.

Horse-Power of Engines—Pulley and Revolutions.

1. Would any reader of "The Farmers' Advocate" inform me how to figure out the horse-power of a gasoline engine, by the size of the cylinder and the length of stroke?

2. Also, how to figure out the speed of grinders, etc., by the size of pulleys? Example: The chopper is required to run 2,000 revolutions per minute, and the engine makes 400 revolutions, engine having a 20-inch pulley. What size of a pulley would I need on the chopper? Please give examples in both cases.

SUBSCRIBER.

Ans.—1. There are a number of rules for calculating the horse-power of gasoline engines, and the results of the different rules vary considerably. Perhaps as good a rule as any is the following: For four-cycle engines, square the diameter of the piston in inches, multiply by the number of cylinders, the length of stroke in inches, the revolutions per minute, and divide by 18,000. For a two-cycle engine, divide by 21,000 instead of 18,000.

2. Since your chopper has to run five times as fast as the engine, the pulley must be one-fifth as large in diameter. One-fifth of twenty is four, hence your pulley should be four inches in diameter.

W. H. D.

Gossip.

SUNNYSIDE CHESTER WHITES AND DORSETS.

The closing days of 1915 will be memorable for the Sunnyside herd of Chester White swine, owned by W. E. Wright & Son, of Glanworth, Ont., for during the latter half of December and the first two weeks of January, the demand for breeding stock from this herd was unprecedented in the thirty years of its history. As many as 25 head were shipped in one week. They went all over the country, and the Messrs. Wright have hundreds of letters from satisfied customers. For the last four years the herd prizes at Toronto and London have been won by this herd, besides other first prizes and championships, which have been many, all of which speaks volumes for their quality and breed characteristics. The herd is a large one, and on hand at present are 20 young boars of serviceable age, and young sows bred, as well as both sexes younger. In Dorset sheep the quality is equally high. For several years at the leading shows the bulk of awards came to this flock, and at Toronto last fall they won both the silver medals. For sale are a number of shearing ewes bred, also ram and ewe lambs, all of first quality.

Questions and Answers.

Questions asked by bona-fide subscribers of "The Farmer's Advocate" are answered in this department free.
 Questions should be clearly stated and only written on one side of the paper only, must be accompanied by the full name and address of the writer.
 In veterinary questions, the symptoms must be fully and clearly stated. Other satisfactory replies cannot be given.
 When a reply by mail is required to urgent veterinary or legal enquiries, \$1.00 must be enclosed.

Miscellaneous.

Pathmasters—Communicable Diseases.

We have a municipal by-law prohibiting all stock running at large on the city highways. All pathmasters are required to see that this by-law is not violated. I asked our pathmaster to observe the requirements of the by-law and to prosecute any farmer who habitually pastures the road with stock, but he does not enforce it. What steps should I take to compel him to carry out his instructions?

What are the duties of public trustees regarding the permitting or prohibiting of children suffering from chicken-pox, measles, or whooping cough, from attending school?

Are they liable to a fine?

FAIR PLAY.

You should lay the matter before the council of the municipality.

They should promptly report the matter to the medical health officer or board of health.

We do not think so.

Power of Engines—Pulley and Revolutions.

Would any reader of "The Farmer's Advocate" inform me how to figure out the horse-power of a gasoline engine, by size of the cylinder and the length of the stroke?

Also, how to figure out the speed of pulleys, etc., by the size of pulleys? The chopper is required to make 1,000 revolutions per minute, and the engine makes 400 revolutions, engine pulley 20-inch pulley. What size of pulley would I need on the chopper? Give examples in both cases.

SUBSCRIBER.

There are a number of rules for calculating the horse-power of gas engines, and the results of the different rules vary considerably. Perhaps the rule as any is the following: Four-cycle engines, square the diameter of the piston in inches, multiply by number of cylinders, the length of the stroke in inches, the revolutions per minute, and divide by 18,000. For a two-cycle engine, divide by 21,000 instead of 18,000.

Since your chopper has to run five times as fast as the engine, the pulley must be one-fifth as large in diameter. If the diameter of the engine pulley is twenty inches, hence your chopper pulley should be four inches in diameter.

W. H. D.

Gossip.

INSIDE CHESTER WHITES AND DORSETS.

Closing days of 1915 will be memorable for the Sunnyside herd of Chester Whites, owned by W. E. Wright & Sons, Glanworth, Ont., for during the month of December and the first two of January, the demand for breeding stock from this herd was unprecedented in the thirty years of its history. Twenty-five head were shipped in Ontario. They went all over the country to the Messrs. Wright have hundreds of letters from satisfied customers.

Last four years the herd prizes in Ontario and London have been won by the herd, besides other first prize championships, which have been won by all of which speaks volumes for the quality and breed characteristics. It is a large one, and on hand there are 20 young boars of service, and young sows bred, as both sexes younger. In Dorset the quality is equally high. For years at the leading shows the awards came to this flock, and in the last fall they won both the first and second prizes. For sale are a number of breeding ewes bred, also ram and sows, all of first quality.

Warranted to Give Satisfaction.
Gombault's Caustic Balsam

Has Imitators But No Competitors.
A Safe, Speedy and Positive Cure for
 Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbones and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunions from Horses or Cattle.
 As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address: The Lawrence-Williams Co., Toronto, Ont.

"Fine Work!"
 —that's what you'll say when you see the soil, manure and stubble mixed over and over with the
"Acme" Pulverizing Harrow
 "The coulters do the work." They cut and crush clods, turn the soil twice, pulverize and mulch at one operation. There's an "Acme" for every purpose—sizes 8 to 11-1/2 feet in width. Send for free book—now—and learn more about these most dependable of all seeded bullocks.
Duane H. Nash Inc.
 30 Elm Street, No. 23, Millington, New Jersey. 6 1/2 ft. wide.


Dr. Page's English Spavin Cure
 Cures the lameness from Bone-Spavins, Side-Bones, Ringbones, Curbs, Splints, etc., and absorbs the bunched, does not kill the hair, absorbs Capped Hocks, Bog-spavins thick pastern joints, cures lameness in tendons, most powerful absorbent known, guaranteed, or money refunded. Mailed to any address, price \$1.00. Canadian Agents: J. A. JOHNSTON & CO., Druggists, 171 King St., East, Toronto, Ont.



Beaver Hill Aberdeen-Angus—Bulls fit for service. Females all ages. Cows with calves at foot. Prices reasonable.
 ALEX. MCKINNEY, R.R. No. 1, Erin, Ontario
 Cheltenham, G. T. R. Erin, C. P. R.

The Glengore Angus
 Some choice bulls, from 7 to 15 months, for sale. For particulars write
 GEO. DAVIS & SONS, R.R. No. 1, Erin, Ont.

Tweedhill—Aberdeen-Angus. Choice young bulls of serviceable age; also females. If you want anything in this line write:—
 James Sharp, R. R. 1, Terra Cotta, Ontario
 Cheltenham, C.P.R. & G.T.R.

Aberdeen-Angus—I have a grand bunch of calves six months old, both sexes. Price very reasonable. Writes
 D. M. Kean, Orillia, Ont.

For Sale The Imp. Shorthorn Bull Bandman =73729=. Also 2 young bulls, a Princess Royal, and a Fair Maid.
 WM. GRANGER & SON, R.R. No. 1, Auburn, Ont. Blyth Phone 3810.

Please mention "The Farmer's Advocate."

Questions and Answers.
Veterinary.

Condition Powder.

Give formula for a condition powder for a mare that has just been treated for worms.

J. C. W.

Ans.—Mix equal quantities by weight of powdered sulphate of iron, gentian, ginger, nitrate of potassium, bicarbonate of soda, and nuxvomica. Give a table-spoonful three times daily.

V.

Defective Sight.

Last spring's lamb acted stupidly all summer. It ate and thrived well, but lay around a good deal, and sometimes seemed to be blind, as it would run into things frequently. We slaughtered it the other day and it was in prime condition. When opened, we found the lungs pinkish in color and sticky to the touch. Is the flesh fit for food?

R. Y.

Ans.—The trouble was defective sight, and the flesh is quite healthy.

V.

Miscellaneous.

Killing Sheep Ticks in Winter.

Kindly publish the most successful method of destroying ticks on sheep in the winter season. Would you advise parting the wool and spraying with sheep dip, or would it be of any benefit?

J. T.

Ans.—In the past, it has been recommended to sprinkle dry sulphur on sheep after parting the wool along the back and in other places where ticks assemble. Our faith in this treatment has never been strengthened by observing any results from it. Parting the wool along the back and pouring on about a quart of a good sheep dip would be beneficial, in so far as it would exterminate the ticks, but the treatment would be too severe on the sheep during cold winter weather. This is not a good time to rid sheep of vermin. Fall and spring are the proper seasons. If any of our readers can suggest a remedy that may be used in winter we should be glad to publish it.

Sewing Machines.

My daughter had a sewing machine from an agent last spring, and has paid six months' installments on it. She was in work at the time, but is doing nothing now, and is not likely to be able to for quite a time. The agent knew she was only fifteen years of age when he let her have it, and her father did not sign any papers in reference to it, or have anything at all to do in the matter. What can the company do? She does not wish to lose all she has paid, and also would like to keep the machine and pay as soon as she is able. We have just located a farm here, and want what little capital we have got to get on with.

G. H.

Ans.—The company probably retained the property in the machine and reserved the right, accordingly, to retake possession of it upon non-payment of any installment of the price. That is usually the case, and if the practice was followed in this instance the company could take back the machine and also retain the money that your daughter has paid on account of it. It is a matter, therefore, to be settled by her with the company upon the best terms that may be arranged. The company would likely prefer giving an extension of time to retaking the machine.

Gossip.

The Ontario Corn Growers' Association will this year pay \$2,500 in prize money at their Corn Exhibition, to be held in the Curling Rink, Chatham, on February 1 to 4, inclusive. Prof. R. A. Moore, Wisconsin, will judge the entries. Reduced rates on all railroads are promised, and a great exhibition is expected. Prize lists and particulars may be obtained from the Secretary, J. W. Noble, Essex, Ont.

Ontario Corn Exhibition

CURLING RINK, CHATHAM

February 1, 2, 3, 4, 1916

\$2,500.00 PAID IN PRIZE MONEY

Reduced Rates on all railroads. Entries close Jan. 29th.
 Prof. R. A. Moore, Wisconsin, Judge.

For prize list and further particulars, write Secretary.

R. W. KNISTER, President
 Comber, Ont.

J. W. NOBLE, Sec.
 Essex, Ont.

SEVENTH ANNUAL SALE OF Registered Stock

Auspices of the Victoria Pure Bred Stock Association.

To be held in BUTLER HOUSE YARDS, LINDSAY, ONT., on Tuesday, January 25th, at 1 p.m. sharp.

24 Shorthorn Bulls, 4 Clydesdale Mares, 10 Shorthorn Heifers and Cows, 1 Clydesdale Stallion, 1 Aberdeen-Angus Bull

TERMS:—Cash or ten months' credit will be allowed on approved joint notes, all notes to bear interest at the rate of 6 per cent per annum from date of sale.

Customers wishing to settle by cheque should bring either a marked cheque, or a letter of credit from their banker. Catalogue mailed on application to the Secretary. Sale under cover, if stormy. Good train service, both G.T.R. and C.P.R. going either East or West, after the sale.

President, JAS. CASEY
 Secretary, A. A. KNIGHT, Lindsay, Ont.
 Auctioneer, W. F. MARQUIS

MAPLE SHADE FARM SHORTHORNS

The products of this herd have been in very strong demand. There's a reason. Can always supply a good young bull at a price which will make him well worth the money. Not many females for sale but can show a few which should interest you.

W. A. DRYDEN, Brooklin, G. T. R., C. N. R. Myrtle, C. P. R.
 Maple Shade Farm, Brooklin, Ont.

Escana Farm Shorthorns

For Sale—15 bulls 8 to 14 months old, several of them prize-winners at Toronto and London, sired by the noted imported bulls Right Sort and Raphael. Also for sale—20 heifers and cows of choice breeding and quality for show or foundation purposes. State your wants and we will send copy of pedigree and prices. Mail orders a specialty, satisfaction guaranteed.

MITCHELL BROS., Burlington P.O., Ontario
 Jos. McCrudden, Manager. Farm 1/4 mile from Burlington Jct.

Maple Grange Shorthorns

Pure Scotch and Scotch-topped. Breeding unsurpassed. A nice selection in young bulls, and a limited number of thick, mossy heifers.

R. J. DOYLE, Owen Sound, Ontario

SHORTHORNS AND CLYDESDALES

10 Bulls serviceable age, all good ones (some herd headers) and are offering females of all ages. Have a choice lot of heifers bred to Clansman—37809—; also four choice fillies all from imported stock A. B. & T. W. DOUGLAS Long-Distance Phone STRATHROY, ONTARIO

GLENGOW SHORTHORNS AND COTSWOLDS

Pure Scotch in breeding, we have an exceptionally choice lot of bulls for this season's trade, ranging in age from 8 to 15 months; big mellow fellows and bred in the purple. Also Ram and Ewe lambs of first quality.

Wm. Smith & Son, Columbus, Ont. Myrtle C.P.R., Brooklin, G.T.R., Oshawa, C.N.R.

H. SMITH HAY P. O., ONT.

21 SHORTHORN BULLS and as many heifers for sale. Write your wants. You know the Harry Smith Standard.

The Salem Shorthorns

One of the largest collections of Scotch Shorthorns in America. Can suit you in either sex, at prices you can afford to pay.

J. A. WATT, ELORA, ONT.

10 Shorthorn Bulls

and 40 females. Shropshire and Cotswold ewes for sale at prices within the reach of all.
 JOHN MILLER, Ashburn, Ont. Myrtle Sta., C.P.R. & G.T.R.

Shorthorns

Pure Scotch and Scotch topped—Booth. Also five (5) young bulls from ten to twenty months old, of the low down, thick kind, good colors—reds and roans. Prices reasonable.
 G. E. Morden & Son, Oakville, Ontario

OAKLAND SHORTHORNS

67 males and females (milk strains) grand choice of bulls from \$125 to \$175. Young cows and heifers from \$100 to \$200, nearly all sired by one of Ontario's best bulls (still at head of herd). All good individuals. Write or come and see.
 JOHN ELDER & SONS, HENSALL, ONT.

PULL STUMPS The Quick, Easy Practical way



Stump fields cost you money. You can't afford such waste—such loss. Get rid of the stumps—make every acre return big profits. Clear your land the Kirstin way—the quick, easy, practical way. Use the method endorsed by Government and State Officials—and by thousands upon thousands of farmers and land owners—the way that is easiest, most practical and costs you the least, both in first cost and for labor. The Kirstin One-Man way is the *proven* way. From Maine to California and from Canada to the Gulf, there are thousands of Kirstins at work and every one of them will repay their cost many times over. A Kirstin will make good in your stump fields.

Kirstin

One-Man Stump Puller Easily Handled and Operated By One Man.

The improved Double Leverage Kirstin has every quality needed in a stump puller—gigantic power—variable speed—enormous strength. Yet, with all its great power and strength, the Kirstin is the lightest stump puller made, so that one man can carry, handle and operate it with ease.

No Horses Required

In clearing land the Kirstin way, one man alone pulls stumps—your team driven by a boy can be kept busy dragging them away. Just think of the enormous difference in cost between the Kirstin One-Man way and the horse-power method—where it takes a team and a man or two to operate the puller alone.

The improved double leverage Kirstin, the new short lever model, stands the extreme tests of the very hardest stump pulling. The Kirstin's wonderful compound leverage principle develops enormous power—one man alone can easily pull all kinds of stumps—big, little, tough or green—also trees and hedges. In addition to its practically unlimited power, the Kirstin

Changes Speed While Pulling a Stump

No other stump puller at any price contains a similar device. With other machines you keep pulling at the same rate of speed even after the stump has broken loose and the hard pull is over. This is a big waste of time that the Kirstin Multiple Speed-Changing feature entirely overcomes. The Quick-Detachable connections also mean a big saving of time. Furthermore, with the Kirstin you can

Clear Over An Acre From One Anchor

No time lost in having to re-set machine for every stump—no

unwinding cables from a heavy drum—no driving a team round and round—no wasted time or effort at all. Just a steady, easy, back-and-forth movement of the Kirstin lever brings stumps out quick and easy. Small trees, hedges, brush, etc., can be pulled in bunches. The Kirstin gives you unlimited power. It also has a surplus strength in every part—and the *right speed* at the right time. Can be used anywhere—hills, swamps—rough ground or thick timber where no other puller could be used.

If you have any stumps on your farm you need a Kirstin. Why the Kirstin? Because the Kirstin is the simplest, most practical, most efficient land clearing device ever invented. Lowest first cost—lowest in cost of operation. It weighs much less than any other, is a great deal stronger, and is covered by

The KIRSTIN Iron-Clad Guarantee

You cannot afford to start to clear your land before you get the Kirstin Catalogue. This will be sent you FREE. It contains invaluable land-clearing information and full details about Kirstin One-Man Stump Pullers, our Liberal Ten-Day Try-Out Offer, the Kirstin Service Bureau, Time Payment Plans, etc. We'll also send you ABSOLUTE PROOF that the Kirstin is and does all we claim. Try a Kirstin on your land—prove its value to yourself.

Mail The Coupon

or send a postal, but be sure to write at once for your copy of free book.

FREE Book Coupon

A. J. KIRSTIN CANADIAN Co., 5100 Dennis St., Sault Ste Marie, Ont.

Please send me your free book on Stump pulling.

Name

Town

R. F. D. or P. O. Box

State

Agents Wanted



A. J. KIRSTIN CANADIAN CO., 5100 Dennis St., Sault Ste Marie, Ont.

Gossip.

LAST CALL FOR THE BRANTFORD HOLSTEIN SALE.

Everything catalogued for the Brant District Holstein Breeders' Consignment Sale at Brantford, on Wednesday, Jan. 26, will positively be sold, as the sale, like the one a year ago, will be conducted on strictly honest lines—no bidding-in, and no by-bidding is the cast-iron motto of the club. No matter what the price, the animal will be sold, so that no one need have any fear in attending that he will not get a square deal. Another point is that every animal will be truthfully represented. The selection of animals for the sale is made entirely on their merit, and no inferior one are allowed to be offered. Look up the advertisement of sale in this issue and arrange to attend.

IMPORTANT DISPERSION SALE.

Fifty registered Holsteins, three registered Jerseys, and several choice Yorkshire sows, should be sufficient to attract a great number to the dispersion sale which will take place at Lot 6, Con. 2, London Township, Middlesex County, on Feb. 10, 1916. This is not far from London, and every convenience is promised by C. E. Trebilcock, proprietor, to make all visitors comfortable. Full particulars regarding the sale are embodied in an advertisement in this issue. Write to C. E. Trebilcock, R. R. 6, London, and get further acquainted with the offering. Don't forget that this sale begins at 10 a. m. There are farm implements, horses, etc., to be sold first. Read in the advertisement about the breeding of the stock; it is good.

BULLS ON HAND TO OFFER FROM \$125.00 UP



Field Marshall = 100215 =, first senior calf at Toronto and London, 1915.

1. Sylvan Power = 95871 =, white, calved Feb. 9, '14 Dam Nonpareil Courtier = 83324 = Collynie Fragrance (imp.) Old Lancaster (imp.) Scottish Fancy (75601)
2. Eramosa Ringleader = 101651 =, red, Sept. 3, '14 Broadhooks Ringleader = 83494 = Sweet Fragrance (imp.) Alastair = 78217 =
3. Gilt Edge = 101652 =, red, little white, Dec. 7, '14 Bandsman's Commander = 90929 = Collynie Fragrance (imp.) Old Lancaster (imp.)
4. Spring Tide = 101653 =, red, little white, May 2, '14 Bandsman's Commander = 90929 = P. V. Victoria Ben Lomond (imp.) Victoria Lady Grengill Victor (imp.) Princess Victoria (imp.) Morning's Pride
5. Conqueror's Crown, dark roan, June 11, '15 Bandsman's Commander = 83494 = Victoria 75 Broadhooks Ringleader = 83494 = Victoria of P. V. Lancaster Floral Princess Victoria (imp.) Morning's Pride and others

A. F. & G. AULD, R. R. No. 2 GUELPH, ONT

20 IMPORTED BULLS

These imported bulls, along with 10 home bred bulls may now be seen at our farms. There are some choice ones among them. We also imported four cows and a heifer, all of which are forward in calf. An invitation is extended to anyone interested in this class of stock to visit us at any time. Correspondence will receive our most careful attention.

Burlington Jct. G. T. R. Burlington phone or telegraph.

J. A. & H. M. PETTIT, Freeman, Ont.

QUALITY AND PRODUCTION are combined in the dams of the young bulls for sale; dams average from 25 to 31 lbs. butter in 7 days. Also females of all ages for sale.

M. L. HALEY SPRINGFORD, ONT. M. H. HALEY

SHORTHORNS and SHROPSHIRE T. L. MERCER Markdale, Ontario With 125 head to select from, we can supply young cows in calf, heifers from calves up and young bulls from 9 to 18 mos. of age, richly bred and well fleshed. In shropshires we have a large number of ram and ewe lambs by a Toronto 1st prize ram, a high-class lot.

SHORTHORNS OF SHOW-RING QUALITY We have this year the best lot of young bulls we ever bred from the famous sire, Mildreds Royal, Sr. Calves, Matchless and Emmelines, they are all of show-ring calibre. GEO. GIER & SON, R.M.D. WALDEMAR, ONT., P.O. AND STATION

PLEASANT VALLEY FARM SHORTHORNS Your opportunity to buy a good shorthorn bull as a herd header or to raise better steers is right now before buying. We have ten good ones for either purpose by imp. Loyal Scot, also several cows and heifers. Write us before buying. GEO. AMOS & SONS, Moffat Station, Ont., C.P.R. (11 miles east of Guelph.)

Questions and Answers. Miscellaneous.

Registering Cattle.

I recently purchased a Shorthorn cow and received registration papers with her. What course should I pursue to have these records transferred to my name, and a young calf recorded?

J. R. M.

Ans.—Write Jno. W. Brant, Accountant, Live Stock Records, Ottawa. All registrations in this breed are made through the office at Ottawa.

Milk as a Feed for Hens.

To a flock of Barred Plymouth Rock hens that are being fed whole oats and wheat, which would be the best for egg-production, sweet skim milk, sour skim milk, or buttermilk?

H. M.

Ans.—Either sweet or sour milk is a valuable feed for laying hens. It is believed that the acid of sour milk has a beneficial effect on the digestive system of the bird. Consequently, many poultrymen prefer to feed sour milk or buttermilk.

Feed for Milch Cows.

Would oats, wheat and barley, chopped, and oil cake, two parts of chop to one of oil cake, fed dry with turnips, give as good results with milch cows, as equal parts of oil cake and bran, and the same chop, fed as a bran mash?

H. R. C.

Ans.—If our correspondent means by bran mash the mixing of the feeds mentioned and feeding as a wet mash, it is doubtful if the increased labor entailed would warrant that method of feeding. Excellent results have been obtained by feeding a mixture of bran, oats, wheat and barley chop, with from one to two pounds of oil cake per cow each day. One pound of the mixture to every four pounds of milk produced is very good feeding. Feeding grain dry with turnips is a good practice.

Mare Out of Condition.

I have a four-year-old mare that is getting very thin. Formerly she was in good flesh, but she is very gaunt and thin now. She will not eat nor drink much, but she appears to feel good. She does no more work than is sufficient for exercise. We gave her a ball, but she has not improved. Our hay is very good.

T. McC.

Ans.—There are two probable troubles. The animal's teeth may be in bad condition, or the mare may have worms. The latter does not seem altogether likely, as she does not eat excessively. It would be well to watch out for such, however, and examine the teeth also. Mix equal parts of sulphate of iron, gentian, ginger, and nux vomica. Feed a tablespoonful three times daily as a tonic to whet the appetite. Feed a liberal ration of oats and bran, and give regular exercise.

Cement for a Wall—Seed per Acre of Beans and Corn.

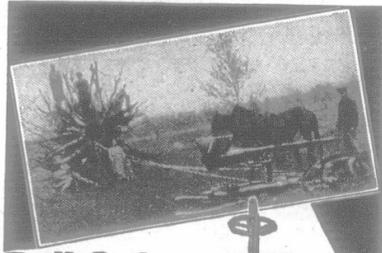
1. How many barrels of cement would be required to build a cellar under a house one hundred and fifteen feet around, and the cellar to be seven feet deep? How many yards of gravel are required for the same, and what are the proper proportions to mix the cement?
2. What quantity of beans is required to sow an acre of land, to be sown with a seed drill?
3. What quantity of corn is required to sow an acre of land, to be sown with a seed drill?

S. W.

Ans.—1. To build a wall 115 feet in length by 7 feet high by 1 foot thick, would require about 30 yards of gravel. Where good gravel is used, 8 parts of gravel to 1 of cement, would make a sufficiently strong wall. Mixing in the proportions mentioned, the wall would require about 23 barrels of cement.

2. The amount of seed to sow will depend somewhat on the size of the beans and distance apart of the rows. For the small bean, three pecks would be sufficient seed for an acre. If the seed is large, sow one bushel.

3. The customary amount of seed per acre for drills 42 inches apart is about 25 pounds of the dent varieties, and from 20 to 22 pounds of the flint varieties.



Pull Out Stumps With the Famous Hercules!

Triple-Power Pull an acre or more of stumps a day. Pull any stump in 5 minutes or less. Don't have loafs land when it's so easy and cheap to pull the stumps out! Make 100% profit by using the Hercules. \$1281.00 the first year on 40 acres! \$750.00 every year after. Let us prove it.

Low Price and Book Free!

Get the facts. Read our book. Tells what all steel, triple power means. Shows many features of the Hercules. Shows many photos and letters from owners. Postal will do.

HERCULES MFG. COMPANY
1136 24th St. Centerville, Iowa

Get The Latest **Only 20c** Modern Silage Methods

Tells you all there is to know about present-day silage feeding—how to build silos. Gives reliable and unbiased facts (we do not sell silos) on every silo built—home made—stave, hoop and octagonal silos—pit, brick, tile, cement, concrete silos—all modifications. Also covers every crop used for silage—41 of them. Here's an entirely new book—264 pages—better than former copies used as text books in colleges. Copyrighted November, 1914. Ten page index. We send it for 20c coin or stamps. Send for this new copy today.

Silver's "Ohio" Silo Fillers

Write for catalog and four-color poster folder which we send free. Enclose 2c to cover duty and postage and we send "Modern Silage Methods" with them.

The Silver Mfg. Co.
343 Broadway, Salem, O.

Shorthorns high class young bulls from 7 to 18 months, 15 young cows and heifers, straight, smooth big kinds of choicest breeding including several families that have produced dairy test winners. I never was in a better position to supply you with a good young bull at a more reasonable price. Write me or come and see them.

Stewart M. Graham
Long distance Phone, Lindsay, Ont.

SHORTHORNS

Three bulls, 11 months, a number of younger cows with their calves, cows in calf and yearling heifers for sale. Good individuals. Good Pedigrees. Inspection solicited.

J. T. GIBSON, DENFIELD, ONT.

Shorthorns "Pail Fillers" Our Shorthorns are bred and developed for big milk production. If you want a Stock bull bred that way, we have several; also Clyde stallion rising 3, won 2nd at Guelph the other day in a big class.

P. CHRISTIE & SON, Manchestr, Ont.

SHORTHORN BULLS AND HEIFERS—Have eight bulls and ten heifers, from eight to twenty months, for sale. The best of breeding and prices moderate. Write me your wants before you buy. Oshawa Bell phone. C. E. BAIN, Woodbine Stock Farm, Taunton, Ont.

Choice stock to offer in **SHORTHORNS, POLAND CHINA AND CHESTER WHITES**. First prize Poland China herd at Toronto and London, 1915. Pairs not akin—bred from winners. Prices moderate. Geo. G. Gould, No. 4, Essex, Ont.

BURNFOOT STOCK FARM, Caledonia, Ont. Breeders of Heavy Milking dual purpose Shorthorns. Present Offering a choice roan bull, born April 9th, 1915, a grandson of Dairymaid, 86086, the leading cow in the R.O.P. for Shorthorns in Canada. S. A. MOORE, Prop., Caledonia, Ont.

Shorthorns—bulls, females, reds, roans, size, quality. Breeding milkers over 40 years. Cows milking 50 lbs. a day. Big, fleshy cows that will nurse calves right. Prices easy, write: Thomas Graham, R. R. 3, Port Perry, Ont.

FLETCHER'S SHORTHORNS

Our herd of pure Scotch Shorthorns are mostly direct from imp. stock. Three very choice bulls for sale, also females. GEO. D. FLETCHER, R. R. 1, Erin, Ont. L.-D. Phone, Erin Sta. C.P.R.

Shorthorns and Swine—Have some choice young bulls for sale; also cows and heifers of show material, some with calves at foot. Also choice Yorkshire sows.

ANDREW GROFF, R. R. No. 1, ELORA, ONT.

Questions and Answers. Miscellaneous.

Line Fencing.

I live in an incorporated village. I built 16 1/2 rods of fence between my own land and that of my neighbor a year ago last July. It is a close-board fence six feet high. I paid for all work and material. What proportion of cost will my neighbor be obliged to bear? What is a lawful fence in such a village, and would he have to pay half the cost of a lawful fence?

Ontario.

Ans.—You could have called upon your neighbor at the outset, and if necessary compelled him, to make a just proportion of the boundary fence. If the fence is a proper one, he ought now to bear his just share of the expense of it. But we do not think that you are in a position now to legally enforce payment. The question of what is a lawful fence in the village depends upon by-law of the municipality, and as to that you should see the village clerk.

Skating on Dammed River.

A river runs through A's lot. On the river A has built a dam which holds the water back for almost a mile.

1. Can B and C build a skating rink on the dam when it is frozen over if A objects?
2. Can B and C trespass on high-water mark?
3. Are B and C liable to prosecution for trespassing on the ice?
4. Could B take action against A for chastizing him while on the ice skating, and not harming A?
5. What could be done to A for cutting holes in the ice if anything happened?

Ontario. OLD SUBSCRIBER.

Ans.—1. Assuming that it is not a navigable stream; no.
2. No.
3. Yes, if they do so after reasonable warning against it.
4. Yes.
5. If A were to cut holes with the purpose suggested and injuries were sustained in consequence, he would be liable both criminally and civilly, and could be prosecuted and sued for damages, accordingly.

About Certified Milk.

Kindly give me some information regarding certified milk.

1. What are the conditions relative to sanitation under which it is produced?
2. Is there an unlimited market for it at the present time and, if so, where is it?
3. What is the average price throughout the year?
4. Will the average Holstein produce milk with a butter-fat test sufficiently high for the demand of certified milk?

I. L.

Ans.—1. The Ontario Milk Act, enacted in 1911, provides or stipulates that "certified milk" shall be produced from cows which pass the tuberculin test twice a year; it shall contain not over 10,000 bacteria per cubic centimeter in summer, and not more than 5,000 in winter; it shall be free from pus and disease-producing organisms; have no disagreeable odor or taste; be cooled at 45 degrees F. within half an hour after milking; shall contain 12 to 13 per cent. solids, of which 3.5 per cent. shall be milk-fat. The herd shall be inspected monthly by a veterinarian, and employees shall be examined monthly by a physician.

2. No. There is a market for certified milk, but a larger demand must be created and encouraged before one should launch out too extensively. The larger cities usually are catered to in a case of this kind, and one should first study the proposition and see what the prospects are.

3. The price varies. For a period, it averaged about 12 cents per quart.

4. It would be difficult to say just what the average butter-fat test of a Holstein cow really is. The required test is stated in the reply to the first query. Like other breeds, Holsteins include individuals with fat records above 3.5 per cent., and others below it. It should not be a hard matter, however, to produce certified milk from a Holstein herd.

Now is the time you would appreciate an IDEAL GREEN FEED SILO

RIGHT now, when dairy products are bringing their highest prices, you would be making an extra good profit from your cows if you were feeding silage. Dry fodder and hay cannot produce anywhere near the amount of milk that is produced by feeding rich, juicy silage.

Grain is higher in price—too high to leave much profit for you if you feed a lot of it. But no matter how much grain you feed you will not get as much milk as you would if you fed silage, which costs much less.

Silage is the least expensive and greatest milk-producing feed you can use. If you had put up a silo last summer you would have made enough extra profit this winter to pay for the silo before spring. Silage is also just as good for beef cattle and sheep as it is for milk cows. Besides, it is compactly and conveniently stored so that the time and work of feeding is reduced.

Don't let another winter find you without a silo! The cost of doing without one is too great. You are actually paying for a silo this winter, by losing the profit it would bring you and by the extra work doing without one entails.

Ask us to send you complete information about Ideal Green Feed Silos. You have more time now to look into this matter than you will when the rush of spring work comes on. Write to us to-day.



DE LAVAL DAIRY SUPPLY CO., LTD.
LARGEST MANUFACTURERS OF DAIRY SUPPLIES IN CANADA.
Sole distributors in Canada of the famous De Laval Cream Separators and Alpha Gas Engines. Manufacturers of Ideal Green Feed Silos. Catalogues of any of our lines mailed upon request.

MONTREAL PETERBORO WINNIPEG VANCOUVER
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

DISPERSION AUCTION SALE 30 Head Registered Holsteins

AT HESPELER, ONTARIO, ON
Thursday, January 27th, 1916

The offering consists of cows, heifers, calves and several choice bulls. Among the lot are one son and one daughter, several grand-daughters and great grand-daughters of "Lady Wayne Norine," whose grand-daughter and great grand-daughter include "Queen Butter Baroness," 33.17 lbs., former Canadian champion and a sweepstakes cow at Guelph. "Calamity Starlight Butter Girl," "Buffalo Girl Butter Maid," "Calamity Posch Wayne 3rd" and "Colantha Butter Girl," all winners at Guelph dairy tests; also "Duchess Wayne Calamity 2nd," champion two-year-old in R. O. P., milk, one year 16,714 lbs., butter 846.25 lbs. The herd sires: "Pontiac Wayne Korndyke," son of "Lady Wayne Norine." His sire a son of "Pontiac Korndyke," 119 A. R. O. daughters, 11 over 30 lbs. His sire's dam a 32.17 lbs. daughter of the same sire sold in the Dollar Sale for \$4,100. "Pontiac Segis Avondale" by "King Pontiac Artis Canada," son of "King of the Pontiacs," 164 A.R.O. daughters, 10 over 30 lbs., sire's dam a 31.71 lbs. daughter of "Hengerveld De Kol," 116 A.R.O. daughters, nine over 30 lbs. His dam a 26.44 lb. 4-year-old daughter of "King Pieter," son of "Blanche Lyons De Kol," 33.31 lbs., and "Countess Segis," a 31.70-lb. daughter of "King Segis," 86 A.R.O. daughters, 8 over 30 lbs.

TERMS—Cash or eight months' time with interest at 6% on approved joint notes. Farm situated 15 minutes' walk from C.P.R. & G.T.R. stations. Sale at 1 o'clock sharp. For catalogues apply to:

T. MERRIT MOORE, Auctioneer
Springfield, Ont.
WM. A. RIFE,
Hespeler, Ont.

A complete set of Holstein-Friesian Herd Books will be sold.

Robert Miller Still Pays the Freight—And he is offering in Shorthorns some of the best young bulls and heifers that can be produced. Young bulls fit for service, some younger still; heifers fit for service and younger, and some in calf. They are of the best Scotch families, and some of them from great milking families. They are in good condition and made right, just what you want to make a proper foundation for a good herd, and suitable to improve any herd in the land. They will be priced so that you can afford to buy, if you will tell me what you want. Our business has been established 79 years, and still it grows. There is a reason.

ROBERT MILLER, Stouffville, Ontario

QUEEN CITY HOLSTEINS

Present Offering is 10 young bulls, from 6 to 14 months of age, the records of whose dams, sires dam and her full sister, range from 28 to 32 lbs. They are sons of King Lyons Hengerveld Segis.

R. F. HICKS
Newtonbrook, Ont. On T. & Y. Railroad Line

PIONEER FARM HOLSTEINS

Bulls nearly ready for service from daughters of Prince Aaggie Mechthilde whose first junior two year old daughters averaged 14,600 lbs. milk, 656 lbs. butter in R.O.P., and five juniors now in R.O.P. test have averaged 10,893 lbs., have nearly four months to complete records and still giving from 40 to 50 lbs. each daily. For prices write

WALBURN RIVERS, R.R. No. 5, Ingersoll, Ont.

\$15 **95 UPWARD**
ON TRIAL
Fully Guaranteed



American CREAM SEPARATOR

A SOLID PROPOSITION to send a new, well made, easy running, perfect skimming separator for \$15.00. Skims warm or cold milk; making heavy or light cream.

ABSOLUTELY ON APPROVAL
Bowl a sanitary marvel, easily cleaned. Different from picture which illustrates our large capacity machines. Shipments made promptly from Winnipeg, Man., Toronto, Ont., and St. John, N.B. Whether dairy is large or small, write for handsome free catalog. Address: **AMERICAN SEPARATOR CO., Box 3200 - Belvidere, N. Y.**

Lump Jaw



The first remedy to cure Lump Jaw was Fleming's Lump Jaw Cure and it remains to-day the standard treatment, with years of success back of it, known to be a cure and guaranteed to cure. Don't experiment with substitutes or imitations. Use it, no matter how old the case or what else you may have tried—your money back if Fleming's Lump Jaw Cure ever fails. Our fair plan of selling, together with exhaustive information on Lump Jaw and its treatment, is given in Fleming's Vest-Pocket Veterinary Adviser. Most complete veterinary book ever printed to be given away. Durable, bound, indexed and illustrated. Write us for a free copy. **FLEMING BROS., Chemists 75 Church Street - Toronto, Ont.**

AUCTION SALE
35 Registered Holsteins
25 Female and 10 Bulls
At the King Edward Hotel stables, Cobourg
Thursday, January 27th, 1916
Sale at 1 o'clock

The cattle are all young and bred from some of the best families of the breed. Send for a catalogue and come to the sale.

Terms cash or 9 months time given on approved joint notes bearing interest at 6 per cent.

Bertram Hoskin, R. R. No. 1, Grafton, Ont., Owner
Norman Montgomery Auctioneer, Brighton, Ont.

Walnut Grove Holstein

Herd headed by May Echo Champion, full brother of May Echo Sylvia, who made 36 lbs. butter in seven days. Females for sale from one year old upwards. Prices right for quick sale.

C. R. JAMES, Langstaff P.O. Ontario
Phone Thornhill.

HOLSTEINS

A 29-lb. bull by a son of "Pontiac Korndyke," and he out of a 25-lb. 3-year-old, and two bulls over a year old, three more fit for service. Two sons of "Rag Apple Korndyke 8th" (May), and several sons of "King Segis Pontiac Duplicate," one of the best.

R. M. HOLTBY R.R. 4, Port Perry, Ont.

Holsteins, Yorkshires, and Cotswolds

R. HONEY & SONS, Hartford, Ont.

Offers a bull born May 12, weighing over 500 lbs. whose Jr. 2-year-old dam, her only mature sister yet tested and sires 4-year-old dam average milk 1 yr. 15.172 lbs. Also females all ages and swine of both sexes.

BULLS, BULLS. We have several young Holstein Bulls for sale just ready for service. Sired by the Great Bull, King; Segis, Pontiac, Duplicate, and our Junior Herd Bulls, Pontiac, Hengerveld, Pietertje, and from High Testing Dams. Prices low for the quality. Write and get them. Manchester, G.T.R., and Myrtle, C.P.R. stations; Bell Phone.

R. W. Walker & Sons, R.R. 4, Port Perry, Ont.

Pedigreed Holstein Bull
for sale, 15 months old. Apply **HEROLD'S FARMS Beamsville, Ont.**
Please mention "The Farmer's Advocate."

Questions and Answers.
Miscellaneous.

Mixed Oats and Barley.

1. Is the sowing of a mixture of oats and barley to be recommended for feed instead of oats alone?
2. If so, why?
3. What varieties would you recommend for that purpose in Eastern Ontario?

Ans.—1 and 2. Yes. Yields are usually larger in pounds per acre, and besides, a mixture of oats and barley is generally better relished than barley alone, and is stronger feed than oats alone.

3. Get an early oat and mix with O. A. C. No. 21, or Mandscheuri barley. For an early oat, try Dauboney, or O. A. C. No. 3.

Payment of Funeral Expenses.

A, who is deceased, leaves all her property to B and C, making no mention or arrangements for funeral expenses; to B, all real-estate and household goods—value about fifteen hundred dollars; and to B and C, equally, notes, bank deposit, and all cash—value about two thousand dollars. What proportion of funeral expenses should each pay?

Ans.—Judging from the foregoing statement alone, we would say that B and C ought to pay the funeral expenses in the proportion that each is benefited by the bequests of personal property (including the household goods). B would accordingly pay the larger part of the expenses in question.

Breeding Dogs—Crops for Hay—Ringworm on Cattle.

1. At what periods of the year can a dog be bred?
2. How can you tell when it is ready to be bred?
3. If a Fox Terrier bitch was bred to a Collie dog, would the results be fatal to the bitch?
4. What is the usual fee for a service for a Fox Terrier dog?
5. A Fox Terrier with a slight strain of Bull Terrier derived from its dam, how many generations of breeding with pure-bred Fox Terrier would eliminate same?
6. I have a field which has not been sown for at least four years, but I wish to sow something to cut for hay this year. Which is the better, rye, oats, or millet?
7. If either of these are sown, could I sow red clover and timothy for hay the succeeding year?
8. How many cuttings of clover should I get the following year?
9. Does the timothy grow to any height with the clover, or is it best the third year after planting?
10. Eight-months-old calf has what we believe to be ringworm. The hair around the eyes has come out for a distance of about two inches, and the skin is quite scurvy. I rubbed it with lard, and then painted with iodine. Is this the correct treatment?
11. What is a good veterinary book on cattle?

Ans.—1. Any time they show oestrus.
2. By watching her actions.
3. No.
4. There is no stated fee. It will depend altogether on the value of the dog.
5. It cannot be altogether eliminated.
6. Oats would possibly be the better of the crops mentioned for hay.
7. Timothy and clover may be sown with oats.
8. It will depend largely on the season. The first crop will be ready to cut the last of June or first of July. With favorable weather, a second cutting for hay could be made in the fall.
9. The first year the crop will consist mostly of clover. The second year the clover, being a biennial plant, will have mostly disappeared, leaving the timothy to form the bulk of the crop.
10. The roughness should first be softened with soap and water, then painting with iodine, is a very good remedy. A mixture of lard and sulphur is considered a splendid remedy for ringworm.
11. The "Farmers' Veterinarian," by C. W. Burkett, is a good book on animal diseases. This book may be procured through this office for \$1.50, post-paid.

Important Dispersion Sale

50 REGISTERED HOLSTEINS
3 REGISTERED JERSEY COWS
AND SEVERAL CHOICE YORKSHIRE SOWS
Property of C. E. Trebilcock, Lot 6, Con. 2, London Tp., Middlesex Co.
As the farm has been leased all must be sold without reserve

Thursday, February 10th, 1916

Sale will commence 10 o'clock, as the farm implements, horses, etc., will be sold first. The herds consist of 47 Holstein females and 3 bulls, 3 Jersey cows recently fresh or soon to freshen. All of the Holsteins are in R. O. M. or can qualify. There are only 4 aged cows, the others range from 1 to 5 years. The stock bull, King Lyon's Korndyke, is sired by the great bull, King Lyon's Hengerveld; his dam is Lydia Korndyke De Kol 2nd, a double granddaughter of old Pontiac Korndyke.

Terms: All sums at and under \$10 cash; 8 months' credit on approved joint notes; 5% per annum allowed for cash.

The farm is situated 2 miles from Pottersburg, Ont., G. T. R., 4 miles from London.

Trains arriving from the north 11 a. m. morning of sale will be met at Pottersburg. Those arriving in London should take Dundas St., car east and get off at Asylum Side Road. Conveyances will meet them at that point from 10 a. m. till 1 p. m. on day of sale. Lunch will be provided. Catalogues on application to:

T. MERRITT MOORE, Auctioneer, Springfield, Ont. **C. E. Trebilcock, R. R. No. 6, LONDON, ONT**

Second Annual Consignment Sale

60 Holstein Cattle 60

FROM THE HERDS OF THE
Brant District Holstein Breeders' Club
To be held at the Old Commercial Stables, Brantford, Ont.

Wednesday, Jan. 26, 1916, at 1 p.m.

The offering consists of 55 females of all ages and five bulls fit for service, including several cows and heifers with very creditable records. Two 20-lb. mature cows, one 15-lb. 3-year-old, one with a 26-lb. dam, and others equally good. Every purchaser will be assured a square deal, as there will be absolutely no by-bidding or bidding in.

TERMS—Cash or credit from one to eight months on bankable paper with interest at 6 per cent. per annum.

SALE UNDER COVER
W. H. SIMMON, R. J. KELLEY, N. P. SAGER
New Durham, Pres. Culloden, Sale Manager. 11 St. George, Sec.
Apply to Secretary for catalogue. **ALMAS & PULLEN, Auctioneers.**

HOLSTEIN CATTLE

Canary Mercedes Pietertje Hartog 7th heads our herd. His dam gave 116 lbs. milk in one day and 6,197 in sixty days and made 34.60 lbs. butter in 7 days. There are more cows in our herd giving over one hundred lbs. of milk a day than any other in Ontario. We have both bulls and heifers for sale.

D. C. FLATT & SON, R. R. No. 2, HAMILTON, ONTARIO
Long-Distance Telephone

Ourvilla Holstein Herd If you are starting a herd, or wanting to improve one, look at these young sires for sale, from Homestead Susie Colantha, at three years 26.50; Ourvilla Susie Abbecker, at three years 26.02; Ourvilla Calamity Ormsby, 22.14 at three years; Homestead Helion Abbecker, at three years 23.51, and a few others. Also come and make a selection in choice females from our herd of 100 head. **LIDLAW BROS., Aylmer, Ont.**

HOLSTEIN CATTLE Pure-bred cows, heifers and heifer calves. **66 HEAD MUST BE SOLD**, having disposed of my two stock farms. Come and make your selection. Price and terms to suit. Cattle **HAMILTON FARMS, SOUTHEND P.O., ONT.**
Telegraph and Phone Niagara Falls. Farm 10 minutes trolley from Niagara Falls.

Clover Bar Holsteins My special offering just now are some choice young bulls out of official record dams and sired by Count Mercedes Ormsby, whose dam has 3-30 lb. sister, and a 24 lb. 4-year-old and a 21.06 lb. 3-year-old daughters, and his sire was the great Sir Admiral Ormsby. Also a few females. **PETER SMITH, R. R. No. 3, Stratford, Ont.** Stratford or Sebringville, Stations.

Lakeview Stock Farm Bronte, Ont. BREEDERS OF HIGH TESTING HOLSTEIN-FRIESIAN CATTLE OFFER FOR SALE A FOUNDATION HERD consisting of 1 male and 3 females all bred in the purple and backed by officially tested dams. Terms to suit purchasers. **T. A. DAWSON, Manager**

Evergreen Stock Farm—REGISTERED HOLSTEINS Present offering; Several bull and heifer calves, also a few yearling heifers bred and ready to breed. Write for prices and descriptions Bell phone. **A. E. Hulet, Norwich, Ont.**

HOLSTEINS I am offering my entire herd for sale in block, consisting of 24 females and six bulls at a bargain if sold before the first of February 1916. **C. C. KETTLE, Wilsonville, Ont.**
Long-Distance telephone from Waterford



Can you Afford to Smoke?

Why of course—what does the cost of two or three cigars a day amount to?

But their cost, if invested in an Imperial Life policy, might mean the difference between poverty and comfort for your family after your death.

Think of it—a quarter a day—for a man between 25 and 30 will maintain approximately \$4,000 of life assurance.

And the \$4,000 in cash will be there for your wife and family immediately, if you own an Imperial policy, and your call should come suddenly.

You can afford to smoke, sure! But you can also afford an Imperial Home Protection policy to protect your wife and little ones.

Ask for full particulars to-day. Address

THE IMPERIAL LIFE

Assurance Company of Canada

HEAD OFFICE - TORONTO

Branches and Agents in all important centres

Copyright

Humeshaugh Ayrshires We have several February, March and April, 1915, bull calves, bred from some of our best imported and home-bred females, which we offer at **Alex. Hume & Co., Campbellford, Ont., R.No.3.** good value for quick sale.

HILLHOUSE AYRSHIRES Show-ring winners. Dairy test winners. 75 head to select from. Bull calves and females of all ages for sale. Before buying, come and inspect our herd and get prices.

F. H. Harris, Mt. Elgin, Oxford Co. Ontario

Stonehouse Ayrshires Are a combination of show-yard and utility type seldom seen in any one herd. A few choice young males and females for sale. Write or phone your wants to Stonehouse before purchasing elsewhere.

Hector Gordon, Howick, Que.

Glenhurst Ayrshires For 50 years I have been breeding the great Flos tribe of Ayrshires, dozens of them have been 60-lb cows; I have lots of them get 60 lbs. a day on twice a day milking. Young bulls 1 to 10 months of age, females all ages. If this kind of production appeals to you write me.

James Benning, Williamstown Ont.

Gladden Hill Ayrshires Present offering: Our stock bull, Tam O'Menie =35101= dam, Dewdrop of Menie =25875=, R. O. P. test 9,783 lbs. milk, 401 lbs. butter-fat as a 3-year-old. This bull stood 3rd at Toronto this year. Also young bulls from record cows, and females of all ages.

LAURIE BROS., R. R. No. 1, Agincourt, Ont.

Jerseys, Shropshires, Tamworths We are offering now for the first time a limited number of high-class and richly bred heifers and young bulls. Shearling ewes. Ram and Ewe lambs by Imp. Sire. Tamworths both sexes from breeding age down, our entire offering is high-class and prices no higher than the other fellow.

J. B. COWIESON & SONS, Queensville, Ont., Toronto and York Radial.

Brampton Jerseys We are busy. Sales were never more abundant. Our cows on yearly test never did better. We have some bulls for sale from Record of Performance cows. These bulls are fit for any show-ring.

B. H. BULL & SON, BRAMPTON, ONTARIO

THE WOODVIEW FARM JERSEYS CANADA'S MOST BEAUTIFUL JERSEY HERD. Half the herd imported from the Island of Jersey. Several cows in the Record of Merit, and others now under official test. Some very choice stock for sale. When writing, state distinctly what you desire, or, better still, come and see them. Farm just outside city limits. We work our show cows and show our work cows.

LONDON, ONTARIO
John Pringle, Proprietor

Farnham Farm Oxford and Hampshire Downs Flock Established in 1881 from the best flocks in England. We are offering a splendid lot of yearling rams and ram lambs for flock headers or show purposes. We ourselves have retired from the show-ring so hold nothing back. We are also offering 80 yearling Oxford ewes and ewe lambs: a few superior Hampshire yearlings and ram lambs. All registered. Prices reasonable.

HENRY ARKELL & SON, Route 2 GUELPH, ONT.
Guelph, C.T.R.; Arkell, C.P.R. Telephone Guelph.
Long-distance phone in house.

SUMMER HILL OXFORDS Flock established many years ago on Summer Hill Stock Farm by the late Peter Arkell, now owned by his son, Peter Arkell. Rams and ewes in any quantity for sale, all recorded. Positively no grades registered as pure-breeds; also no grades handled except by order.

Peter Arkell & Co., P.O. Box 454, Teeswater, Ont. C.P.R. Sta.

Think Clearly — Act Quickly.

Editor "The Farmer's Advocate":

One of our neighbors, a most estimable man, has had the misfortune to have one of his hands badly crushed while out setting some fence posts. He had a young man helping him before the frost was in the ground as it is now. This helper was handling the beetle and did not notice that his employer had placed one hand on the top of the post and was looking down. The heavy mail came down with pitiless force and injured that hand so seriously that it was out of commission for a number of months. Of course, the hired man felt terribly about it. He tried his best to hold the beetle up when he saw what was going to happen, but it was too late to do more than lighten the blow a little. We might think at first that the neighbor would have been out of fix, and said some things that he would be sorry for afterwards; but he kept his temper and never said a hard or fault-finding word; and all the while he was nursing that terribly sore thing, and it was right in the busiest season of the year, he was patient and even cheery. What a difference there is in men about enduring things of that kind! Some men would have made the air blue with oaths, and probably discharged the unfortunate man who hurt him, on the spot. What a chance we all do have, anyway, to show what is in our hearts when such misfortunes come, as they do to us all sooner or later!

I cannot help thinking that when some people think of the railroads and the war as affording the only opportunity for heroism, they might change their minds if they knew all the trying things that come to farmers. Heroes on the farm? Why, heroes are only to be found out where the flag is flying or the call of duty comes to do great and brave things. Is that a fact? Let's think about it a minute. Our folks have had some very narrow escapes, right on the farm, when working with the team or around machinery of one kind or another. Nor have we always escaped pain, either. It would be too long a chapter to tell of all of these. But every farmer who has lived long on the farm could duplicate anything I might say in this line.

And little by little the world is finding out that the quiet of the country has its real heroes, just the same as the city or the field of battle. That canny old Scotchman, Andrew Carnegie, who all the time keeps a standing order out that he be told of deeds that are daring and acts that show self-sacrifice, so that he may give those who do these things something worth treasuring, finds a good many heroes in the country. Only lately he gave a reward to a man who saved a friend who was buried in sand while digging a well down in Texas. The unfortunate man was out of sight, up to his very head, and the sand pressing hard upon him from every direction. More than a dozen men came to the spot, but the only one of them who had the courage to do anything was Norman Duncan. In spite of the fact that there might be another cave-in any moment, burying both himself and the one he hoped to rescue, he tied a rope to his friend's body, after digging down far enough. The expected cave-in came, and for a while it looked as if both men would lose their lives. But Duncan worked on like the hero he was, and until the friend had been lifted out, and only then, did he permit himself to be hoisted to the surface. Mr. Carnegie has given medals to thirty-eight other men who saved persons suffocating in wells, thirty-five to those who rescued people from drowning, to eight who pulled people out of the reach of fire, to two who tackled mad bulls and kept others from certain death, and to one who was brave enough to grapple with an infuriated buffalo to keep another man from being killed. One of the most interesting facts about this is that eleven of the eighty-nine heroes of the farm were not yet twenty-one years old.

But not all the thrilling stories of farm bravery ever see the light of public print. Who ever heard of the boy of our neighborhood, who, while driving along the road with his sister after a

Barn Roofing

**Fire, Lightning
Rust and Storm Proof**

**Durable and
Ornamental**

Let us know the size of any roof you are thinking of covering and we will make you an interesting offer.

Metallic Roofing Co.

Limited
MANUFACTURERS
TORONTO and WINNIPEG

Market the Milk Raise your calves and get the bigger money to which you are entitled. But do not feed the calf whole milk, with butter fat worth \$800 a ton.

RAISE YOUR CALVES WITH BLATCHFORD'S CALF MEAL

You can sell all the mother cow's milk or butter and make your calf pay you a big profit on its feed, by raising it on **Blatchford's Calf Meal**

The Recognized Milk Equal
You get 100 gallons of rich milk feed from 100 pounds of Blatchford's Calf Meal, and it costs you only one-fourth as much. It will make your calf grow fast and well. Blatchford's Calf Meal is composed of the elements the young calf needs in the most trying period of its life; is thoroughly steam cooked—prevents bowel troubles and other ills due to improper milk substitutes.

Blatchford's Calf Meal insures quick, steady growth of young pigs at weaning time, without setback or falling off.

Write to for our Free Book on "How to Raise Calves Cheaply and Profitably Without Milk."

Blatchford's Calf Meal
L. C. Board, Manager
Blatchford's Calf Meal will pay you 100¢ per cwt. any time 1915-16. Buy and deliver to dealer.

Steele, Briggs Seed Co., Toronto, Ont.

HIGH MILK RECORDS are made only by healthy cows. Keep yours in top-notch condition with **Pratt's Animal Regulator** 25c. up to \$2.50. Keeps appetite keen and digestion good. Sold on Money Back Guarantee.

Pratt Food Co., Canada, Limited, Toronto 35

Ask for **GOOD LUCK Calf Meal** Brand. **MAKES HEALTHY, VIGOROUS CALVES**. Write for prices and sample.

CRAMPSEY & KELLY
Dovercourt Rd., Toronto

Cotton Seed Meal

LINSEED AND FLAX
MEAL AND SEED

H. Fraleigh, Box 1, Forest, Ont.

ALLOWAY LODGE STOCK FARM
Angus, Southdowns, Collies

Special this month:
Southdown Prize Rams

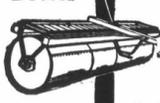
ROBT. McEWEN, R.R. 4, London Ont.

Tower Farm Oxford Sheep, Champion flock of Canada. Choice shearing rams and ewes, also ram and ewe lambs bred from imported and prize-winning stock. See winning at Toronto and Ottawa. Erin or Hillsburgh Stations. Long-distance Phone.

E. BARBOUR, R. R. 2, Hillsburgh, Ontario

Please mention "The Farmer's Advocate."

Rolls The Ground Better



The Bissell

No neck weight.—Perfectly rigid frame.—RUNS EASILY.—

Land Roller will work your soil, no matter how stiff and lumpy, better than you've ever had it done before. Write Dept. W for catalog.

T. E. Bissell Company Limited
Elora, Ontario, Can.

Yorkshire Pigs

BOTH SEXES FOR SALE

Farrowed in October from sire and dams of extra good quality. These young pigs are choice individuals. Address.—

Weldwood Farm

Farmer's Advocate, London, Ont.

Preston SAFE LOCK Shingles

Locked securely on four sides. Galvanized to meet the British Government test. Send for free booklets.

The Metal Shingle & Siding Company Limited
Preston Ontario

BERKSHIRES AND SHORTHORNS

Boars and sows—10 weeks to 8 months—Sire and dam 1st prize winners at Toronto. First-class Shorthorn bull by Sea Foam, (Dark Roan, 12 months old).

Industrial Farm, Muncy, Ont.

Tamworths Boars fit for service, young sows ready to breed, pigs of all ages for sale. Before buying, write for prices.

JOHN W TODD
R. R. No. 1, Corinth, Ont.

Yorkshire Sows for Sale. Two choice Yorkshire sows, bred eight months old, weight about 275 lbs. L. D. Phone. Geo. D. Fletcher, R. R. No. 1, Erin, Ont.

Alderly Edge Yorkshires

Young pigs both sexes born in September and March. Price right.

J. R. KENNEDY, KNOWLTON, QUEBEC.

Poland-China Swine Duroc Jersey, Chester Whites, also Dorset Horn sheep. Young stock of both sexes. Come and see, write or phone.

CECIL STOBBS, Leamington, Ontario.
Phone 284.

Tamworths A choice lot of bred sows some due in February and others about 1st of April.

Herbert German, St. George, Ont.
Bell Phone.

Lakeview Yorkshires If you want a stock boar of the greatest strain of the breed, (Cinderella), bred from prize winners for generations back, write me. Young sows bred and boars ready for service.

John Duck, Port Credit, Ont.

Townline Tamworths Young Tamworths of both sexes and any desired age of superior quality. Also Leicester Ram and Ewe lambs. Pekin ducks, Langshan cockerels and pullets. Write us your wants.

T. Readman & Son, Streetsville, Ont. R.M.D.

SUNNYSIDE STOCK FARM Champion herd at Toronto and London Fairs; all sows for sale.

Chester White Swine Dorset Horn Sheep, young stock of both sexes for sale.

W. E. Wright & Son, Glanworth, Ontario

Pine Grove Yorkshires Bred from prize-winning stock of England and Canada. Have a choice lot of young pigs of both sexes, pairs not due, to offer at reasonable prices. Guaranteed satisfaction.

Joseph Featherston & Son, Streetsville, Ont.

CLEARVIEW CHESTER WHITES For many years my herd has won the highest honors at Toronto, London, Ottawa and Guelph. For sale are both sexes of any desired age, bred from winners and champions.

D. DeCoursey, R. R. No. 5, Mitchell, Ont.

span of high-lifted horses, saw with fast-beating heart that the end of the wagon-pole had dropped out of the leather in the neckyoke, letting the wagon run on the heels of the spirited animals at almost every step they took. Some boys would have flung the lines to the wind and jumped for life. This boy clung hard to the reins, doing his best to quiet the horses and keep them in the road. But when they came to a sharp turn in the road, the maddened creatures did not make the turn, but kept straight ahead towards the open door of a blacksmith's shop, where a number of men were working. The lad knew if they made the dive into that building, somebody would most likely be killed, so he pulled with all his might to swerve the team away from the shop. The best he could do, however, was to bring the team around sideways to the shop. The wagon struck the shop and hurled the boy through a large window, cutting him badly and bruising him in many places; but he bounded up and ran after the horses, pale and bleeding. When the team was safe he dropped helpless from pain and excitement. It was a fine thing done by a farmer boy.

We can none of us tell when we may have some such thing happen to us, and it is a fine thing to cultivate the habit of holding one's self well in hand in moments of danger, so that we may think what is the best thing to do. If we get excited and lose our heads, something serious may happen. But by keeping our nerve and thinking quickly, we may see a way out of the trouble far more surely than we might otherwise. It is a great deal better to think clearly than to jump at conclusions. Such ability can come only to one who meets every crisis coolly. If we do the little things right, when the big ones come we will not be likely to miss doing the very best possible under the circumstances.

EDGAR L. VINCENT.
N. Y.

Questions and Answers.
Miscellaneous.

Sweet Clover for Hay.

I have had trouble every year with my seeds killing out. This leaves me short of hay, and I would like to know if I plowed some of them up this spring and sowed sweet clover, would it do to cut for hay this season? I intend to sow it without a nurse crop. About what time should it be sown, and when would it be ready to cut?

S. D. Y.

Ans.—Sweet clover may be sown without a nurse crop, as soon as the soil can be put in good tith in the spring. About 20 pounds of seed per acre is used. A person should be able to cut a fair crop of hay the first year. The time of cutting will depend altogether on the season. A person would have to watch the crop and cut it before the plants become coarse or woody. Care must be taken to have the cutting-bar of the mowing machine raised pretty well, as close cutting will destroy the plants, although pasturing does not appear to injure it.

Pumping Water—Value of Spelt.

1. Would you kindly tell me, through your paper, whether it is possible to pump the water by hand, in the stable, from a running spring about one hundred yards from the barn, and from eight to ten feet below the level of the stable floor. If so, what size piping and what kind of pump should be used for this purpose?

2. Could you tell me the weight of spelt per bushel, and what feeding value would it have for pigs and cattle, compared with other grain?

J. W.

Ans.—1. With the water level only eight or ten feet below the ground surface, it is quite possible to pump water the distance you mention by using an ordinary suction pump. It is not wise to use less than 1 1/2 inch pipe, and the piping will be easier if a larger one is used.

2. Spelt averages about 27 1/2 pounds per bushel. As a feed for cattle and pigs, spelt is inferior to the other grains. It contains a thick hull, which adheres to the kernel and increases the amount of fiber. It is also lower in carbohydrates and fat than wheat, oats or barley.

Make the Change Now



Mogul 8-16 Kerosene Tractor

GRAND PRIZE WINNER AT SAN FRANCISCO EXPOSITION

THESE are the days of heavy horse power expense. The horses are idle. Hay and oats are worth so much it's a shame to use them for feed. It takes five acres of land to raise enough to feed one horse one year. Horses are at the top of the market, with prices higher than for years past. The market for horses is so good that, even at these higher prices, they are easy to sell. What better time could there be to consider replacing some of your horses with a Mogul 8-16 kerosene tractor?

You can use a Mogul 8-16 with profit for about all the work you are now doing with horses—the tractor does it better and cheaper. It takes less of your time to care for it. It increases the amount of land you make a profit from—five acres for every horse it replaces. It is the right size for most of your belt work. It burns any fuel oil—kerosene, naphtha, benzine, motor spirits, enabling you to use the cheapest fuel you can buy.

Why not plan to sell some of your horses now and save the winter feeding? Mogul 8-16 will take their place and do your spring work in time. Write today for our 100-page book "Tractor Power vs. Horse Power," which we will send promptly if you'll only ask for it. Write us at the nearest branch house.

International Harvester Company of Canada, Ltd.
BRANCH HOUSES
At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton

H. ARKELL, W. J. ARKELL, F. S. ARKELL

Summer Hill Stock Farm

Largest and oldest importers and breeders of

OXFORDS

in Canada. Look up our show record, it will give you an idea of the kind of Oxfords we have for sale.

PETER ARKELL & SONS, Proprietors, Teeswater, Ont.
Customers, beware of imitations of this advertisement.

Oak-Park-Farm Shropshires and Yorkshires

We have over 100 Shropshire ewes, imported and out of imported stock, 40 ewe lambs, 25 ram lambs, a strictly high-class lot in type, covering breeding and condition, we will sell whatever you select. In Yorkshires we have both sexes from breeding age down, all of No. 1 quality. Write us your wants.

W. G. BAILEY, Oak-Park-Farm, Paris, Ont. R. R. No. 4.

Shropshires and Cotswolds For Sale—Yearling rams and yearling ewes, a few imported 3 shear ewes, an extra good lot of ram lambs from imported ewes. Prices very reasonable.

Claremont, C. P. R., 3 miles Pickering, G. T. R., 7 miles Greenburn, C. N. R., 4 miles

JOHN MILLER, Claremont, Ont.

Cloverdale Large English Berkshires!

Sows bred, others ready to breed; boars ready for service; younger stock, both sexes, pairs not akin imp. stock. Prices reasonable.

C. J. Lang, Burketon, Ont. R. R. 3.

Newcastle Tamworths and Shorthorns Boars ready for service. Sows due to farrow, others bred and ready to extra choice young bulls and heifer calves, recently dropped; grand milking strain, 2 bulls 5 and 8 months old. All at reasonable prices.

A. A. COLWILL, NEWCASTLE, ONTARIO
Long-Distance Telephone

ELMHURST LARGE ENGLISH BERKSHIRES

From our recent importation of sows, together with the stock boar, Suddon Torredor, we can supply select breeding stock, all ages. Satisfaction and safe delivery guaranteed.

H. M. VANDERLIP, Breeder and Importer, R. R. 1, Brantford, Ontario
Laneford Station on Brantford and Hamilton Road.

YORKSHIRES Our offering never better. Champion hog winner of 12 fairs, 5 championships, 2 years showing, still at the head. Boars and sows all ages, same breeding as WM. MANNING & SONS

WOODVILLE, ONT.

DUROC JERSEY SWINE, JERSEY CATTLE

In Duroc Jersey we have either sex of any desired age, bred from winners and champions for generations back. In Jerseys we have young cows in calf, and young bulls, high in quality and high in MAC CAMPBELL & SONS, Northwood Ont

OAK LODGE YORKSHIRES We are offering a choice lot of young sows in pig, also young sows and boars of various ages. Our Yorkshires are the quick maturing kind that show a profit to the feeder.

J. E. BRETHER & NEPHEWS, Burford, Ont.

Now



horse power
Hay and
use them for
ise enough to
of the market,
arket for horses
are easy to sell.
replacing some of

out all the work
it better and
it. It increases
acres for every
your belt work.
e, motor spirits,
y.
ow and save the
ce and do your
100-page book
send promptly
t branch house.

ada, Ltd.

ondon, Montreal,
nipeg, Yorkton



**F. S. ARKELL
Rock Farm
and breeders of
DS**

record, it will give
s we have for sale,
eswater, Ont.
isement.

Berkshires

ewe lambs, 25 ram lambs,
ell whatever you select. In
y. Write us your wants.
t. R. R. No. 4.
ns and yearling ewes, a few
an extra good lot of ram

R. Claremont, Ont.
urn, C. N. R., 4 miles

Berkshires!

both sexes, pairs not akin
Ont. R. R. 3.
y for service. Sows due
others bred and ready to
mpionship stock. Several
g strain, 2 bulls 5 and 8

ng-Distance Telephone

Berkshires

boar, Suddon Torredor,
ate delivery guaranteed.
ford, Ontario
Radial.

Champion hog winner of
2 years showing, still at
ll ages, same breeding as

WOODVILLE, ONT.

CATTLE

l champions for gener-
in quality and high in
ONS, Northwood Ont
ce lot of young sows in
d boars of various ages.
e quick maturing kind

HEWS, Burford, Ont.

Is This Your Kitchen ?



He was going to clean out the soot next week, but his wife had an extra big fire today. That is the story of fire after fire. Here is the result, ending in ruination, perhaps, in the home that is not insured.

The only safe way is to take out a policy in the

LONDON MUTUAL FIRE INSURANCE CO.

the widest and most liberal policy in force to-day for farmers.

Write us to-day for full particulars.

LONDON MUTUAL FIRE INSURANCE COMPANY
F. D. WILLIAMS, MANAGING DIRECTOR
HEAD OFFICE - 33 SCOTT ST. TORONTO.

GRAND TRUNK RAILWAY SYSTEM

Winter Resorts

SPECIAL ROUND TRIP FARES
Long Limit - Stopovers

Asheville and Hot Springs, N. C.; Charleston, S. C.; Nassau, N. P.; Hot Springs, Ark.; French Lick Springs, Ind.; Jacksonville and all Florida points; Havana, Cuba, and New Orleans, La., via New York and rail (or steamer, according to destination) or via Buffalo, Detroit or Chicago

Bermuda and West Indies

Other Health Resorts :

Mount Clemens, Mich.; Battle Creek, Mich.; St. Catharines, Welland County, Ont.; Preston Springs, Ont.

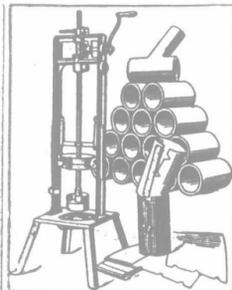
Further particulars on application to Grand Trunk agents



CANADIAN PACIFIC
Why Not Florida For Your Winter Tour?

The attractions are unsurpassed. Beautiful palm trees, warm sea bathing, orange and banana groves, golf, tarpon fishing, luxurious hotels for all pockets. Two nights only from Toronto. Winter tourist tickets now on sale. Be sure that your tickets read via Canadian Pacific Railway. Excellent service is offered via Detroit and Cincinnati.

Particulars from Canadian Pacific Ticket Agents, or write M. G. Murphy, District Passenger Agent, Toronto, Ont.



Make Your Own Tile

Cost \$4.00 to \$6.00 per 1,000

Hand or Power

Send for catalogue.

Farmers' Cement Tile Machine Co. Walkerville, Ont.

PATENTS TRADE MARKS and DESIGNS PROCURED IN ALL COUNTRIES

Ridout & Maybee

CROWN LIFE BUILDING, TORONTO, ONT.

NONE-SUCH SEED CORN Our Guarantee

If not satisfied in ten days, return corn at our expense and money will be refunded. Bags furnished. Don't delay. Write at once for our price list giving free delivery offer.

R.R. No. 1, Cottam, Ont. JACKSON BROS. The Roselands and Alfalfadale Farms

Turning Back The Clock

Pitiless Time. No matter how much we may wish to do so, we cannot turn back the hands of life's clock. With a heart of iron, Time watches while we pass through childhood, youth, manhood and old age to oblivion.

The Relentless Years. As the all-conquering years march forward they leave by the wayside large numbers of helpless children whose parents have been taken from them and helpless old people whose health and strength are spent. To both classes life insurance is a benediction.

Irresistible Old Age. Life insurance is steadily reducing the number of society's helpless and dependent children and old people. A small premium annually laid aside guarantees financial aid for the assured's dependents if he die, or comfort and independence for himself should he live to be old.

Write us for rates on an endowment policy payable to you on reaching age 60, 65 or 70.

The Mutual Life Assurance Company of Canada
Waterloo, Ontario

CANADIAN PACIFIC

The "Rideau" to Ottawa

Popular Afternoon Train via

LAKE ONTARIO SHORE

Leaves Toronto 1.45 p.m. for Whitby, Oshawa, Bowmanville, Port Hope, Cobourg, Trenton, Belleville, Kingston, arrives OTTAWA 10.00 p. m.

CENTRAL STATION

Sparks Street, at Chateau Laurier. THE "YORK" Leaves Ottawa 1.15 p.m. Arrives Toronto 9.30 p.m.

The "Transcanada"

From TORONTO Daily

6.40 p.m.

PORT ARTHUR FORT WILLIAM WINNIPEG VANCOUVER Through Equipment

Electric Lighted Compartment Observation Car, Standard and Tourist Sleepers, Dining Car, First-class Coaches.

"The Frequent C.P.R. Service passing through the Business Centre of each City is an asset to the Traveller."

ATTRACTIVE WINTER TOURS

To CALIFORNIA, FLORIDA, ETC.

Limited Trains connect at Detroit with through Sleepers to Florida; also connection via Buffalo, Washington and Cincinnati.

Improved service via C. P. R. and M. C. R. to Chicago connects with all through service Chicago to California.

Particulars from Canadian Pacific Ticket Agent, or write M. G. MURPHY, D.P.A., Toronto. 513

See this Bow Lever

THIS is a special feature of the Maxwell "Favorite" Churn. No other churn has it. You can adjust the handle to centre, right or left, whichever is easiest for driving.

Maxwell

"FAVORITE" CHURN (with Bow Lever)

—makes churning a pleasure. It's so simple to drive—requires so little effort to produce the butter. Agricultural Colleges and Government Inspectors recommend it. Used in Denmark, Australia, New Zealand, S. Africa, and all over Canada.

Call at your dealer's and let him show you the splendid unique features of the Maxwell "FAVORITE." Sold in eight sizes.

MAXWELLS LIMITED - St. MARY'S, ONTARIO 3

CLOVER SEEDS

Government Standard

We guarantee our seeds to suit you on arrival, or you ship them back to us at our expense. We can highly recommend the grades marked No. 2 as being exceptionally free of weeds and good for all ordinary sowing.

RED CLOVER	Bush.
No. 1 Splendid Sample.....	\$16.50
No. 2 Good for purity and color ..	15.00
ALSIKE	
No. 1 Extra No. 1 for purity	12.50
No. 2 Extra pure and nice color....	11.00
TIMOTHY	
No. 1 Purity, No. 2 appearance....	5.75
ALFALFA	
Haldimand grown—No. 2 purity..	17.00
Bags are 25c. each extra. Cash must accompany order. Ask for samples if necessary. We also have O. A. C. No. 72 Oats at 75c. in 10 bushel lots.	
The Caledonia Milling Co. Limited	
Haldimand Co. CALEDONIA, ONT.	

PLEASURE CRUISES BY

R.M.S.P. to WEST INDIES

FORTNIGHTLY SAILINGS
By Twin-Screw Mail Steamers.
SPECIAL FACILITIES FOR TOURISTS.
Next Sailing from HALIFAX: R.M.S.P. "Chaudiere," Jan. 26, 1916
APPLY TO
The Royal Mail Steam Packet Co., 57-59, Granville Street, HALIFAX (N.S.)
OR TO THE
Local TICKET AGENCIES.

RAW FURS

We are in the market to pay the very best prices. Honest assortments and prompt returns assured. Write for free price list NOW.
NORTHERN RAW FUR CO.
77 Front St. E., Toronto
We give free, one bottle of our Northern Brand Animal Attractor with every shipment of \$10.00 or over.

Certified Genuine Everlasting Grimm Alfalfa

Produces plants with large branching roots which resist winter conditions. Leafier and of better feeding value than other varieties. Booklet, "How I Discovered the Grimm Alfalfa," and sample free. Will also send testimonials from patrons in your locality.
A. B. LYMAN, Grimm Alfalfa Introducer, Alfalfadale Farm, Excelsior, Minn.

Rough on Rabbits

Will protect young fruit trees from rabbits when the snow is deep. Directions with each package. Put up in three sizes—small size 60c., for 25 to 35 trees; second size \$1.10, for 30 to 90 trees; largest size, 20 lbs., for 500 to 700 trees, price, \$5.00. All orders promptly attended to.
KING AGENCY King P.O., Ont.

HIGHEST PRICES PAID FOR
FURS - HIDES - WOOL
PRICE LIST, SPORTSMEN'S CATALOG AND TRAPPERS' GUIDE, FREE FOR THE ASKING
JOHN HALLAM, LIMITED
NO. 3 HALLAM BUILDING - TORONTO

Old Friends Are Best

The Farmer's Advocate has been the farmers' best friend for 50 years.

Tried for half a century and proven is a sufficient guarantee.

Other papers come and go, The Farmer's Advocate goes on forever.

It grows each year because it gives the best value at a reasonable charge.

It contains twice as much practical reading matter as any other Canadian farm publication.

Quality is our aim, and it is better to get good quality in a year's issues for \$1.50 than to buy poor quality at any price.

Our subscribers pay up promptly and keep abreast of the times.

They tell us we are leaders in agricultural ideas—we are.

They pay their money; brag about the value they get, and our advertisers also are pleased with results.

We have no fake circulation methods; our subscribers are the men who buy and pay promptly.

Our Annual Christmas Number goes free; it stands unequalled in size and quality, and is in a class by itself.

The Farmer's Advocate is a **practical** paper.

It is a farm paper, edited by farmers well grounded in practical knowledge, rounded out by theoretical training.

It is the only Canadian agricultural paper conducting a demonstration farm.

It takes you from the field and the stable to the laboratory and the stable. It is not about the farm, but with him.

It answers over 3,000 direct questions yearly for subscribers, and all farm problems are solved through its columns.

Special correspondents from coast to coast, the best farmers and the most noted experimentalists contribute each week.

No expense is spared, and the matter is printed on a high quality of paper, handsomely and profusely illustrated.

The Farmer's Advocate is a **national farm paper**.

The editorial staff is not muzzled by any party, clique or class. It speaks the truth fearlessly, as it has done for 50 years.

The Home Magazine Department alone contains more instructive and entertaining reading than can be got elsewhere for \$1.50.

No progressive farmer can afford to be without The Farmer's Advocate and Home Magazine.

Keep in touch with the agricultural world.

A new era dawns; new plans are laid; our aim is to keep ahead, and by pith, push and progress to give better quality and better value.

Join hands with us; all hands to the wheel; the advantage is mutual.

If you have not already done so, renew now for 1916. You may do it easily by sending us new subscribers. Let us tell you how. Write for sample copies.

"Persevere and Succeed"—Our Motto.

THE WELD CO., LIMITED, LONDON, CANADA