

JANUARY 29, 1920

PUBLISHED EVERY WEEK. \$1.50 PER YEAR.

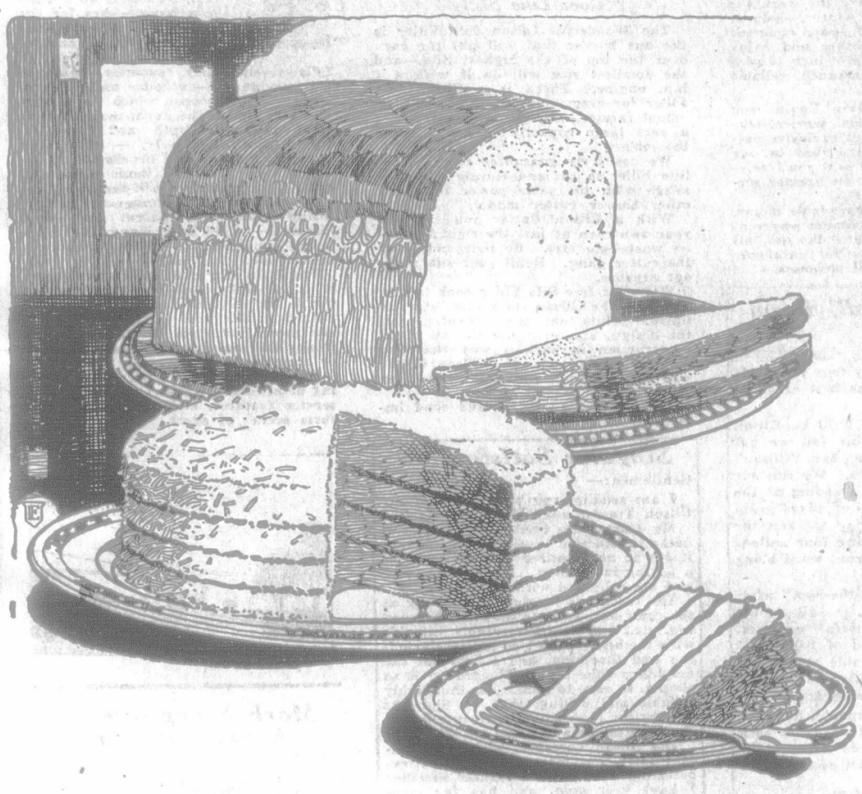
THE FARMER'S ADVOCATE

AND HOME MAGAZINE

PERSEVERE
SUCCEED
FOUNDED 1878

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

LV. LONDON, ONTARIO, FEBRUARY 5, 1920. No. 1428



Good Food
Healthy Food
Food that is
Delicious
is the

Bread and Pastry
Baked from

PURITY FLOUR

Western Canada Flour Mills Company, Limited
Toronto - Head Office
Branches at Winnipeg, Brandon, Calgary, Edmonton,
Montreal, Ottawa, St. John, Goderich.



PURITY FLOUR COOK BOOK COUPON

Please mail to.....
Your 180 page.....
Cook Book, postpaid.....
For which 20 cents is enclosed.....

ents
nted
y district
to handle
gest and
lling prop-
and give
the kind of
which this
y stands
or.

on Here.....
COUPON
anks-Morse Co., Limited
out obligation, the advan-
Fairbanks-Morse
Power and Light Plant.

GILSON PRODUCTS

"Goes Like Sixty"

100% Service

DON'T WASTE MONEY ON EXPERIMENTS!

For sixty years, we have steadily worked at raising the performance and efficiency of Gilson Products to their present standard recognized by men of discrimination, sound judgment and experience—successful men—as representing the highest standard of value to-day. Gilson Products are Dominant in Quality and Service.

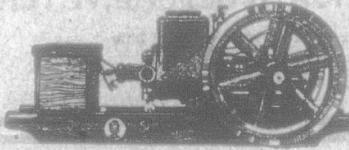
WE HAVE PAID FOR YOUR EXPERIENCE! When you purchase a Gilson outfit, you are assured of getting the maximum of SAFETY, SERVICE and SATISFACTION.

THE DIXIE "ACE" "The Ace Among Tractors"



The Gilson Dixie "Ace" will do your work. It is standardized throughout. It incorporates all the improvements of modern tractor engineering. The smooth running, powerful motor operates on either kerosene or gasoline, the transmission runs in oil and is absolutely dust-proof, the perfect radiator of large capacity, the simple clutch arrangements, ease of operation, the easy starting device—all are combined in one excellent machine. Sizes are 11-30 and 14-30 H.P. Write for free Tractor catalog and quotations.

THIS ENGINE WILL COST YOU NOTHING



"Goes Like Sixty"

You need an engine—get a Gilson on our easy payment plan—and it will pay for itself. You have the work for it to do this fall and winter,—help is scarce and high-priced,—save yourself a lot of worry and bother and enjoy that "feeling of security" which is such a definite part of the staunch, reliable Gilson Engine.

When you buy a Gilson Engine you buy reliable power plus service,—the utmost economy. You get exclusive patented features, fully described in our catalogue, which will be sent you free,—that will enable you to get greater service at less cost.

A smooth running, dependable motor, which will give you maximum power at minimum cost, day in and day out, all the year round. Write for catalogue No. 25. All sizes for all purposes.

"OVER THE TOP" OF THE HIGHEST SILO



"Goes Like Sixty"

The Wonderful Gilson Silo Filler is the one blower that will put the corn over the top of the highest silo,—and the smallest size will do it with a 4 h.p. engine. There is a Gilson Silo Filler for every purpose,—for the individual farmer,—for the syndicate,—and a very large capacity of machine for the jobber.

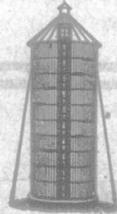
We positively guarantee every Gilson Silo Filler to cut and elevate more ensilage with the same power than any other blower cutter made.

With a Gilson Cutter you can cut your own corn at just the right time,—no waste—no loss. Be independent of the cutter gang. Refill your silo without expense.

Write for free Silo Filler book to-day. It tells the Gilson story from start to finish,—points out the advantages of the design, and describes the all metal construction in such a way that you will understand why the Gilson Cutter will do more work with less power than any other. Fill out coupon below and send immediately.

HYLO SILO

Sweet, Fresh Ensilage Down to the Last Forkful



The Hylo Silo sets new and higher standards in silo construction and silo service.

The Hylo Silo insures perfect ensilage down to the last forkful,—sweet, fresh and nutritious. The Hylo Silo is purchased by the modern farmer,—the man who buys on a business basis,—buys for the money it will make him. Some of the advantages of the Hylo Silo are as follows:—

—Infinite superior material and machinery,—exclusive and patented self-adjusting hoops, which automatically take up all the expansion and contraction,—single-length and two-piece staves used exclusively,—all staves tongued, grooved and bevelled with extraordinary accuracy, both sides and ends, making perfect self-draining, airtight joints,—interchangeable perfect fitting doors with patent lock,—steel ladder,—rigid interchangeable door-frame construction,—perfect anchoring system, etc.

The Hylo Silo will last indefinitely,—it is six-tight, leak-proof and storm-proof. It will pay for itself in profits earned in the first six months of use and thereafter it will continue to make money for you at no additional expense or attention.

Write for free silo book to-day showing detailed illustrations of special Hylo service features, and many letters and farm scenes of users.

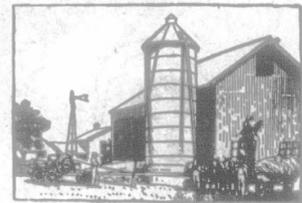
THE GILSON NISCO MANURE SPREADER



WIDE SPREAD
LOW DOWN
TROUBLE PROOF

No Clutches Easy to Adjust
No Gears Full Capacity
No Complicated Parts Perfect Work
No Expensive Repairs Light Draft

THE VERY BEST



A "Gilsonized" Farm

Gentlemen— We have been running our 8 h. p. Gilson Engine for nearly four years. It has always given us the best of satisfaction.

We use it to run our N-13 in. Gilson Ensilage Cutter, and this fall we put thirty feet of corn in our "Gilson" Hylo Silo in seven hours. We run our 10½ in. plate grinder, grinding at the rate of twenty-four bags of mixed grain per hour. The other day we ran the engine sawing wood, using four gallons of fuel in a ten-hours' run, wood being maple and beech.

Our little "Johnny-on-the-Spot" after all his years of service, is still on the job, as willing and useful as ever. Mother thinks the world of "Johnny," as he saves an inestimable amount of hard work, and we consider he has paid for himself over and over again.

I have operated and repaired different makes of engines, but I have not seen an engine yet that stands up with the Gilson for power and fuel economy per rated h.p.

Yours respectfully,
JOHN WILSON,
Nashville,

Singular Satisfaction

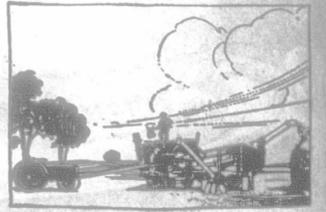
Gentlemen— I am sending you photograph of my Gilson Tractor and Gilson Thresher.

My tractor has been a source of singular satisfaction to me. When I bought it I was not positive that it would be a paying investment. I took the chance and am delighted with the results.

The tractor is invaluable for work at the draw-bar, such as plowing, harrowing, etc., and it is exceedingly valuable with the belt, where I do my own grinding and threshing, and I help out the neighbors quite a bit. The tractor is so simple, so easy to handle, so thoroughly reliable and willing, that we find lots of jobs for it and it does them all with the greatest economy and satisfaction.

The Gilson Thresher, which I purchased later, has more than met my expectations. It is the cleanest thresher I have ever seen, and has far more capacity than I expected or you represented. Yours truly,

D. McKENZIE, Glencairn.



Mark X opposite the books you wish.

Each of our products is described and illustrated in a plain way so that you may easily understand the mechanical features that make Gilson Products yield supreme service. Send in the coupon for one or for all of the booklets. Your enquiry will be welcome.

GILSON MFG. CO., LIMITED

949 York Street, Guelph, Ontario

<input type="checkbox"/> Thresher	<input type="checkbox"/> Tractor	<input type="checkbox"/> Wood Saw
<input type="checkbox"/> Engine	<input type="checkbox"/> Silo	<input type="checkbox"/> Silo Filler
NAME		
ADDRESS		



America's
Pioneer
Dog
Remedies

BOOK ON DOG DISEASES, And How to Feed

Mailed free to any
address by the
Author,

H. Clay Glover Co.
Inc.
118 West 31st Street,
New York, U.S.A.

NORTHERN ONTARIO

A vast new land of promise and freedom now open for settlement to returned soldiers and sailors FREE; to others, 18 years and over. 50 cents per acre. 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 full particulars as to terms, regulations, and settlers' rates, write

H. A. MACDONELL,
Director of Colonization,

PARLIAMENT BUILDINGS, TORONTO.

BENIAH BOWMAN,
Minister of Lands, Forests and Mines,

PATENTS Trade Marks and Designs
Procured in all Countries.
Special attention given to patent litigation.
Pamphlet sent free on application.
RIBDOUT & MAYBEE
156 Yonge St. Toronto, Ontario

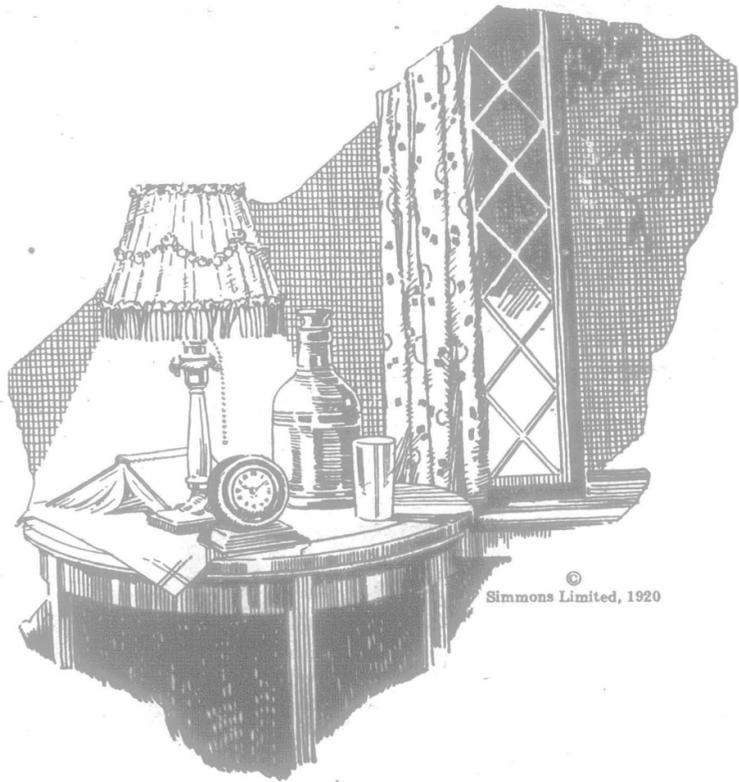
PATENT SOLICITORS Featherstonhaugh
& Co. The old-established firm. Patent
everywhere. Head Office: Royal Bank
Buildings, Toronto. Ottawa Office: 5
Elgin Street. Offices throughout Canada.
Booklet free.

RAW WRITE FOR PRICE LIST AND TAGS

E. T. CARTER
& Co.
77 Front St., E.,
Toronto, Can.

FURS

"Advocate" adyts. Pay.



© Simmons Limited, 1920

Why are some beds better than others

THE power of a principle is the most wonderful thing in the world. The manufacturer who starts with a principle can accomplish anything. He can even produce a bed that *invites sleep* instead of repelling it.

PERHAPS you have never slept in or seen a proper bed.

A great many people do not yet know what a bed should be—or *why*.

The old wooden bed persists—warped, unsanitary and creaking with age.

The average metal bed is hardly less noisy.

IT MAY be news to you that there is anything better to be had than the average bed of the average store.

This better bed is the Simmons Bed with the Waldorf Box Spring.

The Simmons Metal Bed starts with the principle that a bed is made to sleep in. It is noiseless.

Even a slight noise keeps the nerves on edge, though it may not wake the sleeper. The body cannot relax into sleep—sound sleep—unless the nerves are relaxed.

The Simmons Bed will not creak or rattle.

When you push or pull it by one post, the whole bed moves as a unit. You will not feel it shake in your hand—not a sign of unsteadiness.

It is strong—correctly made. It will not pull to pieces or wear loose.

And the Waldorf Box Spring invites *complete* relaxation. It supports the body *at ease* on fine resilient spring coils—each coil conforming freely to the contours, so that the spine is perfectly rested, whether one sleeps on the back or on the side.

FOR thirty years, the products of Simmons Limited have been a household word in the better homes of Canada.

Today Simmons Limited has five factories, producing Beds, Springs, Mattresses and Pillows, and numbers the users of its products in the hundreds of thousands.

It is the leader in *Twin Beds*—a separate bed for each sleeper, welcomed everywhere by nice people, and a great aid toward sound sleep and glowing health.

You will not pay any more for a Simmons Bed than for any bed of good average quality.

It costs no more to work to a principle than to go at the job blindfolded.

Simmons styles are better. There are more of them. A business that

covers the Nation cannot be local or provincial.

The soundest merchant in every section is sure to have Simmons Beds, Waldorf Box Springs, Mattresses and Pillows.

And when you are selecting your Simmons Beds with an eye to their appearance in the room, you will see that Simmons has for the first time established *beautiful and authoritative design* in Metal Beds.

FOR every Canadian, sleep is the most important personal issue of the time.

No one can remain healthy and efficient without enough sleep—sound sleep.

Five million Canadian men and women are working mightily with hand and brain.

Two million Canadian children are growing up.

They all need sleep—plenty of it—deep, sound, restful.

Where are they to get it—

In a creaky, rattling bed—on a spring that knocks, sags and humps?

Or on a noiseless Simmons Metal Bed and Waldorf Box Spring, and a Simmons Mattress and Pillow!

Sleep is a big subject! Write us for the brochure, "What Leading Medical Journals and Health Magazines Say about Separate Beds and Sound Sleep." Free of charge.

SIMMONS LIMITED

MONTREAL

TORONTO

WINNIPEG

CALGARY

VANCOUVER

TS

ce

TS!

efficiency of
tion, sound
rd of value

outfit, you
ON.

SILO

ensilage Down to
the Last Forkful

The Hyle Silo sets new
higher standards in
construction and silo
size.

The Hyle Silo insures
perfect ensilage down to
last forkful, — sweet,
and nutritious. The
Silo is purchased by
modern farmer,—the
who buys on a busi-
ness basis,—buys for the
day it will make him-
self of the advantages
the Hyle Silo are as
superior material
exclusive and patented
design, which automatic-
ally expansion and con-
traction and two-piece
construction,— all staves
and bevelled with ex-
actness, both sides and
self-draining, air-
interchangeable perfect
patent lock,—steel
interchangeable door-
n,—perfect anchoring

will last indefinitely,—
fire-proof and storm-
proof for itself in profits
for six months of use
will continue to make
no additional expense

write book to-day show-
ing illustrations of special Hyle
and many letters and
orders.



opposite the
you wish.

products is described and
plain way so that you
stand the mechanical
like Gilson Products
price. Send in the cou-
r all of the booklets.
be welcome.

Wood Saw
Silo Filler

WRITE FOR
PRICE LIST
AND TAGS

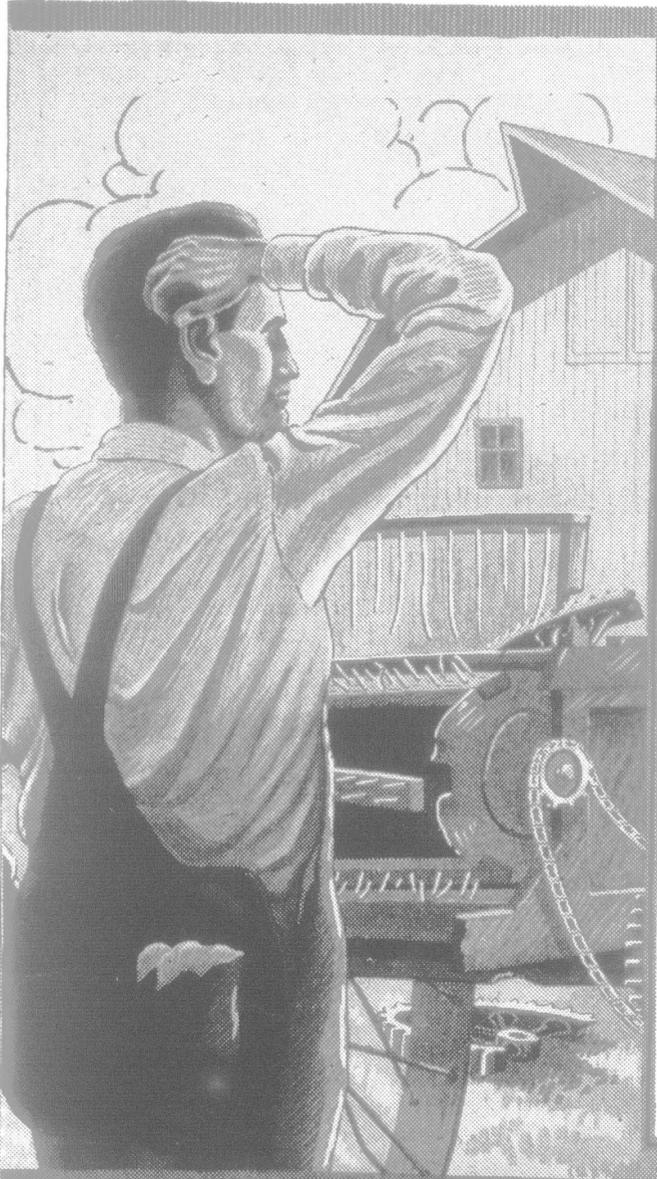
FURS

ate" advts. Pay.

A Worn-Out Spreader

If Not Replaced, Will Some Day Mean

A Worn-Out Farm!



NO other implement ever paid you such handsome returns as that old, worn-out spreader of yours. Yet to continue its makeshift use is mighty poor economy. If it is time-worn to the point where frequent repairs are needed, scrap it—and get in its place the famous, combination manure- and -straw, wide-spreading

NISCO

The Original Wide Spreading Spreader

(Known as the NEW IDEA in the East)

The Nisco perpetuates farm prosperity. It makes spreading of manure, lime or straw, easy, thorough and most highly profitable. It will earn far more than your old spreader—in bigger crops through better fertilizing. And it will pay its cost twice over by saving time, labor and repairs.

Many important, patented features of construction and operation make Nisco the known leader. It has no gears, no complicated parts to break or get out of order. Built low down; easy to load. And its light draft lets you heap it thirty inches high and still have an easy haul.

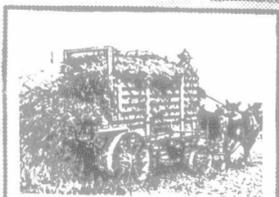
An endless chain brings every scrap of manure to the big revolving shredders and patented distributing paddles. These spread it in a fine, even blanket, well outside the wheel tracks. Control at seat lets you spread any quantity desired—3, 6, 9, 12 and 15 loads to the acre.

Dealers everywhere sell the Nisco Spreader. Farmers, County Agents, and highest agricultural authorities endorse it. Plan to see the Nisco dealer in your town without delay. And be sure to ask him for a free copy of our valuable booklet, "Feeding the Farm."

THE GILSON MFG. CO., LTD.

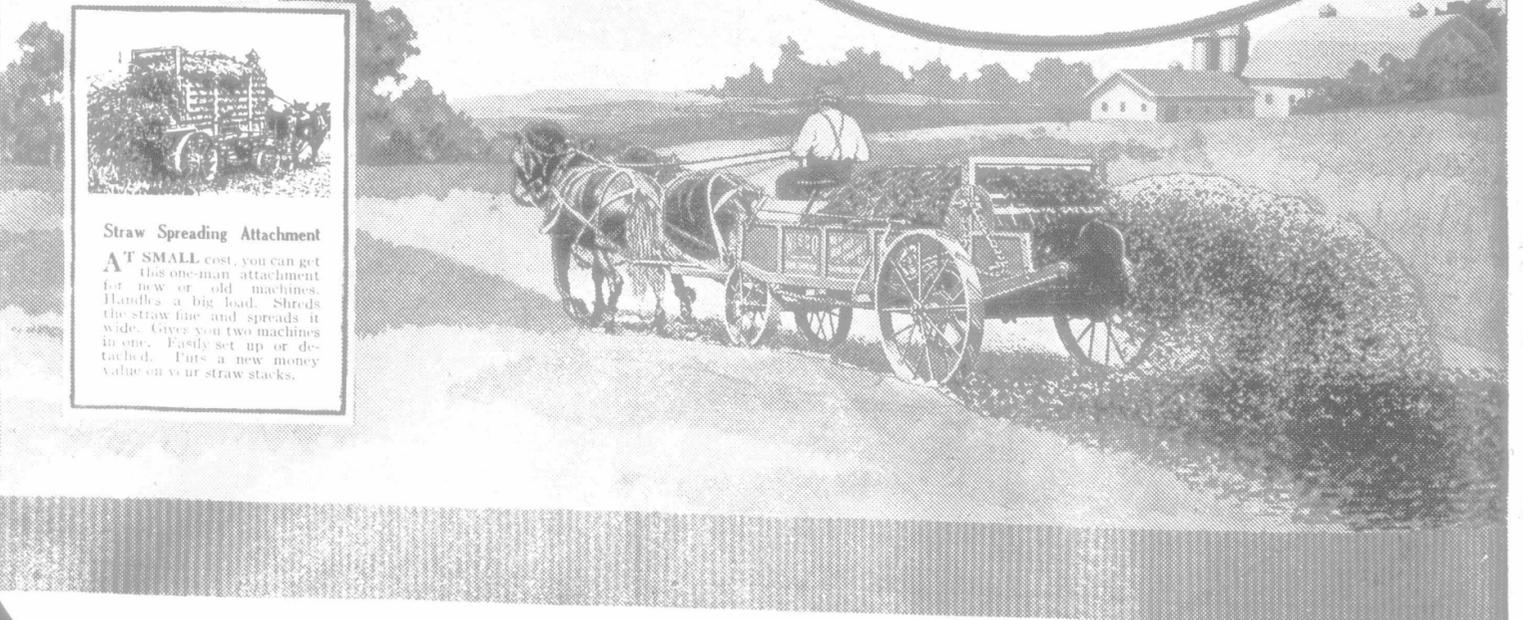
GUELPH, ONTARIO

Western Branch, 325 Elgin Ave., Winnipeg



Straw Spreading Attachment

AT SMALL cost, you can get this one-man attachment for new or old machines. Handles a big load. Shreds the straw fine and spreads it wide. Gives you two machines in one. Easily set up or detached. Puts a new money value on your straw stacks.



Make Money in Your Own Home

We Supply Yarn Free and Pay You for Your Work.

The whole world needs socks. In every country, in every city, in every town and in every village—in every corner of the world, in fact—there is an acute shortage of hosiery.

This great demand is your personal opportunity. It is your chance to add substantially to your income. It is the weapon with which you can meet the constantly increasing high cost of living. You can make money pleasantly and easily in the privacy, freedom and comfort of your own home. This is an unusual advertisement, due to an unusual world-condition. We are a firmly established Canadian business firm engaged in the manufacture of high-grade seamless socks. Our business connections are world-wide. We have been in business many years.

We have always preferred home manufacture to factory production. We believe in the independent employee. We know that the best work is that which is done by well-paid contented people in happy homes.

These socks can be made by men and women. Knitting experience is unnecessary. The Auto Knitter, a marvellous machine, does the work. Anyone can quickly learn to operate this machine.

Workers Wanted Everywhere

For the reasons above stated—the unprecedented world-demand for hosiery—we need more workers—thousands of them. We need you.

We need all the socks you and your family can make on the Auto Knitter. We need this labor badly. We will make a contract to pay you a Fixed Wage on a piece-work basis. In this contract you take no risk. You can work for us as much as you want or as little as you want—spare time or full time. And for every dozen pairs of socks you send us, we will pay you a liberal wage.

With every Auto Knitter we send a supply of wool yarn FREE. We also supply, FREE, the yarn needed to replace that which is used in making the socks you send us.

The yarn we supply is made especially for the Auto Knitter. It is the softest and warmest, and uniformity in quality, weight and shade is always obtainable.

You are, of course, at liberty to dispose of the output of the Auto Knitter as you see fit, or to buy your own yarn; you can also use the Auto Knitter to make at a remarkably low cost all the hosiery your family needs—wool and cotton.

But please remember this: There are absolutely no strings tied to our Wage Agreement; it is a straight, out-and-out Employment Offer of a Fixed Wage on a piece-work basis—a good pay for your services alone.

The Auto-Knitter is the most modern development of the hand knitting machine. It embodies many exclusive improvements, as worked out by us in our own factory. We are manufacturers of the Auto-Knitter, our machines are fully guaranteed. In doing business with us you are dealing with a responsible manufacturing firm, so we could not afford to make, and do not make, any claim for the Auto-Knitter that is not amply borne out by facts.

Positively Not "a Canvassing Scheme"

The Auto Knitter gives you the opportunity to make money during your spare time. It also gives you a chance to devote your entire time to the business, and this—to be independent of bosses, rules, time clocks, working hours, etc. Our Wage Contract is in no sense a disguised "canvassing scheme," "agency," or "open-a-store" proposition. Here is the proof—read the evidence from some of our workers.

I am sending by Express four dozen pairs of socks. Will you kindly make the replacement yarn up to twelve (12) lbs. and send the rest of wages due me in cash.
Montreal, Que.

Have sent you to-day by Express four dozen pair of socks. I thank you for your promptness in returning replacement yarn and wages, which always come by return mail.
Woodstock, Ont.

I am sending you 51 pairs of socks to-day by Express. Please send replacement yarn and money order for wages.
Brantford, Ont.

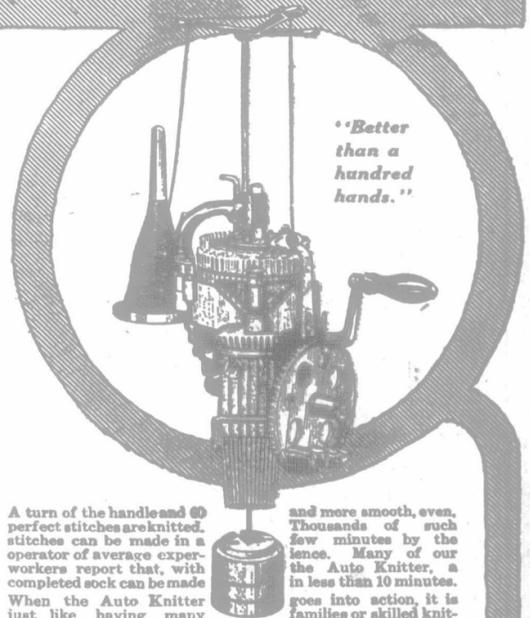
I am sending you 12 dozen pairs of socks this morning by Express. I enclose wage receipt for last shipment. Return replacement yarn as usual.
Waldemar, Ont.

I am shipping to you to-day 18 dozen (216 pairs) of socks. Express charges collect. Please send replacement yarn and also yarn for wages due me as usual.
Vancouver, B.C.

I received the Money Order and am to-day sending another shipment of 52 pairs of men's socks. Please return replacement yarn and send me yarn instead of cash for wages due me.
Windsor, Ont.

I am sending by Express 54 pairs of socks. Please send wages due in cash and return replacement yarn. I think the machine is wonderful and I also think the pay is very good.
Galt, Ont.

I am sending eighteen (18) dozen pairs of socks by Express, charges collect. I like the work, as it passes many a dull hour away, and I can knit two pairs of socks in an hour.
Fernie, B.C.



"Better than a hundred hands."

A turn of the handle and perfect stitches are knitted. Thousands of such stitches can be made in a few minutes by the operator of average experience. Many of our workers report that, with completed sock can be made in less than 10 minutes. When the Auto Knitter just like having many families or skilled knitters working for you; that is why our trade mark is "Better than a Hundred Hands." It makes the sock—top, b. dy, heel and toe without removal from the machine. It weighs about 20 pounds, can be clamped to any ordinary table or stand, and can be used anywhere. It is easily learned. Experience in knitting and familiarity with machines are totally unnecessary. Complete instructions about how to use the Auto Knitter are sent to every worker. The Auto Knitter is to hand knitting what the sewing machine is to hand sewing.

The Genuineness of These Testimonials Guaranteed Under a \$500 Forfeit

MAKES \$35.00 IN ONE WEEK
The Auto Knitter is one of the best investments anyone could make. I can make three pairs of socks in an hour. In one week I made \$35.00 from private trade alone. It is the finest and cleanest work I have ever done, and I would not be without it.
Wheatley, Ont.

OPERATED BY BLIND WOMEN
I have now been using three of your machines, and they give good results. With a little patience at the start, I have succeeded in doing good work, which has always been accepted by you. You may be surprised to know that some of my work has been done by blind women, and it is impossible to recognise their work from mine. I am pleased with the business dealings I have had with you and hope that future dealings will be just as cordial as they have been in the past.
Montreal, Que.

NOT A SINGLE PAIR REJECTED
It is not only profitable, but helps to pass many a dull hour away. I can knit two pairs of half-hose in an hour, which I think is good. The machine is what you claim it to be and does its work right, and being so small takes up but little room. Of the socks I have sent, I have not had a single pair rejected, which is clear evidence that the machine can turn out good work.
Fernie, British Columbia.

Write today for our Liberal Wage Offer

No matter where you live, we want you to know all about the Auto Knitter and the immensity of our world-wide institution. We want to tell you of the pleasant and profitable place ready for you in our organization and the future you can make for yourself with the Auto Knitter.

We want you to compare our work and the money that is in it with what people are paid for long, hard, grinding toil in office, store, mill or factory. We want you to know the substantial amounts that even a small part of your spare time will earn for you. Then we want you to read the glowing statements of our perfectly satisfied workers and learn how, if you desire, you can have your own home factory and sell your output, both wholesale and retail. Write to-day—send the coupon and three cents in postage to cover cost of mailing, etc.



The Auto Knitter Hosiery (Canada) Co., Limited, Department 302-K, 607 College Street, Toronto, Canada

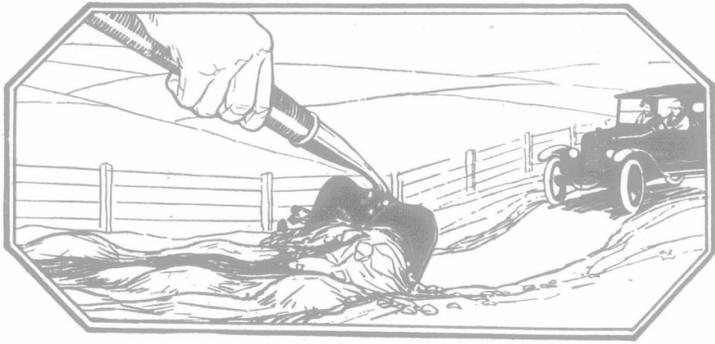
Name.....
Street.....
City..... Prov.....

The Auto Knitter Hosiery (Canada) Company, Limited

Dept. 302-K, 607 College Street, Toronto, Canada

Overland

TRADE MARK REG.



Like Riding On Roads With The Bumps Scraped Off

THERE is only one way to enjoy the greater comfort introduced by the new Overland 4—

And that is by riding in this car with its 130-inch *Springbase!*

Gone is the usual bouncing, swaying and jolting. Instead, due to the three-point suspension *Triples* Springs there is more of a *smooth gliding* sensation.

The passengers are not only free from ordinary road-blows, but the car itself is

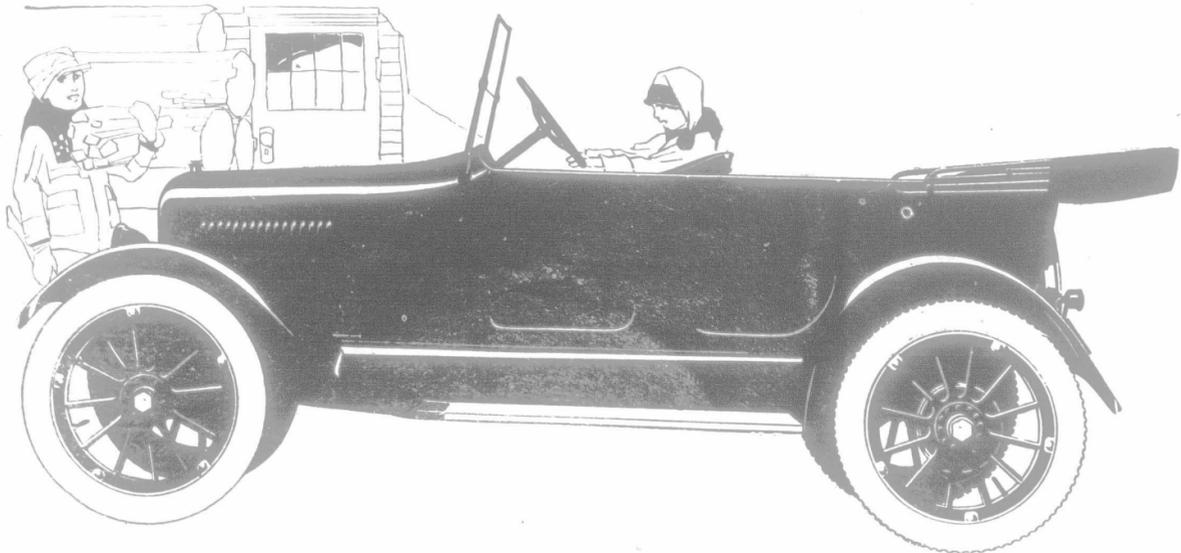
shielded, prolonging its life and reducing upkeep.

The light weight of this new Overland 4 means economy of fuel and tires.

And it is fine looking, and luxuriously cushioned; it is fully equipped from Electric Starting and Lighting to Electric Horn. Let the Overland dealer show you why the three-point suspension *Triples* Springs give heavy car comfort and road steadiness to a light car for the first time.

WILLYS-OVERLAND, LIMITED

Sedans, Coupes, Touring Cars and Roadsters
Head Office and Factories, Toronto, Canada



The Farmer's Advocate and Home Magazine

PERSEVERE
AND
SUCCEED

ESTABLISHED
1866

REGISTERED IN ACCORDANCE WITH THE COPYRIGHT ACT OF 1875

LV.

LONDON ONTARIO FEBRUARY 5, 1920.

1428

EDITORIAL.

We cannot produce first-class live stock by breeding only; feeding is very important.

This is breeders' week in Toronto, and in the next issue of "The Farmer's Advocate" will be found a comprehensive review of what transpired there.

Reconstruction is not something that can be brought about in a year or two. Reconstruction involves more than anyone dreamed of and may require a generation, at least, to effect.

If sugar remains as scarce and expensive as it is at present, the owners of maple groves might very profitably go into the sugar business this coming spring; there must be some money in the business somewhere.

Vast numbers of carcasses are condemned each year on account of bovine tuberculosis, and the Government might well spend a sum, equivalent to the annual loss, in controlling and eradicating this disease.

Last winter there was little ice to harvest, but this season it is so thick, in many cases, that it has frozen to the bottom of the creeks and ponds, making it difficult to obtain. Perhaps next winter will provide the happy medium.

There was a time when school children in the upper grades were expected to know the names of the various cabinet ministers at Ottawa, and the departments over which they presided, but it would be asking too much of them now.

People generally throughout the Province of Ontario would like to see the Drury Government have a fair trial. A contest on February 16 will certainly detract from the attention the Cabinet may be giving to their legislative program, and will not advance the interests of any political party.

Of the live stock slaughtered at one plant in Montreal during the last three years, 5.3 per cent. of the cattle, 12 per cent. of the hogs, and 8.66 per cent. of the calves have been wholly or partially condemned on account of tuberculosis. Is it not time we did something to prevent the ravages of this disease?

Manitoba has a rural credit scheme that might well be adapted to the Provinces of Eastern Canada. In the West the most prosperous communities have been the greatest beneficiaries of the loan system, and it is patent that even in the long-settled districts of the East good use could be made of credit such as the Manitoba scheme provides.

There is more truth than fiction about this talk of a "decadent agriculture." Frequently a platform expert will relieve himself of a great volume of statistics to prove that Canadian agriculture is progressing and expanding, but a little sojourn into the country will reveal the actual state of affairs. Middlesex, Ontario, is considered a good county, by those who live in it at any rate, yet in one district there are six empty farm homes to be encountered in a drive extending not over five miles; six empty dwellings where young Canadians should be growing up to till the parental acres and take part in community affairs. Farms are being combined in many parts of Ontario, and a great deal of land is going into grass. If we are not careful a different class of people will eventually settle in the abandoned homes and take up the untilled land, but their language may not be our language, or their ways our ways.

The Control of Bovine Tuberculosis.

It is time that the breeders of live stock in Canada and the Dominion Department of Agriculture got together and settled upon some policy that will, in a measure at least, control bovine tuberculosis, and perhaps do something toward its eradication. Our present policy and regulations are inadequate, ineffective and altogether unsuited for the existing conditions. Stockmen generally are not co-operating with the Health of Animals Branch in the detection and control of this great scourge, and it is plainly evident that the powers of the Branch are not sufficiently extensive or the equipment ample to deal with bovine tuberculosis in Canada as it should be dealt with. This, however, presents no insurmountable obstacle, but it does suggest consideration of this vital question and regulations of such a character as will inspire confidence and incite action.

This question of tuberculosis control must be viewed from three angles, and from each direction comes the demand that we take the matter seriously and endeavor to settle upon some policy that will not cripple the pure-bred live-stock business, but will at the same time prove effective in safeguarding the animal industry of this country against the encroachment of the plague and the machinations of unscrupulous dealers.

In the first place, it is quite generally believed that Canada is receiving too many tuberculous cattle from Great Britain. Our regulations are not so strict as are those of United States, and even after an animal passes the quarantine inspection of the United States Bureau of Animal Industry, it is up against the 60-day re-test imposed by a number of States of the Union and by a great many individual breeders. It is poor business importing tuberculous cattle to the neighboring Republic; but our breeders are apparently less concerned about the disease and therefore we are getting cattle, it is claimed, that have been rejected by United States importers. We get a lot of good cattle, of course, and the records of several Canadian importers are sufficiently clean to acquit them of any wrong-doing. Nevertheless, our regulations do not protect us sufficiently, and those accustomed to straight dealing would profit by any rules that prevented anything but clean cattle coming into Canada.

Several of the United States importers are purchasing farms in Scotland where cattle will be assembled, no doubt, and tested thoroughly before embarking for America. Cattle imported to Canada are subject to the tuberculin test. If they simply re-act they are branded on the ear with the letter "T," and they may be destroyed if they show clinical symptoms. The United States regulations do not permit re-actors to enter, and the Chief of the Bureau may order their destruction whether they exhibit clinical symptoms or not. The difference between the two regulations is that we brand tuberculous cattle from Britain but allow them to enter, while United States does not permit of entry. On the other hand, we will not allow tuberculous cattle to enter from the United States under any circumstance, and our policy indicates that tuberculosis originating in United States is more virulent, or more contagious, than that from across the seas.

Another angle from which this question must be studied is that of our trade with the United States. While the Federal Bureau of Animal Industry will accept the certificate of our Health of Animals Branch or one of their own officers, several of the States demand the 60-day re-test, and the extensive breeders and buyers are taking the same precaution. If we are to continue to do a good business across the line, we have got to supply clean cattle—that is certain. Breeders generally are not preparing to meet the requirements as rapidly as the demand is growing for tuberculous-free cattle.

In the third place, there is too much trafficking done in tuberculous cattle right here at home. Those who do any considerable amount of buying or dealing don't

take anyone's word for it; they apply the test and take the temperatures instead. The majority of dealers now go equipped with needle and tuberculin; they make their own tests and govern their purchases accordingly. If this is necessary, where does the occasional buyer of a herd header or a few females come in? Taking it by and large, the average breeder is very inadequately protected in the Eastern Provinces, but the West is buying subject to test, and the Province of British Columbia has even gone so far as to protect its live stock against the further incoming of disease. Eastern Canada must wake up!

A general perspective of the situation reveals several difficulties. In the first place the tuberculin test is not infallible, but more serious still is the fact that tuberculin is often abused, or put to a vicious use, which renders the test unreliable. In common parlance, an animal may be "plugged" and rendered immune to the test for a limited period, hence the 60-day re-test. We are confident that not until the distribution and sale of tuberculin are regulated or placed entirely under the control of the Health of Animals Branch will this means of detecting tuberculosis be of greatest use to stockmen. As it is now, tuberculin is a good agent often put to a bad use. We know that this suggestion which is right in principle has its defects, chief of which is that veterinarians at large have not kept abreast of the times in regard to testing and are not as competent to administer the tuberculin test as are a number of stockmen. One advantage, however, in having the sale and use of tuberculin controlled would be that the material would be standardized by the Branch and certain rules would be laid down covering size of doses and methods of administration. This much is badly needed, for there is a great difference in quality, and results at present depend almost as much on the quality of the tuberculin used, the size of dose, and the physical condition of the animal itself, as on the presence or absence of disease.

Any forward step in the control of this scourge should be guided by a well-thought-out and permanent plan for action. The accredited herd system is a step in the right direction, and ought to be supported. At present, those who are breeders only and do no buying, and those equipped with two sets of stables to make a local quarantine possible are in the best position to carry on an accredited herd. The system is right in principle, and will grow in popularity as we become awakened to the seriousness of the plague and the extent of the demand for tuberculous-free cattle. We must, however, get at the root of the trouble and build up a healthy live-stock industry on a healthy foundation. In other words, we should see that no diseased cattle are imported. To this end our Government should render every possible assistance to importers, and such aid might include the purchase of farms in England or Scotland, and rented to importers or groups of importers, where thorough tests might be conducted by officers in the employ of the Canadian Government. Then it would not be necessary to permit entry of tuberculous cattle at all.

The Health of Animals Branch at home might well deal more generously with those transacting inter-provincial business, with clubs, and with organizations of all kinds desirous of doing what is right. Some demonstration testing by officials of the Branch would furnish good object lessons and educate the public generally.

As it is at present, the 60-day re-test is the only reliable way of getting at the truth. Sixty-day re-test stations located in various districts under Provincial or Dominion control would facilitate business and protect both buyer and seller. If tuberculin continues to be sold and distributed indiscriminately such stations will become more and more a necessity, and the various provinces will be obliged to enforce the 60-day re-test for all cattle moving inter-provincially.

This whole question should be thoroughly discussed

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 cliques 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.—25 cents per line, agate, flat-live-stock advertising rates given on application.
4. THE FARMER'S ADVOCATE is sent to subscribers until an explicit order is received for its discontinuance. All payment of arrearages must be made as required by law.
5. THE LAW IS, that all subscribers to newspapers are held responsible until all arrearages 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 subscriptions are 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.

by breeders and importers in conference with the Health of Animals Branch and other Department officials, and the policy decided upon ought to have the hearty co-operation of everyone interested in the live-stock industry. We have been drifting long enough.

The Machinery Age.

BY SANDY FRASER.

It has been part o' my faith, all my lifetime, nearly to believe in the gospel o' hard work,—for the ither fellow, anyway. It keeps a man oot o' mischief to be havin' somethin' to do and it develops his muscle an' his brain as weel. And I've always thought that hard wark o' any kind was the best means o' manufacturing a guid respectable character.

Noo, I hae na lost my conceit o' this doctrine, by any means, but I've been daein' a wee bit o' thinkin' lately an' I hae come tae the conclusion that there is anither side to the question, perhaps, and that, through time, man may get to the point where he will not have to wark wi' his hands for the means o' existence, as he does the noo, but will hae this world an' the things in it under his control tae sic' an extent that all hard labor will be done by machinery, leavin' him time for the study an' mental progress that was the main object in view, I'm thinkin', when he was put on the earth, to mak' the best use o' his time an' become somethin' mair than just an animal wi' an animal's instincts.

Ye can sometimes judge o' the future by what has happened in the past, an', if we can in this case, mankind has something pretty guid ahead o' him, provided he doesna slacken up in his efforts to get tae the top o' the hill. Juist tak' a look, for a meenute, at the progress he has made in his way o' doing things in the course o' the few thousand years o' which we hae the records. (These records are no' all on paper, but that doesna matter sae lang as we have them.)

Man's progress seems to hae gone through three stages. First he picked up whatever he could find readymade and used it for his purpose. In the next stage he shaped and developed this instrument, whatever it was, to mak' it suit his purpose better. In the third stage he invented something new that was an improvement on anything he had yet had for daein' his wark. This is the stage that mankind seems to hae reached at the present time. We might juist tak' an instance or twa o' the way this has warked oot.

There was a time when the only thing man had in the way o' a house was a cave in the side o' a hill. Later on he made this bigger by diggin' it oot, and safer

by buildin' up the front o' it wi' stones. But since that he has invented brick an' ither buildin' material an' he noo has a hoose that ye might call a hoose. It's a combination o' inventions.

If a man wanted to mak' a trip to visit his mither-in-law, or look up a better location for hisel' an' family, the time was when he had to walk. One day he thought o' making some o' the ither animals carry him. The horse looked as though it might suit his purpose as weel as onything, so, for a lang time, that was the way he travelled. But he must hae gone on thinkin' for to-day we hae the railway, the automobile an' the aeroplane. Tak' yer choice.

The first boat oor ancestors used was a piece o' a broken tree on which he floated doon the stream. One day the notion took him to hollow out this log an' after that he used to sit inside it when he travelled by water. But we hae the steamship noo, which has got to be somethin' like a young city in itself. Made o' iron but floats like a cork.

The first farmer didna ken muckle aboot machinery. He scattered the seed on the loose ground an' let the wind dae the harrowing. Later on he saw the need o' plowing, so he used a crooked stick that he found in the bush. But ye ken what kind o' a plow he uses to-day, wi' neither oxen or horses to draw it, but anither invention o' his that drinks naething but gasoline or coal-oil.

Rubbing the heads o' the grain between his hands was the auld-fashioned way man had o' daein' his threshing. As his family increased he had to think oot somethin' quicker than that, so he tied a couple o' sticks together an' went poundin' the wheat wi' what he called a flail. But he has come on pretty fast since those days for he has a machine noo that tak's the grain in itsel', cuts the bands, blows away the straw an' the chaff, puts the wheat in bags an' keeps track o' the number o' bushels it has threshed.

When oor great-grand-fathers, a couple o' dozen times removed, wanted to get a dish o' cream for their porridge they had to keep the last o' the auld coo's milk separate, or put the whole thing in a pan an' wait all day for the part they wanted to come tae the top. There's nae waiting noo. There's a machine that will put the cream in one pail an' the skim-milk in anither as quick as they can get it frae the coos. The milkin' process has had its stages o' evolution too, as anyone can be thinkin' oot for themselves.

I hae na doot that man always wanted to ken when it was time to come tae dinner. But he saw the day when he had naething but the sun to tell him when it was twelve o'clock and mony's the scrape he got into by walkin' intae the kitchen when the auld wumman was juist peelin' the potatoes. Sae he made a sort o' a sun-dial by stickin' a post in the ground an' watched the shadow it threw. But this didna wark ower weel on days that the sun was behind the clouds, sae he up an' invented the clock an' the watch, an' noo he's independent o' the sun.

But it has been in the fightin' business that humanity has shown what they can dae in the way o' progress. Of coorse the first scrappin' was done wi' the fists an' the feet, but it's no' a very effective way o' puttin' yer enemy oot o' the ring for guid. He's liable to come back at ye the next day from behind a tree or somethin'. Tae avoid this danger, after givin' some thought tae the problem, man took tae using stones or, maybe, a sleigh-stake. This was mair effective but a lang way from perfection yet, for he had to come to unco' close quarters wi' the ither chap an' was apt to be gettin' hurt hisel'. Sae what has been the result? High explosives an' gas an' submarines an' mines an' air-bombs an' I canna mind o' what all lang-distance inventions we hae for settlin' the argument in oor favor, an' at the same time preventin' the over-population o' the earth.

To be tellin' the honest truth, this last instance is an unco' poor example o' human progress. But when a man's brain has been developed he is liable to invent what will dae harm as well as guid. His moral nature needs tae be kept growing as weel as this inventive genius.

But the point I want to be makin' is that, according tae the scheme o' things, it's possible for us to gradually develop clean oot o' this business o' working wi' the muscle, and to reach the place where oor mind, or intellect, will be the principal, or only, means o' existence. The lower doon in the scale the animal is the harder time it has to live. As it's mind develops it's surroundings change an' it's chances o' livin' improve. We hae tae think ourselves oot o' this animal existence and grow into the higher life where we will no' be all oor time taken up wi' providin' oor livin' by warkin' wi' oor muscle at the expense o' what brains we hae. It's an awful waste o' time, this makin' money for money's sake, gin we're fitted for somethin' better. Dollars an' cents hae their place, I ken that, but it's as a means towards gettin' up to a higher level where we will be able to get a better view o' the situation.

But we dinna want to get the impression that this age o' the "machine" has come juist to mak' life easy for us. In that case it might not be daein' us ony guid. It has come simply to gie man time for mair important business than he has been at. And some day, he it sooner or later, we're gaein' to get doon to this business and the world will be a better an' happier place to live in in consequence.

Gin we are to dae oor best, I'm thinkin' we've got to catch a glimpse every once in a while, o' the real purpose o' life, and the age o' machinery has come to help us get the time to do it.

Spring may be early or it may be late; begin now to prepare.

Nature's Diary.

BY A. BROOKER KLUGH, M.A.

The Origin of Cultivated Plants—2.

The Field Pea, *Pisum arvense*, is a native of Italy, and probably also of Southern Russia. Its culture does not seem to date back very far, though this point is hard to determine because Greek and Roman authors do not clearly discriminate between this species and the next.

The Garden Pea, *Pisum sativum*, no longer exists in the wild state, but was apparently a native of the region from the Southern Caucasus to Persia. It was cultivated in ancient times, as is shown by its discovery in the lake-dwellings of the bronze-age in Switzerland and Savoy.

The Common Pole Bean, *Phaseolus vulgaris*, and the Lima Bean, *P. lunatus*, are not known to exist in the wild condition anywhere. They were apparently Brazilian species, introduced into Europe by the Spaniards and soon becoming widely distributed as cultivated plants.

The Broad Bean, *Vicia faba*, was a native of the region South of the Caspian Sea, and has been cultivated since early times, as it was known to the Egyptians and the Greeks and a small form of this species has been found in the Swiss lake-dwellings of the bronze-age.

Maize or Indian Corn, *Zea mays*, was at the time of the discovery of America one of the staple crops of aborigines from La Plata to Canada. It was known to all the nations and tribes under different names, the Aztecs called it *cintli*, the Ojibwa *mandamin*, the Crees *mitaminuk* the Onondagas *unahagaada*, the Mohawks *onahagara*, and the Cayugas *onaha*. How long it had been in cultivation it is impossible to say, but certainly for some length of time as ears and kernels of corn occur in the tombs of the Incas, the catacombs of Peru, and in the earliest burial mounds in North America. This species is to-day unknown in the wild state, and it seems as if in this case the primitive agriculturists of America preserved in a cultivated form a species which was on the verge of extinction, and which has since become extinct as a wild plant. In the case of some cultivated plants there are certain wild species still existent from which they might have been derived, but this is not so in the case of corn. From archaeological evidence DeCandolle, to whose careful work we owe a great deal of our knowledge of the origin of cultivated plants, concludes that New Granada was the original home of *Zea mays*.

The common names applied to maize illustrate very well the erroneous and misleading names used for cultivated plants in different countries. In Canada and the United States it is most commonly termed corn, a name which has for centuries been used in Britain for wheat. In most parts of France it is *blé de Turquie*, or Turkish wheat, in the Vosges it is Roman corn, in Tuscany it is Sicilian corn, in Sicily it is Indian corn, in the Pyrenees it is Spanish corn, in Provence it is Guinea corn, in Turkey it is Egyptian corn, while in Egypt it is called Syrian dourra. Not a single name mentions the true country of its origin!

Rice, *Oryza sativa*, is a native of Eastern Asia. It has been in cultivation in China since every ancient times, since we have a record of it as a cultivated plant in 2,800 B. C. Its cultivation in India is more recent but dates back to about 1,000 B. C. It was first introduced into Greece in 400 B. C. and into the United States about the beginning of the eighteenth century.

Buckwheat, *Fagopyrum esculentum*, grows wild in Manchuria and Siberia. It has been cultivated in China since about 1000 A. D. In came into Europe by way of Tartary and Russia in the Middle Ages and was first cultivated in Germany in 1436. The name Buckwheat is derived from the German name *Buchweizen*, which was given to it because of the resemblance of the grain to a miniature beech-nut, and the Italian *faggina* and the scientific name *Fagopyrum* have a similar meaning, being derived from *Fagus* a Beech.

The Soy-bean, *Dolichos soja*, has been cultivated in China and Japan since very ancient times, and is one of the five species of plants referred to as cultivated in the reign of the emperor Chin-nong in 2700 B. C. The seed of this plant is very nourishing, and it is of very great importance in oriental culinary operations, preparations similar to butter, oil and cheese being extracted from it. The native home of this species is in Japan, Cochinchina and Java.

Cotton, *Gossypium herbaceum*, is a native of Southern India and Burmah, where it was cultivated at least as early as 400 B. C. It was grown on the shores of the Mediterranean by the Arabs in the early centuries of our era, and our common name is derived from the Arab name *kutn*. It was introduced into China about 900 A. D., and was one of the first plants to be extensively cultivated by the earlier colonists in the Southern States. There are several species of *Gossypium*, and at the time of the discovery of America the Spaniards found the cultivation and use of *G. barbadense* to be established from Mexico and the West Indies to Peru, though the original habitat of this New World species is unknown.

The Hop, *Humulus lupulus*, is wild over most of Europe and in Asia as far East as Eastern Siberia. Neither the Greeks nor the Romans made use of it in brewing, as beer was not one of their beverages. The custom of brewing with hops originated in the Middle Ages, the hop being so employed in Germany in 768 A. D. and in England in the reign of Henry the Eighth.

(To be continued.)

THE HORSE.

Diseases of the Respiratory Organs.—IV.

BRONCHITIS.

Bronchitis, inflammation of the bronchial tubes, may involve the lower portion of the trachea or windpipe and the large bronchial tubes, or may involve only the medium-sized tubes, while in other cases the smaller tubes are the seat of the disease.

Causes.—Bronchitis, wherever its seat, is generally due to exposure to cold. It may supervene on an attack of ordinary catarrh or common cold, particularly if the animal is neglected, exposed to wet and cold, or kept in ill-ventilated stable. It may also appear without any premonitory catarrhal symptoms in either horses or cattle during sea voyages, particularly if the weather is rough and stormy and the animals battened down.

It may be caused by the inhalation of irritant matter, as smoke, or the accidental entrance of foreign matters, (as feed or water too greedily swallowed, or medicines carelessly or ignorantly administered when the patient's head is elevated for the purpose, or even when carefully administered when from any reason the ability to swallow is interfered with) into the windpipe, through which it passes to the tubes and sets up an irritation. A case caused in this way is called "Mechanical Bronchitis." If a considerable quantity of fluid enters in this way the tubes become filled, and death from suffocation occurs in a few minutes. If a quantity not sufficient to cause suffocation enters the tubes, a serious case is the result. If only a very small quantity enters it causes coughing and more or less distress, but becomes absorbed without causing serious results. This teaches us the necessity of being very careful in administering medicines at all times, and the almost

water, indicating that there is an effusion into the tubes. In some cases an absence of sound will be detected in portions of the lungs, indicating that the tubes leading to these portions have become occluded.

Treatment.—Place in a comfortable, dry, well-ventilated box stall, excluded from drafts; clothe according to temperature. It is essential that the patient be kept in a clear atmosphere, even at the expense of heat. Clothing the body and bandaging the legs will supply heat, but there is no substance for pure, fresh air. If the irritability be great in the early stages, a dose of opium, as one to one-and-a-half ounces of laudanum in a little cold water as a drench gives good results, but the opium must not be repeated, as it tends to constipate. If a second dose be needed give the tincture of belladonna in the same doses, or about an ounce of chloral hydrate dissolved in warm water. The second dose should be given if the irritability has not become markedly lessened in 2 to 2½ hours after the first dose. Feed on soft, easily-digested feed, and allow all the cold water the patient will drink. Dissolve in the water about one-half ounce of nitrate of potassium three times daily, or place it well back on the tongue out of a spoon. Apply to the breast mustard mixed with equal parts oil of turpentine and warm water, cover this with paper and then with a blanket. Cause him to inhale medicated steam by holding his head over steaming water to which has been added a little carbolic acid or camphor. If constipation is present or threatened, give ½ to 1 pint of raw linseed oil, and rectal injections of warm, soapy water. If the appetite is poor give milk, with raw eggs beaten into it, to drink. If necessary to sustain strength, give ale or gruel as a drench. As soon as the fever has subsided, give tonics, as a tablespoonful 3 times daily of equal parts of powdered sulphate of iron, gentian ginger and nux vomica. Feed well and give gentle exercise, but do not allow exposure, nor attempt to work him for at least ten days after an apparent recovery has resulted. W. H. P.

would tend to interest boys and girls in live stock, and incidentally open up a larger market for well-bred animals in the years to come.

Profitable feeding of cattle depends to a great extent on making the ration largely of roughage. The high price of concentrates is teaching many feeders that heavy grain feeding is not a necessity in having steers make profitable gains.

The boys and girls who are directly responsible for the feeding and care of certain individuals in the herd or flock and have the returns from the same, will not consider doing chores a drudgery. Our attitude towards work depends a good deal on the interest we take in it.

Feeding is important. A plain animal may present a good appearance when in high flesh, and a well-bred animal may look very plain when in low condition. Keep the animals thrifty. It is a poor advertisement for any one to have their herd very thin and rough looking.

Judging by prices paid at auction sales for bred sows of different breeds in Canada and the United States, breeders have not lost faith in the hog. Undoubtedly the hog will again be a mortgage lifter, although the past few months it has not contributed its share to the farm profits.

Approximately 2,332,400 hogs were slaughtered at Inspected Establishments in Canada during 1919, compared with approximately 2,260,700 hogs during the previous year; an increase of about 72,000 head in 1919. Ontario and Quebec supplied the surplus, the Western Provinces running short of the 1918 total.—Live-Stock Commissioner.

This is the time of year when pigs cripple and stiffen. Prevent these ailments so far as possible by feeding mineral matter, and providing dry, well-ventilated quarters. Exercise is also essential. Many pigs are too closely confined for the best results. Give plenty of roots or some silage, and if there is any loose earth around let the pigs have it.

During the year ended December 31st, 1919, the cash sales of hogs marketed at six Canadian Stock Yards reached a total exceeding \$26,000,000. This amount of money does not include the value of hogs shipped direct to packing plants and passing through the yards. It is estimated that the cash value of the hogs sold off the farm during 1919 exceeded \$80,000,000.—Live Stock Commissioner.

Meet Competitors With Higher Quality Stock.

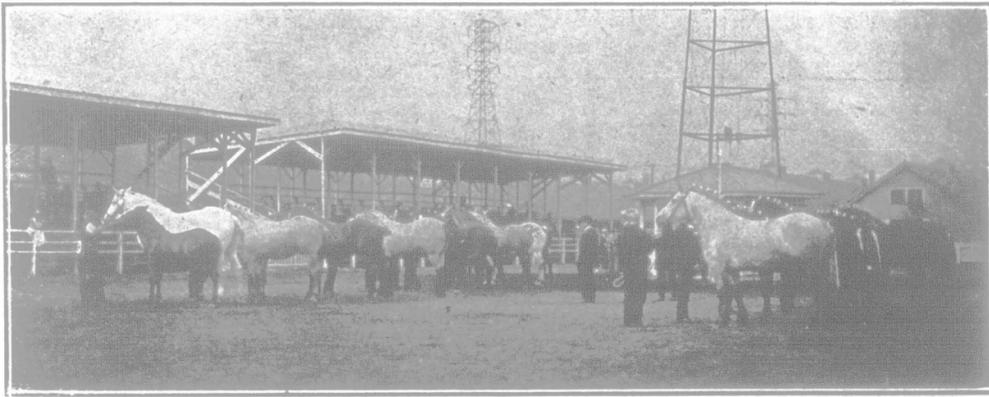
EDITOR "THE FARMER'S ADVOCATE":

Hon. Manning Doherty, Minister of Agriculture of this Province, said, at the recent Guelph Winter Fair, that Canada had a long way to travel to compete with Argentina and other countries in the production of live stock of good quality and weight. As Argentina is a strong competitor of Canada, it should be of interest to the Canadian farmer to know how it is that, this country in South America has developed so markedly this branch of the industry.

The present land-owners of that country are, for the most part, the descendants of the first settlers. Their forefathers obtained extensive areas of lands by grants from the original colonial Government. Consequently, the Argentine farmer, if you might call him so, is often a man of great wealth. For he operates a country estate containing many thousands of acres. This makes it possible for his agent in Britain, to bid highest for the good bull, without fear of endangering his patrons' resources.

Then again, the climate is less severe than that of Canada. It is not necessary for the South America farmer or rancher to keep their live stock confined at any season of the year. The quality of the grazing lands on which the growing steers are generally pastured is unusually fine. Many districts are in alfalfa, for this leguminous plant thrives well there for several years after it is sown.

From the foregoing it will be readily seen that in order that Canada may put up a better fight against her chief competitor in the production of live stock the Canadian farmers should impose the situation by co-operating so that they shall be able to raise the capital necessary to obtain the very best of bulls and so outbid their competitors. Since the Canadian climate makes it imperative that live stock be confined in the stable during the winter months, the care given the stock should be such that they shall be as healthy as is possible under these artificial conditions. The growth of leguminous crops should be encouraged. Alfalfa and red clover are rich in protein, and this element must be supplied in its best form to the young growing steer. It would be well then, that the breeder of live stock and the farmers generally in the Province of Ontario consider these points and in the coming campaign against the scrub bull these facts should not be overlooked. A. D. Oxford Co.



One of the Percheron Classes at the Canadian National Exhibition, 1919.

certain trouble that will follow an attempt to drench an animal whose throat is sore, or in whom there is a partial or complete inability to swallow, from any cause.

Symptoms.—Bronchitis consists of congestion of the bronchial tissues, at first associated with dryness, narrowing and rigidity, and subsequently moisture dilatation, and relaxation of the tubes. Owing to these changes the vibrating sounds caused by the passage of air through the inflamed tubes undergoes variations, which indicate pretty clearly the dry or moist condition of the parts. In order that the observer may be able to appreciate the variation of sounds caused by disease, it is necessary that he be familiar with the normal sound in the healthy animal. This can be learned by placing the ear to a horse's breast, just where the windpipe enters the thoracic cavity, where it divides into right and left bronchi or two large bronchial tubes which go to their respective lungs. The normal sound of the healthy lung can likewise be heard by placing the ear against the skin covering the ribs.

In even the early stages of bronchitis there is a cough, at first dry and hacking, but soon becoming moist, hoarse, ringing loud and in spasms. The respirations are short and frequent, but usually not painful. The alteration in the respirations is usually out of all proportion to the pulse, which, in the early stages, may not be seriously affected. For instance, the pulse may be 40 to 50 per minute and the respirations as numerous or even more so, while under normal conditions there are three or four of the former to one of the latter. The animal is dull, listless, hangs his head, and is usually thirsty; the temperature is increased, a rosy saliva fills the mouth, the visible mucous membranes are infected; the patient stands, or moves aimlessly about, and, as in most respiratory disorders, seldom lies down. If at liberty, say in a box stall with the top door open, he will stand with his head to the open air. The bowels are usually constive, and the urine usually scanty. In some cases, where thirst is excessive, and free access be given to water, the passage of light-colored urine becomes very abundant, the symptoms simulating those of polyuria. If the ear be placed to the breast or over the shoulder blade in the early stages, a somewhat rasping sound will be heard, indicating a dry and constricted condition of the tubes. In the second stage this sound becomes moist, simulating that of air passing through tubes containing

LIVE STOCK.

If you keep a small herd have it made up of quality individuals.

Do not keep the pregnant sow or ewe housed too closely. They need exercise.

Do every thing in your power to keep the herd and flock healthy. Regularity in feeding is important.

The average weight of the hogs marketed at the Union Stock Yards, Toronto, Ontario, during 1919 was 187 pounds.

Improvement in our herds will not progress as it should until type and character are given their due consideration along with the pedigree.

The pedigree without the animal is of little account, and the animal without the fashionable pedigree frequently sells away below its real value.

Over-fitting weakens the fecundity of herd and flock headers. Keep them in good thrifty condition with substantial feed, and see that they get plenty of exercise.

While de-horning detracts from the appearance of animals, it is better to remove the horns than run the risk of having a man gored or some of the herd badly torn by the boss of the lot.

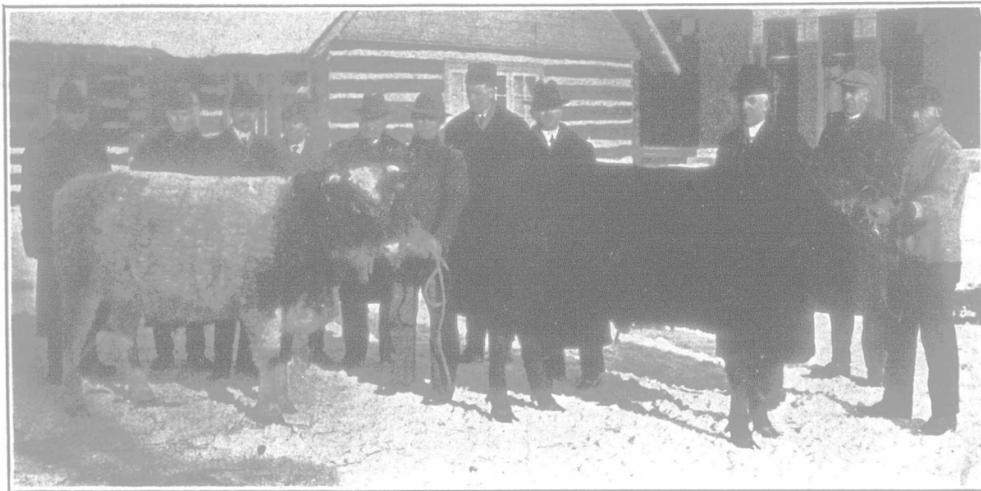
Monsel Bros.' Hereford sale in Nebraska made a new average. Seventy-three head made an average of \$4,020 with a top price of \$22,000 for the bull Superior Mischief. The ten highest bulls averaged \$8,870.

The frequent use of the curry comb and brush make a marked difference in the appearance of the herd. If you haven't been in the habit of using them, try it once. The effect is noticeable on grades as well as on pure-breds.

If breeders would encourage and assist in the organizing of pig and calf clubs throughout their district, it

Exhibiting Canadian Champion Steers in Europe.

The Federal Department of Agriculture contemplates exhibiting in Europe Roan Jasper, the champion steer at the Guelph Winter Fair, and Black Hector, the champion steer at the Toronto Fat Stock Show. These animals were purchased by H. P. Kennedy & Company, of Toronto, who are interested in export trade in Canadian cattle. They are co-operating with the Department in shipping these steers overseas. This is an innovation and should give Europeans some idea of the quality of cattle which can be finished in Canada. Roan Jasper is a pure-bred Shorthorn steer of high quality and is well finished. Black Hector is a grade Angus steer of good size and carrying a deep layer of flesh. He is twenty-two months old, and in December weighed 1,290 lbs. At fifteen months of age the former



Roan Jasper and Black Hector, Two Bullocks to be Exhibited in Europe.
Standing at the back are a number of Government officials and prominent live-stock men.

steer weighed 1,110 lbs. According to the Dominion Live-Stock Commissioner, these steers on arrival at Antwerp will be taken in charge by a representative of the Federal Department of Agriculture, acting under the general direction of the Honorable Rudolf Roy, Commissioner for Canada in France, who is in charge of arrangements for exhibiting them at some of the larger centres in France, Belgium and possibly Switzerland. The tour will continue for several weeks, and when it is completed the cattle will be sold and the proceeds donated to charitable purposes. This undertaking will, no doubt, give Canadian live stock a good deal of favorable advertising. There is no question but what Canadian stockmen are in a position to compete with stockmen from other parts of the world. The feed necessary for growing and finishing cattle can be produced in Canada, and we have the foundation stock for producing high-quality steers, provided the right kind of a sire is used. There was a time when Canada was shipping a large number of heavy, export steers to Great Britain; to-day we are finishing a lighter class of cattle, and whether or not these are acceptable on the British and European markets under the new conditions is yet to be seen. For the past few years the trade has been catering to the lighter, well-finished animals, but there is no reason why the demand for either light or heavy beef should not be met. The present appears to be the right time for our producers to become known and established firmly in the European markets.

The accompanying illustration shows the two steers above mentioned, and with them a number of officials of the Live-Stock Department and others interested in the live-stock trade.

Review of the Domestic Trade in Live Stock at Toronto and Montreal.

BY DOMINION LIVE-STOCK BRANCH.

The live-stock movement during 1919, as indicated by trading at the Union Stock Yards, Toronto, was in many respects outstanding in the history of the Province of Ontario. The volume of stock that passed over the scales greatly exceeded the offerings of any previous year, and while prices of all grades and classes of live stock did not reach the high spots attained during the previous year they were as a whole very satisfactory, the gross monetary returns for the year reaching an immense total.

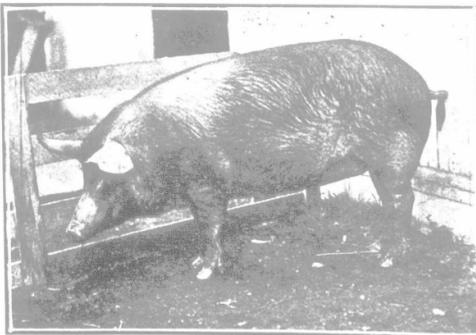
The cattle marketed, including through-billed and direct shipments, approximated 392,000 head, a number about 64,000 head in excess of the 1918 receipts. The offerings were fairly well distributed through the year, the average monthly receipts being around 25,000 head, except for October and November, when the offerings exceeded 50,000 head each month. The average quality of the stock on sale was slightly inferior to that of the offerings of the previous two years. During the first six months quite a fair proportion of good cattle were marketed, but during the balance of the year a big percentage of the stock was of poor fit and finish, and of very inferior breeding. The hot summer, followed by a

shortage of fall pasture, was partly responsible for the low quality, but inferior siring was the chief and outstanding contributor. It is worthy of mention that much of the good stock produced in Ontario was shipped direct to Buffalo and other American points, where a more favorable outlet was obtained for the good heavier grades of stock; this perhaps had the effect of making the proportion of inferior Ontario stock appear higher than it actually was.

The 1919 market opened with values at a high level, heavy steers of choice grading selling at \$15 per hundred. Trading steadily and pointedly accumulated strength until the high point of the year was reached in February when a price of \$17.50 per hundred was paid for heavy cattle. This was followed by a decline of \$1 per hundred during March, while during April and very early in May, values were almost stationary. As high as \$17 was exchanged for choice cattle in the fore-part of May, but

towards the end of the month the market showed visible weakness, owing to the uncertain outlet for beef products overseas, and the consequent demoralization at all American marketing centres; this weakness was followed by a rapid downward tendency and the low spot of the year was reached about the third week of June when heavy cattle moved at \$3 to \$4 per hundred below February prices. The market became firmer during July, and prices recovered fully \$1.00 per hundred-weight. For the balance of the year, values of good quality stock were fairly stationary, subject of course, to the usual temporary fluctuations as between supply and demand. With the market loaded with common and medium cattle during October and November, these classes reached their lowest point of the year and provided an opportunity for farmers to fill up their feeding pens at low initial cost and as well, provided a bargain counter for packing houses in search of cattle for canning and boning purposes. Christmas trade called for a high-class of stock and prices paid during the holiday season were fully equal to those paid during other years.

Packers absorbed a large proportion of the stock offered, handling 220,000 head of the total cattle on sale, while local butchers purchased 23,000 head. The



A Splendid Type of Tamworth Sow.

number of stockers shipped to Ontario farmers totalled only 30,500 head, a decrease of 4,500 head from the shipments of a year ago; this indicates a spring shortage of finished cattle. The majority of the stockers was bought during the autumn; the total purchases at that time, however, were away below those of the previous autumn. The season was not generally favorable as many farmers who purchase cattle at high figures in April and May had to unload later below original cost. Shipments to points in United States totalled 64,000 head, an excess of 50,000 head over 1918 shipments. Taking into consideration that approximately 120,000 head were shipped direct from points in Ontario to the Eastern States, the importance of the American outlet can hardly be overestimated.

Calf receipts totalled 58,000 head, a number slightly in excess of those of 1918. Prices were uniformly high,

and choice veal seldom sold below \$18 per hundred running from that to a top figure of \$23. The heaviest calf receipts were in the months of March and April and during this period, prices ranged from \$18 to \$19. Speculators catering to the American trade were operating on the market at all times, and Buffalo quotations actually charted the course of the local trade. Exports for the year totalled 13,500 head. It is worthy of note that choice veal calves selling at \$18 per hundred were realizing as much in dollars and cents as were yearlings of a similar breed that found an outlet in many cases at \$5 to \$6 per hundred, all of which goes to show that calves of a dairy type intended for meat purposes should not be carried past the veal calf stage.

The sheep receipts reached the record figure of 298,000 head, extraordinary increase of 128,000 head above the figure of 1918. The quality while uniformly good, was affected adversely by the high proportion of unstocked and uncastrated lambs offered for sale.

High price for the year was reached in May and June with yearlings at \$22 per hundred. During the Autumn months when the bulk of the seasons crop was being marketed, prices declined to the low points of \$13 and \$13.50 per hundred, but advanced on the closing markets of the year to \$18 and \$19 per hundred. The bulk of the lambs were handled locally, packers buying 206,000 head, local butchers purchasing 51,000 and only 6,430 head being shipped to the United States. An unfortunate feature of the marketing was the high proportion of useful breeding ewes that were offered for sale, farmers, in several cases disposing of their whole flocks. A total of 2,700 were re-shipped back to the country for breeding purposes.

Hog receipts totalled 460,000 head, as compared with 427,000 head in 1918, a higher proportion than usual being Ontario hogs, as Western Canada offerings were limited. A few thousand head of Prince Edward Island hogs passed through the yards to a local abattoir. The quality as a whole was good and while a few light hogs were offered, the weekly average weight ranged from 180 pounds to 195 pounds. There was a slightly higher proportion of sows on sale, as compared with 1918, but not in sufficient volume to indicate any serious liquidation of holdings.

The year's trading was featured by violent fluctuations in hog values, opening in January with selects at a top figure of \$19, prices dropped gradually to \$18.25 in February. But Canadian and American packers figuring on a large outlet in the European countries, for hog products, started clamoring for live hogs, and values made a rapid ascent, touching \$20 in March, \$22.75 in April, \$23.25 in May, \$23.50 in June, \$24.75 in July and in the early days of August a few hogs sold at \$25 per hundred. Prices during the latter three months were not warranted by condition of trade, although justified in the case of the producer on account of the high cost of production, and while a few producers were able to unload holdings at these high levels these prices were followed by a rapid descent, the principle result being the unsettling of the whole live hog industry. Producers in many cases became discouraged when hogs touched a low price of \$16.25 the last week in November, and have shown a tendency to dispose of the breeding stock. During the closing weeks of the year prices advanced slightly and again reached a value of \$18 per hundred.

Local abattoirs handled the bulk of the receipts, taking 395,000 head of the hogs on sale, while local butchers purchased 16,700 head. Total hog killings, which included direct shipments to all local packers show an excess over those of a year ago of approximately 140,000 hogs, and when the final figures are completed it is expected that 1,000,000 hogs will have been slaughtered during the past year by local butchers and packers.

The quality of the various classes of stock offered for sale during the past year has shown room for vast improvement. This is particularly true in the cattle, as much of the stock on sale was very mediocre, and apparently marketed without regard to finish while altogether too large a number of horned cattle were offered, and not only does this detract from the appearance, but much injury is caused by hooking while the cattle are in transit to market. Frequently stock are roughly handled while being loaded into cars, hogs showing the greatest ill-effects from this treatment. In many cases cars were over-loaded, and on not a few occasions hogs and sheep died while in transit from over-loading and poor handling methods. While frequently the shipper was at fault, transportation companies, however, really blameless, were open to criticism, cars being often held at local terminals for hours before being shunted into the yards for unloading, thereby causing considerable injury to the stock and much financial loss to the shippers.

MONTREAL.

The total receipts of live stock at Montreal during 1919 showed considerable increase when compared with the marketings during the previous year. The actual amount of the increase would be hard to determine for the reason that many Eastern Ontario points that heretofore shipped to Montreal sold their surplus holdings at Toronto and other places during 1919. In addition, many sheep and lambs from Quebec and the Maritime Provinces were shipped to Boston and other American markets. The increase in the numbers of sheep and lambs marketed was directly due to a much increased production. Whether the increase in sales of stock other than lambs was due directly to an extension of production, or whether farmers actually reduced their stocks below normal, is uncertain.

The total shipments to the two yards including direct shipments to packers, amounted to about one hundred and sixty-three thousand one hundred and eighty cattle, two hundred and eight thousand two

low \$18 per hundred of \$23. The heaviest of March and April ranged from \$18 to \$19. The trade were operated Buffalo quotations local trade. Exports It is worthy of note \$18 per hundred were as were yearlings outlet in many cases which goes to show that meat purposes should

the record figure of case of 128,000 head while uniformly the high proportion bms offered for sale. Reached in May and hundred. During the of the seasons dropped to the low points advanced on the and \$19 per hundred. dled locally, packers purchasing 51,000 to the United States, rketng was the high that were offered for posing of their whole shipped back to the

ad, as compared with roposition than usual Canada offerings were Prince Edward Island a local abattoir. The while a few light hogs weight ranged from was a slightly higher compared with 1918, indicate any serious

ed by violent fluctua- January with selects ed gradually to \$18.25 and American packers e European countries, ng for live hogs, and ching \$20 in March, 3.50 in June, \$24.75 in ugust a few hogs sold ring the latter three condition of trade, r producer on account while a few producers hese high levels these descent, the principle hole live hog industry, discouraged when hogs ast week in November, ispose of the breeding s of the year prices ed a value of \$18 per

bulk of the receipts, s on sale, while local Total hog killings, b all local packers show ago of approximately figures are completed will have been slaught- butchers and packers. lasses of stock offered shown room for vast

cattle, as very true in the cattle, s very mediocre, and ard to finish while aloted cattle were offered, m the appearance, but g while the cattle are ly stock are roughly o cars, hogs showing treatment. In many on not a few occasions nsit from over-loading While frequently the tion companies, how- pen criticism, cars inals for hours before unloading, thereby the stock and much

ck at Montreal during e when compared with ous year. The actual hard to determine for ntario points that here- their surplus holdings ng 1919. In addition, ebec and the Maritime n and other American numbers of sheep and e to a much increased ase in sales of stock tly to an extension of actually reduced their

two yards including ounted to about one and one hundred and eight thousand two

hundred and twenty sheep, two hundred and sixty-two thousand six hundred and ninety hogs and one hundred and seventy-four thousand, seven hundred and seventy calves. This amount of live stock was sold during the year for approximately \$22,000,000.00 cash. These figures, while remarkable, represent in only a very small way the value of an industry that is deserving of much more care and attention than it is at present receiving.

Among the conditions that are in need of immediate attention, are the manner of loading stock and the transportation of the same to market. At a conservative estimate there was a loss during the year of over \$38,000.00 in animals that died en route to the stock yards, exclusive of the value of the numbers of cripples that had to be dragged out of the cars and were ultimately of only small monetary value, many dying before they could be slaughtered; these losses were almost entirely due to improper and sometimes reprehensible methods in loading and to excessive time in transit. It is doubtful if live stock shipped to the Montreal Yards averaged more than six to eight miles per hour while en route. There are many cases where they did not average more than four miles per hour and during the past winter there was one case at least where stock perished in the car at the point of loading before even getting started.

There is usually a delay of from five hours to twenty hours between the time the stock arrives at the Montreal terminals and the time it is unloaded and yarded. Part of this time is taken up in sorting out and transferring the stock cars by the railroad companies, and part in unloading by the stock yards companies. Six cars per hour is a pretty fair average for unloading during the busy season under present conditions.

Under improper loading are included lack of bedding and overcrowding of cars. Late in the year, one car containing one hundred and twenty-five sheep and lambs had to be opened at Sherbrooke, while en route for the Montreal market, and fourteen dead animals taken out. Upon arrival at Montreal, there was another dead and several crippled. Besides the loss in dead the remainder of the load sold for less money than it would have brought had it been properly shipped. Other bad practices consist of failure to tie heavy bulls,

within the city limits. This tax is not imposed on dressed meat shipped into Montreal from Toronto and therefore acts as a direct check on the production of live stock, especially in Quebec and the Eastern Provinces. There is further more the expense of keeping up the two yards and two separate staffs, and a very serious lack of incentive the whole trade would derive from one big market in the place of the two medium markets now operating.

A very discouraging feature of the industry is the apparent lack of interest on the part of producers in the breeding of their herds. The thousands of scrubby nondescript undersized bulls marketed each fall denotes a condition in the country that can only be improved by strict and continuous attention to the selection of better sires. That this can be done has been proven in the case of lambs and hogs; many sections that formerly produced inferior lambs, and hogs received during the past season, top prices for both. There is every indication that this movement is only started.

In direct contrast to all the foregoing waste and lack of system are the methods employed by the packers. On account of the large percentage of poorly-bred and underfed animals that are marketed in Montreal, the packing house industry at Montreal is pretty much of a salvaging proposition. The better grades of cattle and young heifers and steers, are sold for butcher's meat while other kinds are boned, the flesh frozen, packed in boxes, and, for some time past, shipped overseas. The animals that are dead upon arrival are skinned and the carcasses are made into such by-products as soap grease and fertilizers. The live animals are killed under Government inspection, and any that are unfit for human consumption are disposed of in the same manner as the dead.

For a period of three years the percentage of animals wholly or partially condemned for tuberculosis at one of the plants in Montreal was; cattle, 5.3 per cent., hogs, 12 per cent., calves, 8.66 per cent.

Not a pound of the animal carcass and extremities is allowed to go to waste. Edible by-products such as tongue, hearts, tripe, livers, fats, brains, tails, cheeks are sold as various kinds of foods, while other by-products, not edible, such as hides, hair, switches, bones,



Winning Pen of Four Lambs at Ottawa Fair.

This quartette won in a class for best four lambs any breed, grade or cross. Shown by Hampton Bros., Fergus, Ont.

and neglect in making secure temporary decks and partitions. There is also the inhuman and insensible practice of clubbing stock, jamming them in car doors and gate ways and causing bad bruising. This bruising is a direct loss in parts of meat that have to be cut away besides reducing the value of the remainder of the carcass. An example, possibly extreme occurred on December 30, 1919, when out of seventy-six cattle slaughtered there were twelve hundred and forty pounds of bruised parts trimmed and on account of the mutilation, the balance of the carcasses were sold for \$2 per hundred less than they would have brought if in prime condition. A great deal of loss from bad handling has been caused by stock yard employees, but there has been of late an effort to correct this abuse at the yards.

One very serious handicap to the successful development of the live-stock industry in the districts supplying the Montreal markets is the lack of a union stock yard, situated so as to be as easy of access as possible to all railways, and so constructed that stock could be quickly unloaded upon arrival. During last fall, two of the railways considered the running of special live-stock trains to Montreal. One of the roads gave it up because the excessive time consumed in unloading full trains of stock at the Montreal Yards caused congestion in the railway yards. A. T. Weldon of the I. C. R. initiated special stock trains from Mont Joli, and intermediate points as a try out. While these trains cut from twelve hours to twenty-four hours from the running time the effect was largely destroyed by the long delay in and about the Montreal terminals and at the stock yards.

Under present conditions there is not sufficient space to accommodate the amount of stock offered during the busy season, and many of the pens are not suitable places to prepare and show stock for sale.

During the past year sellers of live stock on the two markets, paid fees amounting to about \$70,000.00 to the city of Montreal, for the privilege of doing business

tendons, neats-foot oil, hoofs, horns, blood, casings, bladders, soap-grease fats, and tankage are all utilized as manufactured products. Even the water that the carcasses and floors have been washed with is run through tanks and skimmed for soap-grease.

If after slaughter, animals were subject to the same wasteful methods as when handled on foot, it is quite certain that the whole packing industry would collapse within a short time.

If each animal marketed at Montreal during the past year had weighed an additional ten pounds and could have carried the extra weight, the total offering of live stock, irrespective of breeding, would have been worth an additional \$1,000,000.00 cash.

In conclusion, it should be stated that if we are to enlarge our present outlets and find other new and remunerative markets for further increase in animal production, we must supply the trade with a higher class of market animal.

The matter of having the embargo on Canadian store cattle removed by Britain has been under discussion for some years, and the Live Stock Commissioner, H. S. Arkell, is to be commended for the manner in which he presented the case to the Imperial authorities last summer. It is pretty well settled now, however, that the embargo will not be removed, so Canadians can forget about it, and proceed to build up an export trade in chilled and frozen meats that will prove far more profitable to this country than a live-cattle trade. We have an outlet to the South for vast numbers of cattle on the hoof, and Europe will absorb what dressed carcasses we have for export. Our efforts should be concentrated on the dressed meat trade; live cattle exports will largely look after themselves.

THE FARM.

Education and Leadership.

BY ALPHA.

The progress of any country is a record of its achievements under leadership. History reflects the men who make it. No matter in what direction, leaders and their accomplishment are inseparable. This is so self-evident as hardly to require specific proof. It, therefore, follows in this period of so-called reconstruction in Canada that any advances made and real betterment in the conditions of the people will be determined mainly by the qualifications and courage of leaders. When things go ill, politicians are prone to shift the blame on the people, but primarily leaders are responsible. They set the pace. In Great Britain, with old political organizations shattered, the masses are exercising their power to set up and put down from the "seats of the mighty" whom they will. If leadership there was essential in war time, it is no less demanded to-day to preserve well-ordered liberty. Without sane leadership the state is like a ship lacking captain or pilot. To come nearer home, the last provincial election in Ontario serves as an object lesson for all time of the necessity of preparedness for the emergencies of leadership. The call to the Premiership went by consensus of opinion to the one who by nature and education possessed the qualifications required for the task. What has occurred once is liable to transpire again in any other province or in the Federal arena. It is not inappropriate just here to observe that men of the farm and those trained in the Ontario college devoted specifically to the advancement of agriculture are being called as never before to contribute their quota of service in the conduct of public affairs. The possibility of a summons to similar responsibilities is open to any young farmer reading these pages. The preparatory experience, however, is acquired, as a rule, in neighborhood, township or county conditions.

The initial inspiration to service begins in the home and carries on through the school, church and other institutions. As a nursery of good citizens the school lays an educational foundation by imparting a knowledge of the three R's, which must yet be regarded as fundamentals not to be pushed into the background. They rank alongside the moral and physical nurture of the youth. Text books and academic instruction may have been overdone in the past, but there is probably more danger now in the craze for something new and entertaining. The chairman of a leading city board of education the other day urged for the betterment of public schools, the introduction of theatricals and other diversions. Real recreation and outdoor play have their place in a well-rounded plan of schooling. The benefit, as well as the dignity of manual labor, needs also to be inculcated. To write legibly and perform operations with numbers, with correctness and speed are conceded as essential. It is especially important to qualify scholars to read with understanding and to use good language in expressing themselves. The best way to acquire good language is by becoming familiar with good literature. Then gain facility by speaking and writing. The former can be well cultivated in societies and clubs or young farmers' meetings.

Mere knowledge is not qualification for leadership. It may only lead a man to indolence or make him a more clever rascal. Education must embrace an element that disciplines the real man in a three-fold way: First, to govern his conduct and his service to others, which is called Ethics; second, furnish an understanding of Economics, by which is meant the management of the person's own affairs in some gainful occupation, or of the country with reference to income, expenditures and the development of its resources; third, a comprehension of Politics (not partyism), which means the application of Ethics and Economics so that the people of a country can live together in harmony and helpfulness. To be educated is to have these three things in balance.

Setting up material gain as the ideal of education through the world to the ruin of four-years' war for which it will be paying penalties a century to come, and ought to know enough hereafter to avoid. To resort again to that type of education will only land the world in another catastrophe. An acquaintance with real history, showing the path of safety and progress for the people, is an essential in education for leadership. The biographies of men like Gladstone, Bright, Lincoln, Turgot of France, who discerns in the uplift of agriculture a means of national security, or of Cavour, the farmer and restorer of Italy, not to mention later names, will wonderfully help any student seeking light on the tasks of to-day. Indispensable also, if one would make progress in leadership, is a working knowledge of the history of our own country, and its institutions and an acquaintance with Parliamentary procedure and the management of public meetings. A fine introduction to an understanding of Canadian history is to study the lives and achievements of great Canadian leaders in different spheres of action. To conclude, a word may be said in commending the exercise of patience, because, as a rule, the public may be depended upon to recognize capability. A man may push himself into temporary prominence, but political quackery will not pan out well in the stress of larger affairs which demand integrity of character supported by a sound and liberal education, a deal of which will be acquired outside of schools.

Points in Favor of Flint Corn.

Growers of corn for silage purposes have always clung quite loyally to the dent varieties, believing that they produced the largest tonnage per acre. On the other hand it has been generally conceded that the flint varieties will mature earlier and give a better quality of silage. Some are beginning to doubt whether dents will really out-yield the flints sufficiently to overcome the difference in maturity and what few experiments have been tried do not clear the matter up. In many experiments flints have surpassed the dents in yield as well as in maturity, and about all that can be said at present is, that the problem has not been solved.

W. J. W. Lennox of the Dominion Seed Branch, discussed flint corn at the recent corn show at Chatham, and we are reproducing here the part of his address relative to the question. The following paragraphs express Mr. Lennox's opinion:

I am deeply interested in the flint varieties. The growers of this kind of corn have materially increased the value of the different varieties. At this exhibition I am satisfied that each champion exhibit of flint corn is equally as good in the flint class as is each champion exhibit of dent corn in the dent class. Look at the champion sample of Longfellow. It is a grand sample, and is a positive proof of the results accomplished by the flint corn growers. Examine the samples of Salzer's North Dakota and Gold Nugget and you will admire each. I have seen this variety of Longfellow and also the Salzer's North Dakota and Comptons Early grown in every corn growing district. I have seen them from the corn belt clear north as far as Gravenhurst and as far east as Quebec. Many of our silage growers in the more remote silage districts have had pleasing results with the flints, who could not secure as suitable silage from our dent varieties. Men in the real corn district speak of the various dates of maturity of the many varieties. To my mind there is a more apparent difference in maturity when the more northerly districts are visited. In many of these northerly districts it takes every available day for the silage crops to reach proper maturity and it is the growers in these districts who can most easily recognize the stage of maturity that the various varieties reach.

Silage growers in Canada, a few years ago, aimed to produce a large quantity of silage irrespective of quality as judged from a maturity standpoint. Growers are beginning to realize that a sweeter silage is produced when the kernels have hardened before the corn is cut for the silo. Rapid storage of high-quality nutrients takes place in the latter stages of the development of the corn plant and the varieties which will not mature sufficiently to make the best quality silage should not generally be used. This is where our flint varieties are superior to many of the dent varieties and when, in some district they have, as far as can be judged from appearance, outclassed all the dents. It is stated by men in authority that dent corns can be bred and selected that will be superior to any of our flint varieties. I am not prepared to dispute this fact but I am prepared to state that so far as the types exist at the present time, the flint corn varieties have produced in many of the districts outside the corn belt about equal, and frequently greater amounts of a more mature and more suitable silage than any of the dents. We might go further and state that many of the growers of silage who have been using some of the dents would be well advised to consider the flint varieties. This is true in my own home district. In the year 1915 I had shipped to the home farm equal quantities of six varieties of corn in total sufficient to plant five acres. The varieties were Longfellow, Golden Glow, Wisconsin No. 7, Bailey, W. C. Y. Dent and Leaming. In maturity the flint variety was much superior to the dents and had in this respect considerable advantage over its nearest rival, the Golden Glow. As near as could be determined by our crude methods of determining weights, there was very little difference in the total weight of the product. And as nearly as could be determined in that instance, we had a more valuable return in silage from the flint than from any of the dent varieties. The following year a further test was made when again the flint variety matured better than the dent varieties in general, but had its nearest rival in the Golden Glow. The past year the only dent variety used was the Golden Glow. It was planted along with Salzer's North Dakota, Longfellow and Gold Nugget. All the varieties matured fairly well and needless to say there was produced a very desirable quality of silage. On this farm where there is a considerable quantity of other coarse feed the mature silage is of far greater value than a much larger quantity of immature silage would be.

In the year 1916 I had the pleasure of inspecting a field test of Salzer's North Dakota, Longfellow, Bailey, W. C. Y. Dent and Wisconsin No. 7 at Keswick, Ont. In maturity they stood: 1, Longfellow; 2, "Salzer's" and Golden Glow about equal; 3, W. C. Y. Dent; 4, Bailey; 5, Wisconsin No. 7. From inspection of the various crude trials we conclude that the varieties differ in their power to reach maturity, that the earlier strains of the varieties are more suitable for the later districts, that when the varieties secured were tested together, there was an advantage in favor of the flints especially from the maturity standpoint; that the nearest rival to the flints in maturity was the Golden Glow; that if put to test the flint varieties as a class would give better results than the dent varieties as a class in late sections.

I am thankful to the Lecturer in Cereal Husbandry at Macdonald College for a few figures giving the results of testing six different varieties.

RESULTS WITH CORN VARIETIES. CEREAL DEPARTMENT—MACDONALD COLLEGE.

	Leafiness 3 yrs.	Height 4 yrs.	Maturity 3 yrs.	Yield	
				Ears 4 yrs.	Fodder 5 yrs.
Mastodon.....	63.5	9' 9"	59.2	3.44	17.85
Leaming.....	63.8	9' 1 1/2"	73	3.97	14.97
W. C. Y. Dent.....	59.3	8' 5 1/2"	78	3.30	13.32
North Dakota.....	76.1	7' 7 1/2"	80	3.33	14.35
Longfellow.....	75.4	7' 7 1/2"	80	3.11	14.52
King Philip.....	66.9	7' 8"	82	3.27	14.85

In conclusion let me state that for this meeting it has been difficult for me to secure reliable data with regard to the results obtained in various localities from the testing of flint varieties of corn compared with the dent varieties. The results mentioned are based mostly on field inspection. The choice of varieties to grow for the production of silage must be determined locally. It is sufficient to say that in existing circumstances many of the growers of silage corn and especially in the late districts, will get better results from the flint varieties; and that as a variety for late sections the Golden Glow is the nearest rival the flint corns have.

Muskoka District For Four-Foot Sleighs.

EDITOR "THE FARMER'S ADVOCATE":

I would like to ask a few questions and express my views with regard to the four-foot sleigh question, which I notice has not been kept to the front for some time past. I would certainly like to know why the question is not put into effect throughout the whole of Ontario at one time. It was rumored that the Act was passed in the Legislature; if so, at what date and what was the wording of a same? If not, is not the Province well enough versed in the great benefit we who travel the public highways would derive from the four-foot sleigh? Anyone who is acquainted with lumbering, or who has travelled or happened to use a lumbering road, knows the advantage of a road where a smart span of drivers can spread out and travel as fast as they wish without crowding. Some say the manufacturers objected to the Act being passed because they would be to such a loss with the timber they have on hand and have to cut to a loss. Is the factory so considerate when it states the price of sleighs to the farmer? I am afraid not. Some months ago one writer objected to the change being made because it would put the farmers to such a loss to make two new beams and a set of rollers for a pair of sleighs. To my mind, any man who attempts to handle a set of lines and two horses, and can't make a set of rollers and beams for sleighs should never try to drive again, for every farmer should be a Jack of all trades, and master of them all as well. The greater part of the sleighs in this district never saw a factory, for nearly every man can make the woodwork and either iron them off himself, or get a neighbor to do the job for him.

In conclusion, did any of the many thousands of readers of "The Farmer's Advocate" ever have a team in a snow drift—nearly out of sight in snow—and each crowding the other off the comb of a road? If the road had been four feet wide there would have been plenty of room for both to travel without tramping each other's feet to pieces. I sincerely hope to see this question brought to the attention of our Farmer Government, and see if something can be done in the matter before next winter's travel, as it is a point which needs the whole Province's attention for better roads. Some cry for better roads in the summer, when there is plenty of room for the horses to walk, and the auto tears the road to pieces and blinds the farmer with dust when going to market with his horse and buggy; but they don't bother about the roads after the snow and drifts block the public highway and the road is so narrow that two horses don't have room to walk without crowding each other off what road there is—if it is not too narrow to find.

Muskoka District, Ont. GEO. DAWSON.

Hotels For Rural Folk.

EDITOR "THE FARMER'S ADVOCATE":

Your editorial in the issue of December 4 is timely, especially as this Province has by popular vote put the veto of the people upon the liquor business, and, as the hotel business in this country had in the past been unfortunately associated with the liquor business in the same building, a reorganization of the hotel business has become a necessity, and does concern rural folk as well as urban people, if prohibition is to succeed. I cannot see this to be a matter for U. F. O. or for rural people alone; townspeople should co-operate with farmers in solving this community problem, in providing hotel accommodation for rural people and for commercial men as well. We cannot hope to succeed in this country without a happy co-operation between rural and urban dwellers. We have a common interest in many particulars, and at present there is grave danger of drawing a line of demarcation between us which would prove to be a worse cleavage than that of party—bad as that has been in the past. There is a dependence upon each other for marketing purposes which is mutual, and should always be friendly, as well as the unity of citizenship in this democratic country, which we never can afford to break in any foolish attempt at class exclusiveness for the sake of some seeming grievance, which only needs adjusting by means of a little common sense—a measure of give and take on behalf of each

Liquor selling in hotels, in the past, formed a habit of dependence on this side of the business both in the hotel owner and his patrons, which has spoiled both. Under new conditions a fair value should be placed on board, meals, and stable and shed accommodation. On the other hand, these hotels must be supported. Farmers should use them and pay the price needed to ensure their success. Too many take advantage of church sheds, posts, and other cheap methods of tying up, and thus make impossible the thing which they desire, and which the success of the prohibition law demands.

Let me tell you how the town of Brampton and the surrounding rural district solved this problem some years ago, after the town and surrounding township of Chinguacousy had both passed Local Option By-laws; and in doing so I shall give you the history of the "Victoria," one of the most comfortable town hotels in Western Ontario. Immediately the need was felt, some fifty leading temperance men in town and townships of Peel County bought and refitted the old "Revere House," making it a splendid, comfortable home-like place, to meet as well as to board, as it is always full of boarders. There is a large front room, heated, and also a nice rest room on the second floor for ladies. It is centrally located and farmers' and wives and families when tired from shopping, resort there to rest and wait, or meet their friends. The question is asked: "Where will we find each other again?" "Oh, the front room in the 'Victoria'." Yes, that's the place,—quiet, clean, warm, comfortable—a credit to those who have provided it and are interested in its service to the public. These stockholders originally invested their money for the purpose of furnishing the needed accommodation for farmers and commercial men in a town of this size, and to ensure as well the success of a prohibitory law. These two objects have been accomplished. In any live town, as well as city, hotel accommodation must be provided to meet the local demands. Brampton is a live town, and its best citizens saw the necessity of providing hotel accommodation consistent with its churches, schools, its up-to-date stores, etc. The farmers of the County saw it to be a good and wise policy to take commendable pride in their home town and to join with their fellow townsmen in this mutual enterprise. As a business proposition the hotel promises to become a paying investment, though at first it met with some uphill effort, both from without and within, but under the present efficient management it is pushing its way to success. The stables and sheds in connection are rented to a private individual, who, in turn, charges a small fee of ten cents for the use of shed or stable and furnishes feed, if desired, at a reasonable price. This end of the business is also a success. Much credit is due to Judge Justin, who projected the scheme and interested farmers and others in the matter, in the interest of temperance and of the town. Alex. Noble, of Norval, is President of the company, and under his management the "Victoria" gives promise of future success and is a practical solution of the problem of hotels for rural folk. Brampton thus furnishes one of the examples of how the temperance people in any community may solve this problem, and along with Newmarket, Grand Valley, Ripley, Bowmanville, etc., have demonstrated to all that if prohibition is to succeed in Ontario, proper hotel accommodation must be provided for the travelling public.

Peel Co., Ontario. ROBT. McCULLOCH.

The Farmer's Income Tax.

BY NELSON McDOWELL.

The Canadian income tax is the farmer's friend and not his enemy. New taxes will have to be raised in some way, and this appears to be much the fairest way to get it. Taxes are unjust when they are levied on people who have little or no incomes. For example, when a man buys a three-cent postage stamp or a box of matches he is paying a tax, regardless of whether he can afford to or not. Under the present income tax law the majority of farmers will find that they will not be taxed. The only inconvenience it will cause them will be the keeping of accounts and studying the income tax law sufficiently to make correct returns.

All incomes above five thousand dollars per annum are subject to a special tax, called a surtax as well as the ordinary tax, called the normal tax. We will assume that the farmer's income is not over five thousand per annum. In this case he will only have the normal tax to pay, if he has to pay any. The amount of the tax is found by taking four per cent. of the income after deducting the part that is exempted.

The following exemptions are allowed:

1. A single person with no dependents, or a widow or widower with no dependents. (Exemption \$1,000).
2. A single person having to support a dependent parent or grand-parents, or a married person with no dependent children. (Exemption \$2,000).
3. A married person with one dependent child under eighteen years of age, or a widow or widower with one dependent child under eighteen years of age, or a

Yrs.	Yield	Fodder 5 yrs.
44	17.85	
97	14.97	
30	13.32	
33	14.35	
11	14.52	
27	14.85	

single person having to support one dependent brother or sister under eighteen years of age. (Exemption \$2,200).

4. A married person with two dependent children under eighteen years of age, or a widow or widower with two dependent children under eighteen years of age, or a single person having to support two dependent brothers or sisters under eighteen years of age. (Exemption \$2,400).

For each additional child under eighteen years of age who is dependent on the taxpayer for support, \$200 exemption is allowed, where a wife has a private income not derived from her husband she must report her income just as he reports his—except that both cannot receive the \$200 extra exemption per child. One of them must take that exemption and the other must report as having no children.

Every person liable to taxation shall make a return to the Commissioner of Taxation on or before April 30th, 1920 for income received during 1919. A penalty of ten dollars a day is provided for delinquents, but so far, the fines have not exceeded \$600. An Ottawa correspondent stated recently that a big drive would be made against the farmers next as the returns from them have been conspicuous by their absence.

In calculating a person's income it is often difficult to know what to count and what to leave out. Bank interest is taxable, but there is no tax on the principal. All pensions are taxable except pensions granted to soldiers or sailors in the Great War. Income from the interest on mortgages—but not any payment on principal, is taxable. The principal amount of legacies or gifts is not income.

Dominion of Canada Victory Bonds issued in 1917 and 1918 as well as the former War Loans are free from taxes. The interest on all other bonds is taxable. The dividends of Canadian companies having an annual net profit in excess of \$2,000 is not taxable. In case of partnerships, the partners pay taxes as individuals. For example, if three unmarried persons are working a farm and their total income for a year amounts to \$3,000, they will have no tax to pay, providing the money is divided equally among the three. Each person would receive \$1,000 income and this amount is exempted from taxation. It will be to the advantage of farmers to keep books so that they can make correct returns.

The majority of Canadians are not getting really big incomes. According to the returns of 1917 there were 185 citizens with an income between \$50,000 and \$100,000; 37 with an income over \$100,000 and less than \$300,000; two over \$300,000 and less than \$500,000; and two over \$500,000. Of the above all have paid up. There was no one in Canada with an income of \$1,000,000 in 1917.

The income tax law of Canada is such an improvement on all previous forms of taxation that it would probably meet with but little opposition if people were accustomed to it. The Government appears to fear unpopularity in case they enforced the new law rigorously. There has been much criticism, both in Parliament and elsewhere, of laxness on the part of the Government in collecting the income tax. Surely the time has come when Canada should raise enough revenue each year to pay all expenses; and the enforcement of the present income tax law would be an excellent way to do this.

CANADA'S YOUNG FARMERS AND FUTURE LEADERS.

Pig Club Work.

EDITOR "THE FARMER'S ADVOCATE":

There are a great many different kinds of clubs, all of which are a good thing for the place where they are carried on because they bring in more pure-bred stock and they induce stock-raising.

The club I am going to tell something about is a Duroc-Jersey Pig Club, organized by the Imperial Bank, Essex Branch, and J. W. Noble, Agricultural Representative in Essex County. The way I heard of the Club was that the farmers' club were having a social evening, at which Mr. Noble was present. He told about the pig club he was organizing. I wrote him for rules and application forms, which I received in a few days, and I gave him my application. The most important rules were: 1, Any boy or girl between the ages of ten and eighteen years, who would agree to the conditions of the Club, could become a member; 2, Each member will receive two pigs about two-months old, one a registered Duroc-Jersey gilt and the other a grade. The pure-bred must be bred to a pure-bred boar in the fall, and the grade pig sold to pay the loan on December 1; 3, Each member must sign a note, endorsed to the manager of the bank, for \$28, payable on December 1, at seven per cent. interest. The pure-bred cost \$20 and the grade \$8, both being sold to members at cost; 4, The child's parent must furnish a suitable pen and yard, a suitable quantity of feed, and one-quarter of an acre for pasture; 5, Each member must care for pigs in person; 6, The pigs will be distributed from Essex on June 7, and each member and parent must be present to sign their note. The pigs will be numbered and the numbers drawn from a hat and each member must take the pigs drawn.

We went to Essex on June 7, where we signed the note and drew the number, but as all the pigs were not there I received mine in two weeks. The pure-bred weighed 27 lbs. and the grade 13 lbs. on June 21. The registered name of the pure-bred is Pioneer Protection Lass. She was born on April 30, 1919.

On December 1 the pure-bred weighed 287 lbs., and the grade 143 lbs., which gives 390 lbs. of gain. The pigs were fed twice per day and all feeds were soaked, except the corn on the cob. The cost of feed was:

1,252 lbs. skim-milk at 1/2c. lb.....	\$ 6.26
368 lbs. shorts at \$46 a ton.....	8.46
364 lbs. oats and barley at 3c. lb.....	10.92
463 lbs. corn on cob at 2c. lb.....	9.26
Total cost of feed.....	\$34.90

The value of the grade pig on December 1 was 143 lbs. at \$15.50 per cwt., which amounts to \$22.16. The value of the pure-bred was market price, plus \$12, which amounts to \$56.48. This gives the value of both pigs at \$78.64. The net profit is the value of both pigs, minus feed and cost, which equals \$14.79.

I will tell about the prizes I received. At Essex Fair there was a class for the pigs in the Pig Club only. In this I got sixth prize, which was \$4.50, and in the class "Sow, under 6 months" I got second prize, being \$2. In the class for feeding and care I got eighth prize, which was \$1.10. This gives me a total of \$7.60 in prizes, but the entry fee at Essex Fair was \$1.00, so that leaves \$6.60.

My pigs were housed in a pen about eight feet square, which they were in in the daytime and on a lot of one-quarter acre pasture at night. They slept on the cement floor, on a good amount of straw, in half the pen. The pen was cleaned about once a week.

This is only one of the Clubs that are carried on over the Province. I hope that clubs will prosper.
Essex Co., Ontario. HAROLD PETERSON.

Does Not Favor Night Schools.

EDITOR "THE FARMER'S ADVOCATE":

In looking over the December 25 issue of "The Farmer's Advocate" I noticed an article entitled "Night Schools for Rural Districts," written by N. L. M., Norfolk County. In his article he states that rural children should not be made to attend school when



A Good Photograph of a Poorly-kept Wood-lot.

Live stock should be fenced out of the wood-lot and under-growth encouraged.

they are young, because when they are older they could learn in much less time.

I believe that in most cases children learn better when they are young than when they are older, because if a child's brain is left to be developed until he is about ten years old it has a tendency to become rather dull, and is not developed so easily. He says night schools should be established in every rural community so that the rural child would receive a higher education than public school can give. I do not believe that night schools would be a success in the country, because when a boy intended to be a farmer he would not think it worth while to spend his evenings in a school-room after working hard all day on the farm. In the cities the pupils who attend night schools usually intend to go to college, and therefore it is a great advantage for them to spend their evenings studying.

I agree with N. L. M. when he says that the country youth should have a higher education than he usually gets. I believe continuation classes should be established in all the public schools, and the same lessons be taught that are taken up in the first two years of High School. The average age of pupils graduating from public schools is about thirteen, and if they went two years to continuation classes they would only be fifteen years old, which is plenty early enough for them to begin work on the farm.

Parents who desire to give their children a good education send them to High School in the city, and in many cases the children decide to remain there because they see how much more money can be made in the city than in the country.

Wentworth Co., Ont.

R. L. M.

Pleasure From a Camera.

EDITOR "THE FARMER'S ADVOCATE":

In looking over the topics for discussion I noticed one on which little has been said, that is, the necessity of a camera on the farm.

Eight years ago I had my garden entered in the Garden Competition conducted by "The Farmer's Advocate." In the fall we were to send in photos and to write an essay on our garden. So to compete, I bought a small camera and took pictures of the garden at different intervals during the summer. It would have been considerable expense for the judges to come around and view the gardens, so by looking over the photographs in the fall they were able to see at a glance how the garden was laid out, and the growth of the plants and vegetables when they were harvested.

Since then I have taken pictures of every phase of farm work. I have taken one of our brood mares ten times. The first when she was two years old, the second when she had her first colt. Since then she has raised four more mare colts in four consecutive years, from the same sire, and sometime soon I expect to get them all photographed. I have pictures of all our dogs and cats; of our favorite old team that lived out their days on the farm; of Flossie and Fly that were sold to make room for Dollie and Fan; of our old cow, Spot, that we sold last year. I have a picture of her granddaughter and could have had one of her great-great-grandmother if father had had a camera when he started farming for himself. I have photos of our orchard in bloom, being sprayed and being picked; of our outfit for hauling apple barrels; of almost everything before and after improvement. In fact, I value my snapshot collection as being one of my most valuable possessions.

What more pleasing pictures could one have adorning the walls of the living room than enlargements from your best snapshots? Take a quiet pasture scene, with sheep pasturing on the hilly background and contented cattle near at hand, taking advantage of the shade of a few trees near a stream, and you have my choice of pictures. There is no better way for rural people to value the beautiful scenery, which is so plentiful in the country, than by catching scenes of the seasons as they come and go, with the camera.

There are many other ways in which a camera could be used in connection with our work, especially in securing records of an experiment in field crops or a farm where pure-bred stock is bred. Let me cite a couple of examples.

Two fields of oats are grown side by side, one has been fertilized and the other has not. The former has straw twelve inches longer than the latter, and this was recorded by photograph and kept for years to follow,—a record which was unquestionably correct. The results of grading up some grade Shorthorn cows with a pure-bred bull is another example. The first photograph showed the grade cows and the pure-bred sire. The second photograph showed the progeny of the first cross. They were much superior to the original cows. The third photograph showed the succeeding offspring, which were far superior to the original cows and were almost as good as the pure-bred bull. It would take considerable time and space to describe the benefit of this grading process which could be seen by a glance at the photographs, and best of all "the camera never lies." I might go on to enumerate many other ways in which a camera would be of value to a farmer.

Many of our country homes have a camera, but the expense involved in getting the roll of film developed and printed prevents them from using it as they otherwise would. This expense could be cut considerably if we understood how to develop and print our own films. It is a very simple and interesting process, and any person who is careful can do his own work. It is best done after dark and therefore does not affect other farm work.

In closing let me state that I think every rural home should own a camera and every boy and girl at some time during their education should receive instruction in ordinary photography, which includes the actual taking of the pictures and the proper methods of developing and printing the film.

Northumberland Co., Ont. HOWARD JAMIESON.

AUTOMOBILES, FARM MACHINERY AND FARM MOTORS.

Farm Buildings for Live Stock.

The Superintendent of the Dominion Experimental Station at Lennoxville, Quebec, has put into the following paragraph some timely considerations with respect to farm buildings for the housing of live stock and their repair.

With the high price of all live stock at the present time and also of the food to feed them, and the advance in the cost of all building material, it is important that farmers should see that their buildings, if new ones, are planned so as to utilize all available space to the best advantage, and also with the object of having as much light as possible, and the best of ventilation, in order to make the animals comfortable and to get the maximum gain with the minimum amount of feed. This not only applies to the work horse, but to cattle, sheep, swine and poultry as well.

There are four factors that enter into the erection of new buildings or the repair of old buildings which should be considered. First, sunlight is one of the greatest preventives of disease. Old buildings as well as new should have as many windows as possible, and they should be planned so as to give the greatest possible amount of sunlight. Second, a ventilation system should be installed to admit plenty of fresh air, with an outlet shaft for the escape of all foul air, which will do away with all moisture and keep the buildings in the best condition for the health of the live stock. Third, convenience is an important factor, and much thought is required in planning farm buildings so that the maximum amount of work can be accomplished with a minimum amount of labor. Hay, silage and other feed for live stock should be located in as close proximity to where it is required as possible. Harness rooms, separator rooms and all other such adjuncts to farm buildings should be planned to save steps. All stable floors should be constructed so as not to allow any waste of the liquid manures. Floors should be kept clean and plenty of good litter used, such as straw, dried muck, shavings or sawdust, which will not only add much to the comfort and productiveness of the animals, but be a great benefit in increasing the fertility of the farm.

Last, but not least, the point of cleanliness is very important in all farm buildings. All windows should be cleaned, all cobwebs swept down from the walls and a good application of whitewash given, with a little carbolic acid added as a disinfectant. This will do much to keep away vermin and disease, and will make the buildings much lighter.

The painting of the outside of all farm buildings should not be neglected, for with the high price of building material at present, money invested in a coat of good paint every three or four years will pay a big dividend to the farmer, not only in prolonging the life of his buildings but adding much to the appearance of the farm, which, at the same time, increases the value of his property to a large extent.

Something about Tractors.

At the Ohio State University recently a test was conducted with a 12-20 horse-power tractor, plowing eight inches deep on heavy, black clay soil. Kerosene was used for fuel, gasoline being required only for starting and priming. A three-bottom gang-plow and a harrow were used, the average speed attained being 1.66 miles per hour, at which .401 acres per hour were plowed. It cost 70.9 cents per acre to plow and harrow this type of soil, and the fuel consumption per acre was 3.71 gallons of kerosene.

The transactions of the Highland and Agricultural Society, Scotland, contained a report of tests of twenty-nine different tractors, with a number of types of plows, on stubble and grass land, consisting in one case of a deep, free loam, with occasional earth-fast stones, and in another of a free loam overlying a clay sub-soil. As condensed in the Experiment Station Record, these tests gave the following results, while from the same source we take the conclusions reached after an economic study of the gas tractor in Pennsylvania. The following is quoted from the Record:

"The stiffest grade encountered was 1 in 5.2. Of the 29 machines which took part in the demonstration 15 ran on four wheels, 6 on three wheels, 4 on caterpillar tracks, and 4 were single unit machines. Twenty-five machines were driven by paraffin, 3 by petrol, and 1 by steam. The weights varied from less than 3,000 lbs. to over 8,000 lbs. The depth of plowing required varied at the different points from 6 to 8 in. for grass land, and from 7 to 9 in. for stubble. The general conclusions derived from the results of this test are as follows:

"The weight of the tractor should not exceed 3,000 lbs., and the horse-power should not be less than 20-brake horse-power. Caterpillar tracks did not show any advantage in gripping power over the best type of

wheels. Exposed gear drives on wheel tractors and excessive wear on caterpillar tracks tended to impair durability. Spring attachments between tractor and plow, with a release device in case of severe shocks, appeared desirable. It was found that the point of attachment should be variable vertically and horizontally. Speeds of 2½ and 4 miles per hour forward, with reverse, appeared to be most generally useful. Complete vaporization of paraffin was not generally obtained, and it is thought probable that the use of petrol will be more satisfactory under normal conditions. Handling and turning did not usually prove difficult. Single unit machines had the advantage that the implement operated was directly under the observation of the driver. Lighter tractor and single unit machines occupied less time and space in turning. It was found that plows must be adjustable to varying widths as well as to varying depths. Where the tractor and plow were separate an automatic lift was found desirable. A guide wheel to regulate width of leading furrow was also found desirable. It is concluded further that under the conditions of the test the price of a tractor should not exceed \$1,500.

"Pennsylvania Station Bulletin 158 reports data derived from detailed records secured from 54 farms in central and southeastern Pennsylvania, on which gas tractors were operated during the year ended in the spring of 1918. Tractors were used chiefly on the larger farms, 123 acres of crops per farm being the average. The average purchase price was \$959, and the average estimated life of the tractor was 8.1 years. Kerosene at 12 cents per gallon was a cheaper fuel than gasoline at 25 cents. The cost per 10-hour day was \$2.06 for kerosene, and \$3.32 for gasoline, and per horsepower hour 2.2 and 3.1 cents, respectively.

"The average tractor did 50.6 days' work. There was an average of 12.8 days of plowing, 9.3 days of harrowing, and 19.6 days of belt work. The average tractor used a little over 1 gallon of cylinder oil, worth 45 cents for each 10-hour day. The average cost of operation including operator's labor was \$622.12 for 50.6 days, or an average of \$12.30 per day. The cost excluding the operator's labor was \$495.62, or \$9.80 per day. The size of farm was increased in only two cases, and more intensive crops were grown on only 7 farms of the 52 that were operated before the purchase of the tractor.

"The most important factor affecting the cost of operation was days of work done per tractor. Tractors working 30 days or less, or an average of 24.3 days, cost \$19.97 per day, while tractors working over 70 days, or an average of 84.9 days, cost only \$9.85 per day. In the second case the overhead cost was distributed over more days of work.

"The average tractor cost of plowing was \$2.33 per acre. The plow cost was 71 cents per acre, making a total of \$3.04. The tractor cost for harrowing and disking was 69 cents per acre for once over the ground, and excluding the cost of tillage implements used.

"The farmer's son was the most efficient operator. The average cost per day was as follows: Son, \$10.75; owner, \$12.16; and hired man, \$12.82. An average of 1.8 horses were disposed of on 48 farms. The cost of operation, less the operating labor, was \$275.34 for each horse displaced.

"There was a change in layout on only two farms. The fields on most farms, however, should be rearranged for efficient tractor operation."

THE DAIRY.

Holstein Tests for December.

The official tests of ninety-one cows and heifers were received and accepted for entry in the Record of Merit during the month of December. The highest cow in the mature class is Lily Pamela Butter Girl, with 28.25 lbs. butter from 557.9 lbs. of milk in seven days. Next to her stands Woodland Banostine Vera with 28.21 lbs. of butter from 629.3 lbs. of milk. The lowest record made by any of the nineteen cows in the mature class was made by a nine-year-old cow that produced 17.70 lbs. of butter from 395.1 lbs. of milk. Among eight senior four-year-olds, Daisy Pamela Butter Girl leads with 27.66 lbs. of butter from 481.8 lbs. of milk. There are only two junior four-year-olds, led by Grace Mercena Korndyke, with 19.73 lbs. of butter from 462.1 lbs. of milk. Gelsche Segis Walker leads a class of twelve senior three-year-olds with 22.81 lbs. of butter from 478.4 lbs. of milk, while Woodland Banostine Pet heads a list of ten junior three-year-olds with 410.7 lbs. of milk, yielding 20.33 lbs. of butter. Among the senior two-year-olds there are twenty-six official tests reported, and this list is headed by Mamie Segis Korndyke, with 23.06 lbs. of butter from 514.4 lbs. of milk. Leila Pieter Walker leads eleven junior two-year-olds with 21.02 lbs. of butter and 501 lbs. of milk. One mature cow, one senior two-year-old and one junior two-year-old show records made at least eight months after calving.

Twenty-three Holstein cows and heifers qualified in the yearly record of performance during December, there being five in the mature class, three four-year-olds, six three-year-olds, and nine two-year-olds. Canaan Beauty 2nd. leads the mature cows with 18,072 lbs. of milk and 753.75 lbs of butter. Mercena of Trout Creek leads the four-year-olds with 15,406 lbs. of milk and 658.7 lbs. of butter, although Maud Segis of Elderslie, from the three-year-old class, made the highest record of any reported during the month, having produced 19,296 lbs. of milk and 796.25 lbs. of fat. Leading the two-year-old class we find Dora Fayne Posch with 13,231 lbs. of milk and 612.50 lbs. of butter.

Ontario Milk Producers Hold Annual Meeting.

The annual meeting of the Ontario Milk and Cream Producers' Association was held in the Carls-Rite Hotel, Toronto, on Friday, January 23, at two p.m., about forty delegates being present from the various local associations scattered throughout the Province. The minutes of the last meeting were read and approved, along with the financial statement, which shows the Association to have a balance on hand of \$568 from total receipts amounting to \$1,235.16. Deducting from this amount the annual grant of \$500 which the Association has received for the past two years from the Provincial Government, the cash on hand from last year and membership fees amounted to \$735.16. President E. H. Stonehouse in his address called attention to the fact that all phases of the dairy industry were passing through a serious condition. This is particularly true in the case of the cheese section. Some newer branches of the dairy industry have made notable expansion, and the result of this will be to open an increased market for milk, due to the expansion of the world market. "Arising out of a discussion at our last meeting," said Mr. Stonehouse, "has come a movement on the part of milk producers to get at the cost of production. The incentive in this direction coming from the Ontario Milk and Cream Producers' Association, and later taken up by the Ontario Government has led to the carrying on of farm survey work in dairy districts that has been of inestimable importance to the milk producers of Ontario. The influence of this work has not only been felt throughout Ontario, but throughout Canada as well. The effect of the investigations of Professor Leitch has been to confirm the contention of milk producers and to inaugurate a system whereby the cost of production may, from time to time, be accurately established. I have had the assurance from the Honorable Manning W. Doherty that this work, instead of slowing down, as was apparently the case during the spring and summer, will be amplified to the extent necessary that an accurate knowledge may be obtained regarding the cost of milk." President Stonehouse went on to say that no one was satisfied with the progress of the Association. One thing for which there was a great need was more frequent communication between the locals and the central office. It is too much of a one-man association, and the means are not always available to meet the calls for assistance from all parts of the province. "We must broaden out," said Mr. Stonehouse, "and get an organization so extensive and so representative, and so responsible, that your executive will be truly representative of the milk producers of Ontario." The President expressed his opinion very strongly that the Association should no longer need to accept assistance from the Government, but he pointed out that according to the closest estimates that could be made it will require about \$5,000 during the coming year to do the work which should be done. It is necessary to establish an office with office equipment; much organization work needs to be done, and even the preparatory work for organization is expensive. The speaker suggested that the names of milk shippers, all over the Province should be obtained from the dealers and manufacturers, and that a membership ticket might be sent to each shipper, along with a circular letter outlining the aims and the hopes and the difficulties of the Association. A follow-up campaign would assist in bringing out facts as to where the large milk-producing centres of Ontario are located, and these would be worked so as to establish locals wherever necessary. When it is remembered that there are approximately 50,000 milk producers in Ontario it is not difficult to see that organization work will be expensive. In addition to organizing there is much educational work to do, with regard to the effect of world markets on the dairy industry of Canada, and the necessity of producing milk of the highest quality.

Much of the remainder of the meeting was occupied by delegates from local associations in discussion. Two motions of which notice had been given were disposed of favorably. By these motions the directorate has been enlarged so that every county having three local associations or one county association shall be entitled to one director, and it was also decided that new local associations formed and paying their per capita tax after November 1 shall be considered to have paid their dues to the central association for the following year. It was also decided to increase the per capita tax that is collected from the local association to one dollar per member. This point created a considerable amount of discussion, but the necessity for plenty of money was evident, and each delegate readily took it upon himself to guarantee the per capita tax of this local association. The three directors elected this year for three years are: J. J. Nesbitt, Ottawa; Thomas Shearer, Listowel; S. Young, Guelph. The permanent Secretary of the Association is J. T. Griffin, 798 Logan Avenue, Toronto. Delegates present from local associations throughout the Province were as follows: J. J. Nesbitt, Hintonburg; Ewart G. Carr, Cobourg; A. R. Murray, Hickson; R. E. Bean, Hickson; Gordon Nichol, Wilton Grove; M. F. Collard, Belmont; B. R. Barr, Harrietsville; W. J. Demaray, Gladstone; J. Allan Parker, Caledonia; R. H. Crosby, Markham; E. A. Orr, Clarkson; John Daves, Belmont; Erle Taylor, Belmont; Emerson Moulton, Ingersoll; W. W. Nancekivell, Ingersoll; Louis Craig, Belmont; S. Young, Guelph; G. J. Cook, Beachville; D. M. Vicar, Belmont; D. Wilson, Brantford; H. H. Bailey, Paris; H. Dymont, Dundas; R. E. Hicks, Newtonbrook; O. D. Bales, Lansing; A. S. Maynard, Chatham; E. Tree, Woodstock; G. Lindsay, Woodstock; F. B. Williams, Woodstock; W. E. Thompson, Woodstock; Eph. MacPherson,

Producers Hold Meeting.

ario Milk and Cream at the Carls-Rite Hotel, at two p.m., about from the various local of the Province. The read and approved, nt, which shows the n hand of \$568 from .16. Deducting from 00 which the Associa- years from the Pro- and from last year o \$735.16. President called attention to the industry were passing is particularly true. Some newer branches e notable expansion, n an increased market of the world markets. ur last meeting," said vement on the part of e of production. The ng from the Ontario ssociation, and later nment has led to the in dairy districts that ce to the milk pro- of this work has not rario, but throughout e investigations of firm the contention of te a system whereby om time to time, be ad the assurance from erty that this work, apparently the case ill be amplified to the e knowledge may be k." President Stone- was satisfied with the thing for which there- quent communication al office. It is too nd the means are not for assistance from all st broaden out," said nization so extensive esponsible, that your tive of the milk pro- t expressed his opin- ion should no longer Government, but he the closest estimates about \$5,000 during which should be done. ice with office equip- eeds to be done, and nization is expensive. mes of milk shippers. e obtained from the that a membership hipper, along with a nd the hopes and the A follow-up campaign as to where the large are located, and these blish locals wherever ered that there are ucers in Ontario it is tion work will be ex- there is much educa- o the effect of world of Canada, and the e highest quality.

meeting was occupied ations in discussion. ad been given were motions the directorate county having three association shall be was also decided that and paying their per be considered to have eciation for the follow- ncrease the per capita cal association to one created a considerable ecessity for plenty of legate readily took it er capita tax of this ctors elected this year itt, Ottawa; Thomas elph. The permanent T. Griffin, 798 Logan ent from local associa- were as follows: J. J. Carr, Cobourg; A. R. ckson; Gordon Nichol, Belmont; B. R. Barr, Gladstone; J. Allan oy, Markham; E. A. elmont; Erle Taylor, ersoll; W. W. Nance- Belmont; S. Young, D. M. Vicar, Belmont; ey, Paris; H. Dymont, brook; O. D. Bales, am; E. Tree, Wood- B. Williams, Wood- ck; Eph. MacPherson,

Copetown; John H. German, Beachville; W. Wyndham, Guelph; A. C. Park, Listowel; Thos. Shearer, Listowel; Walter Jickling, Listowel; John C. Freele, Thamesford; J. C. Bald, Welland; H. D. Rice, Welland; Ellsworth Plant, Burford; C. G. Gurney, Burford; F. M. Lewis, Burford; Geo. Roe, Milverton.

The Dairy Calf's Appetite.

Generally speaking appetite is not given a great deal of consideration in feeding animals of any kind. Of course, indirectly the appetite of the animal is considered when the feeder provides feeds in variety and of such a nature that animals will eat them readily. General practice has shown for instance that young dairy calves can be brought along in satisfactory condition by feeding wholemilk for from four to six weeks and after that gradually substituting skim-milk or home-mixed milk substitutes. The Illinois Experiment station recommends that the calves be fed about a pound of milk for each eight pounds of live weight for the first four or five weeks and the minimum total quantity of milk is put at 400 pounds until the calf is put on hay and grain altogether. This schedule requires that the calf be fed eight to ten pounds of milk per day for the first month, after which, provided the calves take readily to good hay and grain, the amount of milk may be reduced two pounds per day at the beginning of each week. In order for calves of the larger breeds to get along on 400 pounds of milk, however, it was found that they must have access to grain and a legume hay at will and usually, if the amount of milk is limited to 400 pounds, some milk supplement should be fed in addition. A gruel mixture is recommended by the Illinois station, consisting of equal parts of oilmeal, blood meal, hominy and flour, the gruel being made by pouring hot water over the meal while it is stirred vigorously, afterwards allowing it to stand before being used. We are told that the gruel may be fed so that the calf will receive the equivalent of one quarter pound of dry meal at the beginning, the amount being increased about one quarter pound per day at the beginning of each week for four weeks. Calf meals as a rule are best used as a supplement to milk rather than as complete substitutes for it.

GRAIN AND HAY FOR CALVES.

With regard to the feeding of grain and hay we read: "The calf may be encouraged to eat grain at an early age if a small amount is sifted into the pail after the milk has been drunk, or if a fresh supply is kept in a box which is readily accessible. There is often a tendency not to feed grain at as early an age as the calf will eat it. Most calves will begin to nibble it when they are two or three weeks old, and it has been observed that the young calf having access to several different kinds of grain at first prefers such soft feeds as wheat bran and oil meal, but as it becomes older it will eat some of the coarser feeds such as oats and cracked corn in addition and in some instances in preference to the soft feeds.

"A mixture of ground corn 10 parts by weight, oats 50 parts, wheat bran 30 parts, and oil meal 10 parts, is suitable for the young calf; or these same feeds may be mixed in equal parts, by weight. A good growing calf at three months of age will consume two to three pounds of grain daily when fed twice a day, and usually more if allowed grain at will.

"The calf will often nibble hay when a few days old; but will not consume it to any appreciable extent until about four weeks old. A good grade of clover makes an excellent hay for calves. Observation suggests that, in the case of young calves, it does not have the over-laxative tendency that alfalfa sometimes has, although it seldom causes any difficulties provided other suitable feeds are being used. Legume hays make excellent roughages because they are palatable and contain a large amount of protein and calcium. A fine grade of legume hay, such as clover or alfalfa, should be kept in a manger or rack, so that the calf has access to it at all times. When the leaves have been nibbled off, the coarser portions may be fed to the mature animals."

IS THE CALF'S APPETITE A GUIDE.

At the Iowa Experiment Station a somewhat limited study of appetite in dairy calves has been made. It was desired to find out whether the plan of giving calves a free choice of several kinds of feed is successful and whether calves possess the ability to select for themselves the feeds best adapted to their requirements. In addition to these primary questions it was desired to discover the water, salt, and charcoal requirements of young calves and to determine the relative palatability of some common protein supplements and of ground and unground grains. The experiment was carried out for two periods of 30 days each with three calves, a Guernsey bull calf 70 days old at the beginning and an Ayrshire and a Holstein heifer calf 37 and 30 days old respectively. All had been fed whole milk since they were 3 days old and throughout both experimental periods they were fed what milk it was thought they needed, whole milk being gradually replaced with skim-milk as they grew older. Medium quality alfalfa hay was before them all the time as well as fresh water for a few hours each day and the following kinds of feed in separate compartments of a self feeder:

Shelled corn	Linseed oil-meal (old process)
Cracked corn	Wheat bran
Whole oats	Corn gluten feed
Ground oats	Salt
Hominy feed	Charcoal

HOW THE CALVES FED THEMSELVES.
The average daily amount of feed consumed by each calf under this cafeteria system is shown in the following small table:

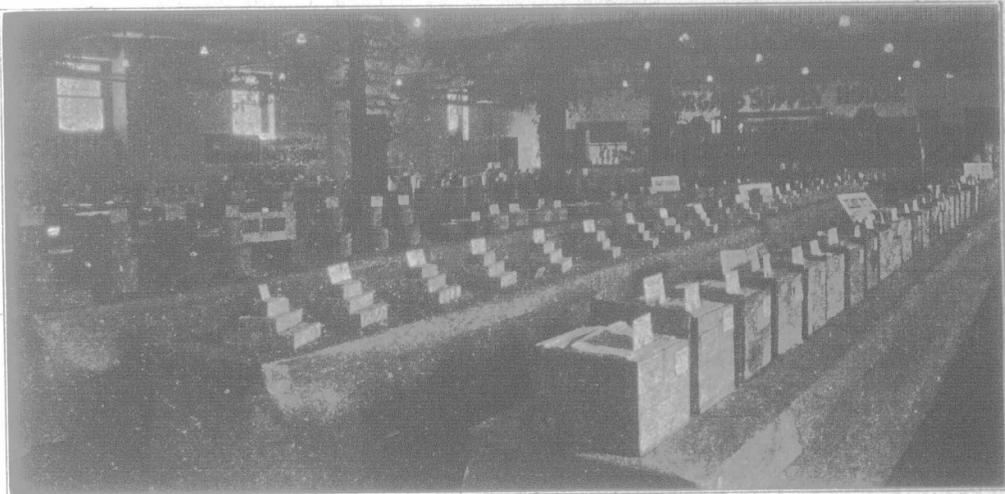
Feed	AVERAGE DAILY FEED.	
	Period I	Period II
Whole milk.....	Lbs. 9.60	Lbs. 7.53
Skim-milk.....	1.97	7.53
Concentrates.....	1.69	3.03
Hay.....	.36	1.02
Salt.....	.012	.003
Charcoal.....	.008	.013
Water.....	4.27	7.66

It is interesting to note the kinds of concentrates chosen by the calves from among the eight kinds offered them in the self-feeder. The calves showed a very decided preference for the whole, rather than the ground grains. Practically no corn was consumed during the first period, but in the second period they consumed 108.6 of shelled corn, as compared with .3 lbs. of cracked corn. Of whole oats they consumed 58.7 lbs. in the first period, and 68.4 lbs. in the second period, as compared with .4 and .5 lbs. of ground oats. The hominy feed was barely touched, and although during the first period they ate 15.3 lbs. of corn gluten feed, during the second period they only consumed 1.9 lbs. Wheat bran was not much better than corn gluten, since they only consumed 13 and 17 lbs. in periods one and two, respectively. Oil meal (old process) was apparently the most palatable of all the nitrogenous concentrates supplied, since they consumed 62.7 lbs. in the first period and 75.6 lbs. in the second period. They ate 32.7 lbs. of alfalfa hay in the first period, and 91.9 lbs. in the second period. The consumption of salt was 1.1 lbs. in the first period, and 3 lbs. in the second period, but they ate 1.2 lbs. of charcoal in the second period, as compared with .7 lbs. in the first. Their preference for whole as compared with ground grain is shown by the fact that, taking corn and oats together, they consumed 237 lbs. of whole grain in both periods, as compared with only 1.5 lbs. of ground grain.

Experiment Station has this to say: "A growing heifer should gain at least a pound a day during the first three months, and should average slightly more than this from birth to one year." As an indication of the amount of feed consumed by dairy heifers of the larger breeds during the first year, we give the following quantities as the average consumption of twenty-nine Holstein heifers, weighing 82 lbs. each at birth and 564 lbs. at one year of age. These figures were secured by the Ohio Experiment Station and the amounts of feed given provided an average daily gain of 1.3 lbs. It must be understood that these figures indicate a fairly liberal use of whole milk and skim-milk, a condition that is not always found on dairy farms. The amounts of feed consumed are as follows: Whole milk, 499 lbs.; skim-milk, 2,786 lbs.; grain, 658 lbs.; hay, 768 lbs.; silage, 586 lbs.; corn stover, 28 lbs.; days on pasture, 128. The feed cost per year might be easily calculated, and if we take whole milk at \$2.50 per hundred pounds, skim-milk at 50 cents per hundred pounds, grain at 3 cents per pound, hay at \$20 per ton, silage at \$6 per ton, and pasture at 50 cents per month, the cost of feeding a dairy heifer for the first year will be found to be approximately \$60. In many cases milk in the quantities given is not available, but good average gains of more than a pound per day during the first year may be secured by using much larger quantities of grain, hay and silage. Thus, at the Illinois Experiment Station 20 Holstein heifers averaging 1.2 lbs. gain from birth to one year of age consumed the following feeds, under conditions where skim-milk was not plentiful and where pasture was not available: Whole milk, 244 lbs.; skim-milk, 860 lbs.; grain, 1,107 lbs.; hay, 1,067 lbs.; silage, 1,669 lbs.

Effect of Exchange Upon Dairy Exports.

Only a comparatively few dairymen realize the influence of rates of exchange upon the ability to secure satisfactory export markets for Canadian dairy products. At the recent convention of the Western Ontario Dairymen's Association, W. W. Moore, Assistant Commissioner of the Dairy and Cold Storage Branch, Ottawa, touched upon this question briefly. We quote the



The Splendid Exhibit at the Recent Western Ontario Dairymen's Convention, London.

As the experiment progressed the daily amount of skimmed milk was increased at the expense of the whole milk, a substitution which tended to narrow the nutritive ratio of the ration. As a result, however, the calves voluntarily increased their consumption of low protein concentrates. The daily requirement of water increased from 4.27 lbs. in the first period to 7.66 lbs. in period two, while the total amount of water used both in the feed and the water supplied, increased from 14.57 lbs. per day in period one, to 21.65 lbs. per day in period two. The feed requirements per hundred pounds of live weight gain averaged about 200 lbs. of dry matter and about 800 lbs. of water. The average live weight gain of the calves over both periods was practically 2 lbs. per day, the variation running from 1.60 to 2.30 lbs. per day.

When the amount of feed consumed is worked out on the basis of a balanced ration according to commonly accepted feeding standards, it is easily seen that the calves chose a ration that is even narrower and richer than the ration advised by the feeding standards, but it has been shown that the gains made were economical. According to the standard the calves should have had a nutritive ratio of 1 to 4.3 in the first period, and 1 to 4.4 in the second, but when allowed their free choice of feed they consumed feeds with a nutritive ratio of 1 to 3.4 and 1 to 3.5 respectively. Apparently, therefore, as a result of this single test, calves have the ability to vary their consumption of concentrates to comply with their needs, and it seems evident that they can make economical gains on a ration that is narrower than is usually recommended.

FEED COST OF A YEAR-OLD HEIFER.

A breeder of dairy cattle recently stated that well-grown dairy heifers should average a gain of 35 lbs. per month from birth to first freshening. The Illinois

following paragraph because of the fact that so few people understand why the depreciation of French, Belgian and German currency should affect our dairy products. "For the coming year the only cloud on the horizon is the low level to which foreign exchange has fallen, which means a big handicap to our export trade with Europe, while it helps Europe's exports to this side. Sterling bills have sold in New York as low as \$3.64, which means a discount of \$1.22 from the par of exchange, and in Montreal sterling bills have sold as low as \$4. In New York the French franc has dropped from 19.3 cents to 8.7 cents and the German mark from 23.8 cents to 2 cents. The situation in the exchange market has stopped the export of butter and cheese both from the States and from Canada. Stocks of both products in the U. S. are comparatively heavy and holders are getting rather nervous as to the outcome. In Montreal, on the first of January, stock of cheese were 291,004 boxes, an increase of 272,563 boxes over a year ago. Of course, a considerable proportion of this cheese is held for British Government account and some for account of U. S. firms, so that the quantity remaining unsold is not formidable. I stated a moment ago that the low rate of foreign exchange, while it handicaps exports from this side to Europe, helps European export to the States and to Canada. This is well illustrated by the arrival recently in New York of two consignments, aggregating 2,290 casks, of Danish butter, with a third shipment of 1,000 casks due to leave Copenhagen this week. The first consignment realized 70 cents per pound, and the second 68 cents to 69 cents and the receipt of this butter was the principal cause of the recent drop in prices on that market. While these prices appear relatively low considering the very fine quality of the butter, the owners in Denmark would receive payment in American money and 68 to 70 cents, therefore, with the premium on exchange, would

mean a very satisfactory f. o. b. price in Denmark. Both the Argentine and Holland are also offering butter for shipment to New York, the former at 59½ cents delivered New York for 86 to 89 score, and the latter at 61 cents for a somewhat better quality."

Annandale Dispersion Sale.

A dispersion sale of Holstein cattle was held at Annandale Farm, Tillsonburg, Ontario, on Thursday, January 22. Seventy-two head were disposed of for a total of \$14,315, or an average of \$198.81. There were sixty females that averaged \$209.41, of which only eight sold for less than \$100 each. The average for twelve males was \$145.83. Most of the females were untested and the prices were very fair, the animals themselves being only in fair shape. Annandale Farm, where the sale was held, was the farm of which George Rice made the first high average for Holstein cattle in Canada.

The high price of the sale was received for V. O. Butter Girl, that went to J. B. Hanmer, Norwich, for \$725. The high-priced male was King Sylvus Valdessa, sold for \$350 to G. T. Castator, Weston. The following is a list of individual sales for \$100 or more:

FEMALES.	
V. O. Inka Lass, T. Dunham, Salford.....	\$200
Colantha Inka Valdessa, J. B. Hanmer, Norwich.....	130
Alfaldale Queen Valdessa, Wm. Robinson, Williamsburg.....	280
V. O. Belle, T. Dunham.....	525
V. O. Belle Valdessa, Wm. Robinson.....	325
V. O. Inka Sylvia, Wm. Robinson.....	310
Sylvia Colantha Valdessa, Wm. Chambers, Salford.....	205
Oakhurst Butter Girl 3rd, Geo. Prouse, Mt. Elgin.....	480
Oakhurst Colantha Tensen, C. H. Cornwell, Norwich.....	250
Oakhurst Colantha Mercena, Wm. Chambers.....	200
V. O. Butter Girl, J. B. Hanmer.....	725
Colantha Valdessa, A. E. Hulet, Norwich.....	440
V. O. Oakhurst Beauty, Wm. Chambers.....	400
Oakhurst Midnight Comet, W. J. Wood, Cainsville.....	320
Oakhurst Midnight Colantha, M. L. Haley, Springfield.....	150
Valdessa Ormsby Oakhurst, J. Smith, Tillsonburg.....	260
Valdessa Ormsby Colantha, M. H. Hollingshead, Ingersoll.....	115
Daisy of Locust Grove, W. Prouse, Dereham.....	155
Roxie Valdessa Posch, W. Prouse.....	100
Lulu Mae Valdessa, A. Tattersall, Mt. Elgin.....	160
Rosina Rue, J. H. Smith.....	135
Gerben Rosina Rue, A. M. Chambers, Mt. Elgin.....	235
Sally Ro of Avondale, J. H. Smith.....	135
Bertha Shadeland, J. H. Smith.....	135
Bertha Alcartra Johanna, M. H. Hollingshead.....	100
V. O. Pietje Valdessa, Wm. Robinson.....	485
Female, C. H. Cornwell.....	335
V. O. Princess Maud, Bruce Taylor, Mt. Elgin.....	220
Princess Valdessa Ormsby, G. T. Castator.....	120
V. O. Leilla Hartog, W. Chambers.....	245
Leilla Colantha Hartog, A. E. Hulet.....	100
V. O. Oxford Belle, A. Tattersall.....	330
V. O. Steintra Brook, Wm. Chambers.....	135
Midnight Brook Valdessa, W. Prouse.....	185
Daisy Colanthus, Wm. Robinson.....	185
Marguerite Brook Colantha, Wm. Chambers.....	300
Marguerite Brook De Kol 2nd, Wm. Chambers.....	300
Alice Rattler, R. Hartrick, Branchton.....	355
Jean Bewunde, R. Hartrick.....	150
Daisy Echo Countess, F. Stroud, Mt. Elgin.....	100
Lady Aaggie Segis, A. Tattersall.....	175
Lady Aaggie Colantha, A. E. Hulet.....	100
Lady Aaggie Fayne Valdessa, F. A. Bell, Tillsonburg.....	100
Trixie Mae Netherland, W. Prouse.....	225
Princess Pat of Hickoryhurst, F. A. Duffy, Mt. Elgin.....	165
Polly of Hickoryhurst, Bruce Taylor.....	175
Helen Pontiac Aaggie, W. H. Cherry, Hagersville.....	175
Mollie Tensen Mercede, A. E. Hulet.....	125
Aaggie Maplecrest De Kol, W. Taylor.....	185
Aaggie Colantha Dewdrop, R. J. Mitchell, Mt. Elgin.....	150
Roma Jane Veeman, A. E. Hulet.....	170
Nell Gerben Artis, W. Prouse.....	180
MALES.	
King Colanthus Valdessa, Ed. Barnum, Springfield.....	200
King Sylvus Valdessa, G. T. Castator, Weston.....	350
Male Calf, H. J. Gilbert, Mt. Elgin.....	100
Prince Valdessa Tensen, Jas. Smith, Springfield.....	150
Prince Abbekerk Calamity, B. D. Smith, Springfield.....	150
Duke Aaggie Colantha, Wm. Robinson.....	255
Sir Midnight Aaggie Val, Andrew Donald, Ingersoll.....	150
Duke Mechthilde Colanthus, Geo. Woodsworth, Pt. Burwell.....	145

Bedford District Ayrshire Club.

The Annual meeting of the Bedford District Ayrshire Breeders' Club was held at Foster, Quebec, on January 21. There was a good attendance despite the fact that the roads were heavy, following a bad storm on the previous day. Wilton E. Dryden occupied the chair in the absence of the President, W. F. Kay, M.P. The report of the auction sale held proved most satisfactory and a vote of thanks was tendered the Secretary and committee for the able manner in which the sale's catalogue was prepared, and the sale conducted. It was considered advisable to hold another sale in the near future. W. F. Stephen, Huntingdon, Que., Secretary of the Canadian Ayrshire Breeders' Association, was present and congratulated the Club on their

progressiveness. He advised them to continue to disseminate the gospel of Ayrshire cattle throughout the Eastern counties, as he knew of no dairy breed so well suited to their conditions. The speaker likewise advised them to do more Record of Performance work, to wage stern and ruthless warfare on the scrub bull, to do more exhibiting at exhibitions, and he pointed to the wisdom of pure-bred breeders affiliating themselves and their herds with the accredited herd system.

The resignation of James Davidson, as Vice-President, was accepted, and W. F. Kay, M. P., was made Honorary President. The following are the officers: President, J. E. Jackson, Bromo; Vice-President, H. L. Hastings, Sweetsburg. Directors: W. E. Dryden, Cowansville; A. F. Sandborn, South Roxton; A. E. Bell, Brigham; Adam Robertson, Brigham, and J. McClay, Bromo.

Agriculture in New York State.

(Continued.)

CLEAN MILK FROM MILKING MACHINES.

While at the New York State Experiment Station, Geneva, we interviewed Professor Breed, the Bacteriologist, with regard to the use of milking machines and the effect of machine-milking on the cleanliness of the milk. The Bacteriologist has a worthy part to play in many branches of agriculture, but probably he does no more worthy work than in controlling the millions of bacteria that find a natural breeding place in this most important human food. When we think of him contending against millions of millions of these microscopic organisms, we are reminded of the less refined methods of destruction employed by the Scotchman, who, after eating some "mity" cheese, boasted that he had, like Samson, slain his thousands. "Aye," his friend answered, "and wi' the same weepoon." (The jawbone of an ass.)

Professor Breed told us that the study of bacteria in milk drawn with milking machines had now become a special subject of investigation. Metal vessels, such as ordinary milk pails, when washed, scalded and dried in the sun, or over a hot stove, are as germ-free as it is possible to have anything. Drying is as important as scalding. The inner surfaces of the rubber tubes, after any cleaning that can be given, are breeding places for uncounted millions of bacteria, if the tubes are simply hung up. The result is that milk after it has gone through them is infected accordingly. On the visitor's venturing the suggestion that there would be no germs there if scalding water had been drawn through after milk had been first sluiced off by the passage of cooler water, Professor Breed replied that the air is full of these germs, and the damp inner surfaces of tubes in suitable temperature, furnishes ideal grounds for them on which to lodge and multiply. "Besides," said he, "there is always some milk left in tubes at connections, no matter how many cleansing liquids are drawn through. Result, milk contaminated, often fearfully so. Farmers are the worst offenders in this matter. Cheesemakers have great trouble with such milk. They find that in developing the necessary lactic acid, they develop also injurious germ flavorings. The germ content of machine milk of that sort is unbelievably greater than that of ordinary hand-drawn milk. So marked is this difference in milk as ordinarily handled that some cheesemakers claim that they can tell by the smell of it whether the milk as it is being emptied into the vats is hand or machine drawn."

Yet this foulness present in the one and comparatively absent in the other is quite avoidable. Here a warning was given against trusting the claims of many companies whose cleansing preparations are warranted to act perfectly. These preparations are real disinfectants, but as commonly used have little effect. They very soon lose their strength. Used as directed their force is expended in the first place on dead matter much more than on living germs. At the Geneva station they use such disinfectants, but depend more upon the brine in which they keep the tubes and teat cups immersed when not in use.

BRINE AND CHLORIDE OF LIME.

In their work they use a large 30-gallon crock filled with clean water to which 40 or 50 lbs. of salt has been added. A least a pint of the stock solution of chloride of lime (in summer, a quart) is added to this jar twice a week in order to keep the brine sterile. The brine and chloride of lime solution may be used indefinitely if kept covered and clean and enough water and salt added to make up for wastage.

Chloride of lime (bleaching powder, chlorinated lime, calcium hypochlorite) is purchased at a drug store in 12-oz. cans, care being taken to make sure that no rusty cans nor lumpy, moist powder are secured, and that it is fresh. Contents of can are first mixed and ground in enough water to make a paste, then a gallon of water is added and the mixture stirred thoroughly. After standing a few hours the white powder settles, leaving a clear, greenish colored liquid. That is kept as the stock solution.

In the brine and chloride of lime mixture in the large jar tubes with teat cups attached are immersed, suspended on brass hooks reaching well down into the brine. Results have been very satisfactory indeed.

Commercial sodium or calcium hypochlorite solutions may be used in place of the stock solution described above, but they are much more expensive and no better and should be used stronger than recommended on their labels.

CLEANING MACHINES.

Unless tubes are kept clean no after treatment will keep them free from bacteria. Right after milking

prepare three pails. Fill pail one with clean cold water, pail two with hot soda water, and pail three with clean hot water. With teat cups still attached immerse in these pails successively, at the same time sucking the water through them. Then immerse completely in the solution in the large crock as before described, making sure that all air bubbles are out of the tubes.

Once a week the rubber teat cups should be taken apart completely and each part thoroughly cleaned. No disinfecting solution will take the place of cleaning. In case machines have metal parts which would be rusted by brine or corroded by hypochlorites, ordinary lime water may be used. Analyses at Geneva show it to be satisfactory.

After carefully conducted tests extending over four years the conclusion arrived at by the authorities of the Experiment Station is that there is no real difference in weight of milk received where a machine is used as compared with hand milking. In one lengthened experiment the result figured out an advantage of 1 per cent. in favor of hand milking, in the other an almost similar percentage in favor of the machine.

About milking time we reached the office of Professor Smith, who has charge of the dairy herd and we were taken to see the fine herd of Jersey cows. They were all good, the whole twenty-five, some especially and magnificently so. Yet, as Prof. Smith was careful to make known, they had been bred from cows which were tuberculous. Infection had proceeded from a diseased animal which had been purchased. She communicated the disease to three on one side of her and four on the other. From that diseased herd the present beautiful lot had been bred. The Bang system—isolation of calves from mothers and mothers' milk—was entirely successful. The average of the herd of twenty-five for the last year fully recorded was 7,200 lbs. milk and 409 lbs. butter-fat each. And, as we were also carefully informed, they were not overfed. Eight pounds daily was the largest amount of grain fed. In summer they were turned out into a small field, but they had no pasture worth mentioning. Their chief food was silage in winter and nearly all summer too.

Middlesex Co.

T. B.

Menie District Ayrshire Club.

We are informed by W. A. Hume, Secretary of the Menie District Ayrshire Breeders' Club, that a good attendance marked the annual meeting of the Club in the Windsor Hotel, Campbellford, on Thursday, January 22. Many local breeders were present, and considerable enthusiasm was shown throughout. The advisability of entering cows in the Record of Performance was emphasized by the President, Alex. Hume, because the demand for young cattle, especially males, is for those out of dams with R. O. P. records. The Seymour Agricultural Society agreed to duplicate any money grants made by the Club toward its prize list, and a grant will be made for this purpose by the Menie District Club. It was also decided to provide for the addition of a class of R. O. P. cows at the Seymour Fair. The officers elected are as follows: Honorary President, Wm. Stewart; President, E. A. McCook; Vice-President, John Locke; Secretary, W. A. Hume; Executive, the officers and Messrs. Robt. Little, W. E. Tummson, and Fred Rutherford.

POULTRY.

A Profitable Flock.

EDITOR "THE FARMER'S ADVOCATE":

Although hundreds of townspeople keep hens, very few of them know whether the venture pays or not. In order to find out whether there is any profit in the back-yard poultry business, on January 1, 1919, I opened up a debit and credit account with my flock of bred-to-lay Barred Rocks which consisted of five hens and ten pullets. The pullets were hatched in May, 1919, and commenced to lay the first week in December. I kept the same flock throughout the year, with the exception of one bird, which died in the spring. I purchased one in her place (of the same breed) for setting, but the jumped the job in less than a week and spoiled fifteen eggs. However, she soon began to lay, which atoned in some degree at least for her unfaithfulness as an incubator.

In the latter part of March, one of the hens began to "cluck" and I set her on fifteen eggs, but only eight chicks were hatched. Owing to accidents and disease, five of these died, leaving two pullets and a cockerel. The latter got out of the yard one day in the fall and was seen no more. As no more hens became broody, I did not get an opportunity to raise any more chickens. I grew some mangels for winter feed, but did not enter the item in the expense account as the cost of the seed was insignificant.

The hens always had access to oyster shells, grit, chicken charcoal, and clean water. A hopper containing a dry mash was rarely empty. A fresh box of sifted coal ashes was provided every week during the winter, spring and fall. The henhouse was kept dry, clean and free from drafts. In the summer the outside pen was dug up frequently. This provided the hens with fish worms, and helped to keep the soil loose and sanitary. I used straw for litter, and plenty of it, so that the birds would have considerable scratching to do to obtain their feed. I bought about 800 pounds of mixed feed (wheat, oats and barley) from a farmer, and to this I added corn, buckwheat, and some more wheat. During the winter, I fed some sprouted oats, but not as many

with clean cold water, three with clean hot water. I immersed in these the water completely in the tubes described, making the tubes.

Cups should be taken thoroughly cleaned. The place of cleaning, parts which would be hypochlorites, ordinary at Geneva show it to

extending over four the authorities of the is no real difference a machine is used as one lengthened experi- vantage of 1 per cent. ther an almost similar

ed the office of Pro- the dairy herd and we rsey cows. They were some especially and Smith was careful to from cows which were ed from a diseased

She communicated

her and four on the the present beautiful

system—isolation of ' milk—was entirely herd of twenty-five s 7,200 lbs. milk and we were also carefully Eight pounds daily ed. In summer they ld, but they had no air chief food was mer too.

T. B.

shire Club. me, Secretary of the ' Club, that a good meeting of the Club

ford, on Thursday, s were present, and n throughout. The e Record of Perform- ent, Alex. Hume, be- le, especially males, P. records. The ed to duplicate any toward its prize list, urpose by the Menie d to provide for the at the Seymour Fair.

Honorary President, ook; Vice-President, me; Executive, the W. E. Tummon, and

RY.

lock.

people keep hens, venture pays or not. is any profit in the January 1, 1919, I nt with my flock of consisted of five letts were hatched lay the first week in throughout the year, ch died in the spring. (the same breed) for less than a week and soon began to lay, st for her unfaithful-

of the hens began eggs, but only eight accidents and disease, letts and a cockerel. day in the fall and ns became broody, I any more chickens. d, but did not enter the cost of the seed

oyster shells, grit, A hopper containing fresh box of sifted k during the winter, as kept dry, clean mer the outside pen vided the hens with il loose and sanitary. it, so that the birds g to do to obtain pounds of mixed feed armer, and to this I ore wheat. During ts, but not as many

as should have been fed. For the dry mash I used chicken chowder and shorts.

During the hot weather I put coal oil on the roots and cracks and crevices where lice and mites were liable to breed. Most of the hens moulted quite late in the fall. While they were moulting I fed them a little heavier than usual. As soon as all the garden products were harvested, the hens were given the whole plot for a range and they made good use of their liberty. I tried to ridge up the soil for the winter, but the hens soon made the ground level again.

During the year the fifteen hens and pullets laid 2,163 eggs, an average of 144 each. The total cost for feed was \$51, which included the feed for the two pullets that were hatched out in April. The profit was \$43.79, being nearly \$3 per hen, which I think is very satisfactory. Of course, nothing is charged for labor as it is only a pastime when one does not keep too many. Of course, I prefer the Barred Rocks, as I have had better luck with them than I had with some other breeds I experimented with. Settings of O. A. C. bred-to-lay Barred Rocks can be obtained by the school children from Guelph at a very reasonable price. I believe one should keep good stock as it costs no more to feed them than it does to feed mongrels.

Subjoined is a summary of receipts and expenses, including the egg record for each month and the value at the market price:

RECEIPTS.		
Month	No. of eggs	Value
January.....	253	\$12.65
February.....	197	7.76
March.....	277	9.18
April.....	248	9.30
May.....	185	7.40
June.....	228	9.12
July.....	149	5.96
August.....	186	7.44
September.....	212	10.60
October.....	144	7.20
November.....	37	2.22
December.....	37	2.96
Total.....	2,153	\$91.79
Two pullets.....		5.00
Total receipts.....		\$96.79
EXPENDITURES.		
175 lbs. of buckwheat.....		\$ 5.75
274 " corn.....		10.40
180 " wheat.....		7.10
51 " oats.....		1.55
100 " Chicken Chowder.....		4.50
800 " mixed feed.....		18.00
Charcoal, grit and shells.....		1.50
Bale of straw.....		.80
50 lbs. of shorts.....		1.40
Sitting hen.....		2.00
		\$53.00
Gain \$43.79.		

Perth Co., Ontario.

W. J. BLAKESTON.

THE APIARY.

Bees and Their Stings

EDITOR "THE FARMER'S ADVOCATE":

When I start talking about bees, (a very frequent event) people often ask "Don't the bees sting you?", and there seem to be a great many people who cannot think of bees except as bearers of stings. The remark of the English emigrant who had helped his new employer for half a day in the bee-yard was, "Blimey, don't them little beggars boite," and the "boite" of the honey-bee is something that will probably always keep the honey producing business from being overcrowded.

Yet it is the easiest thing in the world to avoid stings if one only knows the few things to do, and the many things not to do, in the bee-keeping pursuit. To understand the reasons for these it is necessary to know something of bee-nature, and bee-behaviour, and this article will attempt to tell something of both.

The sting of the honey-bee is one of the most wonderful things in nature. Place it under a powerful microscope beside the finest needle that can be procured, and the contrast is remarkable. The needle looks like a great blunt pole, while the sting is still slender and sharp as ever. The actual sting consists of two barbed shafts inside a sheath, and when using the sting the bee works these into the flesh of the victim by pressing alternately upon the one and the other. The barbs are like those of a fish-hook and prevent the shafts or spears from being withdrawn while down grooves in the sides runs a poison more powerful than anything else we know, for even the minute drop that enters a sting is sufficient to cause swelling and inflammation and in some individuals, a sickness that may last several days.

Without the sting, bees would have been exterminated for the sake of their honey centuries ago, and only the wonderful community spirit that makes each bee willing to lay down her life in defense of the home enables bees to resist their natural enemies. When attacked the bees of a hive are roused by the tell-tale note of one of the guards at the entrance who makes with her wings a shrill alarm. Immediately it spreads throughout the hive and a crowd of bees begins to pour out of the entrance to attack the intruder. The eye is the usual point of attack and while a swarm of bees hovers around the head one after another alights

as near the eye as possible and drives her weapon into the skin. When the poison is discharged the bee usually twists herself around in a circle in an effort to escape, but except on rare instances she succeeds only in tearing out the sting by the roots and thereby rupturing her abdomen. It is supposed that all bees died after one sting and it is probably true of most, though some may survive. It is a curious thing that the bee who has lost her sting and is near death in consequence, seems to utilize all her failing strength in one last attempt to drive away the invader, for these bees will buzz around the apiarist with the utmost fury, and even rouse the others to a fresh attack when they have been quieted down by smoke.

The first thing to remember in handling bees without stings, is that they expect only a frontal attack, and that they expect quick excited movements such as are usually made by those who are being stung. Indeed it seems quite possible that they cannot see slow movements. Therefore we will go to the back of the hive always, and we will be careful to avoid rapid motions. White clothing should be worn, as bees attack black objects more readily than white ones, and a smoker should be kept handy. Here we must mention something about the strains or races of bees. Pure Italians are the best to keep from all points of view and they are also the gentlest of all. They are handled with comfort under conditions where a savage strain would be very troublesome. Hybrids between Italians and blacks belong to this class and are nearly always more or less ugly. We had the misfortune to buy some hybrids a couple of years ago unknowingly, and they proceeded to attack and sting without warning every person who went past on the public highway. Italian queens were sent for and introduced to these hives and now they are among the gentlest in the bunch. Of course, all the eggs that were laid after the old queens had been killed off were pure Italians, and in a few weeks time the population had changed its nationality, so to speak.

To get back to our hive. At the back of the hive we gently insert a screwdriver or hive tool under the cover, and give a gentle prise upwards. A puff of smoke is blown in as it comes up, and it is gently lifted off the hive. If a number of bees come running out in an excited way more smoke is blown at them until they quit. If, however, nothing unusual happens as little smoke should be used as possible. Now the frames may be prised carefully out one by one and lifted up so that one can see the brood in all stages with its attendant bees, the queen laying her eggs, the new honey in the cells and all the works of the hive as they are carried on.



Handling Bees Without Fear of Stings.

Every movement should be slow and gentle, and smoke should only be used if the bees show signs of hostility by running about wildly, buzzing around one's veil, or stinging one's hands. The lady in the picture, has nothing on her hands and loose sleeves as you can see, yet she rarely gets a sting.

It is hard to be still and quiet if a bee is stinging one's hand, yet it is by far the best policy. Lay the comb gently down and scrape out the sting. Wait a few moments till the pain has subsided and then go calmly on with the job. A quick movement may cause half a hundred bees to add their stings to the one you already unwillingly possess.

One of the curious things about stings is the fact of inoculation. As all experienced beekeepers know, after a time they become inoculated with the poison to such an extent that stings no longer cause them any but momentary pain. The writer once had over forty stings through accidentally upsetting a hive, and though the pain was intense for a few seconds, still there was no swelling and a couple of hours later there was hardly a trace left.

A great many remedies have been given at different times for bee-stings, but we have never been able to find much good in them. Usually they are in the form of lotions to be rubbed on to the outside of the wound, and this is manifestly unsuitable, for the poison, which does the damage, is taken into the blood, and the less the swelled place is irritated the better. Hot water bathing will sometimes help to allay the irritation and where horses have been stung badly, they have been restored by being covered with cloths wrung out with hot water. On the whole we have found the best advice to be leaving the sting alone. There are a few people who are seriously affected by stings, and these should keep away from bees, but the great majority of people take no further harm than a temporary inflammation and a good deal of pain and irritation.

Bees are inclined to sting when there is a sudden dearth of honey or when robbing has been going on from one hive to another. Indeed they sometimes get so angry at these times as to go out of their way to sting people two hundred yards away. At these times the apiary is best left alone except to stop robbing, if there is any, by piling wet grass in front of the entrance of the attacked colony.

There are some things that curiously arouse the feelings of bees. As mentioned above, black colors irritate them. So also does the smell of horses, and if the beekeeper is also a farmer it is well to have different clothing for bee-work than that used to do "chores". Rainy weather, or chilly weather, or the approach of evening all are times when bees are crosser than during the golden hours of a warm day, and it is at this time that they can be best handled. Bees are also gentler when their hive is separated from the other hives in the yard by trees or shrubbery and this is explained by the fact that cross bees hover around an open space much more than they do amongst bushes, and the moving apiarist, therefore, attracts their unwelcome attentions the more readily.

Just by way of a conclusion to this account of bees and their stings let me quote from that excellent book of recollections of old days in Ontario by A. C. Wood. He related how as a boy he went to have a swarm of bees that had emerged and was hanging on a tree. He protected his head and his hands, took a pail to gather his swarm and proceeded to begin. One thing he forgot, however, and that was to protect his ankles by pulling his socks over his pants, and many of the bees that had dropped in the grass crawled up. He says "I felt a sting on the knee, then another, than a whole volley at once, then shrapnel, machine guns, quick firers and every other form of artillery that a well-drilled army of bees knows how to bring into action."

Pail went one way and bees another as the boy beat all Marathon records to the farmhouse. I will leave you, readers, imagining the scene upstairs in the bedroom as he was trying to take off all this clothes at once.

Manitoba.

H. W. SANDERS.

HORTICULTURE.

A New Pest—The Apple Sucker

Notification has come to us from the Dominion Entomologist that the regulations under the Destructive Insect and Pest Act have been amended by an Order-in-Council passed on November 28, 1919, by adding the following paragraphs to Section 12 of the Act: "No apple stock of any description including nursery stocks, seedlings, scions, buds and grafts, shall be removed from that area included within a radius of five miles of the town of Wolfville, in the County of King, Province of Nova Scotia, unless the same is accompanied by a certificate of inspection signed by an authorized inspector, which states that the said stock, seedlings, scions, buds or grafts, has been duly treated in accordance with the instructions of the Department of Agriculture and is free from the apple sucker, *Psyllia mali* (Schmittberger)."

This new pest, which has also been added to the list of destructive insect pests and diseases, was discovered in the summer of 1919, and the above regulation has been passed, we are informed, in order to prevent its further spread on infested scions, nursery stock, etc. The apple sucker spends the winter in the egg stage, the eggs being very small and laid on the twigs of apple branches.

Commercial Varieties of Apples.

BY W. T. MACOUN.

PART II. AUTUMN VARIETIES.

If a vote were taken among Ontario fruit growers the Wealthy might be given first place among the autumn varieties of apples, but if it were taken in some other part of Canada, or in certain of the United States, the Gravenstein would be considered the outstanding variety. Perhaps the best way of getting over the difficulty is to say that, while there is but one outstanding summer apple, the Duchess of Oldenburg, there are two predominant autumn sorts, the Wealthy and Gravenstein.

The Wealthy is probably more widely planted than the Gravenstein, yet, while the latter is not found in the colder parts of Canada and the United States, where apples are grown commercially, the Gravenstein is grown in nearly all of the great apple centres of the more temperate and warmer parts. It is very popular in Eastern America, and it is also popular in the extreme West. The Wealthy, however, can be and is grown to a very large extent where the Gravenstein succeeds, but there are many places where the Wealthy grows and where the Gravenstein fails. The Wealthy has much to recommend it. The tree is hardy, it is an early and heavy bearer, too heavy unless the apples are thinned; the fruit is of good size if thinned, handsome in appearance, and good though not of the best quality. The fruit, as a rule, scabs little or none in most places where it is grown. It ships well for an autumn sort. Its chief fault is that it drops badly, but if well thinned this weakness is much lessened. It is a leading variety in most of the more Northern and Eastern United States, and in every province in Canada except the Prairie Provinces, where little fruit is grown. It is a

fruit of the more temperate and cooler parts of America rather than the warmer.

The Gravenstein is the apple which has made the fruit of the Annapolis Valley famous. It must not be supposed, however, that because the Gravenstein has made the fruit of the Annapolis Valley famous that the best Gravensteins in America are grown in the Annapolis Valley. Very fine Gravensteins are grown elsewhere, and it is certainly one of the best of the autumn varieties in Ontario and British Columbia as well. The Banks, a highly-colored sort of the Gravenstein which originated in the Annapolis Valley, has become quite popular there.

It is surprising how few other autumn varieties there are which are widely planted in America, although there are about eighteen which are planted more or less.

Alexander will, perhaps, come next, but what a drop there is between Gravenstein and Alexander. This variety has been planted in the past because of its large size and handsome appearance and hardness of tree. But the plantings of it are getting less each year as it is not good enough in quality.

Blenheim is little grown outside of Nova Scotia, where it succeeds exceptionally well. It is grown to some extent in Ontario and in New York State, but is not now mentioned as a leading variety in any of the States.

Fall Pippin is a fine old autumn variety that is still considered a leading sort in Connecticut, and Georgia, and in California, Oregon and Washington, and is highly regarded by some growers in New York State and in Ontario.

Maiden Blush was at one time widely planted and was a very popular autumn apple due to its very handsome, delicate appearance and good quality. It is not very hardy and is not grown in the colder fruit districts. It has to be handled very carefully, as it bruises easily. It is a popular apple in the State of Illinois, and seems to succeed well through the Middle West.

The six varieties mentioned, namely, Gravenstein, Wealthy, Alexander, Blenheim, Fall Pippin and Maiden Blush have been more generally planted than any of the others.

Twenty Ounce (Cayuga Red Streak) is popular in New York State, and is a large, handsome apple, valuable for cooking.

Dudley is popular in New Brunswick, and is become favorably known in other parts of Canada and in Minnesota. It is about the same season as Wealthy, is larger, is handsome in appearance, is of good quality and does not drop as badly as Wealthy. The tree is as hardy or harder than Wealthy. This variety deserves a trial where it has not been grown.

Fanny has a limited popularity and is inclined to run small.

Okabena is a seedling of Duchess of Oldenburg, which ripens just after that variety, and resembles it somewhat. It is an early bearer and productive, and is, we believe, a coming apple for the colder parts of Canada where apples are grown commercially. It is doing well at Ottawa. It is highly regarded in Minnesota.

Golden White, also known as Winter Stripe, is a Russian variety of handsome appearance, and fairly good quality, which has proved very hardy and productive at Ottawa, and is deserving of further trial.

Langford Beauty is a handsome apple of the Fameuse type, which has done well in Eastern Ontario.

St. Lawrence, owing to its shy bearing habit, while of very good quality is little planted.

The remaining varieties are valuable in the colder parts of Canada and the United States. They are McMahan, Antonovka, Patten Greening, and Peach of Montreal; Worcester Pearmain, an English variety, has done well in some parts of Canada.

Many autumn varieties have been originated at Ottawa, but eight of the most promising are Glenton, Ambo, Lipton, Joyce, Pedro, Thurso, Patricia and Hume.

(To be continued.)

Northumberland and Durham Apple Growers' Convention.

The ninth annual meeting of the Northumberland and Durham Apple Growers' Association proved to be a more practical and interesting convention of fruit growers than did the recent annual convention of the Ontario Fruit Growers' Association. The convention of Northumberland and Durham growers was held in the Town Hall, Cobourg, on Wednesday, January 28. The morning, afternoon and evening sessions were all interesting, and characterized by good discussions. The minutes of the eighth annual meeting contain the kernel of an interesting discussion continued this year, which bore reference to two resolutions passed last year and again this year with increased emphasis. They read as follows and are self-explanatory.

COST OF PRODUCTION OF APPLES.

"Whereas for some time the consumers of apples have felt that the prices at which apples have been selling were not justified by the cost of production; and that this feeling that an unfair price was being charged, acted as a deterrent to the purchasing of apples; whereas had the consumer felt that the prices asked were justified, more liberal purchasing would have resulted to the benefit of both producer and consumer. The producer would have had the benefit of a larger market and the consumer would be benefited from the increased consumption of apples which would result directly in improving the healthfulness of himself and his family, therefore, it was desirable for the benefit of both producer and consumer that some definite, authentic information be available as to the average cost of production of apples.

"Therefore, be it resolved that the Minister of Agriculture for Ontario be asked that an investigation into the cost of apple production similar to the investigation conducted by Mr. Leitch, of the Ontario Agricultural College into the cost of the production of milk in Oxford County, in 1918, be conducted in the Counties of Northumberland and Durham.

"That this investigation be conducted so that the data so collected will be available to the public by the time the apple crop of 1920 is ready to be placed on the market."

FRUIT EXPERIMENT STATION NECESSARY.

"Whereas there has developed in the Counties of Northumberland and Durham and particularly in the parts of those counties immediately adjacent to the north shore of Lake Ontario, an important industry in the growing of apples, which industry has developed until the yearly return to the united Counties of Northumberland and Durham from the production of apples amounts to many thousands of dollars.

"And whereas the varieties which have been grown in this district, as in other districts in Ontario, are largely those varieties which have been found most suitable and which had their origin in various parts of the United States of America and it has been proven that in the event of the recurrence of such winters as was experienced in 1918 that very many of these varieties are not sufficiently hardy to withstand the rigors of such a winter.

"And whereas it is believed that the experimental orchard at the Ontario Agricultural College, at Guelph, and also the orchards at the Dominion Experimental Farm at Ottawa are both situated in districts which have as an average a very much more severe winter than that which prevails along the north shore of Lake Ontario; and that both of these experimental stations are severely handicapped on account of their location in testing varieties and also in originating new varieties which might be suitable for this locality.

"And whereas it is considered highly desirable that there be some experimental station where extensive and careful testing of all varieties, as well as the breeding of new varieties to be tested as to their suitability for this district, since there is a very great need of a few good staple varieties which can take the place of such varieties as the Baldwin, Cranberry Pippin, King and Stark, which varieties have been important varieties in

the Lake Ontario apple district, but which have proven entirely too tender to be recommended for planting.

"Therefore, be it resolved that we petition the Honorable Manning W. Doherty, Minister of Agriculture for Ontario to take the necessary steps to establish at some suitable point in the Counties of Northumberland and Durham, a permanent experimental station which shall have as its principal object the testing of the many varieties of apples which are available at the present time, and especially those which have been originated and tested at the Experimental Farm, at Ottawa, and also new varieties from any other source, for the purpose of eliminating those which are undesirable and determining those which are likely to prove most satisfactory in commercial plantings. Such a station would also be able to carry on experimental work as to the best methods of pruning, spraying, cultivating, fertilizing and otherwise caring for all of the classes of fruit grown in the fruit districts of the united Counties of Northumberland and Durham."

The President, C. R. Lovekin, Newcastle, who operates one of the largest acreages of apples in Ontario, delivered an address notable for its outspokenness regarding fruit matters. He confessed that since becoming President of the Association he had found the fruit industry in Northumberland and Durham much larger than he had previously considered it, and remarked that when the capital invested in lands, orchards, equipment and material was considered it seemed a shame that the industry should have received so little encouragement from the late Government in the matter of cost of production investigation. Previous to 1914, he said, the United Counties had sent out one-seventh of the apples exported from Canada. In 1919 prices were good, but the industry still lacked the most desirable varieties and satisfactory information as to the control of fungus. A fruit experiment station for the north shore of Lake Ontario is badly needed, said Mr. Lovekin. Apple growing during the last four or five years has not been nearly as profitable as might seem, and the speaker said that the man who depended entirely on his apple crop was badly off. Referring to the O. A. C. and the new Minister of Agriculture, Mr. Lovekin said that he was glad the Minister, Honorable Manning Doherty, seemed anxious to bring about some improvement. Much improvement could be brought about, he thought.

THE SETTING OF FRUIT.

The special speaker of the convention was Professor W. H. Chandler, Chief of the Department of Pomology, Cornell University, Ithaca, N. Y. Professor Chandler is well known to Canadian fruit growers, and, although a comparatively young man, has spent many years in carefully investigating special fruit problems. He delivered two interesting addresses, one on the setting of fruit, and the other one on results of pruning experiments. In connection with the setting of fruit, Professor Chandler said that one of the most serious losses to fruit growers is from the failure of fruit to set, on account of poor pollination. In New York State, for instance, poor crops were experienced in 1915, 1916 and 1917, in each case due to this cause. The speaker indicated briefly the necessity for proper pollination of the blossoms before the fruit could set, and pointed out that bees were practically the only agency that need be considered materially useful in carrying pollen from one blossom to another. He emphasized very strongly the fact that certain varieties are self-sterile; that is to say, the female organs of the blossom cannot be fertilized by pollen from the same plants, or even from another tree of the same variety. Varieties, the blossoms of which can fertilize each other, are called self-fertile. The grower is interested in pollination only in so far as there are several kinds of self-sterility, the most serious form being that where the flower bears good pollen but will not fertilize flowers of the same tree or variety. Thus, Bartlett pear, for instance, is practically self-sterile, although it makes a good cross-pollinizer for Keiffer. A considerable amount of study has been given to this

question, but even yet we are able to say with regard to only a few varieties that they are self-sterile or self-fertile. In addition to Bartlett, the Keiffer pear is at least partially self-sterile; Seckel is partially self-sterile, and the same applies to Flemish Beauty and Duchess of Angouleme. Peaches and sour cherries, so far as is known, are self-fertile, but sweet cherries are apparently entirely self-sterile. The same holds true with regard to Burbank, Abundance, and nearly all varieties of American plums. Among apples, Rome Beauty, York Imperial and Wagener seem almost completely self-sterile. In Oregon, Newton is certainly self-fertile, with Baldwin, Grimes, and Duchess of Oldenburg apparently so, while Ben Davis, Esopus, Spitzenburg and Yellow Transparent are partially self-fertile. Other sterile varieties in Oregon seem to be Arkansas, Arkansas Black, Gravenstein, Gano, Jonathan, Tompkins' King, Maiden Blush, Ortley, Rome Beauty, Ralls, Rhode Island Greening, Winesap and York Imperial. It is quite possible, however, that a variety might be self-fertile in one section and self-sterile in another. This fact makes exact information, as regards this problem, much more difficult to obtain. The remedy for self-sterility according to Professor Chandler, is in mixed planting of varieties and possibly the keeping of bees, although in New York, in 1917, such would not have proven a satisfactory remedy because the weather was so cold at blooming time that practically no bees were working and self-sterile varieties, like Rhode Island Greenings, set very little fruit, even in orchards containing many varieties. The only entirely satisfactory remedy is to develop self-fertile varieties, which will require a very long time, since it will be difficult to associate self-fertility with the most desirable characteristics of the fruit.

Vigor is very important in enabling the tree to hold its fruit. Thorough pollination will mean the development of more seeds per fruit, and the larger the number of seeds the easier it is for the fruit to hold to a weak spur. In very infertile soils it has been found by experiment that an early application of nitrate of soda will increase the percentage of blooms that set fruit. Generally speaking, the problem of pollination and the set of fruit is very closely associated with orchard care and cultivation.

RESULTS FROM PRUNING EXPERIMENTS.

Speaking with reference to pruning, at a later session, Professor Chandler referred to the effect of training trees in different ways on their fruitfulness. One of these methods is to permit the tree largely to shape itself, a method that requires the minimum of pruning. Another method is training for an open head, though this open head is not aimed at while the tree is young. The third is the central leader form of tree, by which, instead of keeping the four lower branches larger than the uppermost one, as in the case of the open head, all of the branches are cut back enough to keep them appreciably smaller than the main leader. The results of experiments show that where little pruning has been given to young trees, the fruitfulness is considerably greater than that of either the central-leader or the open-head trees. The smallest amount of fruit was borne by those trained to the open head, and these received the largest amount of pruning. It seems clear, however, that the open-head form in the case of varieties like Baldwin, Rhode Island Greening, King, McIntosh, Winter Banana, Esopus and probably Twenty Ounce and Jonathan can be secured with less pruning than would be required to secure a central leader in these varieties. In the case of the plum, pruning to secure an open head has not reduced the fruitfulness of the young tree as much as it has in the case of the apple.

ORCHARD FERTILIZERS.

At the evening session, H. G. Bell discussed the question of fertilizers and their use. After reviewing briefly the duties of the important plant nutrients in soils, the speaker pointed out that food added to the

growing crops should be in a form in which it will be readily soluble, or will become so within the growing season. It was also stated that a balance in the plant food of orchard soils is necessary if trees are to do their best. Quoting from his remarks, we read: "Nitrogen is the plant food which causes wood growth, both of trunk and twig. Too much nitrogen means too rapid a wood growth, tender quality of twig, and an over emphasis of leaf production coupled with delay in ripening of the fruit. Phosphoric acid has to do with the ripening of the fruit and the vigorous growth of the roots of the tree. Potash has an influence on the power of the tree to resist disease, and also influences the laying down of starch within the fruit of the tree."

The speaker recommended for orchards on sandy soils about one pound per year that the tree was old of a fertilizer carrying 5 to 7 per cent. nitrogen, and 10 to 12 per cent. phosphoric acid, with an addition of 2 to 3 per cent. potash if the soil graded off in any sections toward a considerable amount of humus or muck, which condition is found in certain sections. For fertilizers on orchards on clay soils the nitrogen may be cut down a little, but the phosphoric acid should be maintained. The time to apply the fertilizer is in the spring before the buds open. From the time of the setting of the fruit until harvest time there is a tremendous strain upon the plant food of the soil. This additional plant food acts like concentrated feed on live stock and turns the moderate crop to one of superior quality and quantity.

TRACTORS FOR ORCHARD WORK.

A very practical and interesting discussion took place with regard to the use of orchard tractors. W. H. Gibson, a very large grower at Newcastle, led the discussion and pointed out that his reason for purchasing a tractor was that he found difficulty in the spring in getting his land cultivated at the same time that spraying needed to be done. All of the horses were required for spraying, and before the tractor was purchased the cultivation was neglected. The caterpillar type of tractor appealed to Mr. Gibson because it was slow down. The tractor has been able to get on the land any time that horses could work, and when the weather became so very dry and hot the tractor could go ahead and work when many horses were lost. The weather was so hot in the orchard at times that the blossoms were cooked, but Mr. Gibson was able to get most of his bearing orchards plowed and worked, whereas but few of his neighbors could even get their plowing done. In the fall all the apples were harvested by October 28, and by putting both tractor and teams at the plowing all the plowing was done on time. An enthusiast for a light wheel-type of tractor followed Mr. Gibson, and pointed out that for tillage work on the farm one does not want a heavy tractor. Weight requires fuel to drive the tractor, and with his small tractor he has been able to cut down his horses from five to two. One of his neighbors had worked a twelve-acre field four times in one day with a tractor, using everything from a double disk to a drill. The inexpensive tractor is an advantage nowadays in view of the fact that the purchaser must pay for the manufacturer's experience with different designs, and it was pointed out by the speaker that only one firm that he knew of was making the same tractor to-day as three years ago. From ten to eleven gallons of coal oil per day are required and six acres per day can be plowed with this tractor. The greatest advantage of the light tractor is the economy of fuel, the economy in maintenance as compared with horses that can only work part of the year, and the fact that it does not pack the ground. An instance was given of one man who during the very hot weather last summer had thirteen horses working on Friday, nine of which died that night from the heat. During the discussion that followed it was pointed out that a farmer or orchardist wanted to know not only what a machine costs and how much work it will do, but how easily the owner can get at broken parts, valves and gearing. One successful grower and enthusiastic tractor owner stated that with his small wheel-tractor he has plowed ten acres in ten hours, and would undertake to kill any eight horses in two weeks of hot weather if they kept up to him with the tractor. It requires on the average one and a half to two and a half gallons of coal oil to plow an acre. He would not trade his tractor for any ten horses in the country. E. F. Palmer, Director of the Vineland Horticultural Experiment Station, stated that they had had a tractor, which it was discovered was of the same make as that of the last speaker, for two full seasons, and that the principal difficulty with tractors was in securing successful operators. During the two full years the machine had not lost five days due to breakages or difficulty in securing repairs. The operator, however, was exceptionally good.

DOMESTIC GRADE OF APPLES UNDER FIRE.

The Dominion Fruit Inspector for the City of Ottawa discussed the grading and packing of apples, with particular reference to the domestic grade, which was recently included in the Act. The percentage of No. 1 packed last fall was very very small; in fact, the crop now yields no more than ten or fifteen per cent. of No. 1's and 2's together. This deficiency in the higher grades of apples is being supplied by boxed apples largely from the Western Provinces. It was pointed out by the speaker that at a certain time not long ago there were stored in Ottawa 9,000 barrels of apples and 14,000 boxes. Up to the present, only 1,200 barrels of apples have been sold, while 10,000 boxes have been sold. The speaker contended that growers were not willing to receive prices that were sufficiently graded to mark the difference in value between the better and poorer

grades. He further stated that if the fruit inspectors were to do their full duty, fifty per cent. of the No. 3 apples packed would be condemned as containing culls. The fruit trade in the cities is being destroyed by the fact that the pedlars and hucksters get only the No. 3 grades and domestics; the latter particularly contains far too many scabby and defective apples. Good domestic apples will sell in Ottawa for \$9 per barrel, but specimens were exhibited from a carload recently shipped to Ottawa that were declared to be absolute culls. P. J. Carey took the responsibility for practically creating the domestic grade and thought that there was a place for it. The Resolutions Committee later reported against petitioning for its elimination.

THE NEED FOR EXPERIMENTAL WORK.

E. F. Palmer discussed the need for further experimental work in apple growing and pointed out that a great deal of work remained to be done in connection with the relation of stock and scion. At Massachusetts, Duchess, for instance, had been proven an inferior root variety; McIntosh was a strong variety on Transcendant as well as on its own root, but Red Astrachan was dwarfed on Transcendant. Some of the problems needing investigation were first, the question of biennial bearing; second the question of pruning; and third, the question of spraying. It appears that thinning, while valuable as an orchard practice, has a negative effect in preventing alternate bearing. In some way this is a matter of food supply, requiring the training of a dual-system of fruit spurs, and a great deal of work is needed. In pruning, the variety must be studied carefully and eventually we will come to the time when we must prune each variety differently. There is also the question of the relation between too heavy pruning and too close planting, as was instanced in the case of peaches. Mr. Palmer thought that horticulture was considered too much as a secondary industry, and that we must combine to elevate the status of horticulture. He thought that eventually we must have special horticultural representatives in various districts to act for the fruit grower much as the Agricultural Representative now acts for the general farmer.

OFFICERS.

The officers elected are as follows: President, C. R. Lovekin, Newcastle; Vice-President, R. B. Scripture, Brighton; Secretary-Treasurer, H. Sirett, Brighton; Executive: the officers already named and the following directors, W. H. Gibson, Newcastle; W. J. Bragg, Bowmanville; A. A. Colwill, Newcastle; S. W. Staples, Baltimore; J. G. Wait, Colborne; A. M. Macklam, Brighton, and W. H. Dempsey, Trenton.

FARM BULLETIN.

Hired Help in the Home

EDITOR "THE FARMER'S ADVOCATE":

I have seen in your comment under Editorial a few words that seem to me very strange, viz., "A neat, convenient cottage for the farm hands will help solve the labor problem and relieve the necessity of having outsiders constantly intruding on the privacy of the family circle." The meaning of the word intrude is: to come uninvited; to encroach; to force in; the adjective is, intrusive, apt to intrude; boorish. Have the farm laborers sunk to such depths then that they are no longer fit to enter a farmer's family circle? Are we devoid of social intelligence, or become in manners inferior to those who employ us? The well-to-do farmer makes his money out of the sweat of the farm hand, and while the employer is, or may be, no better in manners or intelligence than the hired man, yet the latter is stigmatized an intruder. A hired man may be fit to teach a Bible class; is he an intruder because he knows more about the things of God, say, for instance, than his employer's family? Some farmers send their single men to live with the married man. Is that another way of shifting a load on a family which perhaps, and often, is more than they should be asked to bear, to say nothing of the intrusion which somehow seems to be different in the hired man's case than the farmer's.

I believe the man who hires a single man should keep him in his house, and if the man has not proper manners the farmer has a chance to teach him in a Christian way. And so I ask the question: Why should a farmer cause a single man to intrude on a farm hand's family circle, any more than on the farmer's? And lastly, if the farmer and his family are too select for the hired hand to receive a welcome, on earth, how ever are they going to get along in Heaven? I am not blind to the fact that many farm hands are not prepossessing, either in manners or language, neither are some farmers. Let the farmer do his duty,—provide a cottage for the married man and keep the single man in his own house.

I would like to see you explain the comment I refer to and which appeared in the January 15 issue of "The Farmer's Advocate." I am quite willing you should publish the above and answer the questions and I hope this intrusion will be accepted in the kindly spirit in which it was written.

Northumberland Co., Ontario W. J. ANTHONY.

NOTE.—Mr. Anthony's argument might be carried still further and by the same line of reasoning he could show that farmers ought to take foreigners, such as those who clean and care for sugar beet fields, and do similar work, into their homes; teach them our language,

customs and otherwise improve them. Mr. Anthony's proposal may be right in principle, but in practice it cannot be carried to its logical conclusion. The word "intrude" was perhaps not well chosen particularly for the majority of cases. We had no thought of differentiating between farmers and their help; the point we wished to make was that a farmer's family is entitled to enjoy home life and so is the employee. One reason why so many men have left the country for the city is that they can establish homes for themselves and enjoy them. The reason, too, why so many 100-acre farms number only one man on them is that the farmer's wife considers it unfair to cook, wash, and work for those who are strange in the majority of cases. The farmer agrees with her that it is unfair and he works the farm alone. The subject of equality does not enter into the case at all. Farmers usually have families to rear and train and if they do not accept the added duty of training their help in regard to etiquette, language and religion we feel sure they will be forgiven. Anyone who has had actual experience will be able to appreciate the significance of our remarks to a greater extent, perhaps, than Mr. Anthony, and we are sure the day will come when the farmer will value real home life and more than that will be considered an intruder if he enters his employee's home uninvited. It is a social question which does not involve equality or superiority of one man as compared with another. Even a king in a peasant's home would become a nuisance after a time, and detract from the home life of the humble family.—EDITOR.

Ontario Wheat Prices Advances.

Effective from midnight on Saturday last, the Canadian Wheat Board has ordered increases in the price of wheat and flour which will remain until further notice, according to Order No. 85. This increase follows upon the protest made to Ottawa recently, by the Honorable Manning Doherty, Minister of Agriculture for Ontario, who pointed out that the discrimination in the fixed price against Ontario wheat was increased when the recent advance was allowed on Manitoba wheat. The Minister asked the board, on behalf of Ontario farmers, to reconsider the price on winter wheat. By the new order of the Wheat Board, the price of British Columbia, Ontario and Quebec wheat to mills in Canada is now raised by 25 cents a bushel, while the maximum wholesale price of Government standard winter-wheat flour is increased from \$10.10 to \$11.25 per barrel, basis f. o. b. cars, Montreal. The following prices now obtain according to the Order:

Two dollars and eighty cents per bushel, including 5 cents per bushel carrying charges, basis No. 1 Manitoba Northern and No. 1 Alberta red-winter in store, public terminal elevators, Fort William or Port Arthur.

Two dollars and seventy cents per bushel, including 5 cents per bushel carrying charges, basis No. 1 durum, in store public terminal elevators, Fort William or Port Arthur.

Two dollars and fifty-eight cents per bushel, including 5 cents per bushel carrying charges, basis No. 1 white winter, and No. 1 red winter wheat in store Montreal.

Two dollars and fifty-six cents per bushel, including 5 cents per bushel carrying charges, basis No. 1 mixed Ontario and Quebec wheat in store Montreal.

Two dollars and forty-nine cents per bushel, including 5 cents per bushel carrying charges, basis No. 1 commercial grade wheat in store Montreal.

Two dollars and fifty and one-half cents per bushel, including 5 cents per bushel carrying charges, basis No. 1 British Columbia wheat in store Canadian Government elevator, Vancouver.

Middlesex Milk Producers Meet.

The annual Meeting of the Middlesex County Milk Producers' Association was held in the office of the Agricultural Representative, R. A. Finn, London, on Saturday, January 31. The meeting was representative of the milk producers of the district, and considerable business in the interest of the organization was transacted. After the reading of the minutes of the previous meeting by Secretary G. Nichol, President J. C. Nichol gave a short resume of the business transactions during the past year. The Secretary who was a delegate to the annual meeting of the Ontario Milk and Cream Producers' Association, Toronto, the week previous, gave an interesting report of the business transacted, pointing out some of the benefits to be derived from affiliation with the Provincial association. The meeting decided that the local association would affiliate with the Ontario Milk and Cream Producers' Association, a decision which necessitated the raising of the membership fee to \$2. The officers for the ensuing year are: President, J. C. Nichol; Vice-President, W. J. Ellis; Secretary-Treasurer, G. Nichol; Executive, R. Brown, I. B. Whale, B. Fisher, and S. Shaw. The Association purpose holding a banquet in the near future, and have invited the Premier, Honorable E. C. Drury, to be present.

Parliamentary Dates.

Owing to the fact that the dates of by-elections for the Premier and Minister of Agriculture, in the Ontario Government, have now been decided, the date on which the Ontario Legislature will convene has also been announced. The date announced is March 9, or about a week and a half later than the date set for convening the Federal House of Commons, the next session of which will open in Ottawa on February 26.

Conference Regarding Seed Improvement in Ontario

Under the authority of the Honorable Manning W. Doherty, Minister of Agriculture for Ontario, a two-day conference was held in the Parliament Buildings, Toronto, January 28 and 29, to discuss the production and improvement of Ontario field crops. About forty were present, of whom probably sixty per cent. were officials of the Ontario and Dominion Departments of Agriculture. C. F. Bailey, Agricultural Commissioner, presided during both days, and at the opening of the conference outlined the purpose for which it had been called. During the first forenoon addresses were given by George H. Clark, Seed Commissioner, Ottawa; F. L. Newdick, Department of Agriculture, Maine; and Philippe Roy, Department of Agriculture, Quebec. In the afternoon a discussion on the standardization of varieties of field crops was led by Dr. C. A. Zavitz, O. A. C., Guelph. Dr. Zavitz emphasized the work already accomplished in this direction, and pointed out that O. A. C. No. 21 barley and O. A. C. No. 72 oats had gone very far in supplanting all other varieties in Ontario. He referred to Marquis wheat, originated by Dr. Charles E. Saunders, Central Experimental Farm, Ottawa, in very complimentary terms. Dr. Saunders followed and pointed out that it was inadvisable to standardize to one variety of any particular crop for the whole Province of Ontario. He inferred that it was a mistake to attempt to replace all varieties of oats with O. A. C. No. 72, and stated that Ontario could be divided into about three districts—east, north and central and west, each of which would probably require a different variety of each crop to be most successful. With regard to Marquis wheat, Dr. Saunders said that although it was a variety of his own originating he would not think of recommending it for planting in most parts of Ontario in preference to Goose wheat. Other subjects were discussed during the first day, among which were the best methods of producing supplies of foundation seed stocks; best methods of multiplying foundation stock; methods of distributing commercial seed supplies on a large scale; the question of co-operative cleaning, storing, marketing and distributing of seed supplies, and methods of inspection, certification and grading. In connection with a discussion on diseases, led by Professor J. E. Howitt, the speaker mentioned as an illustration of the loss through disease the fact that oat smut annually causes a loss of \$5,000,000 per year in Canada.

INFORMATION ABOUT MARKETS.

On Thursday morning, G. S. Peart, of the Seed Branch, Ottawa, led in a discussion of a market intelligence service, and said that it was decided at Ottawa last February to provide such a market intelligence service for seed growers and those who were in the market to buy. "We have not to-day," said Mr. Peart, "available seed supplies of dependable quantities and in the necessary locations. At the Seed Branch in Ottawa we have tried to lay a foundation for this service, and are organizing for this purpose throughout the various seed-branch districts so as to get accurate and reliable information regarding the supply, distribution and demand. This information will be compiled and put before the public in such a way as to provide a weekly resume of market conditions. We expect that organization in this matter will be completed sometime in February, and that our first report will be published by February 15. It is our intention also to secure information with regard to foreign markets, and the Seed Branch will be able and willing to assist seed centres that are aiming to produce seed of good quality." George H. Clark, Seed Commissioner, Ottawa, pointed out that this market service was not yet firmly grounded, and that the policy might need to be altered somewhat during the next two or three years in order to fit it into all the various forces of production and distribution.

PAST YEARS BROUGHT MARKED IMPROVEMENT IN CORN.

P. L. Fancher, Corn Specialist, Chatham, stated that twelve years ago corn improvement work in Essex County began, and there were fifty varieties of corn being grown. This number has been reduced to seven, a very creditable improvement, and these seven varieties are now being handled by the ear-to-row method by men on their own farms in the Counties of Essex, Kent, Lambton, Elgin and Middlesex. The desire is to produce corn of the greatest possible use in each locality. Co-operative experimental work is being conducted through the agricultural representatives to determine the needs of each locality, after which strong efforts will be made to determine corn-growing zones and to breed up strains of suitable varieties that will prove adaptable to local conditions. Farmers do not realize the importance of the various strains within varieties, and because each man has his own type of corn in mind, improvement is very difficult to secure. Uniformity of type can never be secured without a central breeding station from which growers may secure pure stocks of seed with which to carry on breeding by the ear-to-row method. Southern Ontario, said Mr. Fancher, is the cheapest place in America to buy seed corn of the quality produced. The grower of corn for silage, according to the speaker, is too much inclined to buy the cheapest seed. Until last year there were no seed corn standards, and even now the standards are purely optional.

GROWING CLOVER AND ROOT SEED

Dr. M. O. Malte, Agrostologist, Central Experimental Farm, Ottawa, dealt with the question of root seed and clover seed production. The speaker said that

experiments conducted on the Dominion Experimental Farms, comparing Canadian-grown seed with imported seed of various root crops, had shown the home-grown seed to compare very favorably. A great deal, however, depends on the skill of the grower, the yield, the cost of production, and the market price as determined by outside conditions. British Columbia has proven very adaptable for root-seed production, on account of the fact that the mild winter enables the grower to leave the roots in the ground all winter, whereas in Ontario the roots must be harvested and stored, which means some loss and an addition to the cost of production. The use of fertilizers and manures has proven very profitable in the growing of root-seed crops, and increases of from fifty to seventy-five per cent. in the crop have been secured with farm-yard manure supplemented by commercial fertilizer. During the last three years the quality of the root crop in Canada has been very materially lessened. Root crops have shown very great variation, due to the inferiority of imported seed. Canadian-grown seed could very greatly improve the quality of our root crops, especially if seed true to variety were grown. The speaker thought it was the business of the Government to supply pure stock seed to root-seed growers in Canada, and to this end plans have been perfected at Ottawa whereby in five or six years the Dominion Experimental Farms will be able to supply 500 or 600 pounds annually of all the popular varieties of mangel and turnip seed. This seed will be pure stock seed and will go to Canadian seed growers. The speaker said that no experimental farm would be permitted to grow more than one variety of each crop, since it had been his experience that a separation of even one mile between two varieties was not a sufficient guarantee against mixing. With regard to red clover seed, the speaker said that so far red clover seed growing has not been taken up as a special business by Canadian farmers. So far, he said, the seed produced has come as a result of land being seeded down for hay and a crop of seed taken off if circumstances seemed favorable. When grown especially for seed, said Dr. Malte, red clover is sown in rows and this method of seeding, coupled with a liberal use of fertilizer, has meant a yield three times larger than by ordinary methods. It is up to the Departments of Agriculture to educate the farmer to the value of a seed plot, and to the value of fertilizers as well as special clover-seed methods.

FARMER MUST COMPETE IN OPEN MARKETS.

At this point, J. J. Morrison, Secretary of the United Farmers of Ontario, was asked to speak. "For a long time now," said Mr. Morrison, "we have been experimenting, and by this time we should be able to produce good seed for distribution throughout the Province. The greatest enemy of good seed is weeds, and any person would be shocked at the prevalence of weeds throughout Ontario. In some places the country is practically given over to weeds, for which one of the greatest causes is lack of labor, which is so serious that farms are only half worked. Growing seed is only one side of the matter; the selling side has been terribly neglected. For manufactured products, Canada has trade commissioners all over the world; but there are no men paid to secure markets for agricultural products. We have been content to teach the farmer to produce, but we have not taught him what to do with his product when he has produced it. The farmer says, 'Why am I called inefficient when I am in open competition with the whole world? Why does the Government not teach the manufacturer to compete in open competition as I do?'" Mr. Morrison referred to the remarkably rapid growth of business done by the U. F. O. Co-operative Company, and stated that though last year the business ran nearly to \$9,000,000, this year if the present rate of growth continues it will run close to \$25,000,000. This growth has been spontaneous and not forced. It is merely tangible evidence of the spirit of the times.

OPPORTUNITY FOR CANADIAN FLAX INDUSTRY.

A brief resume of the flax industry was given by Justus Miller, Field Crop Specialist, who stated that when on a visit to Ireland this year to look into the flax industry he found that the flax seed in Holland is deteriorating and that French and Belgian buyers want Canadian seed, but that knowledge regarding it on the continent is very meagre. The average farmer, said Mr. Miller, wants continental seed, but the Irish Department of Agriculture is skeptical of it, and will this year advocate the use of Canadian seed in preference to all others. A trade commissioner should be appointed in Ireland to organize the Irish market for Canadian flax products and popularize Canadian flax fibre. There are many questions in connection with the flax problems in Ontario that remain to be solved, and it is proposed to do considerable experimental work to assist in working out these problems. A considerable discussion followed regarding the flax crop.

FARMERS WANT PRACTICAL ASSISTANCE.

G. R. Green, Woodstock, discussed, as an Agricultural Representative, his viewpoint regarding seed improvement work, and pointed out that farmers want good seed, and that the Agricultural Representative is often called upon to assist him in getting it. The small, one-pound lots that can be secured from Guelph are no good to the farmer, who does not consider a plot one rod square as worth bothering with. The trouble is, said Mr. Green, that a convention like this should

have been held five or ten years ago. All the forces represented at this conference as working for seed improvement have done good work in the past, but three-quarters of the value of this work has been lost because these forces have been working at cross purposes. J. S. Knapp, Agricultural Representative for Waterloo County, contended that the agricultural representative should be consulted about the work in seed improvement carried on in his county. He claimed that the representative should be acquainted with local conditions better than anyone else and should be able to interpret the needs of the farmers in his district. He also thought that agricultural representatives should not be called upon to do inspection work for the Canadian Seed Growers' Association, neither should the judges in the Standing Field Crop Competition come along to judge fields of standing grain a week after they had been cut.

After concluding the discussion on each different subject, those that required recommendations or seemed to need a change of method were given into the hands of small committees; thus, before the conference closed several reports of committees were brought in, and those that were passed and are to be forwarded as recommendations to the Honorable Mr. Doherty are given herewith. These recommendations are, in brief, the results of the seed conference so far as they can be presented to date:

FIELD CROP COUNCIL RECOMMENDED.

That an Advisory Field Crop Council for Ontario be formed to act in an advisory capacity for the production and improvement of all field crops, including roots, grains, garden seed crops and potatoes, the Advisory Potato Council heretofore in existence to be merged in the larger organization.

COMMERCIAL CENTRES FOR BULK SEED PRODUCTION.

Resolved that the Field Crop Council take steps to co-ordinate the activities of the field crop authorities at Ottawa, Guelph, Kemptville, Northern Ontario and all other seed organizations, including commercial seed centres to the end of producing commercial quantities of first-generation seed; that such seed be produced under rigid inspection in field and bin, and where possible, placed in sealed packages. Your committee believes that the proper place for the bulk production of first-generation seed is in commercial seed centres or business organizations able to carry on this work, but until such time as there are sufficient centres to produce commercial quantities, the government farms should make arrangements to produce such seed. Where the government institution is in the business of selling first-generation seed, such prices should be charged as will allow the co-operating seed centres to produce and sell at remunerative prices; that the members of the Field Crop Competitions should have first call on the registered seed so produced and in lots sufficient to seed the acreage required in the competitions, and that the crops produced from this seed supply shall form the basis of the bulk commercial seed supply; that the commercial seed produced by this second class of growers be disposed of locally as required and the surplus through the U. F. O. Co-operative Co. acting as a wholesale house. This wholesale should also act as a market for local seed centres producing pedigreed seed.

SPECIAL SEED FARMS.

Resolved that in the opinion of this convention it is of the utmost importance, in order to produce larger quantities of pure foundation stock seed of new or selected varieties of field and garden crops, that special farms be secured for this purpose by the Dominion and Ontario Governments, where the work could be adequately and properly carried on. We, therefore, earnestly commend this serious need to the attention of the governments concerned.

GOVERNMENT FARMS SHOULD GROW SEED FOR SALE.

The Committee beg to report that in their opinion the production of high-grade seed for purposes of multiplication should be started on Provincial Farms this year and that such seed produced should be distributed to farmers, particularly Standing Field Crop Competitors, in quantity sufficient to plant 5 acres. It is further recommended that the following minimum acreages be thus planted this year and that these acreages will be increased as is feasible: 1, Kemptville farm: 15 acres—peas, oats, barley, spring wheat; 2, O. A. College farm: 25 acres—oats, barley, fall wheat, fibre flax; 3, land in Kent supervised by P. L. Fancher: 10 acres—corn, beans; 4, Monteith and New Liskeard farms: 20 acres—early oats, peas, potatoes, clover seed; 5, that the farms of the Provincial Secretary's Department be not asked to undertake such work. It is further recommended that this seed thus produced for distribution shall be as nearly as possible of the quality of first generation registered seed. Also, that a uniform system of selection, multiplication and grades be devised for all these farms. That the following men outline systems of selection, multiplication and grades and submit them to an advisory field crop council or select standing committee as may be appointed. That this council or committee should meet early enough to permit these systems to be perfected in time to enable the crops to be planted this spring. W. J. Bell—oats, peas; Wade Toole—Barley, wheat; P. L. Fancher—tobacco, beans; J. Miller—potatoes, fibre flax; C. H. Halon—clover.

(Continued on page 222)

Toronto, Montreal, Buffalo, and Other Leading Markets

Week Ending January 29.

Dominion Department of Agriculture, Live Stock Branch, Markets Intelligence Division

	CATTLE						CALVES					
	Receipts		Top Price Good Steers (1,000-1,200)				Receipts		Top Price Good Calves			
	Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Same Week	Week Ending	
	Jan. 29	1919	Jan. 22	Jan. 29	1919	Jan. 22	Jan. 29	1919	Jan. 29	1919	Jan. 22	
Toronto (U. S. Y.)	6,903	4,684	6,772	\$14.25	\$14.50	\$14.50	787	503	728	\$25.00	\$16.75	\$24.00
Montreal (Pt. St. Chas.)	769	556	807	13.50	14.25	14.25	226	153	162	19.00	15.50	17.50
Montreal (East End)	1,040	864	1,249	13.50	14.25	14.25	362	195	185	19.00	15.50	17.50
Winnipeg	3,175	3,146	3,099	13.00	14.00	12.75	116	63	135	13.00	10.50	13.00
Calgary	1,517	3,839	2,424	11.85	14.00	12.00	72	141	141	10.00	10.00	9.25
Edmonton	678	967	303	11.50	12.50	11.50	60	71	59	10.00	10.00	9.00

	HOGS						SHEEP					
	Receipts		Top Price Selects				Receipts		Top Price Good Lambs			
	Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Week Ending	Same Week	Week Ending	Same Week	Week Ending	
	Jan. 29	1919	Jan. 22	Jan. 29	1919	Jan. 22	Jan. 29	1919	Jan. 29	1919	Jan. 22	
Toronto (U. S. Y.)	10,753	6,232	5,472	\$19.25	\$17.00	\$18.50	1,629	728	1,922	\$20.00	\$15.00	\$20.50
Montreal (Pt. St. Chas.)	1,167	434	390	19.75	16.75	19.25	297	176	526	16.75	14.00	17.00
Montreal (East End)	593	409	475	19.75	16.75	19.25	359	491	510	16.75	14.00	17.00
Winnipeg	3,065	7,072	5,998	19.00	15.50	17.25	1,194	179	437	15.50	15.25	14.50
Calgary	609	2,567	922	18.35	14.75	17.25	161	2,279	1,105	13.00	13.00	14.50
Edmonton	523	685	556	18.75	15.25	17.25	1368	153	153	13.00	13.00	13.00

Market Comments.

Toronto (Union Stock Yards).

The cattle trade was very dull. A liberal supply of cattle was in sight, and buyers, under the impression that values were too high, showed a determination to reduce initial costs. To substantiate this action the excuse was made that the quality of the stock was off. As loads showing finish went begging for bids on the early markets of the week, the action of buyers was not consistent with their argument. There were sixty-eight hundred cattle during the previous week, and a slight increase to a total of seventy-two hundred during the past week. Shippers were unable to understand why values had depreciated \$1.00 per hundred, as the decline could scarcely be attributed to an over-supply. Trading on Monday was very slow, and although there were five thousand cattle in the pens at the opening of the market, only twenty-two hundred head had been weighed at the close, and prices in most cases ruled 75 cents to \$1.00 per hundred below those of the previous week. On Wednesday, trading was a shade better, but any activity the market displayed was due to outside buying, values having declined to a level where it was profitable to export to the Buffalo and Lancaster markets. As a result of the export outlet, the week ended with values on a more substantial basis. A few heavy cattle were on sale, and the best of these were eventually bought for export to Europe. Three steers averaging fifteen hundred and fifty pounds sold at \$15.50 per hundred, one or two other sales were made at \$15.00, but the majority of the heavy stock sold under \$14.00 per hundred. Steers weighing ten hundred to twelve hundred pounds realized up to \$14.10, that price being paid for eleven head, which averaged eleven hundred and eighty pounds. A load of twenty-six steers which averaged eleven hundred pounds sold on Thursday at \$13.75; these were the best sales in the grade. A number of other sales of good steers weighing around eleven hundred pounds were made from \$12.75 to \$13.50, while stock of medium quality moved from \$11.00 to \$12.00. A few heifers sold at \$14.00 per hundred, several sales were made from \$13.25 to \$13.75, but most of the good handy-weight steers and heifers sold at \$12.75 and under, twenty-four head weighing nine hundred and eighty pounds moving at \$12.25, and several loads averaging nine hundred and fifty to nine hundred and seventy-five pounds at \$12.00. Most of the good animals in the handy-weight class went to the scales from \$11.00 to \$12.00, those of medium quality from \$9.00 to \$11.00, and common stock from \$7.00 to \$9.00. Cows and bulls weakened in sympathy with the declines on other grades. Extra good quality stock was quoted early in the week from \$11.00 to \$11.50, and a few head of each class brought the latter price. Toward the close of the week's trading however, good quality cows and bulls were selling from \$10.00 to \$10.75, and common cows and bologna bulls from \$7.00 to \$9.00. Canners and cutters were about 25 cents lower, and were weighed up from \$5.25 to \$6.25 per hundred. The stocker and feeder trade was a little more active, and a number of farmers took advantage of

TORONTO					MONTREAL (Pt. St. Charles)				
CLASSIFICATION	No.	Avg. Price	Price Range	Top Price	No.	Avg. Price	Price Range	Top Price	
STEERS									
heavy finished	57	\$13.72	\$12.75-14.75	\$15.00					
STEERS good	160	13.18	12.00-14.00	14.25	18	\$13.25	\$13.00-13.50	\$13.50	
1,000-1,200 common	6	11.25	7.50-11.75	11.75					
STEERS good	1,771	12.10	11.00-13.50	13.75	127	13.00	12.00-13.35	13.50	
700-1,000 common	351	9.18	7.50-10.50	11.50	101	11.00	10.50-11.75	11.75	
HEIFERS good	1,576	11.93	11.00-13.50	13.75	18	11.50	10.75-12.50	13.25	
fair	222	10.08	9.00-11.50	11.50	23	10.00	9.25-10.50	10.50	
common	47	8.09	7.00-10.00	10.50	76	8.50	8.00-9.00	9.00	
COWS good	169	10.50	9.50-11.50	12.00	40	11.00	10.00-11.50	12.00	
common	896	7.99	7.00-10.25	10.25	150	8.50	7.00-9.50	9.75	
BULLS good	130	10.35	9.50-11.75	12.00	17	11.00	10.00-11.50	13.00	
common	57	8.17	7.00-9.00	10.00	76	8.75	8.00-9.50	9.50	
CANNERS & CUTTERS	266	5.80	2.55-6.50	6.50	96	6.00	5.50-6.50	6.50	
OXEN					4				
CALVES veal	726	18.77	14.00-23.00	25.00	175	16.00	15.00-17.50	19.00	
grass	52	7.18	6.00-9.00	9.00	51	7.75	7.50-8.00	8.00	
STOCKERS good	651	10.20	9.00-10.50	10.50					
450-800 fair	146	9.19	8.00-10.00	10.00					
FEEDERS good	359	11.36	10.00-12.00	12.00					
800-1,100 fair	11	10.75	8.75-11.25	11.25					
HOGS selects	10,060	18.85	18.25-19.25	19.25	818	19.75	19.75	19.75	
(fed and watered) heavies	4	17.81	17.25-18.25	18.25	1				
lights	482	16.86	16.25-17.25	17.25	319	19.50		19.75	
sows	197	14.89	13.25-16.25	16.25	25	15.75	15.75	15.75	
stags	10	12.14	11.00-13.00	13.00	4	14.00		14.75	
LAMBS good	1,165	18.77	17.00-19.50	20.00	74	16.60	16.50	16.75	
common	82	15.54	14.00-17.00	17.00	121	16.00	15.50-16.50	16.50	
SHEEP heavy									
light	330	10.97	9.00-12.00	14.00	24	10.00	10.00	10.00	
common	57	6.95	6.00-8.00	8.00	78	9.00	9.00	9.00	

the lower prices to replenish their feeding pens. Good feeders could be purchased from \$10.50 to \$11.50 per hundred, and good stockers from \$9.50 to \$10.50. The calf trade gained additional strength and values were marked up about \$1.00 per hundred. One choice veal calf, which weighed two hundred pounds, sold at \$25.00 per hundred, numerous sales were made at \$24.00, while most of the choice calves ranged from \$20.00 to \$24.00 per hundred, good calves from \$17.00 to \$19.00, and common from \$11.00 to \$14.00.

The sheep and lamb trade developed a stronger tone, and prices were generally \$1.00 per hundred higher; top lambs sold at \$20.00, with the majority of the lambs from \$17.50 to \$19.50. Sheep changed hands from \$8.00 to \$12.00, and a few yearling sheep at \$14.00 per hundred.

The hog market was very firm, and notwithstanding a run of over eleven thousand head, prices made a further advance of 50 cents to 75 cents per hundred. On Monday select hogs were quoted at \$18.75 per hundred, but for the balance of the week, prices were higher, within a range of \$19.00 to \$19.25, with lights at \$17.00, and sows at \$14.00 to \$16.00.

Of the disposition from the Yards for the week ending January 22, Canadian

packing houses purchased 262 calves, 5,073 butcher cattle, 548 hogs and 1,032 lambs. Local butchers purchased 325 calves, 350 butcher cattle, 230 hogs and 525 lambs. Canadian shipments were made up of 6 calves, 1 bull, 40 stockers, 26 feeders and 49 hogs. Shipments to United States points consisted of 75 calves and 317 lambs.

The total receipts from January 1 to January 22, inclusive, were 19,365 cattle, 2,239 calves, 21,978 hogs and 8,132 sheep; compared with 22,501 cattle, 2,070 calves, 28,089 hogs and 14,486 sheep, received during the corresponding period of 1919.

Montreal.

A review of the trading on the Montreal markets for January of last year shows that at the end of the month there was a decline of from \$1.00 to \$1.50 per hundred in prices paid for cattle, and that at those figures trading was very slow. Something of a similar nature seemed to be developing in the market during the past week, as although common cattle sold at strong prices there was a weaker tone to the market, while good cattle were difficult to dispose of at the previous week's quotations. Some dealers reported a decline of from 25 cents to 50 cents on the better grades of steers. Three loads of cattle which averaged ten hundred and ten pounds per animal, and

which contained eight or ten heifers were sold at the close of the market on Monday at \$13.25 per hundred. One load of steers which averaged about one hundred pounds per head more than the load previously mentioned sold at \$13.35, and one load of steers from New Brunswick which averaged ten hundred and thirty pounds was sold at \$12.75. All the good cattle offered were sold around the figures mentioned. One choice young bull which weighed eleven hundred and fifty pounds brought \$13.00; good heavy bulls sold for \$11.00 to \$11.50. Heavy bulls in just fair flesh were weighed up at \$10.00, and common light bulls from \$8.00 to \$8.50. A few top cows brought \$12.00, and good cows sold from \$10.00 to \$11.50; cows of lesser qualities were a little stronger than during the previous week. Heifers were, in practically all cases, weighed up with other grades and brought from \$7.00 for very light young stock to \$13.25 for fat heifers weighed up with steers. Three veal calves were sold at \$19.00 per hundred, an odd sale was made at \$18.00, but the common price was \$17.50.

There were no really good lambs offered; the majority of the lambs offered were sold for \$16.50 per hundred. Sheep were in most cases sold at \$10.00.

Hogs sold at \$20.00 weighed off cars in mixed lots of selects and lights. Owing

GROW SEED FOR SALE.

It that in their opinion seed for purposes of and on Provincial Farms produced should be displayed Standing Field Crop plant to plant 5 acres. The following minimum and that these acreages: 1, Kemptville farm: spring wheat; 2, O. A. barley, fall wheat, fibre by P. L. Fancher; 10 and New Liskeard, potatoes, clover seed; 3, Secretary's Department work. It is further thus produced for dis- possible of the quality. Also, that a uniform on and grades be devised following men outline and grades and old crop council or select be appointed. That this meet early enough to fected in time to enable ring. W. J. Bell—oats, heat; P. L. Fancher—tatoes, fibre flax; C. H.

to the present demand from the local store trade, hogs weighing between one hundred and thirty-five and one hundred and fifty pounds are selling at select prices. Sows were \$4.00 lower than selects, and stags \$5.00 to \$6.00 lower, according to age and quality.

PT. ST. CHARLES.—Of the disposition from the Yards for the week ending January 22, Canadian packing houses and local butchers purchased 162 calves, 92 bulls, 597 butcher cattle, 390 hogs and 526 lambs. Canadian shipments were made up of 39 milch cows. There were no shipments made to United States points during the week.

The total receipts from January 1 to January 22, inclusive, were 2,262 cattle, 713 calves, 3,216 hogs and 3,720 sheep; compared with 3,868 cattle, 753 calves, 4,433 hogs and 3,863 sheep, received during the corresponding period of 1919.

EAST END.—Of the disposition from the Yards for the week ending January 22, Canadian packing houses and local butchers purchased 167 calves, 1,237 butcher cattle, 475 hogs and 251 lambs. Shipments to United States points consisted of 18 calves and 259 lambs.

The total receipts from January 1 to January 22, inclusive, were 3,317 cattle, 785 calves, 2,531 hogs and 2,441 sheep; compared with 4,454 cattle, 501 calves, 2,959 hogs and 3,729 sheep, received during the corresponding period of 1919.

Toronto Produce.

Receipts of live stock at the Union Stock Yards, West Toronto, on Monday, February 2, numbered, 306 cars, 3,442 cattle, 257 calves, 6,680 hogs, 691 sheep and lambs. Trade slow and prices fifty cents lower. Top, \$14.10 for eleven steers, 1,190 pounds each. Cows and bulls slow and fifty cents lower. Calves steady: best veal \$22 to \$23 per hundred pounds. Sheep fifty cents lower. Lambs steady; choice \$18.50 to \$19. Hogs, strong, fed and watered, \$19.25.

Breadstuffs.

Manitoba Wheat.—(In store, Ft. William)—No. 1 northern, \$2.80; No. 2 northern, \$2.77; No. 3 northern, \$2.73.

Manitoba Oats.—(In store, Fort William)—No. 2 C. W., 96c.; No. 3 C. W., 92c.; extra No. 1 feed, 92c.; No. 1 feed, 89c.; No. 2 feed, 86½c.

Manitoba Barley.—(In store, Fort William)—No. 3 C. W., \$1.83¼; No. 4 C. W., \$1.48¼; rejected, \$1.35¾; feed, \$1.35¾.

American Corn (prompt shipment).—No. 3 yellow, \$1.80, track, Toronto; No. 4 yellow, \$1.77, track, Toronto.

Ontario Oats (according to freight outside).—No. 3 white, 98c. to \$1.

Ontario Wheat f.o.b. shipping points, according to freights).—No. 1 winter, per car lot, \$2 to \$2.01; No. 2 winter, per car lot, \$1.97 to \$2.03; No. 1 spring, per car lot, \$2.02 to \$2.08; No. 2 spring, per car lot, \$1.98 to \$2.05; No. 3 spring, per car lot, \$1.95 to \$2.01.

Peas (according to freights outside).—No. 2, \$3.

Barley (according to freights outside).—Malting, \$1.80 to \$1.82.

Buckwheat (according to freights outside).—No. 2, \$1.45 to \$1.48.

Rye (according to freights outside).—No. 2, \$1.75 to \$1.77.

Manitoba Flour (Toronto).—Government standard, \$13.25.

Ontario Flour (prompt shipment, in jute bags).—Government standard, \$9.65 to \$9.85, Montreal; \$9.85, Toronto.

Millfeed (car lots, delivered, Montreal freights, bags included).—Bran, per ton, \$45; shorts, per ton, \$52; good feed flour, per bag, \$3.60 to \$3.75.

Hay (Track, Toronto).—No. 1, per ton, \$27 to \$28; mixed, per ton, \$25.

Straw (Track, Toronto).—Car lots, per ton, \$16 to \$17.

Farm Produce.

Butter.—Prices kept firm but practically unchanged on the wholesales during the past week, fresh-made creamery squares selling at 69c. to 72c. per lb.; cut solids at 66c. to 68c. per lb.; and choice dairy at 60c. to 65c. per lb.

Eggs.—New-laid eggs had an easier tendency, selling at 80c. per dozen, wholesale; this being due to the fact that the American varieties can be laid down here at 70c. per dozen; cold storage kept firm at 67c. per dozen for selects, and 64c. per dozen for No. 1's.

Cheese.—Cheese kept stationary in

price at 34c. per lb. for the old, and 32c. per lb. for the new, wholesale.

Honey.—There is very little honey on the market, and prices kept firm at \$5 to \$7 per dozen for the comb, and 25c. to 26c. per lb. for the strained.

Poultry.—There is such a great demand by the Jewish trade for live fat hens that this class is worth more alive than dressed. Dressed milk-fed chickens were slightly firmer in price, while the other classes of poultry kept practically stationary as quoted below:

Poultry prices being paid to producer: Chickens, per lb., alive, 30c.; dressed, 32c. Chickens, milk-fed, per lb., alive, 32c.; dressed, 36c. Ducks, per lb., alive, 30c.; dressed, 35c. Hens, under 4 lbs., per lb., alive, 25c.; dressed, 28c. Hens, from 4 and 5 lbs., per lb., alive, 28c.; dressed, 30c. Hens, over 5 lbs., per lb., alive, 33c.; dressed, 32c. Geese, per lb., alive, 19c.; dressed, 26c. Turkeys, per lb., alive, 35c.; dressed, 45c. Guinea hens, per pair, alive, \$1.25; dressed, \$1.50.

Seeds.

Following are the prices that wholesalers were paying for alsike and clover at country points:

Alsike.—No. 1 fancy, per bushel, \$33 to \$34; No. 1, \$32 to \$33; No. 2, choice, \$31 to \$32; No. 3, \$29 to \$30.

Red Clover.—No. 1 fancy, per bushel, \$36 to \$37; Canadian No. 1, \$18.50 to \$19.50; No. 2, \$31 to \$32; No. 3, \$29 to \$30.

Sweet Clover.—Export, per bushel, \$18 to \$19; Canadian No. 1, \$18.50 to \$19.50; Canadian, choice, \$15 to \$18.

Wholesale Fruits and Vegetables.

Fruits.—All classes of fruits kept practically unchanged in price during the past week, selling as quoted below.

Vegetables.—Potatoes kept firm at existing high prices, though trade has been rather light. Old cabbage is quite scarce, and firm at the advanced price of \$6 per bbl. Other classes of domestic vegetables were very firm, as also were the new southern ones; celery especially so.

Wholesale Fruits.

Apples.—Western boxed, \$3.50 to \$4.50 per box; Ontarios and Nova Scotias, \$5.50 to \$9.50 per bbl.; Ontario boxed, \$1.60 to \$3.50 per box; fancy Spys (Ontarios), \$12 per bbl.

Oranges.—Cal. navels, \$5 to \$6.75 per case; Floridas at \$5 to \$6 per case; pineapple Florida oranges, \$6 to \$6.50 per case.

Pears.—Imported, \$5 to \$6 per box. Rhubarb.—Hot-house, \$1.50 to \$1.75 per dozen bunches.

Tomatoes.—Hot-house, No. 1's, 42c. to 45c. per lb.; No. 2's, 20c. per lb.

Wholesale Vegetables.

Beans.—one in. Beets.—\$2.25 to \$2.50 per bag. Brussels Sprouts.—35c. per lb. Cabbage.—\$6 per bbl.; Cal., new, \$6 to \$7 per case.

Carrots.—\$1.75 to \$2.25 per bag. New, \$10 per bbl.

Cauliflower.—California, \$5.50 to \$6 per standard crate, \$2.75 to \$3 per pony crate.

Celery.—California, \$12 to \$15 per case. Endive.—\$1 per dozen, \$8 per bbl.; \$6.50 per case; French, 40c. per lb.

Lettuce.—California Iceberg, \$5.50 to \$6 per case; Florida, \$2.75 to \$3 per hamper; leaf, 30c. to 40c. per dozen.

Onions.—\$7.50 to \$8 per cwt.; \$5 to \$5.50 per 75 lbs.; Spanish, \$7.25 to \$8 per case; \$6 per three-quarter case.

Parsley.—\$1 to \$1.25 per dozen, \$20 per bbl.

Parsnips.—\$2.50 to \$3 per bag.

Potatoes.—\$4.25 to \$4.50 per bag.

Radishes.—40c. to 50c. per dozen bunches; imported, 50c., 60c. and \$1 per dozen bunches.

Spinach.—\$10 per bbl., \$6.50 per case.

Sweet Potatoes.—\$3 and \$3.25 per hamper.

Turnips.—\$1 to \$1.25 per bag; new, white, \$10 per bbl.

Victory Bonds.

Following were the values of Victory Bonds on the Toronto market, Saturday, January 31: Victory Bonds maturing 1922, 99½ to 100½; Victory Bonds maturing 1923, 99½ to 100½; Victory Bonds maturing 1927, 101½; Victory Bonds maturing 1933, 102½ to 102½; Victory Bonds maturing 1937, 104½ to 104½.

Buffalo

Cattle.—Cattle trade was strong on anything in the butchering line at Buffalo last week, but was lower on shipping steers. Canadian supply was light, there being not in excess of ten to fifteen loads, and about the best in the steer line out of the Dominion sold around \$13. Best native steers sold on a range of from \$14 to \$14.50, with the best handy steers from \$12.50 to \$13 generally, good, desirable yearlings selling higher. In the butchering heifer line about the best offered showed a range of from \$10.50 to \$11, some few very fancy higher. Anything in the butchering line sold from a quarter to half higher and this much of a decline was had on shipping steers. Very few stockers and feeders were offered and very few were wanted. On bulls the market was very high, best heavies selling up to \$11 to \$12, very few of the light grades ruling below \$8. On milk cows and springers, only the best milkers and forward springers were wanted, backward springers and medium fresh cows proving very slow sale. Offerings for the week totaled 3,775 head, as against 3,150 for the previous week and as compared with 5,050 head for the corresponding week a year ago.

Shipping Steers.—Natives — Very choice heavy, \$15 to \$16; best handy, over 1,300, \$14 to \$14.50; fair, over 1,300, \$12.50 to \$13.50; best, 1,200 to 1,300, \$14.50 to \$15; good, 1,200 to 1,300, \$13.50 to \$14.50; plain, \$11.50 to \$12.

Shipping Steers.—Canadians — Best heavy, \$13 to \$13.50; fair to good, \$12.50 to \$12.75; medium weight, \$12 to \$12.50; common and plain, \$11 to \$11.50.

Butchering Steers.—Yearlings, fair to prime, \$13 to \$15; choice heavy, \$12.75 to \$13.50; best handy, \$12.50 to \$13; fair to good, \$11 to \$12; light and common, \$9 to \$10.

Cows and Heifers.—Best heavy heifers, \$10.50 to \$11; good butcher heifers, \$9.25 to \$9.75; light, common, \$6 to \$7; very fancy fat cows, \$10.25 to \$10.75; best heavy fat cows, \$9.50 to \$10; medium to good, \$7.50 to \$9; cutters, \$6 to \$6.50; canners, good, \$5.50 to \$6.

Bulls.—Best heavy, \$10.50 to \$11.50; good butchering, \$9.75 to \$10; sausage, \$7.25 to \$7.75; light bulls, \$6 to \$8.

Stockers and Feeders.—Best feeders, \$9.75 to \$10.25; common to fair, \$8 to \$9; best stockers, \$8 to \$8.50; fair to good, \$7.75 to \$8.25; common, \$6 to \$7.

Milkers and Springers.—Good to best, small lots, \$125 to \$160; in car loads, \$90 to \$100; medium to fair, small lots, \$80 to \$85; in carloads, \$70 to \$75; common, \$50 to \$55.

Hogs.—Prices, as a result of light receipts, showed a sharp advance the forepart of last week but before the week was out values were on the decline. Monday, when the advance over the previous week's close, figured from 35c. to 50 cents, packers grades ranged from \$16.60 to \$16.85, with the bulk of the light hogs bringing up to \$17, Tuesday light hogs made \$17.25, with the better weights ranging from \$16.75 to \$17.10 and Wednesday's market was steady to a quarter lower. Thursday values showed another drop of 25 to 50 cents and Friday a further decline of 25 to 50 cents was had, packers grades selling from \$16 to \$16.25, few made \$16.40 and light hogs, which were taken by order buyers, ranged from \$16.50 to \$16.75. Roughs \$14 to \$14.50 and stags \$11.50 down. Receipts the past week were 25,000 head, as compared with 33,314 head for the week before and 25,400 head for the same week a year ago.

Sheep and Lambs.—Top lambs sold within 30 cents of the American record last week. Monday the best lots sold at \$22 and \$22.10, few made \$22.15, with two loads reaching \$22.35. The previous high mark, which was made at Buffalo two years ago, was \$22.65. The balance of the week showed top lambs selling from \$22 to \$22.25. Cull lambs brought from \$19 to \$19.50, and latter figure was top for yearlings. The fore part of the week showed choice wethers quoted from \$14 to \$14.50, with ewes \$13 down and by the end of the week sellers ranged wethers up to \$15 and ewes brought up to \$13.50. Canadian lambs, of which there were only a few the past week, sold from 75 cents to \$1.50 per cwt., under the natives. Receipts for the past week were 18,800 head, the week before there were 20,132 head and for the same week a year ago the run was 17,200 head.

Calves.—Last week showed top veals

selling within 50 cents of the record—\$26—made at Buffalo last year. Monday the best veals moved at \$25, and Tuesday the tops reached up to \$25.50. Wednesday and Thursday none sold above \$25, and Friday buyers got the best down to \$23.50 and \$24. Cull grades sold the fore part of the week up to \$20, and Friday the range on these was from \$18 down, weighty fed calves selling as low as \$8. The past week showed some country shipped Canadian calves selling up to \$25 and Friday the tops out of some Canadian market calves went at \$22. Receipts for the week were 3,600 head, as compared with 3,142 head for the week previous and 2,800 head for the same week a year ago.

Montreal.

Horses.—Carters are beginning to look forward to the spring business but instead of turning their entire attention towards purchasing a supply of horses are looking somewhat towards the gasoline truck and there is no doubt that these are gradually growing in numbers. Prices of horses are little altered: Heavy draft, weighing from 1,500 to 1,600 lbs., \$250 to \$300 each; light draft, 1,400 to 1,500, \$200 to \$250 each; light horses, \$125 to \$175; culls, \$75 to \$100 and choice saddle and carriage animals, \$200 to \$250.

Dressed Hogs.—Very little change is noticeable in the market for dressed hogs. Country dressed, light weights, were quoted at 25c. to 26c. per lb. and city abattoir, fresh-killed stock at 28c. per lb.

Poultry.—Supplies of poultry are not very large and receipts have been light of late. Prices were steady, being 47c. to 48c. per lb. for choice turkeys, 44c. to 46c. for common to good; chickens sold as low as 25c. for common and good sold at 30c. to 32c. with choice up to 33c. and 35c. Geese were 26c. to 30c. and ducks, 38c. to 40c.

Potatoes.—The market for potatoes has strengthened greatly during the past few weeks in spite of the report that considerable stock is available in the country. The cold weather is doubtless partly responsible. Prices were around \$4.50 per bag of 90-lbs. for Quebec white potatoes, ex-store, with car lots quoted around \$3.75, ex-track.

Honey and Maple Syrup.—The market for these products is hardly quotable and the season for the latter is again coming around. Maple syrup was around \$1.50 per gal. tin and sugar around 35c. per lb. Honey was quoted at 25c. per lb. for white clover comb and 22c. for strained in pails of 30 lbs. Dark strained was about 20c. per lb.

Eggs.—Demand for new-laid eggs at the extreme prices of December has fallen off and prices have been on the down grade, being now 80c. to 85c. per dozen. Selects were in fair demand, at 62c., No. 1 stock being 54c., and No. 2 stock 51c. to 52c. per lb.

Butter.—No change of consequence has taken place in the market for creamery but prices appear rather on the easy side. Finest grass creamery was quoted at 65½c. to 66c. per lb., fine being 1c. under and current receipts ranging from 60c. to 61c. per lb. Dairy butter sold at 57c. to 58c. per lb.

Cheese.—The market for cheese shows little change and quotations for colored were 30½c., white being 30c. to 30¼c. and tail ends 27c. per lb.

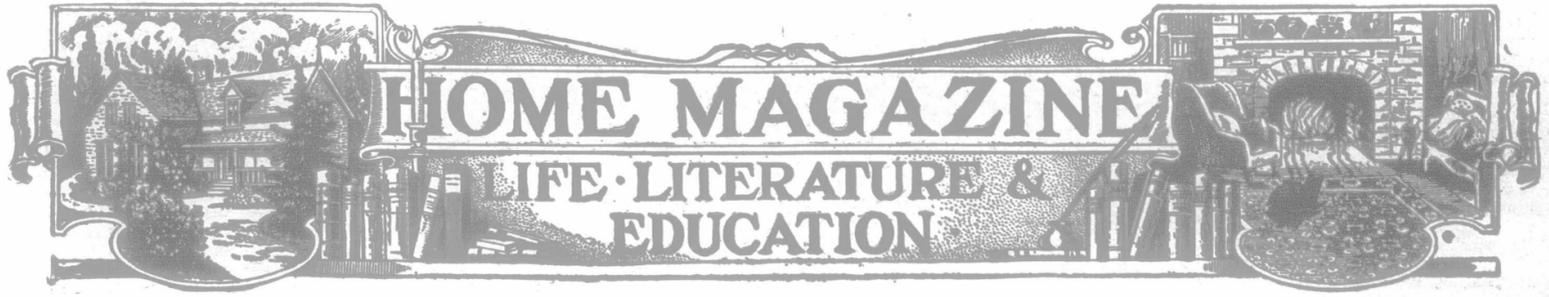
Grains.—No. 2 Canadian Western oats were selling at \$1.15 per bushel, ex-store, and at \$1.04 basis Fort William; No. 3, \$1, tough No. 2, \$1.01 and tough No. 3 at 99c., ex-track. Barley was dull at \$2 per bushel for Ontario No. 3 extra, in car lots, ex-track; \$1.99 for No. 3 Ontario or Canadian Western; \$1.65 for Canadian Western No. 4; No. 2 buckwheat was quoted at \$1.60 bid.

Chicago.

Hogs.—Top, \$15.50; heavy, \$14.75 to \$15.30; medium, \$15.10 to \$15.45; light, \$15.15 to \$15.50; light light, \$15 to \$15.35; heavy packing sows, smooth, \$14 to \$14.50; packing sows, rough, \$13.75 to \$14; pigs, \$14 to \$15.

Cattle.—Compared with a week ago; beef steers and butchers, mostly steady to 25c. lower; in between heifers, 50c. lower; canners, steady; calves, mostly 25c. higher; feeders, steady to 25c. lower.

Sheep.—Compared with a week ago; market 75c. to \$1.25 higher.



cents of the record—also last year. Monday closed at \$25, and Tuesday up to \$25.50. Wednesday none sold above \$25. Cull grades sold the week up to \$20, and on these was from a few fed calves selling as the past week showed shipped Canadian calves and Friday the top Canadian market calves receipts for the week were compared with 3,142 week previous and 2,800 week a year ago.

Montreal.

are beginning to look for business but instead of attention towards the horses are looking for the gasoline truck. Doubt that these are in numbers. Prices altered: Heavy draft, 1,600 to 1,800 lbs., \$250; light draft, 1,400 to 1,500; light horses, \$125 to \$100 and choice saddle mals, \$200 to \$250.

Very little change in the market for dressed, light weights, to 26c. per lb. and city stock at 28c. per lb. Receipts have been light, steady, being 47c. for choice turkeys, 44c. for common and good, with choice up to 33c. were 26c. to 30c. and

market for potatoes greatly during the past week is available in the weather is doubtless. Prices were around 90-lbs. for Quebec ex-store, with car lots .75, ex-track.

Syrup.—The market is hardly quotable for the latter is again Maple syrup was around and sugar around 35c. quoted at 25c. per lb. mb and 22c. for strained. Dark strained was

for new-laid eggs at prices of December have been on the now 80c. to 85c. per ere in fair demand, at being 54c., and No. 2 per lb.

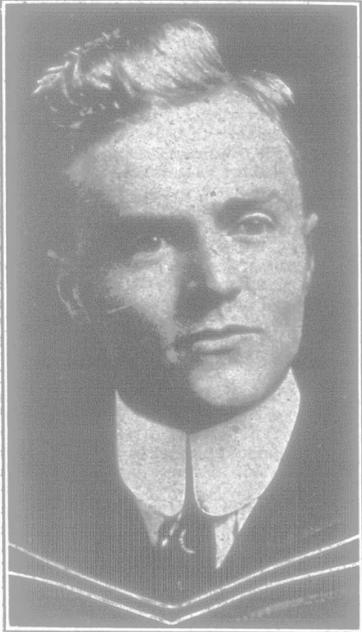
change of consequence has the market for creamery rather on the easy, creamery was quoted per lb., fine being 1c. receipts ranging from. Dairy butter sold at

market for cheese shows quotations for colored being 30c. to 30½c. per lb.

Canadian Western at \$1.15 per bushel, .04 basis Fort William; No. 2, \$1.01 and tough track. Barley was dull for Ontario No. 3 extra, \$1.99 for No. 3 Canadian Western; \$1.63 western No. 4; No. 2 at \$1.60 bid.

Chicago.

5.50; heavy, \$14.75 to \$15.10 to \$15.45; light, \$15 to \$15.35; cows, smooth, \$14 to \$15; cows, rough, \$13.75 to \$15. red with a week ago; chers, mostly steady to even heifers, 50c. lower; calves, mostly 25c. ready to 25c. lower. red with a week ago; 25 higher.



Dr. Jas. Cotton,

The Toronto surgeon who has perfected a new anaesthetic, a purified form of ether, which will enable operations to take place, if desired, without the patient losing consciousness. It is much quicker in its effects than the old ether, and much less likely to cause nausea or other trouble afterwards.

The Minister of Fire.

BY ALBERT DURRANT WATSON.

Give me a tongue of mystic flame, O God,
I pray;
I would not speak until the urge comes
From the skies;
I would be dumb as solemn death and
nothing say
Until my voice from the world's soul as
music rise.
When Thou would'st speak, then let me
write the vast emotion,
My words all blending with the song of
woods and ocean.
As Thou dost think, let utterance be my
desire,
For I would be for Thee always a tongue
of fire.

Influenza.

BY "MEDICUS."

INFLUENZA is caused by a germ that gets into our body from the friend of ours who has had an attack or having recovered from an attack is a "carrier," in which case he still had the germs in his mouth or throat or nose. They cause him no inconvenience; he has become accustomed to them, or is "immune," as the doctors say, but if you get them in your mouth or nose, you will likely have influenza. In investigating outbreaks of typhoid fever in New York it was found the source of the infection was a woman in perfect health, who had had typhoid fever but who still harbored the germs. She was known as "Typhoid Mary" and became a national figure among the members of the medical profession because they did not know what to do with her. They could not kill the germs in her body, and they were unwilling to let her be at large because of the danger to the public; neither could she be lawfully confined to a jail. Some of your "Flu" friends may be "carriers," and may be the source of the epidemic.

But, how do the germs get into our body? In at least 90% per cent of all infectious (catching) diseases, the germs gain entrance through the mouth or nose,

We either put them there with our fingers or they are placed there by our friends who cough in our face. Talking, laughing and sneezing will also scatter the germs. If we were to place some dishes on the floor directly in front of a speaker, and in the dishes place gelatin or some other food that germs grow on, we could easily determine how far he scatters germs. In ordinary talking for instance, we send a spray of droplets of water for a distance of about 4 feet. Then for the sake of others, we should always use a handkerchief (or our hand), whenever we cough, or sneeze. It would be a splendid thing to avoid talking directly into a person's face, because of the danger of mouthspray. Wearing a mask during an epidemic will help prevent germs reaching you, as well as protecting your friends. You all have seen photographs of the operating room in a hospital. You have noticed the doctors and nurses wearing masks of cheesecloth. They do this to prevent mouthspray (and that means germs) from reaching the patient or the operation wound. The germs may be sprayed into the eyes and then be washed by the tears into the nose. So wearing glasses would be an additional protection against germs.

Keep your hands out of your mouth and save your life. This startling statement perhaps over-emphasizes one of the most important methods of preventing disease. Germs get into our body through our mouth, and they are placed in our mouth by our hands, in almost every instance. But, how do the germs of influenza, scarlet fever, smallpox, get onto our hands? The patients' own hands become contaminated when coughing, sneezing, etc., and in using a handkerchief. Then the germs pass to you in shaking hands. As one authority states—"Nearly everyone refuses nowadays to use the same cup with strangers, but everyone agrees that kissing strangers would be more dangerous still. Nearly everyone refuses nowadays to use the same towel with strangers, and surely everyone will agree that shaking hands with strangers would be more dangerous. You would not borrow a stranger's handkerchief, would you? Then why borrow the hand that he used when he was blowing his nose on the handkerchief?"

An anti-spitting crusade would help to lessen the indiscriminate distribution of sputum (spit) on the sidewalks, etc. We step into it and carry it into our homes, get it on our hands when we take off our rubbers or shoes. Then from the hands, we often transfer the germs to our mouth.

Milk and food handled by other people and mouthsprayed by them is another important source of infection. If you have to take a meal at a restaurant when you go to town, choose dishes that have been cooked and served hot. (The germs will be cooked, too, and so harmless.) Avoid raw fruits (especially apples that look so attractive and shiny. The polishing rag may have done service for many a day). Better still, stay home during an epidemic of influenza, and enjoy three meals a day served up by "the best cook in the country."

Dr. H. W. Hill of Minneapolis, formerly of London, who is regarded as a leading authority in Preventive Medicine, gives this advice: 1, Use mask and glasses. 2, Wash your hands after removing your shoes. 3, Eat hot foods only. 4, Cut out the hand shake."

SUMMARY.

1. No medicine has been found that will prevent Influenza—Avoid all patent medicine.
2. No drugs will cure Influenza. Go to bed and send for your doctor who will advise you best what to do.
3. Avoid crowded meetings during an

epidemic, thus avoiding the dangers of mouthspray.

4. Wash your hands before you eat.
5. When in contact with your friends who are ill with Influenza, wear a mask.
6. Don't worry—but smile, smile, smile.

Among the Books.

"Winter Studies and Summer Rambles"

BY MRS. JAMESON.

(Continued.)

UPON one bright day early in June, 1837, Mrs. Jameson started off from Toronto for her journey to the Upper Lakes. "The first bell of the steamer had not yet rung," she writes, "when my good friend Dr. Rees came running up to tell me that Mr. MacMurray, the missionary from the Sault Ste. Marie and his Indian wife, had arrived in Toronto, and were then at the inn, and that there was just time to introduce me to them." Although the meeting lasted for a few moments, it was most fortunate, for it ended in Mrs. Jameson's receiving a hearty invitation to visit the MacMurrays at the Sault. With Mrs. MacMurray, as, later, with her sister, Mrs. Schoolcraft, Mrs. Jameson fell instantly in love. Of the former at this time she says: "Her features are distinctly Indian, but softened and refined, and their expression at once bright and kindly. Her dark eyes have a sort of fawn-like shyness in their glance, but her manner, though timid, was quite free from embarrassment or restraint. She speaks English well, with a slightly foreign intonation. In two minutes I was seated by her—my hand kindly folded in hers—and we were talking over the possibility of my plans."

Proceeding first to the town of Niagara, by steamer, the traveller made way thence to the Falls where, again, she hurried to the Table Rock, finding the great cataract now more impressive than it had appeared to her on her first view of it in the winter, and as the days went by, she learned to love the spot.

"I have only three books with me here," she says, "besides the one book needed, and find them sufficient for all purposes—Shakespeare, Schiller, Wordsworth. One morning, being utterly disinclined for all effort, either of conversation or movement, I wandered down to a little wild bosquet beyond the Table Rock, not very accessible to dilettante hunters after the picturesque, and just where the waters, rendered smooth by their own infinite velocity, were sweeping by before they take their leap into the gulf below;—there I sat all the sultry noontide—quiet, among the birds and the thick foliage, and read through Don Carlos—one of the finest dramas in the world, I should think."—With regard to the character, Posa, she speculates as to whether he is a mere abstraction or a real human being; and some idea of the fine mind of Mrs. Jameson herself, and her hopefulness for humanity, may be judged from her comment: "If Schiller were great enough to invent such a character, is not humanity great enough to realize it?" "Every woman, methinks," she says, "would like a Posa for a lover—at least, if I could love, it would be such a man."

Reluctantly one passes over some wonderful descriptions of The Falls in their summer beauty, for space cannot be afforded.

After a few days at Stamford Park, described as "the only place I saw in Upper Canada combining our ideas of an

elegant, well-furnished English villa and ornamented grounds, with some of the grandest and wildest features of the forest scene," she took a flying trip to Buffalo, where the outstanding event was an evening at a theatre, which is here quoted to show the difference between theatrical performances in that day and this. "In the evening I went to the theatre, to a private box, a luxury which I had not expected to find in this most democratic of cities. The theatre is small, of course, but very neat and prettily decorated. They had an actress from New York 'starring' it for a few nights, the tallest, handsomest woman I ever saw on the stage, who looked over the head of her diminutive Romeo, or down upon him—the said Romeo being dressed in a costume of Othello, turban and all. When in the balcony, the rail did not reach up to Juliet's knees, and I was in perpetual horror lest she should topple down headlong. This would have been the more fatal, as she was the only one who knew anything of her part. The other actors and actresses favored us with a sort of gabble, in which not only Shakespeare, but numbers, sense, and grammar, were equally put to confusion. Mercutio was an enormously corpulent man with a red nose, who swaggered about and filled up every hiatus of memory with a good round oath. The whole exhibition was so inexpensively ludicrous that I was forced to give way to uncontrollable laughter—whereat my companions looked not well pleased."

Proceeding from Buffalo to Hamilton, which she describes as being "one of the most flourishing places in Upper Canada," and "about a mile from the lake shore," she hired a light wagon and made arrangements with the man to drive her over to "Brandtford," the distance being "about five-and-twenty miles and the charge five dollars." "The country all the way was rich, and beautiful, and fertile beyond description," she continues, "—the roads abominable as could be imagined to exist. So I then thought, but have learned since that there are degrees of badness in this respect, to which the human imagination has not yet descended."

"Before sunset," she arrived at "Brandtford," of which she says "The situation of this place is most beautiful—on a hill above the left bank of the Grand River. And as I stood and traced this noble stream, winding through richly-wooded flats, with green meadows and cultivated fields, I was involuntarily reminded of the Thames near Richmond, the scenery has the same character of tranquil and luxuriant beauty." At this place she was much interested in the Indians, "who at present consist of 2,500 out of the seven or eight thousand who first settled here." The white inhabitants numbered 1,200.

From Brandtford she was driven over to Woodstock in another wagon. But let us quote directly: "No one who has a single atom of imagination can travel through these forest roads of Canada without being strongly impressed and excited. The seemingly interminable line of trees before you; the boundless wilderness around; the mysterious depths amid the multitudinous foliage, where foot of man hath never penetrated,—and which partial gleams of the noontide sun, now seen, now lost, lit up with a changeful, magical beauty—the wondrous splendor and novelty of the flowers—the silence, unbroken but by the low cry of a bird, or hum of insect, or the splash and croak of some huge bull-frog,—the solitude in which we proceeded mile after mile, no human being, no human dwelling within sight,—are all either exciting to the fancy, or oppressive to the spirits, according to the mood one may be in.

Their effect on myself I can hardly describe in words. With the flowers she was especially enamoured. "There those beautiful plants which we cultivate with such care in our gardens, azalias, rhododendrons, all the gorgeous family of the lobelia, were flourishing in wild luxuriance. Festoons of creeping and parasitical plants hung from branch to branch. The purple and scarlet iris, blue larkspur, and the elegant Canadian Columbine with its bright pink flowers; the scarlet lychnis, a species of orchis of the most dazzling geranium-color, and the white and yellow and purple cypripedium, bordered the path, and a thousand others of most resplendent hues, for which I knew no names. I could not pass them with forbearance, and my Yankee driver (a Yankee in Canada) alighting, gathered for me a superb bouquet from the swampy margin of the forest. I contrived to fasten my flowers in a wreath along the front of the wagon, that I might enjoy at leisure their novelty and beauty. How lavish, how carelessly profuse is nature in her handiwork! In the interior of the cypripedium, which I tore open, there was variety of configuration, and color, and gem-like richness of ornament, enough to fashion twenty different flowers; and for the little fly in jewelled cuirass, which I found couched within its recesses, what a palace! that of Aladdin could hardly have been more splendid!"

Paris, Woodstock, London.

"From Brandtford we came to Paris, a new settlement, beautifully situated," runs the story, "and thence to Woodstock. There is no village, only isolated inns, far removed from each other. In one of these, kept by a Frenchman, I dined on milk and eggs and excellent bread." Here, too, she met an Irishman who told her that at Hamilton he had made \$800 by the extraordinary rise in the price of wheat. "In the early part of the year," she notes, "wheat had been selling for three or four dollars a bushel, and rose this summer to twelve and fourteen dollars a bushel, owing to the immense quantities exported during the winter to the back settlements of Michigan and Illinois." Needless to say there was at this time no railway through Western Ontario.

The roads in this part of the journey were execrable. "We often sunk into mud-holes above the axletree; then over trunks of trees laid across swamps, called here corduroy roads. A wheel here and there, or broken shaft lying by the wayside, told of former wrecks and disasters. In some places they had, in desperation, flung huge boughs of oak into the mud abyss, and covered them with clay and sod, the rich green foliage projecting on either side. This sort of illusive contrivance would sometimes give way, and we were nearly precipitated in the midst. By the time we arrived at Blandford my hands were swelled and blistered by continually grasping with all my strength an iron bar in front of my vehicle, to prevent myself from being flung out."

While in the Woodstock settlement, where she notes, the society is "particularly good," a visit to the settlement of one Admiral V.—was an event. He had, she remarks, "already expended upwards of twenty thousand pounds in purchases and improvements. His house is really a curiosity, and at the first glance reminded me of an African village—a sort of Timbuctoo set down in the woods; it is two or three miles from the high road, in the midst of the forest, and looked as if a number of log huts had jostled against each other by accident, and there stuck fast. The admiral had begun, I imagine, by erecting, as is usual, a log house, while the woods were clearing; then, being in want of space, he added another, then another and another, and so on, all of different shapes and sizes, and full of a seaman's contrivances—odd galleries, passages, porticos, corridors, cabins and cupboards; so that if the outside reminded me of an African village, the interior was no less like that of a man-of-war. The drawing-room, which occupies an entire building, is really a noble room, with a chimney in which they pile twenty oak logs at once. Around this room runs a gallery, well lighted with windows from without, through which there is a constant circulation of air, keeping the room warm in winter and cool in summer. The admiral has besides so many ingenious

and inexplicable contrivances for warming and airing his house, that no insurance office will insure him upon any terms. Altogether it was the most strangely picturesque sort of dwelling I ever beheld, and could boast of luxuries and comforts such as are seldom found so far inland. The admiral's sister, an accomplished woman of independent fortune, has lately arrived from Europe, to take up her residence in the wilds. Having recently spent some years in Italy, she has brought out with her all those pretty objects of vertu with which English travellers load themselves in that country. Here, ranged round the room, I found views of Rome and Naples; tazzi, and marbles, and sculpture in lava or alabaster; miniature copies of the eternal Sibyl and Cenci, Raffaele's Vatican, etc.,—things not wonderful nor rare in themselves—the wonder was to see them here. The woods are yet close up to the house; but there is a fine well-cultivated garden, and the process of clearing and log-burning proceeds all around with great animation."

On Sunday the writer attended "the pretty little church at Woodstock."

The next part of the journey led to London, "the distance being about 30 miles—a long day's journey; the cost seven dollars."

"We passed by the house of Colonel Light," she notes, "a situation of superlative natural beauty on a rising ground above the river. A stop for dinner was made at Ingersoll, a good dinner of "slices of dried venison, broiled; hot cakes of Indian corn, eggs, butter and a bowl of milk," eaten in company with two backwoodsmen, "tall and strong; and bronzed and brawny, and shaggy and unshaven—very much like two bears set on their hind legs," who were much too busy eating to talk to her; then in the afternoon a plunge was made into the vast pine forest that here began, where the roads were worse than ever, so that she would fain have got out and walked except that "on the border of the road, so-called, was the wild, tangled, untrodden thicket, as impervious to the foot as the road was impassable, rich with vegetation, variegated verdure, and flowers of loveliest dye, but the haunt of the rattlesnake and all manner of creeping and living things."

After seven miles of this, traversed in three hours and a half, the "oak plains" were reached and the road became comparatively good, new settlements appearing on every side as the vicinity of London was reached.

For just one night she stayed in London, where she secured "very tolerable accommodation at the principal inn," and had a look through some newspapers, the *London Gazette* and the *Freeman's Journal*, also an American paper the *New York Albion*, in which she was pleased to find copious quotations from Miss Martineau's book on America, then just off the press.

The next day she set off for a visit to Colonel Talbot who then lived in his secluded home on Lake Erie, first, however, taking time to look about the "town" a little. She found it, she says, with a population of about 1,300 people, continuing, "The Thames is very beautiful here, and navigable for boats and barges. I saw to-day a large timber raft floating down the stream, containing many thousand feet of timber." But she laments much here, as in other places, of the prevalent drunkenness, liquor being sold not only in the seven taverns, but also in "a number of little grocery stores."

Among the incidents of her short stay in London was the reception of a number of callers, among them a young Englishman who had been settled for 5 years in the Bush up by Lake Huron, and who besought her to tell him where he could find a refined wife who would be willing to go into the wilderness with him. "I could not love a woman who was inferior to my own mother and sisters," he told her. "You know I was in England two years ago;—well, I have a vision of a beautiful creature with the figure of a sylph and the head of a sibyl, bending over her harp and singing 'A te, O Cara,' and when I am logging in the woods with my men I catch myself meditating on that vision, and humming 'A te, O Cara,' which somehow or other runs strangely in my head." Whether Mrs. Jameson found it possible to help him out of his predicament she does not say.

A Vision

It was with some emotions of excitement that she set off upon her visit to

the "big chief", Colonel Talbot, "sovereign de facto, if not de jure" of the whole "Talbot Country," which then extended from the outskirts of London to Lake Erie, and along that lake from east to west over a vast extent of country covering in all about 650,000 acres of land, with a population of 50,000. Colonel Talbot himself lived on a cliff above the lake, all alone in his glory. "The reports I had heard of his singular manners," she says, "of his being a sort of woman-hater, who had not for 30 years allowed a female to appear in his sight, I had partly discredited, yet enough remained to make me feel a little nervous. However, my resolution was taken, and the Colonel had been apprized of my intended visit; so, putting my trust in Providence as heretofore, I prepared to encounter the old buffalo in his lair."

In a common cart with straw at the bottom, enthroned on a seat suspended by straps, the cart being driven by a boy of 15 or 16, the traveller set forth from London. "On leaving the town," she records, "we crossed the Thames on a wooden bridge and turned to the south through a very beautiful valley, with cultivated farms and extensive clearings on every side." At the summit of the first hill, called "Bear Hill" because of the number of bears which had been found there, and still covered with forest-trees "intermingled with the most luxuriant underwood, and festooned with the wild grape and flowering creepers," she called a halt.

"On reaching the summit of this hill I found myself on the highest land I had yet stood upon in Canada with the exception of Queenston Heights. I stopped the horses and looked around, and on every side, far and near, east, west, north, and south, it was all forest—a boundless sea of forest, within whose leafy recesses lay hidden as infinite variety of life and movement as within the depths of the ocean; and it reposed in the noontide so still and so vast! Here the bright sunshine rested on it in floods of golden light; there cloud-shadows sped over its bosom, just like the effects I remember to have seen on the Atlantic, and here and there rose wreaths of white smoke from the new clearings, which collected into little silver clouds and hung suspended in the quiet air.

"I gazed and meditated till, by a process like that of the Arabian sorcerer of old, the present fell like a film from my eyes: the future was before me, with its towns and cities, fields of waving grain, green lawns and villas, and churches and temples—turret-crowned: and meadows tracked by the frequent foot path, and railroads with trains of rich merchandise steaming along:—for all this will be! Will be? It is already in the sight of Him Who hath ordained it, and for whom there is no past nor future: though I cannot behold it with my bodily vision, even now it is.

"But is that NOW better than this present now? When these forests, with all their solemn depth of shade and multitudinous life have fallen beneath the axe—when the wolf, and bear, and deer are driven from their nature coverts, and all this infinitude of animal and vegetable being has made way for restless, ening, suffering humanity, will it then be better? Better—I know not; but surely it will be well and right in His eyes who has ordained that thus the course of things shall run. Those who see nothing in civilized life but its complicated cases, mistakes, vanities and miseries, may doubt this—or despair. For myself and you too, my friend, we are of those who believe and hope; who behold in progressive civilization, progressive happiness, in progressive approximation to nature and to nature's God; for are we not in His hands?—and all that He does is good."

(To be continued.)

Having Fun with the Seed Catalogues.

IF you haven't acquired the seed-catalogue habit, give it a try this February. Write to one or two of the best seed companies you know (some of them advertise in the *Farmer's Advocate and Home Magazine*) for a copy of their latest book. It will come like a real breath of spring some day when you are gronehing over the cold weather. Perhaps the tomatoes on the cover are too red, but what of that? As you turn over the pages, reading the descriptions and looking at the pictures, you talk



Art in Photography.

"It will be Summertime by-and-by."—[Photo by Boyd.]

Colonel Talbot, "sovereign of the whole," which then extended from London to Lake Ontario, that lake from east to west, to the east extent of country about 650,000 acres of land, and a population of 50,000, Colonel Talbot lived on a cliff above the city of London, his glory. "The reports of his singular manners," being a sort of woman, not for 30 years allowed to appear in his sight, I had yet enough remained little nervous. However, as taken, and the Colonel of my intended visit, trust in Providence as prepared to encounter the trial.

Cart with straw at the end of a seat suspended from the cart being driven by a man, the traveller set forth. "On leaving the town," he crossed the Thames on a bridge and turned to the south into a beautiful valley, with extensive clearings. At the summit of the "Bear Hill" because of the bears which had been still covered with forest, and festooned with the flowering creepers," she

a jump from February to June or August, and, in your mind's eye see your garden realized.

Of course you'll want to order everything in sight—that is, if you are a novice in seed-catalogues. But be canny. Read and re-read the descriptions; talk over the varieties of vegetables and flowers with your neighbor, provided he has had "experience;" decide upon the kinds best suited to your locality (for climate and soils differ so);—then order your seeds, plants, shrubs, etc.

Order in good time—during February or early March. When the seed comes follow directions *exactly*. Read up every word you can find about growing the different species.—You have no idea what fun it all is if you go into the work with the right spirit. "I used to go bowling every afternoon," said a city man last year. "Then I got into garden work while the war was on. I'd rather garden for half a day than bowl for a week."

Nor is gardening altogether men's work; women love it just as much and some of the very best gardens are planned, worked and harvested wholly by them.

At all events, have a garden, flowers for beauty and vegetables for health,—if you are reading the articles by "Medicus" you will know how valuable the latter are because of the mineral salts and vitamins they contain.

Make your own selection—for in that is half of the "fun". In gardening, as in many other things one best learns to do by *doing*.

The Children's Poem.

Windy Nights.

BY "R. L. S."

Whenever the moon and stars are set,
Whenever the wind is high,
All night long in the dark and wet,
A man goes riding by,
Late in the night when the fires are out,
Why does he gallop and gallop about?

Whenever the trees are crying aloud,
And ships are tossed at sea,
By, on the highway, low and loud,
By at the gallop goes he.
By at the gallop he goes, and then
By he comes back at the gallop again.
In *A. Child's Garden of Verses*.

Hope's Quiet Hour.

The Gathering of the People.

Unto Him shall the gathering of the people be.—Gen. 49 : 10.

The patriarch Jacob, looking forward in faith and hope to "the latter days," saw in vision the gathering of the peoples (see rev. version) at the feet of Shiloh, the Prince of the House of Judah. The promised Messiah was not only to be the glory of Israel but also a Light to lighten all the Gentile nations.

We, who live in these latter days, are being stirred with a new hope that the time is drawing near when the nations of earth, weary of strife and hatred, shall be gathered together as loyal subjects of the King of kings.

There is a beautiful story told in Num. 21:16-18. The Israelites had sinned and suffered together in the wilderness journey, and at last they were marching forward to enter the Promised Land. They needed water, but their faith had grown strong under trial, and they trusted God to supply their needs. The promise given through Moses was believed, and the command obeyed: "Gather the people together, and I will give them water."

Listen to the glad song of faith and hope, which rings out from the thirsty multitudes!

"Spring up, O well; sing ye unto it!"

Look at the happy comradeship of princes, nobles and people; as they obey the command of their leader and dig the well! They trust God's promise to "give" them water, but they do not sit down idly and wait for the gift. Their digging-tools are not everything that can be desired, but they worked together with their staves—and the water springs up to supply their need.

Water is one of the great Bible words describing the grace of the Holy Spirit. Still the command and promise of God ring out. "Gather the people together, and I will give them water."

For many years professing Christians have worked apart. They have done their digging here and there, each in his own little communion, jealously trying to secure special power from God for their own little bit of the Church's work. While the servants of the King quarrelled among themselves, the outside world was indifferent to His claims.

But things have changed now. The people of Christ are gathering together around Him, and have a right to expect the promised water. The leaders of various communions are working together, and "The Fellowship of the Name" is at last seen to be a reality.

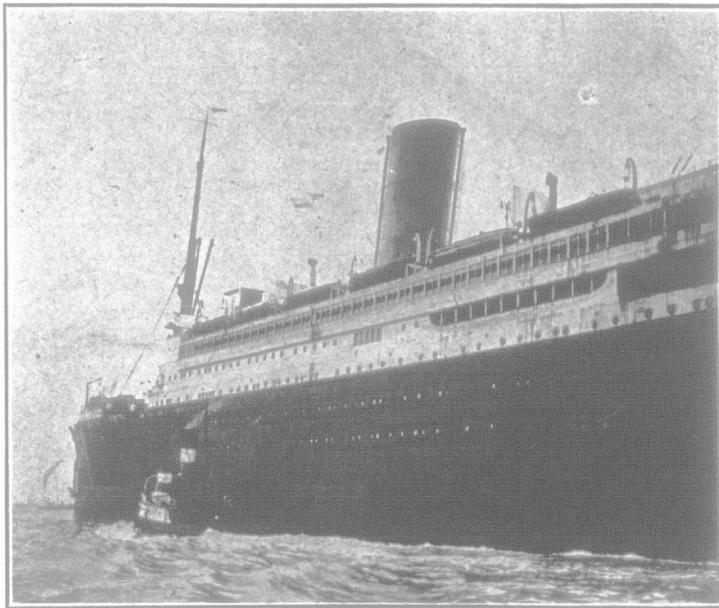
On the ninth of January services of intercession were held by women's missionary societies in city, town and country, from the Atlantic to the Pacific. In the groups of women, gathered together, were representatives of five Christian communions—Anglican, Presbyterian, Methodist, Congregational and Baptist. The service of prayer, proposed by the leaders, was the same everywhere. The subjects chosen for intercession were everywhere the same. It was a great prayer-meeting; and the promised Presence of Christ "in the midst" was confidently and joyously claimed. We were as certain as the Israelites who gathered together at "Beer,—that is the well,"—that God would give the promised power for the world-wide mission of His Church.

for at last the Church of God is moving forward "like a mighty army." The world can no longer be indifferent to Christianity, when they see a church "that looketh forth as the morning, fair as the moon, clear as the sun, and terrible as an army with banners."—Cant. 6:10. In these days when "kingdoms rise and wane" (or, at least, "wane") with startling suddenness, we see the Church of Jesus establishing itself firmly in many lands. Think of that monster convention of 8,000 students, professors and missionaries which met at Des Moines, Iowa, early in January! They were gathered together, around their Leader and King, with one common purpose—to make His kingdom a power for righteousness in all the earth. They might differ about many things, but they were united in love to Him and loyalty of all His friends. They have seen the necessity of laying aside every weight (like soldiers in the field) and really backing one another up in a grand alliance. They can't afford to waste time and strength in quarrelling amongst themselves, when the world is in desperate need of Christ. They have suddenly discovered the glorious fact that the Church of Christ is really one. It is His Body, His Bride, His Army, His City. He loves to call it "My Church." It is—

"Elect from every nation,
Yet one o'er all the earth."

It is a glorious privilege to join up with the great allied army:

"Gathering strength from every nation,
Every kindred, tribe, and tongue;"



The "Imperator" at Southampton.

Her first voyage under the British flag. It is a coincidence that her first port of call under the German flag was Southampton. The size of the vessel may be judged by comparing the section shown with the quite large tug beside.

Out of the heart of war has sprung a passionate desire for peace. Out of hatred and strife has come a realization of the priceless value of fellowship and goodwill. The nations of the world are many, but they have one Father, one Saviour, one King.

St. Paul dropped the exclusiveness of a proud Pharisee, when he was drawn by the marvellous attraction of Jesus the King into closest fellowship with people he had formerly despised as barbarian. Though he was a gentleman and a scholar, he eagerly claimed kinship with Onesimus (a runaway slave) calling him "son" and "brother beloved." All barriers were broken down between Jew and Gentile, bond and free. Those who gathered together around one common Lord were knit by Him into closest fellowship. They forgot distinctions of race and worldly position, as they clasped hands in loyal devotion to their Master and King.

Now that we have begun to gather together in common worship, feeling the Presence of Jesus in our midst, we are able to sing the old hymns with enthusiasm and sense of reality.

"Hell's foundations quiver
At the shout of praise."

But we must not think that all we have to do is to sing songs of victory. We are to gather together to fight against evil and to work for the highest good of all nations.

Think of our fellow-Christians, the Armenians; who are enduring starvation and unmentionable cruelties from the hands of the Turks. Think of picking up 192 dead bodies in one day, in the streets of one city!

I never like to speak plainly about horrors in this Quiet Hour, which may be read by happy, care-free children; but we all know that the reality is worse than anyone would dare to tell in print. One village in Ontario having read in "The Globe" of Jan. 9, an account of the awful need of the Armenians and of the fund which was being raised for the sufferers, opened a subscription list and raised \$70 in two hours. This money was at once forwarded to the Treasurer of the Canadian Armenian Relief Association. By Monday morning, Jan. 12, the Relief Fund had mounted to \$9,562.05. The need is tremendous; but when millions are gathered together to send help, small donations soon mount up into thousands of dollars. If you want to have your share in feeding the starving,—and I am sure you do,—please

send your money direct to the Treasurer: Mr. D. A. Cameron, Bank of Commerce, (Head Office) Toronto. If you send quickly you may save someone from death. "The Globe" sent out the appeal for help on Friday, Jan. 9; and, in two or three days, more than nine thousand dollars had come in.

We can't face the thought of our Master saying to us: "I was an hungry, and ye gave Me no meat. . . naked, and ye clothed Me not. . . Inasmuch as ye did it not to one of the least of these, ye did it not to Me."

Your generosity cannot be questioned. During this week two gifts for the needy have come to me. "Subscriber to the Advocate"—J. E. C.—sent \$2 and "Friends in Clandeboye" sent \$3.00. This money went out to-day to provide food for a family in need. But the Q. H. P. is still well filled, so please send your gifts quickly to the Armenian Relief Fund.
DORA FARNCOMB.

Gifts for the needy.

An Alberta reader, Mrs. T. C. M., sent two dollars, a Howick "Reader" sent a dollar, and \$2.35 came from a S. S. Class. Parcels of papers for the "shut-in" have arrived almost every day.

Don't you think it is a good thing that I am a healthy person? How could I carry all your gifts unless I were endowed with the valuable gift of strength? The papers and money give pleasure to many of the rich and needy. Thanks to you all!

DORA FARNCOMB,
6 West Ave., Toronto.

The Windrow

No "listening in" is possible with the form of telephone recently invented by a French army officer. The sender's voice is intelligible to the receiver, but is only a meaningless jabber to anyone trying to listen along the line.

A South American beverage, "maté," grown to the present extent of \$17,000,000 a year, promises to rival tea and coffee in the near future. It is said to be more healthful, containing less tannin and caffeine, is pleasant to the taste, and very useful in driving away fatigue.

Uses of our Hard Coal Base Burner.

We have used our stove so freely for cooking for so many years, I just fell to wondering if people realized the possibilities of this constant fire companion. At the back of ours, near the stove-pipe are two pot lids, and this is a capital place to do any slow cooking.

The oven, though not so large, is a good place to do small amounts of baking. Remove the nickel top ornament (it slides off to one side) and there is a lid over the magazine that holds the coal supply. This is a good place to continue bean cooking, etc. Potatoes placed on this lid, sufficiently early, will bake nicely.

A big brass tea-kettle kept full of water and set on the back of the stove when it is not otherwise used, provides hot soft water at all times, and provides just the moisture needed in the atmosphere of the room.

When the fire is a bed of coals, one of the doors of the stove may be opened and bread toasted, or cheese roasted. Flat-irons set in on the hot bed of coals are soon hot enough to press anything.
F. M. C.

Charity Begins at Home.—Charity Collector—"Have you any particular use for your old clothes?"
Citizen—"Sure. I'm wearing them."
—Baltimore American.

He Could Prove It.—Johnny—"These pants that you bought for me are too tight."

Mother—"Oh, no, they aren't."
Johnny—"They are too, mother. They're tighter'n my own skin."

Mother—"Now, Johnny, you know that isn't so."

Johnny—"It is, too. I can sit down in my skin, but I can't sit down in my pants."—Boys' Life.

When better than this
When these forests,
When depth of shade and
When have fallen beneath
When the wolf, and bear,
When from their nature
When this infinitude of animal
When has made way for
When suffering humanity, will
When? Better—I know not;
When I be well and right in
When ordained that thus the
When shall run. Those who
When ilized life but its compli-
When mistakes, vanities and
When but this—or despair. For
When too, my friend, we are
When lieve and hope; who be-
When sive civilization, pro-
When, in progressive approxi-
When and to nature's God;
When His hands?—and all that
(continued).

Work with the Seed Catalogues.

Don't acquire the seed-catalogue, give it a try this year. Write to one or two of the companies you know and advertise in the *Farmer's Home Magazine* for a test book. It will come of spring some day when the cold weather is over the cover are of that? As you turn reading the descriptions and the pictures, you tak

The Fashions.

How to Order Patterns.

Order by number, giving age or measurement as required, and allowing at least ten days to receive pattern. Also state in which issue pattern appeared. Address Fashion Department, The Farmer's Advocate and Home Magazine, London, Ont. Be sure to sign your name when ordering patterns. Many forget to do this.

When ordering, please use this form:—

Send the following pattern to:

Name.....
 Post Office.....
 County.....
 Province.....
 Number of Pattern.....
 Age (child or misses' pattern).....
 Measurement—Waist..... Bust.....
 Date of issue in which pattern appeared.....

3107. A Smart Gown.
 Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 will require 5 1/4 yards of 44-inch material. Width of skirt at lower edge is about 1 5/8 yard. Price 10 cents.

2752. Girl's Dress.
 Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 1 yard of lining 27 inches wide for the underwaist, and 3 yards of material for the dress, for an 8-year size. Price 10 cents.

3122. A Simple Apron.
 Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. Size medium will require 4 3/8 yards of 36-inch material. Price 10 cents.

3121. Child's Dress with Bloomers.
 Cut in 4 sizes: 4, 6, 8 and 10 years. Size 8 will require 3 1/4 yards of 36-inch material for the dress, and 1 1/4 yard for the bloomers. Price 10 cents.

3101. An Attractive Model for Slender Figures.
 Cut in 3 sizes: 16, 18 and 20 years. Size 16 will require 5 3/8 yards of 36-inch material, with 3 yards of ribbon or material 5 inches wide for the sash. Width of skirt at lower edge is 1 1/2 yards. Price 10 cents.

3096. Girl's Dress.
 Cut in 4 sizes: 4, 6, 8 and 10 years. Size 10 will require 3 1/2 yards of 36-inch material. Price 10 cents.

3094. Dress for Work or Leisure.
 Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6 1/8 yards of 36-inch material. Width of skirt at lower edge is about 2 1/4 yards. Price 10 cents.

3103. Boy's Suit.
 Cut in 4 sizes: 2, 3, 4 and 5 years. Size 4 will require 2 3/8 yards of 40-inch material. Price 10 cents.

3129-3008. A Stylish Spring Suit.
 Coat 3129 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3008 cut in 7 sizes: 22, 24, 26, 28, 30, 32, and 34 inches waist measure. It will require 7 5/8 yards of 44-inch

material for a medium size. The width of skirt at lower edge is about 1 3/4 yard. TWO separate patterns 10c. FOR EACH pattern.

3130. Girl's Apron.
 Cut in 4 sizes: 6, 8, 10 and 12 years. For an 8 year size, 1 3/4 yard of 27-inch material will be required. Price 10c.

2844-2854. A Stylish Costume.
 Waist 2844 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 2854 cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. A medium size will require 6 1/2 yards of 44-inch material for the entire dress. The skirt measures about 1 7/8 yards at the foot with plaits extended. TWO separate patterns, 10 cents FOR EACH pattern.

2821. Girl's Dress.
 Cut in 5 sizes: 4, 6, 8, 10 and 12 years. Size 12 requires 3 1/8 yards of 40-inch material. Price, 10 cents.

2950. A Stylish Frock.
 Cut in 3 sizes: 16, 18 and 20 years. Size 18 will require 4 7/8 yards of 44-inch material. Width of skirt at lower edge, is about 1 1/2 yard. Price 10 cents.

3155. Girl's Dress.
 Cut in 4 sizes: 8, 10, 12 and 14 years. For a 14-year size, 4 1/2 yards of 36-inch material will be required. Price 10c.

3133. Ladies' House Dress.
 Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A medium size will require 5 3/4 yards of 36-inch material. The width of the dress at its lower edge is about 1 7/8 yard. Price 10c.

2815. Child's Play Suit.
 Cut in 5 sizes: 2, 3, 4, 5, and 6 years. Size 4 requires 1 5/8 yards for the waist, and 2 1/4 yards for the rompers, of 27-inch material. Price 10 cents.

3150. Child's Dress.
 Cut in 4 sizes: 4, 6, 8, and 10 years. An 8-year size will require 3 3/4 yards of 27-inch material. Price 10 cents.

3134. Ladies' Dress.
 Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. It will require 7 7/8 yards of 38-inch material for a medium size. The width of skirt at lower edge is about 1 7/8 yard. Price 10c.

3152. Girl's Dress.
 Cut in 4 sizes: 6, 8, 10 and 12 years. A 10-year size will require 3 3/4 yards of 36-inch material. Price 10 cents.

2984. A Neat and Comfortable House Dress.

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5 5/8 yards of 36-inch material. Price 10 cents.

3128. Boy's Suit.
 Cut in 4 sizes: 3, 4, 5 and 6 years. For a 3-year size 3 yards of 27-inch material will be required. Price 10c.

3140-3143. An Attractive Home Gown
 Blouse 3140 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3143 cut in 7 sizes: 24, 26, 28, 30, 32, 34 and 36 inches waist measure. A medium size will require 6 5/8 yards of 27-inch material with 2 3/8 yards for the under blouse. The width of the skirt at lower edge is 1 3/4 yard. TWO separate patterns 10c. FOR EACH pattern.



s Play Suit.
 s: 2, 3, 4, 5, and 6 years.
 1 1/2 yards for the waist,
 for the rompers, of 27-inch
 10 cents.

s Dress.
 s: 4, 6, 8, and 10 years.
 will require 3 3/8 yards of
 l. Price 10 cents.

s' Dress.
 s: 34, 36, 38, 40, 42 and
 measure. It will require
 inch material for a medium
 h of skirt at lower edge
 Price 10c.

s Dress.
 s: 6, 8, 10 and 12 years.
 will require 3 3/8 yards of
 l. Price 10 cents.

at and Comfortable House
 s: 34, 36, 38, 40, 42, 44
 bust measure. Size 38
 yards of 36-inch material.

Suit.
 s: 3, 4, 5 and 6 years.
 size 3 yards of 27-inch
 required. Price 10c.

An Attractive Home Gown
 cut in 6 sizes: 34, 36, 38,
 40, 42 and 44 inches bust
 measure. A medium size
 requires 5 3/8 yards of 36-inch
 material. Width at lower edge,
 is about 2 1/4 yards. Price,
 10 cents.

3151. A Good Dress for School.
 Cut in 4 sizes: 4, 6, 8 and 10 years.
 Three yards of 36-inch material will
 be required for an 8-year size. Price 10
 cents.

3152. A Dainty Under Garment.
 Cut in 4 sizes: Small, 32-34; medium,
 36-38; large, 40-42; and extra large
 44-46 inches bust measure. A medium
 size will require 3 1/4 yards of 27-inch
 material. Price 10 cents.

3147-3116. A Stylish Gown.
 Waist 3147 Cut in 6 sizes: 34, 36, 38,
 40, 42 and 46 inches bust measure.
 Skirt 3116 cut in 6 sizes: 22, 24, 26, 28, 30
 and 32 inches waist measure. To make
 the dress for a medium size will require
 about 6 3/4 yards of 27-inch material. The
 width of skirt at lower edge, with plait-
 extended, is about 2 1/2 yards. Two separate
 patterns 10 cents FOR EACH pattern.

3151. A Good Dress for School.
 Cut in 4 sizes: 4, 6, 8 and 10 years.
 Three yards of 36-inch material will
 be required for an 8-year size. Price 10
 cents.

3126. A Dainty Under Garment.
 Cut in 4 sizes: Small, 32-34; medium,
 36-38; large, 40-42; and extra large
 44-46 inches bust measure. A medium
 size will require 3 1/4 yards of 27-inch
 material. Price 10 cents.

2932. Girl's Dress.
 Cut in 4 sizes: 6, 8, 10 and 12 years.
 Size 10 requires 3 1/2 yards of 38-inch
 material. Price, 10 cents.

3132. Misses' Dress.
 Cut in 3 sizes: 16, 18 and 20 years.
 Size 18 will require 6 yards of 30-inch
 material. Skirt measures about 1 1/2
 yard at its lower edge. Price 10 cents.

3154. Frock for School or Play.
 Cut in 4 sizes: 4, 6, 8 and 10 years.
 Size 6 will require 2 1/2 yards of 36-inch
 material. Price 10 cents.

3144. A Stylish Dress.
 Cut in 3 sizes: 16, 18 and 20 years.
 For an 18-year size, it will require 5 3/4
 yards of 44-inch material. Width of
 skirt at lower edge with plaits extended,
 is about 2 1/4 yards. Price 10 cents.

2700. Child's Set of Short clothes.
 Cut in 5 sizes: 6 months, 1 year, 2,
 3 and 4 years. It will require for the
 dress, 2 5/8 yards of 36-inch material.
 For the drawers, 3/4 yard. For the slip,
 1 1/2 yard, for a 2-year size. Price 10
 cents.

2863. Ladies' Apron.
 Cut in 4 sizes: small, 32-34; medium,
 36-38; large, 40-42; and extra large,
 44-46 inches bust measure. A medium
 size requires 5 3/8 yards of 36-inch material.
 Width at lower edge, is about 2 1/4 yards.
 Price, 10 cents.

2852. Girl's Dress.
 Cut in 4 sizes: 6, 8, 10 and 12 years.
 Size 10 will require 3 3/8 yards of 36-inch
 material. Price, 10 cents.

3147-3116. A Stylish Gown.
 Waist 3147 Cut in 6 sizes: 34, 36, 38,
 40, 42 and 46 inches bust measure.
 Skirt 3116 cut in 6 sizes: 22, 24, 26, 28, 30
 and 32 inches waist measure. To make
 the dress for a medium size will require
 about 6 3/4 yards of 27-inch material. The
 width of skirt at lower edge, with plait-
 extended, is about 2 1/2 yards. Two separate
 patterns 10 cents FOR EACH pattern.

3151. A Good Dress for School.
 Cut in 4 sizes: 4, 6, 8 and 10 years.
 Three yards of 36-inch material will
 be required for an 8-year size. Price 10
 cents.

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 a stamped envelope ready to be sent on. (4) Allow one month in this department for answers to questions to appear.

OUR school

It was a little lad who spoke, perhaps ten or twelve years old. He had fair wavy hair, and blue eyes, and all the bearing of a little gentleman. His mother was dead. That's why he sat at a boarding-house table; and down there, at the very end of it, as though diminished in perspective between the two rows of grown folk that flanked the sides of it, he looked very small and very winsome.

Very proudly he made his announcement: "Our school has collected one hundred and sixty dollars for films for the new moving-picture machine."

"Oh?" remarked someone inquiringly. "So you're to have a movie-machine, eh? Have you a hall for that sort of thing in your school?"

"We use the kindergarten room," the little lad explained. "The pictures are for our education, you know," rolling the word out with a sense of its importance. "They show all sorts of places, and let us see how every kind of work is done, in mills and everything. Sometimes we have a funny one."—And his eyes twinkled at the very thought of it.

"Nearly every school has a machine now," he continued, becoming very practical. "But you know they cost a lot of money—most for the films, I guess. We rent the films. We get four a week."

The talk drifted off. "Those strikers" resumed a man who was more interested in the industrial situation than in small boys and moving pictures, and the little lad became again an inarticulate morsel of humanity munching cake and

cranberries, and paying little attention to the stupid, dry stuff, all filled up with big words, that seemed so interesting to the grown people.

Lingering after the others had gone—for I was one of the stupid grown folk—I remarked to the landlady, "School is so different, now, from what it used to be."

"Yes," she replied. "The children seem to like to go now. You couldn't keep Fred home if you tried. Poor little fellow! I had a great time keeping him in even when he had a sore throat."

After that I buttoned up my coat and trudged down to the office, thinking about the grand educational opportunities open to city boys and girls nowadays, and wishing that the country boys and girls everywhere could have just as good a chance.

I have thought about that problem until my head buzzed, and the only possible solution seems to be the consolidated school, where at all practicable. When we have that, then all the other helps, it seems to me, will flow towards it as naturally as the rivers flow towards the sea.

Of course, there are mountains to be overcome before we can have the consolidated school. But in the meantime the children are growing up. Why not, then, do the very best we can under the circumstances by giving every possible help to the little school away out on the concession or the side-line? Of course, the teacher is the big factor in any school, but even the best teacher needs appliances.

of Ottawa, regarding Township school boards instead of a great number of small school boards?

JUNIA.

Worth Thinking Over.

"It really is easy, that propaganda of hate. The whole experience of the war proves that. The propaganda of love, though less easy, is far from impossible."—Will Irwin, in "The Independent."

"In the near future we will see the farmers of the West, of Ontario and of Quebec and the Maritime Provinces, united to make a good Canada for Canadians."—J. A. Carson, P. Q.

An Important Subject.

Dear Junia.—What a helpful friend you are! How we all look for your cheery chats each week always about something interesting and new?

I wonder if you could help me, and in so doing maybe someone else, because surely some one else has thoughts of this nature along some lines. I am a farmer's daughter living on a farm with only a public school education with the entrance. I love babies and notice every one I see. Also, I want to be a nurse, and I would like to spend all my time on it. But I could not leave the farm for three years to train, and in most hospitals one has to have a high school education. I

is not all by any means. I think of the good we might do if we put all our mind and love into bringing better babies into the world. I would like to be able to help before the needy hour and also start a Baby Welfare Class in the county something like the one wonderful Miss Bertha Smith carries on in London.

Wishing Junia and all the Nookers a Happy New Year.

Huron Co. A WOULD-BE NURSE.

Your letter is a delight. It is a real pleasure to find a girl who knows exactly what she wants to do, wants to do it right, and is willing to start out on a somewhat unbeaten track because she sees a real need. After all, that is about all that makes life really worth living—to do something useful in the world. Such a course brings its own reward, too. I have "knocked about" in the world a great deal, and, I think, have kept my eyes rather widely open, and I have discovered this: that the really happy, exuberant, hopeful people are not the ones who are always on the lookout only to grab advantages and "easy time" for themselves, but the ones who throw themselves heart and soul into some useful work. The work you mention is, I think, most necessary, and I am very glad you brought the question up.

Now, to answer your question: There is a course in home-nursing at the Macdonald Institute, Guelph. You might write to Miss M. U. Watson, of that institution, in regard to it. I am not sure whether it can be taken separately there. If there is any other place in Ontario, or in Canada, where such a course is given, by itself, I shall be glad to hear of it from any reader who may know about it. In the meantime I shall be on the lookout myself.

Before long, I venture to say, there will be district school nurses in every part of Canada. These will, no doubt, attend to the work you mention.—Is it absolutely impossible for you to take a thorough course in nursing? Your enthusiasm would seem to justify it; but I know, of course, that sometimes conditions at home will not permit.

JUNIA

A Valentine Party.

"Merry May" and two or three others ask hints for a Valentine Party.

Any sort of party may be made into a Valentine Party by using appropriate partner or score-cards and refreshments. For the former you can cut out heart-shaped cards from heavy paper, pasting red tissue paper on one side. A jolly game would be to set each set of partners at making a "limerick" on "Love." For instance, Jack and Mabel might between them evolve such nonsense as this:

"There was a young maiden called Nell Whom Love put in such a pell-mell, She couldn't remember 'Twas June or December, But only his name, it was Bell."

When time is up have all the limericks read aloud and give a prize to the one voted best. An appropriate prize would be a heart-shaped box of candy.

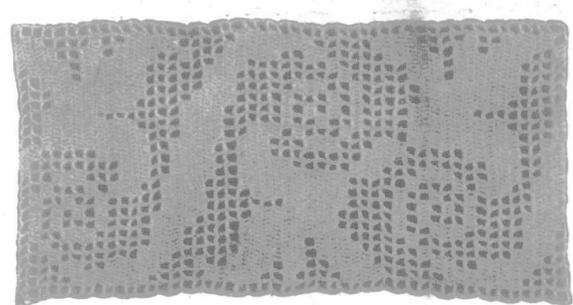
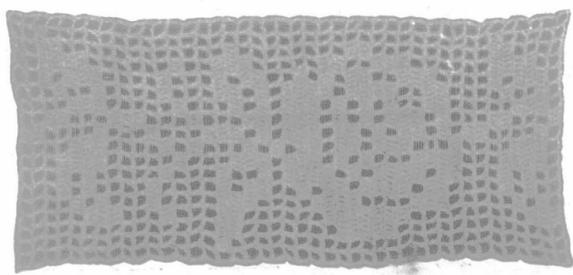
Some hints for refreshment will be found below. If the party is small enough to sit down to a table have it lighted with pink-shaded candles and scatter plentifully over the cloth the little pink or red paper hearts that can be bought for a few cents. Place cards inscribed with valentine sentiments and decorate with water-color will also help the air of festivity.

Plant Lice.

For Mrs. P., Elgin Co., Ont.—To take the lice off the plants make a weak tea with tobacco leaves and spray the plants thoroughly with it, under sides of the leaves especially; or turn the pot upside down, and, holding the soil in with the hand, dip the foliage in the tobacco water. If you choose to buy a preparation all ready for using there are several nicotine mixtures on the market, one of which is known as "Black Leaf 40." These may be bought at any seed store, with directions accompanying.

Valentine Day Cookery.

Heart-Shaped Biscuit Sandwiches.—Three cups flour, 2 teaspoons baking-powder, 1 tablespoon butter, ham or chicken, milk, 1 teaspoon salt. Sift



Insertion Designs in Filet Crochet.
 We have been asked for crochet designs for insertion. Here are two that can be easily followed by anyone who knows anything at all of crochet work.

He—or she—needs far more than chalk, maps and blackboard. The best schools in the cities are supplied with charts, and various apparatus for experiment and illustrations, pictures, and a library. Sometimes there is a piano or a victrola (to use for physical culture drills, and to help cultivate taste in music) and, as we have seen, moving-picture machines are coming in with a rush. Why not give the lonely school out in the country as many of these things as can be afforded, especially charts and books? Even a few may mean so much to the children.

I see by a recent paper that Mrs. Dan McDonald, of the 10th line, near Braemar, Oxford Co., Ont., has been receiving congratulations on being the first woman to be elected to a School Board in Oxford County. Her election shows the way the wind is blowing. Before long a woman, or women, will be on every School Board in Canada. I hope one of the first things each of them will do will be to visit the very best city school within reach and take a look at the apparatus. The visit should be very easily managed by writing first to the Inspector for the city and seeing if he will be kind enough to make arrangements (which he surely will). The little trip will be a pleasant one, and everyone concerned will be benefited, most of all, perhaps, the children, who must be kept up in all that concerns their education.

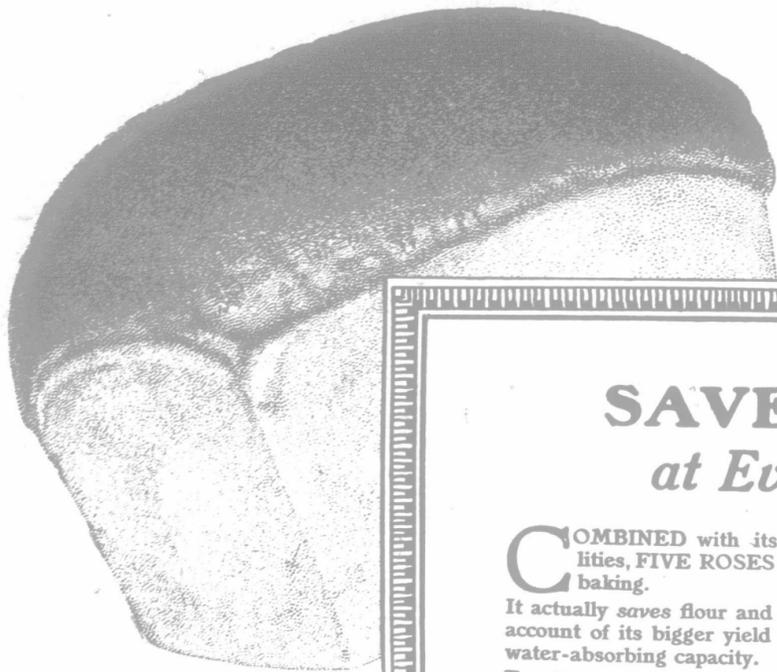
By the way, what do you think of the idea recently advanced by Mr. Putman,

wonder if there is any place where one could go from say Oct. 1 till the end of April and study obstetrics in a practical way?

Maternity nurses are so much needed in the country, and if such a training could be got one might be able to help. The fashion of the grandmothers coming to help with the new arrival is not the best, although some think so. Right here we have two babies, one a "grandmother baby," the other a "trained nurse" baby. Both the babies and their mothers are so different. One baby was trained from the very first to go to sleep without being rocked or walked with, and to be fed at stated times, the other is just the opposite. The grandmother has gone away and the poor mother is worried day and night with a troublesome baby. At the other house the baby training started in those first two weeks has been carried on, and everything has been so much easier and better for mother and baby.

Of course, everybody cannot pay the wage of a trained nurse, and I know they charge high because that is their work and what they have to make their living.

Now take in my case, I could receive those seven months of training say next winter when we farmers have a little less work to do. I would be able at different time of year, when a case came my way, to leave home for two or three weeks at a more moderate charge to the sick than a trained nurse. But the cost



"We have been using FIVE ROSES flour and can gain a loaf of bread on every baking."
—Miss H. R., Brougham, Ont.

"Always go back to FIVE ROSES, as I have more bread with same amount of flour."
—Mrs. C. H. McN., Englehart, Ont.

"I use 7 quarts of FIVE ROSES flour in my recipe. Other flours I have used take 9 quarts."
—Miss A. P., Marshville, Ont.

"Am positive one can get more bread out of a bag of FIVE ROSES flour than from any other kind."
—Mrs. N. H., Copetown, Ont.

"Always an extra loaf from the same quantity of flour."
—Mrs. A. M., West Summerland, B.C.

"The most profitable flour a poor man can possibly obtain."
—Mrs. T. S. McC., Rodney, Ont.

SAVE A LOAF at Every Baking

COMBINED with its great nutrition and enticing eating qualities, FIVE ROSES is the acknowledged flour for economical baking.

It actually saves flour and the money that that flour costs. This on account of its bigger yield due in turn to its glutinous strength and water-absorbing capacity.

Exactly how much it will save you depends upon how much baking you do, and upon how much bread you make at one baking.

Read what thrifty housewives write us, in the margin. It points the way to patriotic economy.

You know how much FIVE ROSES flour you can bake in a year. By saving a loaf at every baking, figure out for yourself how you can reduce your own High Cost of Living.

LAKE OF THE WOODS MILLING CO., LIMITED
Montreal and Winnipeg

FIVE ROSES FLOUR FOR BREADS, CAKES PUDDINGS, PASTRIES.



dry ingredients together, work in the butter, then make to a soft dough with milk. Roll $\frac{1}{4}$ -inch thick and cut out with a heart-shaped cutter, and bake in a moderate oven. When cold split, spread with butter and then with the meat, chopped fine, seasoned and worked into a paste with butter. Put together and serve.

Heart Tarts.—Line heart-shaped patty-pans with good pie pastry and bake to a delicate brown. When cool fill with strawberry preserve.

Cupid Cakes.—One and one-half cup sugar, 2 teaspoons baking powder, 1 cup chopped nuts, $\frac{1}{2}$ cup butter, $\frac{3}{4}$ cup milk, 2 cups flour, 1 teaspoon vanilla, 4 eggs. Cream the butter and sugar together, then add alternately the milk and the flour with which has been sifted the baking-powder. Beat the batter until smooth, then add the nuts dusted with a little flour, the vanilla, and fold in the whites of the eggs

which have been beaten stiff. Half fill heart-shaped patty-pans and bake in a moderate oven. Turn out and when cold ice with white or pink icing and decorate with red candy hearts, or sprinkle the white icing with red confectioners' sugar.

Valentine Salad.—Cook together about 3 cups canned tomatoes, half an onion with 3 cloves pressed into it, a red pepper, stalk of celery, tablespoonful of sugar, and $\frac{1}{2}$ teaspoon salt. After 20 minutes remove onion and celery and press the rest through a sieve. Add 1 tablespoon mushroom catsup if you have it. For every $1\frac{1}{4}$ cups of the mixture soften a tablespoonful of gelatine in $\frac{1}{4}$ cup cold water. Let this dissolve in the hot tomato and turn at once into a shallow pan to make a sheet about $\frac{1}{2}$ -inch thick. Let chill, and when firm cut into hearts about 2 inches in diameter with a heart-shaped cutter dipped in boiling water. With a smaller cutter cut out the same

number of hearts about $\frac{3}{4}$ -inch in diameter. On the large hearts set thick slices of hard-boiled eggs. Place the small hearts on top and garnish with lettuce leaves and mayonnaise dressing.

Winter, the Time For Pies.

SOME people insist that pies are indigestible, and that the best thing to do with them is to "leave them alone." But these pessimists might as well talk to the air; "the men" like pies and are bound to have them.—Have you ever, at a social or picnic, counted the calls from the boys for "pie"? Not a bit the worse for it, either, do they seem, so perhaps this is the place to say that, when properly made, served occasionally, and eaten in reasonable amount, pie is little likely to do harm to any stomach except a very delicate one. Why should it? The fruit or filling is wholesome, and

the paste, if light and flaky, contains a considerable amount of nutriment.

Winter, however, seems the best time for serving pie, as well as any other heavy kind of food. In summer bread and raw fruit form a better combination, easier to prepare during the busy season, better for the health during hot weather; but in winter one's liking for pie may be very well indulged a little. The fat (shortening) used in the pastry helps to form heat in the body; there is more time to devote to pie-making; and, as a last recommendation, a number of them can be made up at once, kept in a cold place and reheated as needed.

Of course, there are pies and pies, and only the "good" kind is meant here. It is light; it is never soggy; it is so delicious that when you have eaten one piece you immediately want another. Of course, the foundation is the pastry; if it is good the pie is pretty sure to be a success. So let

us begin with it, two kinds—one rich, one just "medium."

Plain Pastry.—Take 1½ cups flour, ¼ teasp. salt, ¼ teasp. baking-powder, ¼ cup shortening, ½ cup ice water (about), ¼ cup butter. Sift flour, salt and baking-powder together; rub in shortening with finger tips until mixture is like fine meal; add water gradually until a soft but not sticky dough is formed, mixing with a knife. If just right, when the dough is mixed it will turn out in a ball on the knife, leaving the bowl clean, roll the paste on a lightly-floured board into an even rectangular shape. Divide the butter into 3 parts; cover ⅔ of paste with dots of butter, using one part. Next fold first the unbuttered third, then the remaining third, so there will be three layers of paste with dots of butter between. Roll out again, dot with butter as before, and fold. Repeat a third time. Put on ice until thoroughly chilled. Any good shortening may be used instead of butter, but butter gives the best flavor. This is enough for one pie with two crusts. A larger amount may be made if the proportions are kept right. The dough may be kept, wrapped in cheesecloth, in a cold place for several days and used as needed.

Rich Pastry.—Take 3 cups flour, 1 teasp. sugar, ½ teasp. salt, 1¼ cups shortening, 1 tablespoon lemon juice, ice water. Proceed in beginning exactly as above (or chop in the shortening with a knife), adding the lemon juice to the water, and just enough liquid to make a stiff paste—about ⅔ cup will be enough. Roll out into a thin sheet and fold in four layers; roll out and fold 3 times. Chill before using. This makes 2 pies. It is less expensive than puff paste, but a very good substitute.

If pie shells are wanted roll the pastry ¼ inch thick and cover inverted pie tins with it, prick with a fork, lay on a baking sheet and bake.

Mock Cherry Pie.—1½ cups cranberries, rinsed and chopped; ½ cup raisins, seeded and chopped; 2 tablespoons sifted crumbs or flour; 1 cup sugar; ¼ cup water. Bake as usual with 2 crusts.

Open Cranberry Pie.—1½ cups cranberries, 1 cup sugar, ⅔ cup water, 2 tablespoons sifted crumbs. Cook berries, sugar and water for 10 minutes, boiling hard and stirring to break the berries; add crumbs and when nearly cold pour into a baked pie shell.

Marlborough Pie.—6 apples, ½ cup sugar, 2 macaroons rolled (or some cake crumbs), 2 tablespoons butter, grated rind and juice of 1 lemon, 1 teaspoon cinnamon, ¼ teaspoon salt, 2 eggs slightly beaten. Cook apples (sliced) with ¼ cup water and mash fine or put through a ricer; add other ingredients, and bake as usual with two crusts of rich pastry. If you like you may criss-cross strips of pastry over the top.

Apple Pie.—3½ cups sliced apples, ½ cup sugar, ⅔ teaspoon salt, ⅓ teaspoon nutmeg or cinnamon. Line plate with pastry, fill with apples, mounding them up in the centre. Mix together the sugar, salt and seasoning, and cover apples. Moisten edge of paste with water; cover with a top sheet ½ inch larger than plate, which has a few gashes cut in the top, and pinch all about. Brush with milk and bake about 40 minutes. The oven should be hot for the first 15 minutes, then reduced. Dots of butter put over the apples before the crust is put on will improve the flavor.

Prune Pie.—2 cups cooked prunes, ½ cup sugar, 1 tablespoon flour, grated rind of ½ orange. Stone the prunes, cut in quarters and put into a paste-lined plate. Cover with sugar, flour and rind mixed. Cover with crust, brush with milk and bake in a hot oven ½ hour, reducing the heat during the last 15 minutes.

Raisin Pie.—½ cup seeded and chopped raisins, 1½ cups hot water, 1 cup brown sugar, ¼ cup vinegar, 2 tablespoons butter, ½ cup sifted crumbs. Mix and cook for 10 minutes. Cool and cook as usual in a pastry-lined tin, making a lattice of pastry over the top.

Vinegar Pie.—Mix 1 cup sugar and 2 tablespoons flour, then add 1 cup water and vinegar to taste, and last of all, 2 beaten eggs. Bake in under crust only, covering top with meringue.

Butter-Scotch Pie.—1 cup brown sugar, 2 tablespoons butter, 2 tablespoons flour or corn-starch, 1 cup hot milk, 3 tablespoons cream, 1 cup cold milk, ¼ teaspoon salt, vanilla flavoring, pastry. Cook the cream, butter and brown sugar together till waxy. Add the hot milk.

Make a custard of the cold milk, eggs, salt and flour. When cold add the first mixture, also the flavoring. Fill baked pie shells with the mixture and put back in the oven long enough to brown. Cover with whipped cream.

Meringue for Tarts and Pies.—Whites of 2 eggs, ¼ cup granulated sugar. Beat the whites of eggs very stiff, add sugar gradually and spread over the pie, mounding it up in the centre. Some like it put on in little lumpy heaps. Put in a slow oven and bake about 10 minutes for tarts and 15 minutes for pies. If baked slowly meringue will not settle.

Corned Beef.

Corned beef is very delicious for a change, especially when served with cabbage, turnips, kale, Brussels sprouts or greens of any kind.

A good brine for making it, also for pickling tongues, is made as follows: Take 1 quart salt, 1 oz. saltpetre, ½ cup brown sugar, 1 gallon cold water. Rub part of the salt into the meat; dissolve the rest of the salt, the sugar and the saltpetre in the water. Put in the meat and place a weight above to keep the meat under the brine. Let stand in a cool place. Thin pieces of meat and tongues will be ready to cook in 3 or 4 days; thick pieces should be left longer. For less salty meat, shorten the time in the brine.

The cheaper cuts of beef, such as the rump and brisket, may be used for corning.

The secret of really delicious corned beef is long, slow cooking. If you put a piece of it into boiling water and keep it boiling at a gallop it will be hard, dry and comparatively tasteless, instead of tender, juicy and of delicious flavor as it should be. Here is the right way: Place the piece in a saucepan with enough cold water to cover it. Let come to a boil and boil briskly for half an hour then draw to the back of the range and let just simmer covered closely, for 3½ hours or more. If the corned beef has been made with very little salt the water may be boiling when first put on. If any is left over after the meal replace it in the stock to keep it nice.

Scrap Bag.

Chinese Sacred Lilies.

When these lilies have bloomed the bulbs are useless and may be thrown away, but the leaves will keep green and beautiful almost until spring if cut off and put in a vase. Change the water every day.

A Good Dentifrice.

A mixture of salt and soda makes an excellent dentifrice that cleans the teeth and corrects acidity in the mouth. Use every morning and every night before going to bed. Be sure to wash the teeth, after every meal, with pure water, using a tooth-brush so that all particles of food may be removed from between the teeth. Much trouble with the teeth might be prevented if this rule were observed regularly from childhood up.

Making Umbrella Last.

From time to time put a drop of oil from the sewing machine can into the joints of your umbrella. It will prevent rust, and so make the framework last longer.

Children's Noses.

Teach the children to keep their noses clean, not only the exterior but the interior also. Teach them the necessity to remove the filth from within by blowing gently until the accumulation is removed, but teach them, also, that this must be done in privacy. There is no one quite so disgusting as the person who blows his nose, hawks or spits when anyone is near.

Scientific Parent (on a stroll).—You see out there in the street, my son, a simple illustration of a principle in mechanics. The man with that cart pushes it in front of him. Can you guess the reason why? Probably not. I will ask him. Note his answer, my son. (To the coster), "My good man, why do you push that cart instead of pulling it?" Coster.—"Cause I ain't a hoss, you old thickhead.—London "Blighty."

Serial Story

"His Family."

BY ERNEST POOLE.

(Serial rights reserved by the Farmer's Advocate and Home Magazine.)

CHAPTER XXI.

Roger went through the next two days in a kind of a stupor. He remembered holding Edith and feeling her shudder as though from a chill. He remembered being stopped in the hall by George who had dressed himself with care in his first suit with long trousers. "I just wanted you to remember," the boy whispered solemnly, "that I'm nearly sixteen and I'll be here. He said to stand by her and I will." The rest of that ghastly time was a blank, punctuated by small, quiet orders which Roger obeyed. Thank God, Deborah was there, and she was attending to everything.

But when at last it was over, and Roger had spent the next day in his office, had found it impossible to work and so had gone home early, Deborah came to him in his room.

"Now we must have a talk," she said. "Allan has gone through Bruce's affairs, and there are still debts to be settled, it seems."

"How much do they come to, Deborah?"

"About five thousand dollars," she said. And for a moment neither spoke.

"I wish I could help you out," she went on, "but I have nothing saved and neither has Allan. We've both kept using our money downtown—except just enough for the trip abroad—and we'll need almost all of that to settle for the funeral."

"I can manage," Roger said, and again there was a silence.

"Edith will have to come here to live," Deborah said presently. Her father's heavy face grew stern.

"I'd thought of that," he answered. "But it will be hard on her, Deborah—"

"I know it will—but I don't see anything else to be done." The deep, quiet voice of his daughter grew sweet with pity as she spoke. "At least we can try to make it a little easier for her. You can take her up to the mountains and I can close her apartment. But, of course, she won't agree to it unless she knows how matters stand." Deborah waited a little. "Don't you think you're the best one to tell her?"

"Yes," said Roger, after a pause.

"Then suppose we go to her. I'm sleeping up there for the next few nights. They found Edith in her living room. She had sent the nurse out, put the children to bed, and left alone with nothing to do she had sat facing her first night. Her light, soft hair was disheveled, her pretty features pale and set. But the moment Roger entered he saw that she had herself in hand.

"Well, father," she said steadily.

"You'd better tell me about our affairs. My affairs," she corrected herself.

When he had explained, she was silent a moment, and then in a voice harsh, bitter, abrupt, "That will be hard on the children," she said. On an impulse he started to take her hand, but she drew a little away from him.

"The children, my dear," he said huskily, "will be taken care of always."

"Yes." And again she was silent. "I've been thinking I'd like to go up to the mountains—right away," she continued.

"Just our idea," he told her. "Deborah will arrange it at once."

"That's good of Deborah," she replied. And after another pause: "But take her home with you—will you? I'd rather not have her here to-night."

"I think she'd better stay, my dear."

"All right." In a tone of weariness.

"Madge Deering called me up to-night. She's coming in town to-morrow, and she means to stay till I go."

"I'm glad," he said approvingly. Madge had been a widow for years. Living out in Morristown with four daughters to bring up, she had determinedly fought her way and had not only regained her hold but had even grown in strength and breadth since the death of her husband long ago. "I'm glad," he said. "You and Madge—" he paused.

"Yes, we'll have a good deal in common," Edith finished out his thought. "You look tired, dad. Hadn't you better

A cup of hot OXO keeps the warmth IN and the cold OUT.

A Cube to a cup.



Dye That Skirt, Coat or Blouse

"Diamond Dyes" Make Old, Shabby, Faded Apparel Just Like New.

Don't worry about perfect results. Use "Diamond Dyes," guaranteed to give a new, rich, fadeless color to any fabric, whether wool, silk, linen, cotton or mixed goods,—dresses, blouses, stockings, skirts, children's coats, draperies,—everything! A Direction Book is in package. To match any material, have dealer show you "Diamond Dye" Color Card.



COCOA FRUIT BREAD

- 1 cup sugar
- 2½ cups graham flour
- ¼ cup Cowan's Cocoa
- 3 tablespoons shortening
- ¼ cup walnuts
- ¼ teaspoon cinnamon
- 1 teaspoon salt
- 5 teaspoons baking powder
- 1 cup milk
- ¾ cup raisins
- 1 teaspoon vanilla

1. Mix and sift dry ingredients.
2. Add milk.
3. Add shortening, melted.
4. Add fruit and nuts, floured.
5. Turn into greased and floured pan.
6. Bake in a moderate oven twenty minutes.

COCOA BROWNIES

- ½ cup butter
- 6 tablespoons Cowan's Cocoa
- 2 eggs
- 1 cup powdered sugar
- 1 cup flour
- ½ cup chopped nuts

Mix as for cake; spread batter on buttered tin as thinly as possible; sprinkle very finely chopped nuts on top. Bake in a very moderate oven till lightly browned. Cut in fancy shapes before removing from pan.



Send for recipe booklet to THE COWAN COMPANY LIMITED TORONTO

SELECTED KILN DRIED SEED CORN

Guaranteed. Special prices to club orders DARC Y E. BOND Y, Arner, Ontario

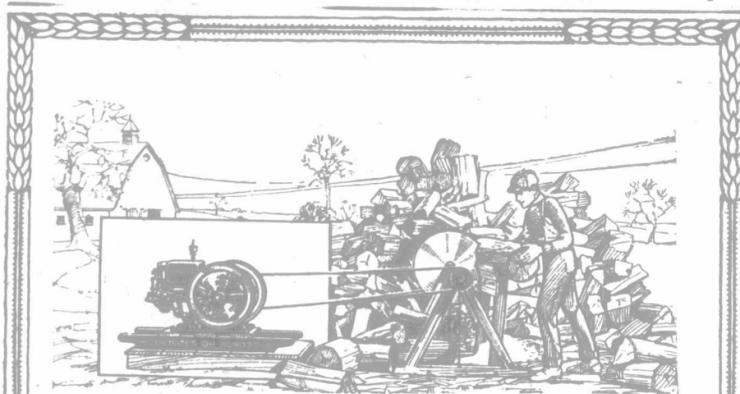
Don't Trust to Luck—

When ordering Tea, but insist on getting the reliable—

"SALADA"

The Tea That Never Disappoints

Black, Green or Mixed — Sealed Packets Only.



One and One-Half
Three
Six



NO longer is there any question about farm engine value.

Long ago engine power made a secure place for itself on the good farmer's farm. Made itself the indispensable worker at a dozen or a score of small jobs we need not name here. You know them too well. They are a part of the routine of your life.

Nor need there be any question as to which engine power will serve you best for the longest time.

Tens of thousands of power users will tell you if they have the opportunity that the best answer is "International Kerosene Engine!" On the day you read these lines many new Internationals will start work for new owners. These engine investments are made on the strength of rugged Harvester reputation, kerosene economy, quality of materials and construction. And you will have the sureness of International service at your service.

The figures at the top are the sizes in which International engines are made. One or another of them will serve you. See the International agent. Write the nearest branch for a folder.

INTERNATIONAL HARVESTER COMPANY
OF CANADA LTD.

WESTERN BRANCHES — BRANDON WINNIPEG MAN. CALGARY EDMONTON LETHBRIDGE ALTA
ESTEVAN N. BATTLEFORD REGINA SASKATOON YORKTON SASK
EASTERN BRANCHES — HAMILTON LONDON OTTAWA ONT. MONTREAL QUEBEC QUE. ST JOHN N B.

None - Such Seed Corn

We guarantee that if not satisfied, return at our expense within ten days from receipt of corn, and money will be refunded. Price, \$3.00 per bus., delivered and a bag furnished. Write for prices and particulars to

Cottam Farmers Limited, Cottam, Ontario

SEEDS

We are in the market for Alsike, Red and Sweet Clover, Timothy, also all grain of good sample. Send samples and we will quote our best price f.o.b. your station.

GEO. KEITH & SONS

Seed Merchants since 1866
124 King St. East Toronto

Color Sells Butter

Add a rich "June shade" to the splendid taste of your butter and get top prices. Try it! It pays!

Dandelion BRAND Butter Color

gives that even, golden shade everybody wants. Purely vegetable. Harmless. Meets all laws. Small bottle costs few cents at any store. Enough to color 500 lbs.

go home now?" she suggested after a moment.

"Yes," said Roger, rising. "Good-night, my child. Remember."

In the outer hallway he found Deborah with Laura. Laura had been here several times. She was getting Edith's mourning. "There's a love of a hat at Thurn's," she was saying softly, "if only we can get her to wear it. It's just her type." And Laura drew an anxious breath. "Anything," she added, "to escape that hideous heavy crepe."

Roger slightly raised his brows. He noticed a faint, delicious perfume that irritated him suddenly. But glancing again at his daughter, trim, fresh and so immaculate, the joy of life barely concealed in her eyes, he stopped and talked and smiled at her, as Deborah was doing, enjoying her beauty and her youth, her love and all her happiness. And though they spoke of her sister, she knew they were thinking of herself, and that it was quite right they should, for it gave them a little relief from their gloom. She was honestly sorry for Edith, but she was sorer still for Bruce, who she knew had always liked her more than he would have cared to say. She was sorer for Bruce because, while Edith had lost only her husband, Bruce had lost his very life. And life meant so much to Laura, these days, the glowing, coursing, vibrant life of her warm, beautiful body. She was thinking of that as she stood in the hall.

In the evening, at home in his study, Roger heard a slight knock at the door. He looked up and saw John.

"May I come in, Mr. Gale, for a minute?"

"Yes, my boy," John hobbled in.

"Only a minute." His voice was embarrassed. "Just two or three things I thought of," he said. "The first was about your son-in-law. You see, I was his stenographer—and while I was in his office—this morning helping Doctor Baird—I found a good deal I can do there still—about things no one remembers but me. So I'll stay there awhile, if it's all right. Only—" he paused—"without any pay. See what I mean?"

"Yes, I see," said Roger. "And you'd better stay—in that way if you like."

"Thanks," said John. "Then about his wife and family. You're to take them up to the mountains, I hear—and—well, before this happened you asked me up this summer. But I guess I'd better not."

"I don't think you'd be in the way, my boy."

"I'd rather stay here, if you don't mind. When I'm through in your son-in-law's office I thought I might go back to yours. I could send you your mail every two or three days."

"I'd like that, John—it will be a great help."

"All right, Mr. Gale," John stopped at the door. "And Miss Deborah," he ventured. "Is she to get married just the same?"

"Oh, yes, I think so—later on."

"Good-night, sir."

And John went out of the room.

When would Deborah be married? It came over Roger, when he was alone, how his family had shifted its centre. Deborah would have come here to live, to love and be happy, a mother perhaps, but now she must find a home of her own. In her place would come Edith with her children. All would centre on her in her grief.

And for no cause! Just a trick of chance, a street accident! And Roger grew bitter and rebelled. Bruce was not the one of the family to die. Bruce, so shrewd and vigorous, so vital, the practical man of affairs. Bruce had been going the pace that kills—yes, Roger had often thought of it. But that had nothing to do with this! If Bruce had died at fifty, say, as a result of the life he had chosen, the fierce exhausting city which he had loved as a man will love drink, then at least there would have been some sense of fairness in it all! If the town had let him alone till his time! But to be knocked down by an automobile! The devilish irony of it! No reason—nothing! Just hideous luck!

Well, life was like that. As for Edith and her children, he would be glad to have them here. Only, it would be different, the house would have to change again. He was sorry, too, for Deborah. No wedding trip as she had planned, no home awaiting her return.

So his mind went over his family. But suddenly such thoughts fell away

as trivial and of small account. For these people would still be alive. And Bruce was dead, and Roger was old. So he thought about Bruce and about himself, and all his children grew remote. "You will live on in our children's lives." Was there no other immortality? The clock ticked on the mantel and beside it, "The Thinker" brooded down. And Roger looked up unafraid, but grim and gravely wondering.

CHAPTER XXII.

But there was a rugged practical side to the character of Roger Gale, and the next morning he was ashamed of the brooding thoughts which had come in the night. He shook them off as morbid, and resolutely set himself to what lay close before him. There was work to be done on Bruce's affairs, and the work was a decided relief. Madge Deering, in the meantime, had offered to go with Edith and the children to the mountains and see them all well settled there. And a little talk he had with Madge relieved his mind still further. What a recovery she had made from the tragedy of years ago. How alert and wide-awake she seemed. If Edith could only grow like that.

Soon after their departure, one night when he was dining alone, he had a curious consciousness of the mingled presence of Edith and of Judith his wife. And this feeling grew so strong that several times he looked about in a startled, questioning manner. All at once his eye was caught by an old mahogany side-board. It was Edith's. It had been her mother's. Edith, when she married, had wanted something from her old home. Well, now it was back in the family.

The rest of Edith's furniture, he learned from Deborah that night, had been stored in the top of the house.

"Most of it," she told him, "Edith will probably want to use in fitting up the children's rooms." With a twinge of foreboding, Roger felt the approaching change in his home.

"When do you plan to be married?" he asked.

"About the end of August. We couldn't very well till then, without hurting poor Edith a little, you see. You know how she feels about such things—"

"Yes, I guess you're right," he agreed.

How everything centered round Edith, he thought. To pay the debts which Bruce had left would take all Roger had on hand; and from this time on his expenses, with five growing children here, would be a fast increasing drain. He would have to be careful and husband his strength, a thing he had always hated to do.

In the next few weeks, he worked hard in his office. He cut down his smoking, stayed home every evening and went to bed at ten o'clock. He tried to shut Deborah out of his mind. As for Laura, he barely gave her a thought. She dropped in one evening to bid him good-bye, for this summer again she was going abroad. She and her husband, she told him, were to motor through the Balkans and down into Italy. Her father gruffly answered that he hoped she would enjoy herself. It seemed infernally unfair that it should not be Deborah who was sailing the next morning. But when he felt himself growing annoyed, abruptly he put a check on himself. It was Edith he must think of now.

But curiously it happened, in this narrowing of his attention, that while he shut out two of his daughters, a mere outsider edged closer in.

Johnny Geer was a great help. He was back in Roger's office, and with the sharp wits he had gained in his eighteen years of fighting for a chance to stay alive, now at Roger's elbow John was watching like a hawk for all the little ways and means of pushing up the business. What a will the lad had to down bodily ills, what vim in the way he tackled each job. His shrewd and cheery companionship was a distraction and relief. John was so funny sometimes.

"Good-morning, Mr. Gale," he said, as Roger came into the office one day.

"Hello, Johnny. How are you?" Roger replied.

"Fine, thank you." And John went on with his work of opening the morning's mail. But a few minutes later he gave a cackling little laugh.

"What's so funny?" Roger asked.

"Fellers," was the answer. "Fellers. Human nature. Here's a letter from Shifty Sam."

"Who the devil is he? A friend of yours?"

Continued on page 220.

small account. For these
ill be alive. And Bruce
Roger was old. So he
Bruce and about himself,
ren grew remote. "You
r children's lives." Was
immortality? The clock
ntel and beside it, "The
ed down. And Roger
id, but grim and gravely

CHAPTER XXII.

a rugged practical side
of Roger Gale, and the
e was ashamed of the
ts which had come in
hook them off as morbid,
et himself to what lay
There was work to be
ffairs, and the work was a
Madge Deering, in the
ffered to go with Edith
to the mountains and
ll settled there. And a
with Madge relieved his
r. What a recovery she
he tragedy of years ago,
wide-awake she seemed.
ly grow like that.
eir departure, one night
ining alone, he had a
sness of the mingled
and of Judith his wife.
g grew so strong that
ooked about in a startled,
ner. All at once his eye
an old mahogany side-
dith's. It had been her
a, when she married, had
g from her old home.
back in the family.
th's furniture, he learned
at night, had been stored
house.
she told him, "Edith
nt to use in fitting up
ms." With a twinge of
er felt the approaching
ne.
t plan to be married?"

nd of August. We
l till then, without hurt-
a little, you see. You
ls about such things—
"u're right," he agreed.
g centered 'round Edith,
pay the debts which
ould take all Roger had
rom this time on his
e growing children here,
e increasing drain. He
e careful and husband his
he had always hated to

weeks, he worked hard
cut down his smoking,
y evening and went to
ck. He tried to shut
is mind. As for Laura,
her a thought. She
vening to bid him good-
mer again she was going
her husband, she told
or through the Balkans
aly. Her father gruffly
hoped she would enjoy
ed infernally unfair that
be Deborah who was
morning. But when he
ing annoyed, abruptly
himself. It was Edith
now.

it happened, in this
attention, that while he
his daughters, a mere
ser in.
as a great help. He was
ffice, and with the sharp
ed in his eighteen years
chance to stay alive,
ow John was watching
all the little ways and
up the business. What
ad to down bodily ills,
ay he tackled each job.
cheery companionship
and relief. John was so

Mr. Gale," he said, as
the office one day.
y. How are you?"

u." And John went on
opening the morning's
minutes later he gave a
gh.

ny?" Roger asked.
the answer. "Fellers.
Here's a letter from

il is he? A friend of
Continued on page 220.

If You Want Greater Comfort, Efficiency, and Economy, Install a Fairbanks-Morse "F" Power and Light Plant

PRESS a button and, Presto! the "F" Power and Light Plant instantly floods any room in your house, your cellar, your stable, drive-shed, garage, out-buildings, barn-yard, or drive-way with a flood of brilliant electric light. The disagreeable task of filling and cleaning oil lamps, dirty lanterns, and lamp chimneys is ended when your "F" Power and Light Plant is installed.

Electricity is a practical and efficient labor-saver on the farm. But the "F" Power and Light Plant does more than light the home. It will run your washing-machine and turn out your heaviest washing in less time than is possible by the back-breaking method.

The "F" Power and Light Plant also provides current for an electric iron—saving time and fuel and the discomfort of a sweltering kitchen. It will run an electric vacuum cleaner, which does away with the labor of sweeping and eliminates the dust raised by a broom.

The current it produces can also be used for an electric toaster, a coffee percolator, and the dozen-and-one modern electrical conveniences which are used in the city home.

The "Z" engine can be belted direct to your cream separator, churn, pump, etc., thereby reducing the drudgery of many irksome jobs.

You will want to know all the advantages and uses of this plant. Fill in the coupon in the right corner and send to our branch nearest you. We will gladly send you full particulars and tell you where you can see the "F" Power and Light Plant in operation.

**40-Light
Plant
\$495**
F.O.B. Toronto

Also made
in 65-, 100-
and 200-
light sizes

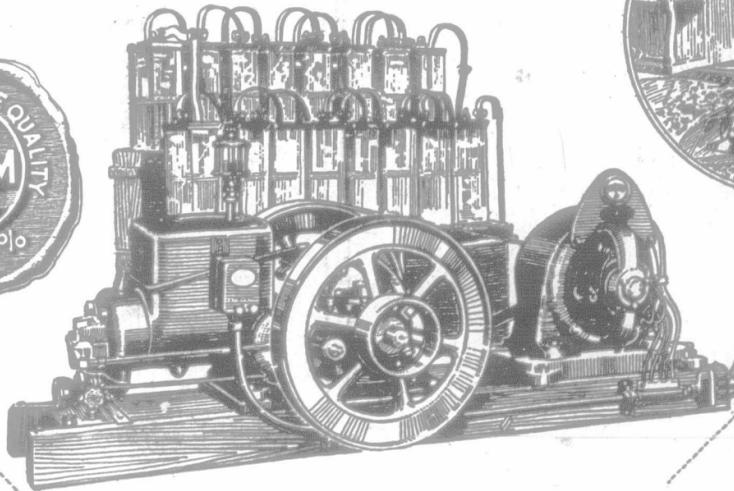
Made in Toronto and guaranteed by

The Canadian Fairbanks- Morse Co. Limited

Montreal Quebec St. John Ottawa Toronto
Hamilton Windsor Winnipeg Regina
Saskatoon Calgary Vancouver Victoria

Agents Wanted

in every district in
Canada to handle
this biggest and
easiest selling prop-
osition and give
owners the kind of
service which this
Company stands
for.



Clip Coupon Here
DEALER'S COUPON
Fill in this coupon and enclose it with your letter-
head and mail to our nearest branch for full
particulars of Fairbanks-Morse
Power and Light Plant Agency.
Name _____
Address _____

Clip Coupon Here
USER'S COUPON
Tell me, without obligation, the advantages
of Fairbanks-Morse Power and Light
Plant.
Name _____
Address _____

THE MOLSONS BANK

Incorporated in 1855
Capital and Reserve \$9,000,000
Over 120 Branches

**Saving Builds Character
START TO SAVE**

The easiest method of saving is by depositing a certain portion of your earnings regularly in THE MOLSONS BANK.

Small accounts receive the same attention as larger ones—efficient courteous service to all.

Romance of the Mutual

The Ontario Mutual, now the Mutual Life Assurance Company of Canada, was founded by a remarkable group of men. Not one of them occupied a prominent position in business or financial circles, nor had they experience in life insurance.

With their extraordinary vision, deep sense of responsibility resting upon them as trustees and in the careful attention they devoted to the affairs of the Company, they laid the foundation upon which the Mutual rests today with its assets of over \$38,000,000, all belonging to the policy holders of the Company.

**The Mutual Life
of Canada
Waterloo-Ontario**

The Royal Bank of Canada



**The Bank follows a liberal
policy in extending Credits
to Farmers.**

If you are going to need a loan to buy seed or live-stock, see the Manager of the nearest branch of the Royal Bank early about your requirements.

This is an invitation to call at the Royal Bank the next time you are in town.

**CAPITAL AND RESERVES \$35,000,000
TOTAL RESOURCES - \$535,000,000
625 BRANCHES**

"I have taken 'The Farmer's Advocate' for fifteen years,—ever since I commenced farming,—and would not like to be without it for double the price."

Bruce Co., Ont. GEO. E. BAUNERMAN.

"No," said John, "he's a 'con man.' He works about as mean a graft as any you ever heard of. He reads the 'ads' in the papers—see?—of servant girls who're looking for work. He makes a specialty of cooks. Then he goes to where they live and talks of some nice family that wants a servant right away. He claims to be the butler, and he's dressed to look the part. 'There ain't a minute to lose,' he says. 'If you want a chawncé, my girl, come quick.' He says 'chawncé' like a butler—see? 'Pack your things,' he tells her, 'and come right along with me.' So she packs and hustles off with him—Sam carrying her suit case. He puts her on a trolley and says, 'I guess I'll stay on the platform. I've got a bit of a headache and the air will do me good.' So he stays out there with her suit case—and as soon as the car gets into a crowd, Sam jumps and beats it with her clothes."

"I see," said Roger dryly. "But what's he writing you about?"

"Oh, it ain't me he's writing to—it's you," was John's serene reply. Roger started.

"What?" he asked.

"Well," said the boy in a cautious tone, vigilantly eyeing his chief, "you see, a lot of these fellers like Sam have been in the papers lately. They're being called a crime wave."

"Well?"

"Sam is up for trial this week—and half the Irish cooks in town are waiting 'round to testify. And Shifty seems to enjoy himself. His picture's in the papers—see? And he wants all the clippings. So he encloses a five dollar bill."

"He does, eh—well, you write to Sam and send his money back to him!" There was a little silence.

"But look here," said John with keen regret. "We've had quite a lot of these letters this week."

Roger wheeled and looked at him.

"John," he demanded severely, "what game have you been up to here?"

"No game at all," was the prompt retort. "Just getting a little business."

"How?"

"Well, there's a club down town," said John, "where a lot of these petty crooks hang out. I used to deliver papers there. And I went around one night this month—"

"To drum up business?"

"Yes Sir." Roger looked at him aghast.

"John," he asked, in deep reproach, "do you expect this office to feed the vanity of thieves?"

"Where's the vanity," John rejoined, "in being called a crime wave?" And seeing the sudden tremor of mirth which had appeared on Roger's face, "Look here, Mr. Gale," he went eagerly on. "When every paper in the town is telling these fellers where they belong—calling 'em crooks, degenerates, and preaching regular sermons right into their faces—why shouldn't we help 'em to read the stuff? How do we know it won't do 'em good? It's church to 'em, that's what it is—and business for this office. Nine of these guys have sent in their money just in the last week or so—"

"Look out, my boy," said Roger, with slow and solemn emphasis. "If you aren't extremely careful you'll find yourself a millionaire."

"But wait a minute, Mr. Gale—"

"Not in this office," Roger said. "Send 'em back, every one of 'em! Understand?"

"Yes, sir," was the meek reply. And with a little sigh of regret John turned his wits to other kinds and conditions of New Yorkers who might care to see themselves in print.

As they worked together day by day, Roger had occasional qualms over leaving John here in the hot town while he himself went up to the mountains. He even thought of writing to Edith that he was planning to bring John, too. But no, she wouldn't like it. So he did something else instead.

"John," he said, one morning, "I'm going to raise your salary to a hundred dollars a month." Instantly from the lad's bright eyes there shot a look of triumph.

"Thanks, Mr. Gale," was his hearty response.

"And in the meantime, Johnny, I want you to take a good solid month off."

"All right, sir, thank you," John replied. "But I guess it won't be quite a month. I don't feel as if I needed it."

The next day at the office he appeared

Do Your Banking by R. F. D.

Make the mail your messenger; and save yourself the long rides to town.

Deposits may be made—butter and cheese cheques cashed—money withdrawn—just as easily and safely by mail as in person.

Write the manager to tell you all about this convenient plan of *Banking By Mail*—or call in and have it explained, the next time you are town.



14

THE MERCHANTS BANK

Head Office: Montreal OF CANADA Established 1864.

With its 138 Branches in Ontario, 44 Branches in Quebec, 1 Branch in New Brunswick, 2 Branches in Nova Scotia, 36 Branches in Manitoba, 46 Branches in Saskatchewan, 86 Branches in Alberta, and 12 Branches in British Columbia, serves rural Canada most effectively.

WRITE OR CALL AT NEAREST BRANCH.

Neglect No Longer

to inform yourself of the innumerable advantages of Life Insurance. It is probable that you do not know for how small a sum you may, under the Policies of The Great-West Life Assurance Company, place your family beyond the necessity of appealing to the sympathy of others should the unexpected happen.

Make these enquiries as a matter of business, not sentiment. It is sometimes necessary to remember that while some wives not only fail to urge Insurance upon their husbands, but actively discourage such provision—there is yet to be found THE WIDOW who fails to appreciate the advantage of Life Insurance.

State age, when full details will be mailed of the many attractive Plans issued by

The Great-West Life Assurance Company
Dept "Z" Head Office: WINNIPEG

At what age do Farmers Retire?

A farmer retires when ill health compels him to do so, or when he has enough money to keep him for the rest of his days.

Farmers are much like other men. In the past they have spent freely as they have earned and old age has found most of them without the money upon which to retire.

But the farmer of today—if he is wise—does not leave the matter of his independence in old age to chance. By investing a few dollars each year in an Endowment Insurance he builds up a fund to keep him in comfort when he is old, or to care for his family should death claim him early.

Write for a free copy of "Barlow Drops In" which tells all about it. Address:

**THE IMPERIAL LIFE
Assurance Company of Canada**
HEAD OFFICE - TORONTO

Branches and Agents in all important centres



When writing advertisers will you kindly mention The Farmer's Advocate.

R. F. D.

enger; and save
own.
utter and cheese
withdrawn—just
il as in person.
ll you all about
inking By Mail
ained, the next

BANK

Established 1864.
New Brunswick, 2 Branches
an, 86 Branches in Alberta,
vely,
H.

ges of Life Insurance.
small a sum you may,
Assurance Company,
ppealing to the sym-

s, not sentiment. It
some wives not only
t actively discourage
E WIDOW who fails

of the many attrac-

e Company
ce: WINNIPEG

re?

h com-
ne has
or the

In the
y have
of them
tire.

e—does
ence in
dollars
nce he
omfort
family

which

LIFE
nada
TO

centres

Farmer's Advocate.

resplendent in a brand-new suit of clothes,
a summer homespun of light gray set off
by a tie of flaming red. There was noth-
ing soft about that boy. No, Johnny
knew how to look out for himself.
And Roger went up to the farm.
(To be continued.)

Current Events

The Government of India has decided
to prohibit enemy aliens from entering
for a period of at least 5 years.

The Government of Jamaica has
announced that it will seize the land of
large owners if the peasants are unable
to obtain enough to cultivate.

The first vessel of Palestine's contem-
plated merchant marine, planned by the
Jews, hoisted the blue and white flag of
Zion on Jan. 28th, and will be known as
the "Heholutz" (The Pioneer).
Jewish scholars from all parts of the
world are to meet soon in Basle, Switzer-
land, to prepare the foundation of the
Hebrew University in Jerusalem, whose
cornerstone has already been laid on
top of the Mount of Olives.

The Slavs of Spalato, Dalmatia, are
holding meetings and demonstrations
to protest against Italian claims to
territories east of the Adriatic. The
Jugo-Slavs, it is said, are anxious for
solidarity with the great Slav country,
Russia.

In his recent speech to the Japanese
Parliament, Viscount Uchida, Minister
for Foreign Affairs, said that Japan
entered the war in conformity with the
terms of the Anglo-Japanese Alliance,
that her troops captured Kiaochau to
destroy the base of German influence
in China, and that she will now restore it
to China, while the Shantung Railway
will be operated under the joint enter-
prise of both countries, in accordance
with the terms of the Chino-Japanese
agreement of 1918. He stated that the
Japanese are anxious to do their part
towards the fulfilment of the ideal of the
League of Nations.

The German Government introduced
into the Reichstag, recently, a bill
providing for councils of workmen in
every factory or business employing
20 or more persons, these councils to
advise and assist the employer. The
Communists, however, demand that the
factory councils (or soviets) should
have unrestricted powers and complete
control of the industry. *Die Freiheit*, a
Radical organ, called for a popular
demonstration against the bill before the
Reichstag building on the occasion of
its second reading, Jan. 13. In response
100,000 men paraded during the day,
and in the evening about 50,000 collected
before the building and attempted to
force an entrance, whereupon the troops
fired from the windows, killing 42 and
wounding over 100. All Germany has
been put under martial law, *Die Freiheit*
suppressed, and all street parades and
meetings prohibited. Gustav Noske, Min-
ister of Defense, has taken command of
Berlin and his troops control the city.
The Government is proposing drastic
measures of economy and efficiency in
order that Germany may be able to meet
her obligations. These include exten-
sion of the working day, laws to
curtail extravagance, national control of
industry, curtailment of unnecessary
travelling, etc.

The Supreme Council at Paris a
fortnight ago communicated to the
Russian Soviet Government the terms
upon which the Allied Governments
will modify the blockade and authorize
an exchange of products between the
Russian Co-operative societies and the
allied and neutral countries. The Soviet
Government, on the other hand, has
sent out a wireless stating that the Reds
are ready to resume commercial relations
with the Allies only on condition that
there be a military armistice, and stating
that if there be no armistice Allied
vessels reaching Bolshevik ports will be
sunk. Lenin and his Government, on
Jan. 30th invited the Poles to a friendly
settlement of all disputes between Poland
and Russia. Kolchak and his minis-
ters are in the hands of the Bolsheviki
at Irkutsk.

"SOLID AS THE CONTINENT"



The business for 1919 further established
the strength and security of the North
American Life. To-day the financial posi-
tion of the Company is unexcelled.

Note these record figures:--

Policies Issued and Revived.....	\$22,199,547.00
Total Policies in Force.....	84,597,490.00
Assets.....	18,869,550.26
Payments to Policyholders in 1919.....	2,299,854.97
Net Surplus.....	2,694,338.13

The North American Life is a "Policyholders' Company," over 99% of the profits
earned being paid to holders of our policies. Your interests are paramount. If you
are contemplating new insurance, see our representative. Get a copy of our 1919
report from him.

NORTH AMERICAN LIFE
ASSURANCE COMPANY

"SOLID AS THE CONTINENT"

W. KERR GEORGE,
D. McCRAE, Lt.-Col.
Vice-Presidents.

Home Office: Toronto, Canada

L. GOLDMAN,
President.

Always Handy

RELIABLE Flashlights are always handy—any time
—any place. Invaluable for the home—in the
garage—down cellar—for walking along dark roads.

Use a Reliable Flashlight battery—best for your light
case, whether called Flashlight or Daylo. As high as 12
hours constant service and 16 hours intermittent service
can be gotten out of your large Reliable Flashlight.

We put the power into your Reliable No. 6 battery—"the Big
Brass Cap" takes it all out. Gives longer life when used on motor,
engine, bell, telephone, or for every other ignition purpose. The
"Fahnstock Clip" furnished on your Reliable battery if desired.

Reliable ignition units will give satisfaction on tractors or any
engines that require a steady flow of fat hot sparks.

Reliable products are sold everywhere by good dealers.

THE DOMINION BATTERY CO. LIMITED
756 DUNDAS STREET EAST
TORONTO CANADA

RELIABLE
TRADE MARK

RELIABLE PRODUCTS
MADE WITH
CANADIAN CAPITAL
BY
CANADIAN MEN IN
CANADIAN
FACTORIES

"Lively and Lasting"

POULTRY AND EGGS

Condensed advertisements will be inserted under this heading at four 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 advertisement inserted for less than 60 cents.

BRED-TO-LAY WHITE WYANDOTTE cockerels, Martin's strain, three-fifty each. W. S. Bennett, R. 1, Freeman, Ont.

BABY CHICKS, ANCONAS, AND LEHORNS* \$13 per fifty, \$25 per hundred, delivered. Mating list ready, order now. G. A. Douglas, Ilderton, Ont.

BRED TO LAY S.C. WHITE LEHORNS—choice cockerels \$3.00 each. Order baby chicks now. Literature free. Cooksville Poultry Farm, Cooksville, Ont.

BRED-TO-LAY BARRED ROCKS—COCKERELS three dollars and pullets two-fifty. A. Donaghy, Colborne, Ont.

BABY CHICKS FROM FERRIS STRAIN White Leghorns and O.A.C. Barred Rocks, 25c each. Book your order now for March, April and May delivery. 25% deposit with order. Eggs for hatching, three dollars per fifteen. E. E. Charlton, Ilderton, Ont.

CHOICE PEN OF WHITE ROCKS. TEN pullets and yearling cock; stay white and best breeding; thirty-five dollars. E. E. Charlton, Ilderton.

EGGS FOR HATCHING FROM TRAP-NESTED, bred-to-lay Barred Rocks—\$2.50 per 15. Order early. Send for circular. Gus. Langelier, Supt. Experimental Station, Cap Rouge, Quebec.

INDIAN RUNNER, MUSCOVEY, WILD Mallard ducks, White Guineas, Barred Rocks. Mrs. John Annesser, Tilbury, Ont.

PEDIGREED COCKERELS, BARRED ROCKS, \$5.00, from 260 and 254-egg hens. Ten pullets laid 2,034 eggs in eleven months. F. Coldham, Box 12, Kingston, Ont.

PURE-BRED WHITE LEGHORN AND white Wyandotte cockerels, bred from prize-winning stock; two, three and four dollars. Wyandotte hens \$3. Martin strain eggs in season. Esra Stock, Woodstock, Ont.

ROSE-COMB (REDS) COCKERELS—GOOD winter-laying strain; three-fifty. Alex. McKinney, Erin, Ont.

WHITE WYANDOTTE COCKERELS BRED from our Guelph champions 1919, \$4.00 up. Extra good laying strain. Satisfaction guaranteed. R. Trivett, Newmarket.

15 S.-C. WHITE LEGHORN COCKERELS, 20 pullets and yearling hens for sale, at \$2 and \$3 each. Farrow and Walter Rose strains. No better blood lines in Canada. T. A. Faulds, London.

Hens Wanted

Alive, 25 cents a pound, any kind, any size. No deduction for shrinkage. I pay express from any station in Ontario. Ship "Collect on Delivery" for full amount in crates or boxes.

ALBERT LEWIS

666 Dundas Street, West, TORONTO, ONT.

Crate-Fattened Poultry

We are open for shipments of crate-fattened poultry. Highest market prices paid, according to quality.

HENRY GATEHOUSE & SON

Fish, Oysters, Game, Poultry, Eggs and Vegetables.

144-350 West Dorchester Street, Montreal

WANTED Crate Fed Chickens

Also Dressed

Large Hens Alive or Dressed

Write for price list.

WALLER'S 702 Spadina Ave. TORONTO

How to Get More Eggs and Save Feed

—How to tell slackers and poor layers; how to get more fertile eggs, better hatches, stronger chicks and prevent bowel trouble is thoroughly explained in a bulletin which will be sent free to readers of this paper who write Prof. T. E. Quisenberry, of the American Poultry Society, Dept. 707 Kansas City, Mo.—Adv.

POULTRY WANTED

It will pay you to sell your poultry to the best market in Western Ontario. Special prices this month for heavy live hens. Be sure and sell to C. A. MANN & CO.

78 King St. London, Ontario

62 BREEDS PROFITABLE Pure-Bred Chickens, Geese, Ducks, Turkeys, Hardy Fowls, Eggs and Incubators at lowest prices. Pioneer Poultry Farm. Valuable poultry book and catalog FREE. F. A. NEUBERT, Box 110 Mankato, Minn.

Conference Regarding Seed Improvement in Ontario.

(Continued from page 208).

INSPECTION AND CERTIFICATION.

The Committee re Inspection and Certification begs to report that in their opinion a definite scheme of inspection and certification should be instituted in Ontario as follows:

1. Foundation seed stocks should be inspected by the plant breeder or other official producing it with the co-operation of a competent plant pathologist; 2. The different grades of registered seed should be inspected and certified by the Canadian Seed Growers' Association in co-operation with the Province; 3. The special seed as multiplied by farmers under official supervision should be inspected and certified—but the committee think a more correct name than "Certified" may be found to describe such recommended seed; 4. The actual cost of this inspection service should be met by fees paid by the growers as far as possible; 5. The committee as above should decide upon and submit at the first meeting of the Field Crop Council or such other select standing committee as may be appointed, a definite scheme of inspection, a standard of grades and the best method of provincial and federal co-operation in carrying out the scheme.

CO-OPERATIVE SEED-CLEANING PLANTS.

That the Field Crop Council through survey, ascertain where seed centres and co-operative cleaning plants be established, keeping in mind adaptations of localities for production of the best quality seed of specific classes; That the U. F. O. and the Provincial Government co-operate in locating warehouse space now owned by farmers' commercial organizations, with a view to ascertaining where such warehouse may be equipped with cleaning machinery in connection with seed centres; That steps be taken to encourage the formation of seed centres or establish a seed business in such centres only; That such local seed centres be incorporated under the Companies Act of the Province, and organized to conduct business on a co-operative basis; That the Central Co-operative U. F. O. take steps to provide for acting as a central exchange for marketing the surplus seed from the local seed centres.

TO STANDARDIZE VARIETIES OF GRAIN CROPS.

Resolved that a permanent committee be appointed on the standardization of varieties of grain crops, and that we suggest that the committee endeavor to limit as far as practicable the number of varieties recommended, and endeavor also to keep to uniform types such as could be handled collectively in commerce.

SPECIAL FLAX TRADE COMMISSIONER.

That the Dominion Department of Agriculture in co-operation with the Ontario Department of Agriculture continue their work in crop and seed inspection, and that a special Trade Commissioner be appointed to bring the merits of Ontario fibre flax seed before the European Countries. Also that the Ontario and Dominion Experimental Farms extend their work in fibre flax investigation.

EXPERIMENT STATION IN SOUTH-WESTERN ONTARIO.

Resolved that this convention finds that there is a need for a complete experimental station in the south-western part of Ontario, and that the station be established fully equipped for the task of working most efficiently towards the improvement of the prominent field crops in that district; and as well that a Plant Pathologist be employed at this station to study the diseases of these special crops which the object of discovering the best practical methods for their control, and co-operating in the production of disease resistant varieties. We also recommend that the station be located where it will be of the most possible value to whole district.

Sale Dates.

Feb. 12, 1920.—Dugald McKinnon, R. R. 3, Rockwood, Ont.—Shorthorns.

Feb. 12, 1920.—Lambton County Pure-bred Livestock Breeders' Association, Petrolia, Ont.

Feb. 13, 1920.—Geo. A. Glennie, R. R. 2, West Montrose, Ont.—Shorthorns and Percherons.

Feb. 18, 1920.—I. N. Howe, R. 2, Mossley, Ont.—Holsteins.

CLEARING AUCTION SALE OF FARM STOCK, ETC.

on Lot 14, Con. 2, Eramosa Township, 5 miles N. of Guelph, on

THURSDAY, 12th FEB. 1920

INCLUDING

12 REGISTERED SHORTHORNS

mostly in calf and calves at foot.

Marigold 20th (111075), Marigold 21st (154531), Princess 5th (136295), McIntyre's Lass (75832), Jean McIntyre (155777) Maud McIntyre (155778), Fernhurst Lass (155779), Laura (132481), Emily (132483), Irvinedale Duchess (115809), Omega Prince (130726).

20 cows and young cattle all good grades.

Sale of cattle, horses, sheep and pigs about 3 o'clock.

TERMS: 12 months credit on approved joint notes. 5% off for cash.

DUGALD MCKINNON,

R.R. No. 3, Rockwood.

J. McDONALD,

Auctioneer.

FARM HELP

The Bureau of Colonization and Immigration expects a large number of

First-class men from the Old Country

during the latter part of March and succeeding months: some experienced, some inexperienced young men, and experienced married men with and without families.

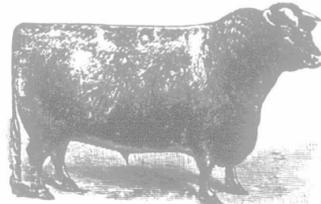
Farmers with vacancies will kindly write—H. A. MacDonell, Director of Colonization, Parliament Buildings, Toronto, at once for application forms. Applications will be filled as far as possible in the order in which they are received.

By Authority of

BENIAH BOWMAN
Minister of Lands and Forests

Advocate Advts. Pay.

Important Dispersion Sale of



13 Scotch and Scotch-Topped SHORTHORNS AND 5 PERCHERON MARES

The property of George Glennie, West Montrose, Ont., will be held at the farm on

Friday, February 13th, 1920 (Sale commences 2 p.m.)

Of the Shorthorns there are 4 bulls and 9 females, all of deep-milking strain of good dual-purpose type. The Percherons have 3 top crosses of Percheron blood. This sale will be a good opportunity for getting bargains in Shorthorns and Percherons. G.T.R. and C.P.R. trains will be met at Elmira on day of sale. Write for catalogue. Address:

GEORGE A. GLENNIE, R.R. No. 2, West Montrose, Ont.

(Bell Telephone)

FOR SALE

Barred Rock Cockerels

The O.A.C. bred-to-lay strain. Finely barred, single comb, rich yellow legs; sisters laid at 5 months. Price \$5 each.

A. H. CROZIER

Meadowdale Ontario

March 2, 1920.—Victoria County Pure-bred Stock Association, Lindsay, Ont.

March 3, 1920.—Guelph Fat Stock Club, Guelph, Ont.—J. M. Duff, Sec'y.

March 4, 1920.—W. G. Strong & Sons, Guelph, Ont.—Ayrshires.

March 4 and 5, 1920.—Geo. M. Hearne, Burlington, Ont.—Shorthorns.

March 4 and 5, 1920.—Union Stock Yards, Toronto, Ont.—Clydes, Percherons, Shorthorns and Belgians.

March 9, 1920.—R. Willis, R. R. 1, London, Ont.—Holsteins.

March 10, 1920.—Caledonia Shorthorn Breeders, Caledonia.

March 10, 1920.—R. M. Holmes, Chertville, Ont.—Clydes and Holsteins.

Clark's Buff Orpingtons

Exhibition and layers combined. Best general-purpose fowl. 10 yearling cocks, \$5 to \$10, 50 hens \$3 to \$5, 50 cockerels \$4 to \$10, 50 pullets \$3 to \$5. Order a breeding pen properly mated. O.A.C. Barred Rocks from College best layers. 25 cockerels \$3 to \$5, 25 hens \$2.50, 50 pullets \$2.50 to \$3.

J. W. CLARK, Cedar Row Farm

Catsville, Ontario

March 11, 1920.—Russell Bryant, Strathroy, Ont.—Holsteins.

March 16, 1920.—London District Holstein Breeders' Club, London.

March 24, 1920.—Perth Breeders' Holstein Club, Stratford, Ont.

April 1, 1920.—Norfolk Holstein Club, Hagersville, Ont.

I. N. Howe's Holstein Dispersal.

I. N. Howe's post-office address was inadvertently omitted from his sale advertisement, and we wish here to state that it is Mossley, Ont. Write Mr. Howe at this address for catalogues.

LE OF
ETC.
Guelph, on
920
RNS
cess 5th (136295),
McIntyre (155778),
2483), Irvinedale
clock.
% off for cash.
McDONALD,
Auctioneer.

HELP
Colonization and Im-
large number of
men from the
country
t of March and suc-
me experienced, some
men, and experienced
d without families.
vacancies will kindly
nell, Director of Col-
t Buildings, Toronto,
ion forms. Applica-
as far as possible in
ey are received.
hority of
BOWMAN
nds and Forests

Advts. Pay.
e of
Scotch-Topped
HORNS
ERON MARES
of George
t Montrose,
at the farm on
(commences)
2 p.m.)
alking strain of good
ood.
orns and Percherons.
Montrose, Ont.

Orpingtons
mbined. Best general-
ng cocks, \$5 to \$10, 50
s \$4 to \$10, 50 pullets \$3
ng pen properly matd.
om College best layers.
5 hens \$2.50, 50 pullets
edar Row Farm
Ontario
— Russell Bryant,
steins,
London District Hol-
London,
Perth Breeders' Hol-
Ont.
rfolk Holstein Club,

olstein Dispersal.
ost office address
mitted from his
and we wish here
is Mossley, Ont.
t this address for

“Go Teach All Nations Beginning At Jerusalem”

“**T**HAT’S it,” says a critic, “beginning at Jerusalem! You should correct paganism at home before going abroad to look for it. I do not believe in Foreign Missions.”

And yet Jerusalem was not Christianized when the Apostles went to Antioch; when Philip taught the Ethiopian.

A Word of Reminder

The man who does not believe in Foreign Missions stands to-day clothed and educated because of Foreign Missions. When did English culture begin? With the visit of St. Augustine, a Foreign Missionary from Rome! Who evangelized Rome? A Foreign Missionary named Paul, of Tarsus and Jerusalem. What if he had gone to the Ganges instead of to the Tiber!

Certainly Canada needs more Christianity, but the necessity of the world cannot be overlooked while we are busy improving our own spiritual life.

The Missions Established

Five Christian Communions in Canada, Anglican, Baptist, Congregational, Methodist and Presbyterian, have an extensive mission work abroad. They have sent overseas many devoted men and women. By their work, barriers have been broken down, and in every land there is an eager call for more missions, more teachers, more doctors, more hospitals. Now, owing to the declining value of the dollar in all lands, it is necessary to double the expenditure in order even to hold the ground won. Until that is done, not one item of an advanced Missionary programme can be undertaken.

The Great Opportunity

All men, who think honestly, realize that the Gospel of Christ is unique in splendor, in majesty, in civilizing influence. It has made the modern world of thought, of industry, of progress. It must go out over all the earth to ease international relationships, to put an end to the cruelty and misery existing in the dark places of the earth. There is free entry for the Gospel in every nation under Heaven. Lift up your heads, O ye gates of India, and be ye lifted up, ye everlasting Doors of China and Japan and Africa, and the King of Glory shall come in.

The Call to Action

Canadians, Churchmen or non-Churchmen, you met the charges of the war with cheerfulness, since it was waged to establish righteousness in the earth. Can you neglect the call of the Church for adequate means to continue by peaceful suasion the work which for four years was done by batteries and bayonets? Your Church appeals directly to you, civilized and educated by Foreign Missions of an ancient time, to meet your obligation to that same Great Cause to-day.

National Peace Thank-Offering

Simultaneous Every - Person
Canss by Each Communion

February 9-14

The United National Campaign

Representing the Simultaneous but Independent Forward
Movements of the Anglican, Baptist, Congregational,
Methodist and Presbyterian Communions in Canada



THE CANADIAN FUR AUCTION SALES COMPANY,
Limited, of Montreal, organized and financed by a repre-
sentative body of Canada's leaders in great commercial
enterprises will hold its

First Great Sale of Raw Furs IN MARCH

Offering immense quantities of fresh, original, uncultured Canadian Furs—the Best in the World—UNMIXED with inferior southern varieties, the company will sell to the highest bidder of hundreds of eager buyers from all parts of the United States and Europe.

You get the world's best prices on the WORLD'S BEST FURS, your CANADIAN goods, at our sales.

We do not issue extravagantly-quoting, misleading price lists, but we do see that your furs bring absolutely top prices. Eager inquiries reach us daily from the world's chief buying capitals.

Buyers from London, Paris, New York, Chicago and other great distributing centres have already arranged to attend the MARCH SALE.

The widespread interest shown by buyers clearly indicates the unusual scarcity of raw furs; unmistakably points to an unusually keen demand, particularly for the finer furs—Canadian goods. We think we are not unduly optimistic in predicting

WORLD'S RECORD PRICES FOR OUR MARCH SALE

LIBERAL CASH ADVANCES will gladly be made on request accompanying any shipment large or small pending sales. The expense to shippers to the Montreal sales is less—the buying force is as strong—as in any market in the world. Write us. Get our advices—market reports, accurate, reliable guidance to you in buying, and **SHIP NOW**—any quality, of any variety or grade. No market in the world will net you better results.

Last day of receiving for this sale is MARCH 1st.

The Canadian Fur Auction Sales Company
MONTREAL LIMITED

Temporary Offices—Windsor Hotel

Successful Incubators

COLLINS CYCLE
HATCHERS

GAINING WORLD-WIDE FAME



A recommendation comes now from Belgium that two of our machines on first trial produced 47 and 45 chicks out of 50 eggs each. You can have success, too, because they are simple to operate and most economical. Write for free catalogue. An early start means bigger profits for you. Orders filled from distributing points.

The Collins Manufacturing Co.,
331 Symington Ave., Toronto.



We Pay the Freight

Only one price. That's net to you, delivered at your nearest railway station. No question about freight rates—we pay them, you save for yourself all intermediate profits—only two profits left—one—a big one—for you—a small one for us. The right way to buy Fencing, is to tell us just the kind and the amount you need, and our price will cover it without any extras whatsoever. That is the safest and best way to buy. The

SARNIA

Fencing is explained in our "Fence Facts" giving fence information on construction or building the right way, also a lot of other things helpful to farmers—real Fence information of great value. Our purpose is to help you to save money. Ship the day the fence is made and your order received. Only a Post Card, that's all it costs to ascertain why in dealing with us you have every advantage. "Fence Facts" tells you all about it—saves posts too. You get a heavy open hearth wire, strong and serviceable, heavily galvanized, lasts longer and costs less.

The Sarnia Fence Co., Ltd.

Winnipeg
Manitoba



Sarnia
Ontario

Established 1877 "The Old Reliable"



RAW FURS AND HIDES WANTED—ALL KINDS

We give expert attention as to grading and price. You get the benefit of any doubt. We pay express charges on all fur shipments. Write for Market Report, Price List and Shipping Tags.

McMillan Fur & Wool Company
277-9 Rupert Street, Winnipeg



A Clean Churn and - Windsor Dairy Salt
THE CANADIAN SALT CO. LIMITED

Bigger Crops of Fruits and Vegetables Write for illustrated booklet on Crop Diseases.

Spramotor
It isn't a SPRAMOTOR unless we made it

Spramotor Co., 18 King St., London, Can. When writing please mention Advocate.

The Lynx and Weasel.

BY ROBERT G. HODSON.

The lynx is an animal of the Northern country, while the weasel, though found in southern parts, reaches the highest state of perfection in that part of the country where there is much snow and the thermometer registers many degrees below zero.

The weasel is a close relative of the costly ermine of Europe, monopolized by the royalty and rich; but the weasel, or American ermine, as our member of this weasel family is called, while every beautiful and dainty, is not nearly so expensive as the European ermine. Even at this, however, the skin of the weasel is worth more than its weight in gold.

The weasel is of no value when in its summer coat of brown on the back, and a dirty gray on the belly; but as cold weather and snow come, it takes on its beautiful coat of white, with the never-changing black spot on its tail as a very striking and attractive contrast. It is often stated by misinformed people that, owing to the hide of the weasel being very easily soiled, in the North they are taken in rather an unique and very cruel manner. A hunting knife, the blade of which has been dipped in blood, is placed near where these animals are sure to find it. When the animal comes along, it naturally licks the blood off the blade, and the blade being highly charged with frost, causes their tongue to stick to it, in which manner they are found by the trapper. This, however, is on much the same lines as that old saw, "If you can get salt on a bird's tail you can catch it."

Weasels are one of the most blood-thirsty of all fur-bearing animals, and for their size they have no equal in this line. They kill, not so much for the food, but often for the fun of killing, and one weasel has been known to kill over a dozen hens in a single night, suck the blood from them and leave. As long as food is plentiful they will follow this practice exclusively, and live on nothing but blood sucked from their victims.

Naturally, one of the best baits for weasel is bloody meat of any kind, rabbit, hens and partridge being favorites. Small birds, so often recommended as baits, are worthless. They are by nature bold and fearless, and for this reason are not hard to trap. The No. 0 Victor is the trap commonly used in capturing them.

The reason for describing methods for the lynx and weasel together, is that these two animals are both of the North, and they are, in addition, alike, in that they are comparatively easy to take—the weasel because it is fearless and without cunning, and the lynx because it is very stupid.

The lynx's faculties of scent and hearing are not so highly developed as in many other animals I could name; they are, however, very sharp-sighted, which, along with the fact that they have a large bump of curiosity, often leads them into trouble in the following manner.

Where the trapper sets a trap in or beside any open space, he places a small red flag over the set. The lynx is, of course, interested, and will investigate, to find the bait and in getting it be caught. Colored feathers serve the same purpose.

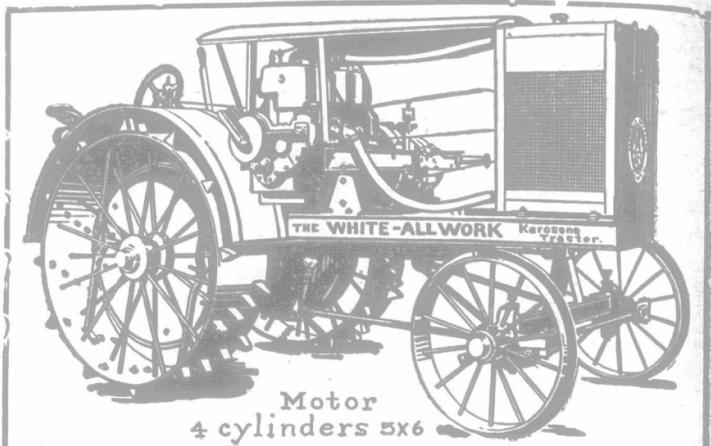
The main thing in trapping lynx or any other animal is to thoroughly understand their habits, and to set your traps as your common-sense will dictate, after you have learned their habits.

Lynx live chiefly on rabbits, and where there are no rabbits, you seldom see lynx; you may see a stray track, but that is about all. A disease seems to strike rabbits every seven years, and practically cleans them out; then the lynx moves off to newer grounds, where his favorite food is to be found in more abundance. Rabbits, of course, are the best natural bait that can be used.

They are found chiefly in dense woods and swamps, where rabbits are most plentiful, and here they have a trail which they cover regularly about every nine or ten days; these trails usually run parallel or into rabbit trails.

The best possible set for lynx is the pen or cage method described in the following:

The best trap to use is the No. 3 New-house, Victor or Jump, whichever you prefer. Make a pen of brush up against a tree to give in support, and have it large enough so the lynx can easily enter. Roof this pen over with brush to prevent the snow getting in, and then in the back of the pen, on the tree trunk, place



Motor 4 cylinders 5x6

High Power—Light Weight

You can put a White-Allwork on wet land or use it for seeding and harrowing. The White-Allwork weighs only 4800 lbs., yet it has 3000 lbs. drawbar pull on high gear, or 4000 lbs. on low gear. It has a 4-cylinder (5 x 6 inches) motor, the largest engine on any 3-plow tractor. It is compact, sturdy, and easily handled—turns inside of 12 feet radius. You can use it on rolling land and work in close to fences.

The engine is set cross-wise on the frame, doing away with bevel-gears and giving a belt pulley on direct line with the crank shaft. All gears are self-oiling, and well protected from dust.

The White-Allwork is a worthy addition to "The First Quality Line."

You know best what a White-Allwork will save you.

You know what horse work or other tractors are costing. Let us tell you what it costs to use the White-Allwork on every power job on the farm. Then decide for yourself whether this practical tractor will save you money or not.

Write for full information

The Geo. White & Sons Co., Ltd.,
Moose Jaw, Sask. LONDON, ONT. Brandon, Man.

"THE FIRST QUALITY LINE"

Steam Tractors Threshers Gas Tractors

The White-Allwork Kerosene Tractor

Try This Horse Stump Puller 30 Days FREE! Single Horse Operates It!

SEND NO MONEY!

Kirstin Horse Stump Puller Single, Double, Triple Power

PROVE on your own stumps—30 days before you pay me a penny—that ONE MAN with boy and SINGLE HORSE operates it! Pulls biggest stumps. Quick! Cheap! Easy! at my expense. You don't risk a penny. If not pleased, return at once. Four easy ways to pay.

WINS Government and University tests for SPEED, POWER, STRENGTH and other like it. Single power for fast work. Double and triple power for big, tough ones. Big, broad, machined, anti-friction, easy-running bearings. Finest steel. Develops triple setting than old way. Quick "take up" for slack cable. 3-year guarantee against breakage—flaw or no flaw. Shipment from nearest distributing point saves time and freight. Write for FREE BOOK and Special Agent's Offer. Today!

World's Largest Makers of Stump Pullers

A. J. KIRSTIN CANADIAN CO. 524 Dennis St., Sault Ste. Marie, Ont.

Just Put Clothes In—the Washer Does the Work

If you have a gasoline engine—if you have electric power—then no longer need you even work the lever of a hand-power washing machine. Let power help your work as it does your husband's!

Of course you realize that a washing machine, even run by hand, is quicker, easier, better than washing by muscle-power. But here's a washer that does everything—all you have to do is "turn on the juice."

Maxwell Power Bench Washer

—will do the washing while you do other work! No need to watch it—it can't go wrong. It will do the wringing too. Easy to operate—simple and strong in construction—perfect in mechanism. Made in one-, two-, or three-tub size; operated equally well by 1/6 h.p. electric motor, or any gasoline engine. Write us to-day for full particulars—it will be time well-spent.

38 MAXWELLS LIMITED, Dept. W ST. MARYS, Ont.



Weight

cross-wise on the
with bevel-gears
pulley on direct
rank shaft. All
ng, and well pro-

is a worthy addi-
Quality Line."
what a White-
save you.

orse work or other
ng. Let us tell
o use the White-
power job on the
ide for yourself
tical tractor will
or not.

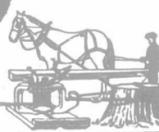
information

Ltd.,
andon, Man.

rs 1

**Work
ctor**

**Single Horse
Operates It!**



ver!
penny—that ONE MAN
mp. Quick! Cheap! Easy!
r. If not pleased, return
ay.

**er Single, Double,
Triple Power**

OWER. STRENGTH and
ars ahead of its time! No
power for big, tough ones.
neat steel. Develops triple
eases more ground at one
guarantee against break-
eat saves time and freight.

80

. Marie, Ont.

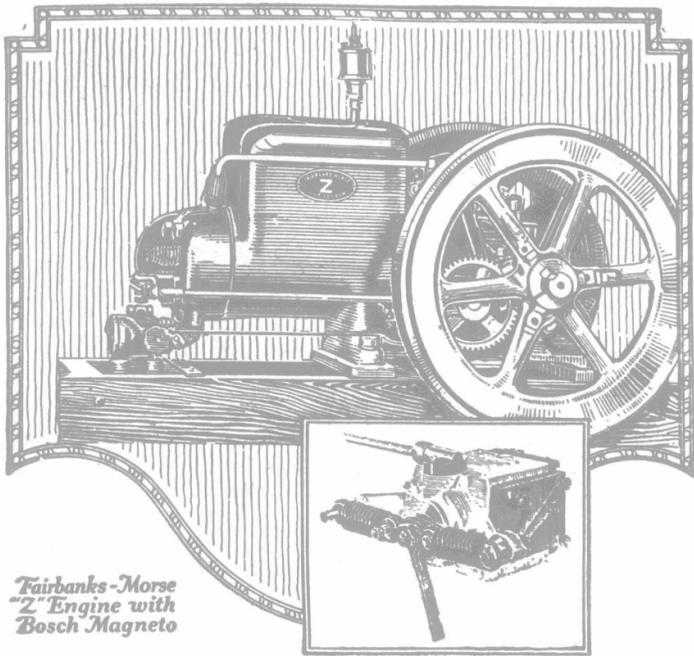
e Work

washing machine,
easier, better than
But here's a washer
ave to do is "turn

well

ch Washer

hing while you do
need to watch it—
g. It will do the
ay to operate—
ruction—perfect in
two-, or three-tub
y 1/6 h.p. electric
c. Write us to-day
e time well-spent.
MARYS, Ont.



*Fairbanks-Morse
"Z" Engine with
Bosch Magneto*

Greater Engine Value

OVER 250,000 farmers bought the "Z" Engine. They know it is powerful, dependable, and practically fool-proof—truly a great engine. But now we announce the one addition which could possibly improve the "Z" performance—Bosch high-tension, oscillating magneto ignition. So let the "Z" dealer near you show you in detail this greater engine value. Every Bosch Service Station in Canada combines with "Z" dealers to give every farmer buyer a remarkably complete engine service.

MADE IN TORONTO, CANADA, BY 48
The Canadian
Fairbanks-Morse
Co., Limited.

Halifax St. John Quebec Montreal Ottawa Toronto Hamilton
Windsor Winnipeg Saskatoon Calgary Vancouver Victoria

your bait, scented with some good scent or a little beaver castor. Directly in front of the bait, so the lynx cannot possibly get by without stepping into it, set your trap in an excavation made in the ground or snow. Line the bottom of the excavation with dry leaves or paper, put a piece of batting under the pan to prevent its freezing down, and cover with leaves or some such natural material. Fasten your trap chain to a good-sized log or stone to use as a drag.

This, as I said, is the chief and most successful method employed in taking lynx, and any number of these pens can be constructed. The opening by which the lynx must enter should always face the south. In addition to this set traps can be set either blind or baited in rabbit or lynx trails.

More weasel are taken in sets made for other animals, such as mink, skunk, marten, etc., than in sets made especially for them.

They have their regular routes, and you will find these trails lead through all hollow logs and stumps along the trail. These places afford the best possible sets by putting some bloody meat as already described, or the guts of a rabbit or hen in the hollow log or stump, and setting your trap—a No. 0 Victor—at each end of the log, or each opening in the hollow stump.

"I have been a continuous subscriber to your valuable paper for about twenty years and could not well do without it. One issue is often worth many times the year's subscription."
Wellington Co., Ont. D. H. PARKER.

**DON'T DELAY ORDERING YOUR
SYDNEY BASIC SLAG
FERTILIZER**

If you put it off too long you may not be able to get the goods in time for use this Spring. Our Mills are working day and night producing approximately

1,000 TONS A WEEK

and it is all going forward to farmers as fast as it is made. The bulk of this goes to people who have used the goods before. What better proof could you have of its merits?

IF IN DOUBT, ASK THE MAN WHO HAS USED IT

Let us put you in touch with a few of the users. Sydney Basic Slag sells for \$23 per ton at Ontario stations. We have a good proposition for reliable farmers in unrepresented districts who can handle a carload.

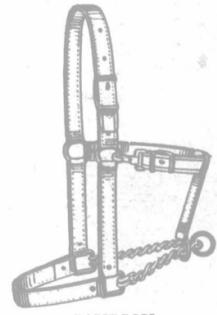
THE CROSS FERTILIZER COMPANY, LTD.
SYDNEY - - NOVA SCOTIA

Address to our General Sales Agent
A. L. SMITH, - 220 Alfred Street, - KINGSTON, ONT.

**Your Horse Can't
Break This Halter**

We assume the full responsibility by attaching our guarantee tag to this Griffith Sampson Halter. This means that if it breaks within a year from date of purchase we will repair it, or send you a new halter absolutely free of charge.

There's strength in every strap and stitch of the Sampson. See that chain chin draw? That's electric welded steel chain—it grips the horse under the jaw when he pulls and he soon yields to its strength.



SAMPSON

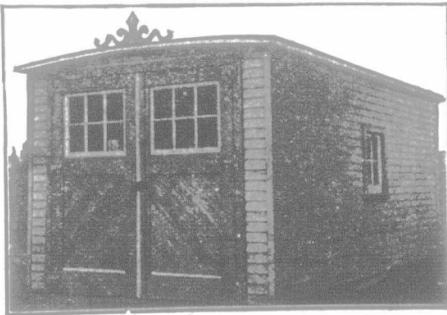
Griffith Guaranteed Halters

Our guarantee tag is attached to all our guaranteed halters. Isn't that a worth while consideration when buying your next halter? Price of Sampson \$2.50 (in the West \$2.75). If your dealer can't supply you send direct to us giving dealer's name.

Send for free booklet. Shows a halter for every purpose—at a price to suit your purse.

G. L. Griffith & Son 68 Waterloo St., Stratford, Ont. 53

The Auto-Home Garage



is just what you need for your car. It is built in sections; any one can erect it. It is painted and glazed complete. Built in four sizes. Place your order early; have a neat, warm place for your car in cold weather. Send for full particulars.

A. COATES & SONS
MANUFACTURERS
BURLINGTON
ONTARIO
Box 151

FEEDS

Linseed Oil Cake Meal. Cotton Seed Meal. Gluten Feed (23% protein). Hominy Feed. Bran. Shorts. Feeding Cane Molasses (in barrels). Feed Corn. Oats. Barley. Distillers Grains. Dairy Feed. Hog Feed. Poultry Feeds and supplies.

Car lots or less—Prices on application.

Kelley Seed & Feed Co.
Successors to
CRAMPSEY & KELLEY
776 Dovercourt Road, Toronto

**How to FEED
Live Stock**

Write **Free Book** today.

A post card will do. Get our wonderful free booklet, "How to Feed for Bigger Live Stock Profits." Reveals valuable information on the feeding of swine, cattle, horses, sheep and poultry. Filled with interesting pictures. Also describes our wonderful course in Live Stock Feeding. Right methods of feeding all kinds of live stock, the raising of baby beef, the growing of feeds, scientific rationing—all taught in detail. No matter where you are raising live stock, write today for free booklet and learn how to master scientific feeding at home. We have brought the school to live stock feeders. Get our free booklet. Write today. Just mail a post card.



LIVE STOCK FEEDING ASSN., Div. 431, Pleasant Hill, Ohio

The Pioneers of Canada.

BY W. W. REVINGTON.

I love to hear the pioneers
Tell of the days of yore
And why they left their native land
To seek a foreign shore.

To brave the breeze where forest trees
Did in profusion grow,
And here they built their cabin homes
Some sixty years ago.

Oh, what a debt of gratitude
We owe the pioneers,
Then treat them friends with due respect
In their declining years.

For most of them have gone to rest
As early records show,
That tried to make a home for us
Here sixty years ago.

The Pioneers for many years,
Had dangers to go through
As great as Wellington who won,
His fame at Waterloo.

Where could you read of greater deeds?
Than Pioneers could show
While clearing up this wilderness
Here sixty years ago.

Its mountains, lakes and rivers all
Are beautiful to view,
Here every day Niagara spray
Falls like the morning dew.

Its fertile fields abundance yields
Its scenery is grand,
No wonder that Canadian boys
Do love their native land.



Barrels on the left represent yield from fertilized trees. Those on the right show yield from unfertilized. Gain, 145%.—From Ohio Experiment Station Bulletin No. 301.

Get at the Core of the Fruit Situation

Fertilizing the Orchard Pays

Because:—

1. Fertilizers supply well balanced food for orchard trees. This means desirable wood-growth.
2. Fertilizers cause fruit to fill and mature uniformly.
3. Fruit borne by trees that have been properly nourished with fertilizers is superior in size, color and flavor
4. Fertilizers cause great increase in yields.

Mr. W. M. Grant of Blenheim says:

"My apple crop has this season been a particularly profitable one, due to the liberal application of high-grade commercial fertilizer. My crop will run 1,600 bushels from 4½ acres."

Note: Mr. Grant used about 12 lbs. per tree of a mixture analysing 3.29% Nitrogen, 4% Phosphoric Acid and 6% Potash.

Write for Pamphlet No. 3.

The Soil and Crop Improvement Bureau
of the Canadian Fertilizer Association
1111 Temple Building - Toronto 54

"For The Land's Sake" use

STONE'S FERTILIZER

For Bigger and Better Crops

Agents wanted where not represented

WM STONE SONS LIMITED
INGERSOLL ONT.

Comments on the Christmas Number.

The staff of The Farmer's Advocate and Home Magazine are encouraged to attempt something better each year, in the form of a Christmas Number, by the many encouraging and glowing tributes paid to that special number by many subscribers who receive it. We are reproducing here a few excerpts taken from letters received at this office:

"Many thanks for the first Christmas gift of the season,—the Christmas Number of 'The Farmer's Advocate,'—which in many ways, excels other numbers. 'The Farmer's Advocate' is a welcome visitor every week (especially the Christmas Number) in our home. We would not

like to be without it. I think the farmer's literary menu would be quite incomplete without such a valuable advocate for the farmer's just rights. Your editorials and articles on various problems are classical in construction, and high and clean in ideals. The illustrations throughout the year, and especially in the Christmas Number, are excellent. I think 'The Farmer's Advocate' should be in the home of every farmer in Ontario."

Middlesex Co., Ont. N. B. DAVIS.

"Concerning the Christmas Number of 'The Farmer's Advocate,' I may say that it sustains the reputation already established. I read several agricultural publications, some Canadian and some American,

It is no discredit to any of them to say that the literary value of 'The Farmer's Advocate' stands higher, in my esteem, than that of any other, and this in no way detracts from its practical value. The epigrammatic touch adds value to what is stated. 'The Farmer's Advocate' is an agricultural classic. It invites the reader to be a better man and a better farmer."

Lincoln Co., Ont. I. R. AIKENS.

"Many thanks for the splendid Christmas Number. We are delighted with it throughout and it is surely a credit not only to yourself as a firm, but to the Dominion at large. A paper with such a high standard of excellence will surely do much to encourage better agri-

culture in every branch. I consider it a privilege to advertise in a paper of such merit, and only wish we had more stock to sell."

Haldimand Co., Ont. HUGH A. SCOTT.

A Power For Good.

EDITOR "THE FARMER'S ADVOCATE":
In renewing my subscription for 1920 I might add that we think a great deal of "The Farmer's Advocate." I am only sorry that it does not find its way into every rural home in Ontario. It is one of the great lifting forces that is giving to rural Canada to-day its present social and political standing.

Huron Co., Ontario. COLIN CAMPBELL.

Imperial Ex-service Men Will Train on Canadian Farms

Soldier Settlement Board (Canada) desires names of successful farmers who are in a position to give these men the experience they need.

THE benefits of the Soldier Settlement Act have been extended to Imperial Ex-service men. Many of these veterans of the Great War are desirous of coming to Canada this year, and regulations under which they will be granted financial assistance have been adopted by the Soldier-Settlement Board.

Selection of Candidates in British Isles

ONLY those especially equipped to undertake the duties of farmers in a New Land will receive permits entitling them to come to Canada and begin training under Soldier Settlement Board supervision. These are the general qualifications:

1. Physical fitness.
2. The possession of at least \$1,000 on landing in Canada.
3. General fitness (which includes reputation for honesty, industry, intelligence, etc.).

All applicants will appear before Canadian Emigration agents who will reject those who are obviously unfit. The remainder will appear before a Selection Committee composed of practical Canadian farmers who understand all the conditions which make for successful farming in the Dominion.

With Farmer Till Qualified

SELECTED candidates will be required to remain with a farmer till qualified. A large majority of these men will require two years' experience.

Farmers of Canada Have Rare Opportunity

PLACES are desired for these men. Farm help is essential for the full development of Canada's agricultural resources. Farmers who need assistance next spring have the opportunity of applying for these selected men. Every man whom the Soldier-Settlement Board places this year will be of proved worth. Some will have advantage of experience on farms in the British Isles. Those who are without agricultural experience will be eager to acquire the knowledge necessary to equip them as soldier settlers under the Act.

This is an opportunity that farmers should not fail to embrace. As the need of agricultural help is shown the Soldier-Settlement Board will arrange for the coming of the men. Only those who are assured of positions on farms will be permitted to come to Canada.

If you can use an Imperial ex-service man on your farm, write to the nearest District Office of the Board. The offices are located at: Victoria and Vancouver, B.C.; Edmonton and Calgary, Alta.; Regina, Saskatoon and Prince Albert, Sask.; Winnipeg, Man.; Toronto, London, Fort William and Ottawa, Ont.; Quebec and Sherbrooke, Que.; St. John, N.B.; Halifax, N.S.; Charlottetown, P.E.I.

The Soldier Settlement Board

W. J. BLACK, Chairman
Union Bank Building, Ottawa, Ont.

When writing advertisers please mention "Advocate."

**Ice Men
on Farms**

of successful farm-
experience they need.

tlement Act have
service men. Many
War are desirous of
regulations under
assistance have
ment Board.

British Isles

to undertake the
d will receive per-
Canada and begin
Board supervision.

\$1,000 on landing

des reputation for
nce, etc.).

Canadian Emigration
re obviously unfit.
Selection Commit-
farmers who under-
take for successful

Qualified

required to remain
large majority of
experience.

Opportunity

en. Farm help is
ment of Canada's
who need assist-
ty of applying for
hom the Soldier-
will be of proved
of experience on
who are without
er to acquire the
as soldier settlers

should not fail to
ral help is shown
arrange for the
no are assured of
o come to Canada.

the nearest District Office
er, B.C.; Edmonton and
 Winnipeg, Man.; Toronto,
ke, Que.; St. John, N.B.;

nt Board

a, Ont.

on "Advocate."

branch. I consider it a
rtise in a paper of such
wish we had more stock

, Ont. HUGH A. SCOTT.

er For Good.

RMER'S ADVOCATE":
ny subscription for 1920
t we think a great deal
s Advocate." I am only
es not find its way into
e in Ontario. It is one
ng forces that is giving
to-day its present social
ding.

COLIN CAMPBELL,
tario.



"THE CROFT"
Halliday Home No. 41

**SAVE \$400.00
ON YOUR HOME**

You can do this by purchasing your Building Materials from the Halliday Company. We supply

**EVERYTHING TO BUILD
THE COMPLETE HOME**

(Masonry materials excepted) at one inclusive cost, which we guarantee will save you money.

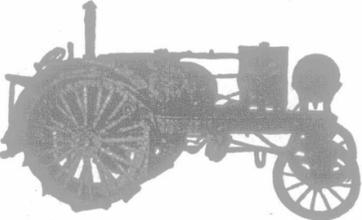
Every purchaser of materials for a Halliday Home is supplied with Architect's Plans and Specifications, covering the whole detail of Home Construction—free of all cost.

CATALOGUE FREE TO INTENDING HOME BUILDERS

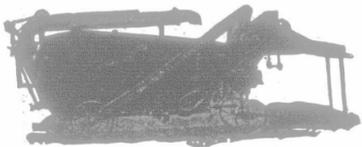
Our new Catalogue of Homes contains over 50 illustrations of attractive, modern Houses, for any of which we supply materials to build exactly as it appears in the picture. Write to-day, ask for Catalogue 64C

The HALLIDAY COMPANY Limited
Factory Distributors
Hamilton - Canada

Tractors and Threshers



WATERLOO BOY
The Simplest, most Accessible, most Powerful 8-plow Tractor on the market. Suitable for hauling 3 plows, Threshing, Silo Filling and General Farm Work.



Individual Farmers' Threshers, suitable also to be driven by small Tractors and Gasoline Engines. Do your own threshing. Keep your farm clean and save expense. Write for free catalogue, prices and any information wanted.

THE ROBT. BELL ENGINE & THRESHER COMPANY, LIMITED Seaforth Ontario, Also Steam Tractors, and large size Threshers

A BETTER SEPARATOR THE VIKING



saves your cream dollars—skims to a mere trace—runs easy—has larger capacity—simple—durable—

GUARANTEED FOR FIVE YEARS

The Viking is made with the new straight disk skimming device which has proven the best—skims faster—closer and most easily washed device made.

Write for illustrated catalogue and further particulars regarding the VIKING

SWEDISH SEPARATOR COMPANY
Dept. S, 422 Power Bldg., Montreal

"Advocate" Advts. Pay.

Gossip.

The Glengore Aberdeen-Angus Cattle.

Many of our readers are acquainted with the herd of Doddies, the property of Geo. Davis and Sons, of Erin. The herd was established a good many years ago and has steadily grown in quality and numbers. The herd sire at the present time is Elora Ecliper, by Black Abbot Prince. The progeny of this sire have size and quality and are good feeders. The present offering of young bulls range from a few weeks to six months of age, and consists of outstanding animals in first-class condition. Messrs. Davis write that they have a fine offering of young females, some of which are bred and others ready to breed. At local shows the herd has been very successful and has won honors at the Guelph Winter Fair. The herd at present consists of over thirty head. If wanting foundation stock or a herd header, it would be well to write Messrs. Davis & Sons for the sale list, or better still, visit Glengore herd.

Glenwood Stock Farm Pure-Breds.

On another page of this issue will be found the announcement of I. N. Howe's complete clearing sale of his 100 head of registered stock, comprising 40 head of choicely-bred Holsteins including his old herd sire, Baron Colantha Fayne, which is a son of the famous Grace Fayne 2nd Sir Colantha and Queen Butter Baroness, the first 33.18-lb. butter cow in Canada. The 15 daughters of this grand bull are a very typey uniform lot, well-grown, and show in a marked degree the fine breeding of their sire. Those of serviceable age are bred to the junior sire, a grandson of Maud Snowball with a record of 634 lbs. milk and 29.12 lbs. butter in 7 days.

This combination of breeding and records should appeal strongly to the progressive breeders of the black and whites. A number of the cows are from tested dams, a daughter and grand daughter of Princess Cornucopia Sadie 24.52 lbs. at 3 years are among those offered.

The Clydes, including 2 mature horses and 2 colts rising 2 and 3 years old are from imported stock and true to their breeding.

Among the 33 Shropshires offered are 17 ewe lambs (1919) of extra quality.

The Poland Chinas are of show quality. One sow, Idylewild, is from a Toronto sweepstakes sow and a number are from show stock imported by Mr. Howe from Ohio. Progressive breeders would do well to attend this large sale and secure some of the offering.

The Glengow Shorthorn Herd.

But few Shorthorn herds in Canada have enjoyed a longer era of prosperity than the Glengow herd of Scotch Shorthorns owned by William Smith, M.P. of Columbus, Ont. The herd was founded almost fifty years ago by its present owner, and each year since its foundation, the personality of both the herd and its owner has stood out prominently among the better breeding institutions of the Dominion. The Shorthorn families represented in the beginning are still all to be found among the breeding cows and to-day as then, are the most popular strains of the breed. Crimson Flowers, Wimples Kilblean Beautys, Wedding Gifts, and Village Girls' are all represented with two or three good breeding matrons each and at present there is one or more young bulls of each family included in the sales' list. These bulls are all between the ages of nine months and two years, and the majority of them are between thirteen and fifteen months. All are sired by the present herd sire, Prince Sultan a strong Roan Lady bred son of Lavender Sultan, that has stood at the head of the herd for the past four years. The oldest of these sons is a two-year-old Wimple bull which has been used to some extent in the herd, and is perhaps one of the best and thickest-fleshed bulls raised at the farm for some time. Next in age are two sixteen-month calves, one a Kilblean Beauty and one a Crimson Flower, both are nice solid roans and of the herd sire sort. Then comes the fourteen-months Golden Drop calf, a grandson on the dam side of the good breeding bull, Village Secret. Mr. Smith has already bred this bull to a number of daughters of the senior sire, and now included in the sales' list, he is of a type that is sure to be appreciated. For list of the younger calves, as well as further particulars regarding these mentioned, write Mr. Smith, mentioning this paper.



Making Railroads Safe with DAYLO

Many thousands of locomotives in Canada carry safely and swiftly, millions of passengers and millions of pounds of freight daily with the aid of Daylo.

As soon as an engine reaches the round-house after a run, it is minutely inspected and groomed for its next run. Valve gears and bearings must work smoothly, the dark fire box must be examined for broken grates, and the boiler searched for even tiny cracks or leaks that might mean wreck if over-looked.

And here Daylo points its unerring finger of light to the danger spots. In the murky round-house, it shoots its beam where no other light can go.

Wherever lives and money depend on perfect machine action—on locomotives, in power plants, on stationary engines and electrical machinery—and on lathes, drill-presses and planers—wherever wheels turn—Daylo makes sight clear.

In stock, tool and storerooms, too. No bin is so deep, no corner so dark, but that Daylo will instantly find the needed label, tool or material.

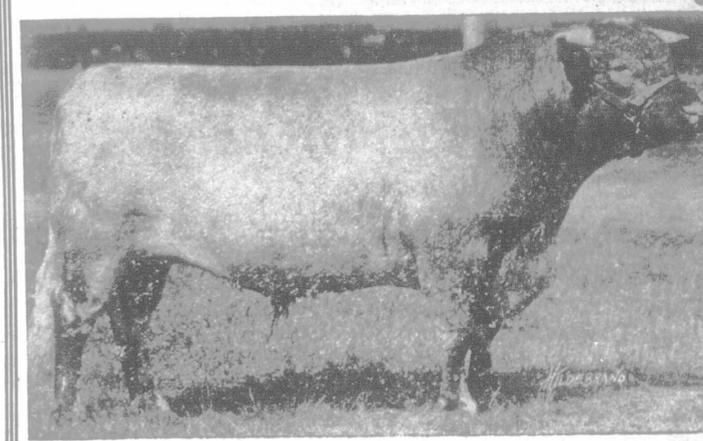
All leading electrical, hardware, drug, sporting goods, and auto accessory jobbers and dealers stock Daylo. Or write us.

CANADIAN NATIONAL CARBON CO. Limited
Toronto, Ontario

AM 2

3661 2661 4707 2660 4702 2659

HARNELBEL SHORTHORNS



GAINFORD SUPREME 115283
First prize two-year-old bull at Toronto and Grand Champion at London Exhibitions, 1919
Harnelbel Farms, - Islington, Ontario
Harry McGee, Proprietor, 61 Forest Hill Rd., Toronto, Ont. Samuel Truesdale, Manager.

ANGUS BREEDERS—ATTENTION!
If you want a first-class Angus Bull to head your herd get Justice of Aberdeen, the 2nd prize senior calf at the Winter Fair, Guelph, 1919. Utter stock for sale, male and female. **J. W. Burt & Sons,** Aberdeen Farm, Hillsburg, R. R. 1, Ont.

Wanted — Applewood
Either in log or board.
T. F. Shurly Co., Ltd., St. Catharines, Ont.

MURIATE OF POTASH
48% to 51% K₂O

SULPHATE OF POTASH
47% to 50% K₂O

For February Arrival from Europe

NITRATE OF SODA

FERTILIZER MATERIALS

For Quotations address

NITRATE AGENCIES COMPANY

Dept. H, 85 Water Street,

::

::

::

NEW YORK CITY

Gossip.

Holsteins of Merit.

Probably one of the largest Holstein offerings in the way of young bulls for private sale in Ontario at present is now advertised elsewhere in this issue by R. M. Holtby of Port Perry, Ont. Mr. Holtby is already too well known to most Holstein readers of these columns to need any introduction, in fact, it has often been claimed by neighboring breeders that Mr. Holtby has during the past two years, furnished more Canadian breeders with herd sires than any other

one breeder in Canada. Many of these have been sons of his present herd sire, Ormsby Jane Burke, which, it will be remembered, is a son of the famous 31.30-lb. cow, Victoria Burke. On the sire's side he is bred for even greater production, being got by a son of that great 44.42 lb. four-year-old cow, Ormsby Jane Segis Aaggie. Thus, it will be noticed the average for the two nearest dams of Mr. Holtby's herd sire, make up the splendid figure of 38.81 lbs. of butter in seven days. The young bulls now offered for sale from this sire are all under the year, but include several that are from dams with records up to almost 30

lbs. of butter in seven days, for mature cows, and records of around 20 lbs. for two-year-olds. The older bulls now offered include a twenty months' bull, sired by King Segis Walker, a 31-lb. bred son of King Segis. This calf is from Pietje Pauline Hengerveld, 31.7 lbs. at three years and 32.71 lbs. at five years. Next is a thirteen months' son of a 28-lb. three-year-old cow, and sired by King Alcartra Walker, a 34.65-lb. bull. Another just under the year is from a 25-lb. cow who has a 30-lb. full sister, and this calf is sired by the herd sire, Earl Burke Kornlyke, and is his oldest calf in the stables. These, with

the younger calves by this sire, make up what is probably the strongest offering in bulls, Mr. Holtby has ever been in a position to offer, and all information regarding them will gladly be sent on application. Breeders writing for this information should address R. M. Holtby, R. R. No. 2, Port Perry, Ont., but those visiting the farm should buy their tickets to Manchester Station, G. T. R. or Myrtle Station, C. P. R.

"Your magazine is a great help to the farmers, and is much appreciated around here."
THOS. W. BROWN.
Lennox and Addington, Ont.

A COMPLETE LINE of

INVINCIBLE
Formerly Called MONARCH

BEFORE long you are going to buy a pair of rubber boots. Instead of asking for just rubber boots, ask for "Invincibles". We claim they are the longest wearing boot you can buy and we know you will say so once you have bought the first pair and know for yourself how long they wear. You will do just as tens of thousands of other men from coast to coast have done. You will take nothing else but "Invincibles" in future. Why? Because they wear so long you won't take a chance on any other boot.

"Invincibles" are Pressure Cured. It is the high Pressure Process that produces a solid one piece shoe and makes the rubber so tough that it doubles the wear.

The Miner Rubber Co., Limited.



Gossip.

Attention is drawn to the fifteenth annual breeders' sale of registered Clydesdale, Percheron, Shire and Belgian stallions, mares, colts and fillies to be held at the Union Stock Yards on March 4 and 5. This sale affords a good market for those wishing to dispose of first-class stock. If considering making a consignment to this sale, entries should be made at once. Walter Harland Smith, who has charge of the sale, will furnish entry blanks on request.

The Truman Pioneer Stud Farms, whose advertisement appears elsewhere in these columns, have been particularly successful with its stock at the larger exhibitions. At the Denver Show, held recently, they had the second in the aged-class of Shire stallions, the first three-year-old, two-year-old, and yearling, and also the champion. In females, they also secured the championship and first on the three-year-old and two-year-old. In Percheron stallions they had the reserve champion, third aged, second three-year-old, second two-year-old and first yearling. They also had the champion Belgian stallion, and the first-prize Thoroughbred. These prizes were won by a total of twelve horses, and with the exception of the Thoroughbred they were premier winners at the International.

Holsteins at Hamilton.

Of the scores of pure-bred dairy herds in Ontario, which the writer visits annually, none can be relied upon to be showing in better condition, than the herd which is under the supervision of Dr. English at the Hospital for Insane Farm, at Hamilton, Ont. It is true that few Government institutions are favored with so many good individual cows as are to be found in the Holstein herd at Hamilton. Here without one exception, the cows are large, a ruling which prevails throughout the grade as well as the pure-bred herd and this perhaps accounts for the high production average every year, which brings the entire milking herd up to almost 10,000 lbs. of milk per year, a figure which we might state has been raised something like 5,000 lbs. during the past six or seven years. During this time, however, very persistent weeding has been in process, both with the grades and the pure-breds, until now the several grades (only a few having been retained) and the thirty odd pure-breds make up an average for production of which the majority of the privately owned herds in the Province would also feel proud. At the head of the herd at present is the four-year-old bull, King Kornlyke Mercena, a son of King Segis Alcartra Spofford, and Myria Mercena. The latter while only a 14-lb. two-year-old is one of the most promising young cows in the herd and is also a great granddaughter of the world's champion seven-day butter cow, Rollo Mercena De Kol. The daughters of King Kornlyke Mercena as individuals are exceptionally pleasing, and all are bred to the junior sire, Hickory Champion Echo Sylvia Korndyke, who is by Champion Echo Sylvia Pontiac, the great son of May Echo Sylvia, and from Tortilla Sarcastic Korndyke, a 10,379-lb. junior two-year-old heifer, which is a member of the herd. We might add that this cow is now running in the R. O. P. as a three-year-old, and has produced 6,517 lbs. of milk testing nearly 4 per cent. in three months. In mentioning these bulls, we have also mentioned two of the breeding cows, and it might be of further interest to include one or two more of the splendid records made in the herd during the past few years. Aaggie Wayne of Hickory, a young cow bred on the farm, and that also has a seven months' bull calf in the stables, is a 11,966-lb. R. O. P. cow; Rue Korndyke of Hickory, a daughter of 22,800-lb. Tortilla Johanna Rue, has a 10,608 lbs. of milk as a junior two-year-old; Aaggie Mercedes of Hickory, at three-years made 11,581; Tortilla LeStrange of Hickory, a daughter of Dutchland Colantha Sir Mona, has 10,816 lbs. of milk in a year, as a junior two-year-old, and is also the dam of a nine-months bull in the sales' list, and what is more pleasing still, all these mentioned, have been bred on the farm. The herd from every angle is pleasing and many of our privately owned herds may well take a lesson from this Government-owned institution. A visit to the farm and a half-day spent among the herd is worth while.

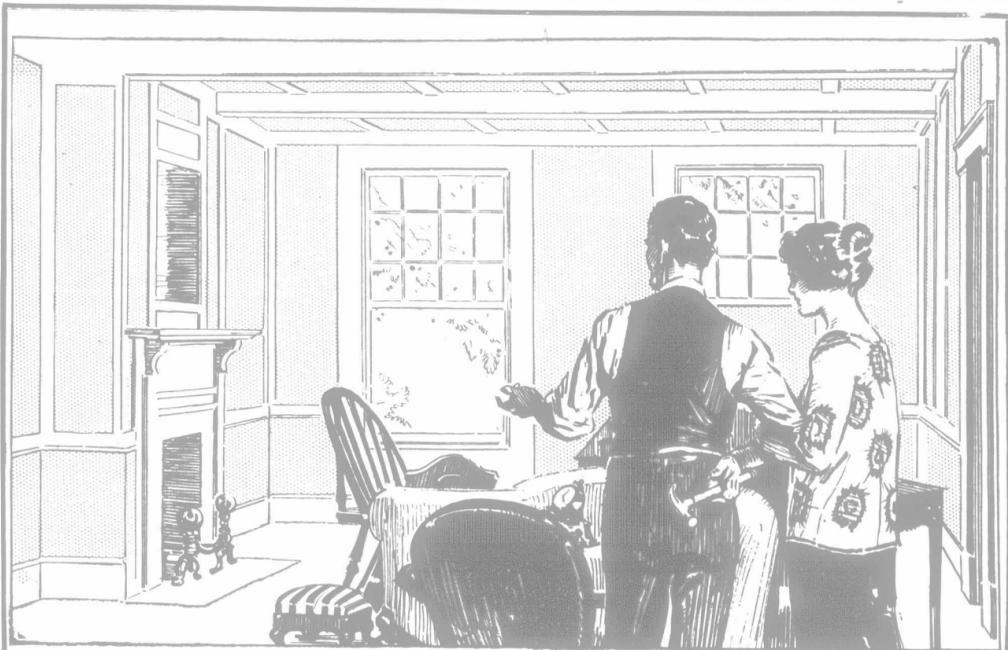
Attention, Canadian Stallion Buyers!

BEFORE YOU BUY A

SHIRE, PERCHERON or BELGIAN STALLION

Write us for full particulars, prices and SPECIAL INDUCEMENTS to ONTARIO and QUEBEC STALLION BUYERS, also for our Illustrated Catalogue It will only cost you a postage stamp, and may SAVE YOU SEVERAL HUNDRED DOLLARS. Address:

TRUMAN'S PIONEER STUD FARM (Box A), Bushnell, Ill., U.S.A.



Skillful Work, Without Skilled Labor

Plasterers hard to get? Skilled carpenters scarce? Every progressive farming community is having to meet this problem. New building work, repair and remodeling is often indefinitely held up on the farm for lack of competent help.

Most farmers are meeting this problem now-a-days with Beaver Board. They have found that they can build the walls and ceilings themselves with this good building material. No time is lost waiting for plaster to dry. The usual muss and litter is eliminated and the result is better.

They have walls and ceilings that never will crack or fall. They have painted and decorated walls that can be washed with soap and water. Monotonous wall spaces

are attractively divided—and all of these good qualities are permanent, because Beaver Board lasts as long as the building.

Beaver Board is as easy to get as it is easy to use. Your nearest lumber yard will deliver it or you can take it out on your next trip. You can quickly tell genuine Beaver Board by the trademark that is plainly printed on the back of every panel.

Write to-day for our book "Beaver Board and Its Uses." This book tells how to use Beaver Board and shows many attractive examples of its use.

THE BEAVER COMPANY, LIMITED
505 Wall St., Beaverdale, Ottawa
Timber Operations at Frederickhouse and Charlton, Ont.
Plants and Mills at Thorold and Ottawa, Ont.
Distributors and Dealers Everywhere.

BEAVER BOARD

You can't expect Beaver Board results unless this trademark is on the back of the board you buy.



FOR BETTER WALLS & CEILINGS MADE IN CANADA

KNITTING MACHINES FOR MONEY MAKING HOME & RED CROSS WORK
Catalog free. CREELMAN BROS., Mfrs., Box 901, GEORGETOWN, ONT.

SEEDS WANTED

We are in the market to buy Alsike, Red Clover, Timothy, White Blossom Sweet Clover. If any to offer send samples and we will quote you our best prices F. O. B. your station.

TODD & COOK
Seed Merchants

Stouffville, Ontario



1. Comfortable cows give the most milk. BT Steel Stalls keep the cows comfortable. The BT Stanchion ties the cow in the centre of the Stall. There is nothing to chafe her neck and she does not have the weight of the chain on her neck all the time.



2. The BT Stanchion swivels right around to either right or left so that the cow can turn her head in perfect comfort. She can card herself, get up, lie down and reach her feed and water easily and comfortably. This extra comfort for the cow means extra profit for you.



3. Your cows must have proper freedom of movement if they are to do their best. They cannot do their best when they are tied in stationary wood stanchions. Stationary Stanchions restrict the movements of the cows, and pin them in a cramped position. The coupon brings full particulars.

Send this coupon for the 352-page Barn Book. Tells how to plan and build the barn, how to ventilate, how to frame, how to save steps, labor, time and feed. This book saves you hundreds of dollars in building.

BEATTY BROS. LIMITED
K477 Hill St., Fergus, Ont.

I intend to build about
I intend to remodel about
I keep Cows
My name is
My Post Office is
R. R. No. Prov.
Nearest Railway Station
If you live in Maritime Provinces, please give Lot and Concession. If you live in Western Provinces, please give Section, Township and Range.

Questions and Answers.
Miscellaneous.

Alsike Clover.

How much alsike clover should be sown per acre to be grown for seed? Will the clover straw be good for feeding sheep?

J. A.
Ans.—When sowing alsike for seed use around 6 lbs. per acre. The straw will have a certain feeding value, depending on the condition of the crop when harvested.

Sweating Chimney.

One of our subscribers in New Brunswick, who has had considerable trouble with a chimney sweating, secured relief by pouring a little vinegar into the stove when there was a hot fire in it. He says: "I put in about a tablespoonful once a day, but if I miss to put it in for one or two days the sweating begins again. I do not know what chemical action the vinegar has, but it has apparently stopped the sweating."
R. W.

Pruning.

Should an orchard of 70 trees be pruned by an inexperienced man, and if so, how should it be done?
R. M. S.

Ans.—After a little instruction from an experienced man a person should be able to do a fairly good job. The first thing that should be done is to take out the dead wood and cross limbs, and then it is largely a matter of thinning in order to permit the sun to shine through the trees. The mistake frequently made is to cut off the lower limbs rather than thin out the top ones. A man who has never done any pruning should be with an experienced man for a few days before starting in to his orchard.

Cow Does Not Fatten.

We have a cow that does not seem to fatten on any kind of feed. Lately she is thinner than usual, and not making the gains that the other cattle are. I have no reason for suspecting tuberculosis, but I have been wondering if she might be diseased. Does the Government make any recompense for diseased animals that are destroyed?
T. E. R.

Ans.—Some animals, especially dairy cows giving a large flow of milk, do not put on much flesh. If there is any suspicion that the animal might be affected with tuberculosis, the tuberculin test would reveal whether she was infected or not. According to the Animal Contagious Diseases Act, the Government does recompense for animals ordered slaughtered by their officials. The amount is two-thirds the value, the maximum we understand is \$80 for grades and \$250 for pure-breds.

Killing Twitch Grass.

I have 18 acres of land which contains a lot of twitch grass. I summer-fallowed and manured it last year and then sowed to wheat. I would like to kill some of the twitch grass and then build up the land. Would it be advisable to sow sweet clover next spring for fall pasture? Would there be any growth in the spring of 1921 to plow under for corn? With a good coating of manure and about 100 lbs. of fertilizer per acre, would you expect a good crop of corn on this, or would soil be better?
A. S.

Ans.—If the field was properly summer-fallowed last season the twitch grass should be practically all killed. Sweet clover sown in the spring will give a fair amount of pasture in the fall, and by the first of June there should be an extra good growth to plow under. This should put the ground in good condition for corn, even without the fertilizer, although if the land is not in good heart a fertilizer should materially help.

James Bowman, a breeder of Aberdeen-Angus cattle and Suffolk Down sheep, sends the following information relative to the winnings of Suffolks at the Southfield Show, in England. This breed won the champion plate in the short-wool section, and also the Prince of Wales Perpetual Challenge Cup for the best pen of sheep or lambs in the show. In the carcass section, the championship was won by a Southdown, with a Suffolk in reserve. The lambs in the carcass section dressed out fifty-nine per cent. In the wool sections, the Suffolks also ranked high as their wool is of fine quality and commands a high price.

Shoulder hurt - plowing delayed - what of the Harvest?

A horse's shoulder, plump and tender in the early Spring, soon develops hollows after heavy work in the field. The neck becomes too small for the collar and unless proper padding is provided, a bruised and galled condition is bound to result. Rather than risk such a condition, with consequent laying-up of horses and the money-loss that results from delayed plowing, provide your horses with

TAPATCO BRAND COLLAR PADS

There is a pliability to these Pads which makes them ideal for cushioning a horse's neck. A Tapatco Pad quickly adjusts itself to the shape and size of the neck—thus making the collar fit so well that it will not rub or bruise the skin.

Tapatco Collar Pads excel unstuffed Pads, which lack the soft, flexible, cushion-like and absorbent features possessed by pads of our manufacture, containing a composite stuffing which we have perfected as the result of years of experience.

Our Patented Hook Attachment (Patented in U.S.A., Dec. 1st, 1914—Patented in Canada, April 6th, 1915) consists of a wire staple, reinforced by felt washer, which firmly grips hook to body of Pad, so that it remains secure even when the pad itself has been weakened by sweat and long use. If you have any trouble securing this brand, write direct to

THE AMERICAN PAD AND TEXTILE COMPANY
Chatham, Ontario
"35 years making Pads."

\$279 Profit in a Few Days

How a Woman Paid \$100 for a "Ferocious Brute" and in a Few Days Made it Worth \$379

An actual fact,—this is, Mrs. Louis McCutcheon of Kitchener, Ontario, bought a mare for \$100. The mare absolutely refused to work. Even to harness her was a day's work in itself. She kicked, bit, balked and stood at every sign. No one on the farm could do anything with her. Then a neighbor told Mrs. McCutcheon the secret of his own mastery over horses—and how she too could learn it.

In a few days she had the mare enter out a fine horse. In a few days she had the mare enter out a fine horse. In a few days she had the mare enter out a fine horse. In a few days she had the mare enter out a fine horse. In a few days she had the mare enter out a fine horse.

The Secret of Horse Training
Mrs. M. McCutcheon, like more than 107,000 others, learned the secret of mastering horses from Prof. Jesse Beery's "How to Break and Train Horses." And then learning Beery's method she was able to sell the mare for \$279 more than she paid for it.

It took Prof. Beery over 20 years to learn these secrets. They are now all disclosed in his horse book, which tempers 107,000 with your horse may be—calm and obedient. They guarantee instant results. And yours are available for good and just—107,000 dollars are broken forever.

Big Profits For You
You can make big money breaking and training green colts and "ferocious" horses. Hundreds of our former students now make a business of buying up "outlaw" horses, training them, and selling them at large profits. Others make big money in their spare time. All find it profitable. What they have done, you can do. Our free book tells you how.

Free Book
Our big illustrated book "How to Break and Train Horses" tells you how you can become master of any horse. Gives you several pointers on how you can make easy money. Full of interesting reading. Send for it today! Fill out coupon below. Or a post card will do. **WRITE NOW!**

THE BEERY SCHOOL OF HORSEMANSHIP
432 Main Street Pleasant Hill, O.
Prof. JESSE BEERY

482 Main Street, Pleasant Hill, Ohio.

Dear Sir: Please send me free and postpaid your book, "How to Break and Train Horses."

Name _____
Street or R.F.D. _____
Post Office _____ State _____

**er hurt-
delayed-
that
Harvest?**



arly Spring, soon de-
The neck becomes
dding is provided, a
Rather than risk
orses and the money-
de your horses with

deal for cushioning a
e shape and size of
ot rub or bruise the

ow Days

ocious Brute
h \$379

ake a business of buying up
ing them, and selling them
ers
their
ght-
me-
book

**HOW to
BREAK
and
TRAIN
HORSES**

card will do. WRITE NOW!
OL OF HORSEMANSHIP
Pleasant Hill, O.

Pleasant Hill, Ohio.
me free and prepaid, your
ak and Train Horses.

State

HORSES

UNION STOCK YARDS
OF TORONTO, LTD.
ANNUAL BREEDERS' SALE

of registered
**Clydesdale, Percheron,
Shire and Belgian**
Stallions, Mares, Colts and Fillies
March 4th and 5th

Entries will be catalogued and sold in the order received; therefore, those who prefer the best place in the sale should send their entries in at once.
The Stock Yards Company has decided to make this Annual Sale the most important one in Canada to draught horse breeders, and will spare no expense in advertising it in every Province.
Parties having first-class stock to dispose of will avail themselves of the best possible market by making entries and holding their stock for this sale.
Entry forms and all information will be mailed on application.
This is a spot-cash sale; don't fail to take advantage of it.
UNION STOCK YARDS OF TORONTO, LTD.
Walter Harland Smith, Manager Horse Dept.

Heaves

AND HOW TO CURE
—A Standard treatment with years of success back of it to guarantee results

Fleming's Tonic Heave Remedy
Use it on any case—No matter what else has been tried—and if three boxes fail to relieve, we will refund full amount paid. Further details in Fleming's Vest Pocket Veterinary Adviser. Write us for a Free Copy.

BEST EVER USED
Dear Sirs:—Enclosed find \$1.00 for 1 package of Tonic Heave Remedy. I used a package last year and completely cured a case of Heaves of some 3 years' standing.
H. B. BURKHOLDER, Lillooet, B.C.
Per Box, \$1.00; 6 for \$5.00

FLEMING BROS., Chemists
75 Church St. Toronto



Elm Grove Farm
PERCHERONS

A choice lot of Stallions and Mares, Blacks and Greys at moderate prices.

LAMBERT P. WIGLE
Kingsville, - Ontario

Sundrum Clydesdales

For sale at the present time—choice selection of Clydesdales, including stallions, fillies and mares, safe in road. All having size and quality, and priced to sell.

W. A. McNIVEN
R.R. 4 Hamilton, Ont.

FOR SALE
PURE-BRED REGISTERED
Mare Percheron
Black, Rising 3. Apply:
HUGH LOWE, R.R. No. 1, Kingsville, Ont.

For Sale—Two Imp. Percheron Mares
Registered in the Canadian Stud Book. Write:
HUGH A. FLETCHER
R.R. 2 Melbourne, Ont.

STAMMERING
or stuttering overcome positively. Our natural methods permanently restore natural speech. Graduate pupils everywhere. Free advice and literature.

THE ARNOTT INSTITUTE
KITCHENER, - CANADA

Questions and Answers.
Miscellaneous.

Law Book.
Where can I secure a good book on business laws. I would want one that would suit the needs of farmers and all other citizens. I would want one that would explain all legal forms used in the handling of lands, money, dwellings, etc.
R. J. D.

Ans.—"Digest of Canadian Mercantile Laws," published by W. H. Anger, Toronto, should give you the information desired.

Material for Floor.
How much cement and sand or gravel will it take to floor a cow stable 24 by 40 feet? I have a lot of filling in to do before I can put in the concrete. Which is the best, gravel, stone or clay?
J.M.

Ans.—It will require approximately 16 cubic yards of gravel and 12 barrels of cement, mixing in the proportion of one to eight. When filling in, you might use as many stones as you can, and then work gravel and clay on top.

Miscellaneous.
1. If lime and manure and ashes are spread on the field during the winter season will there be any bacterial action take place and cause a loss of fertility?
2. Is the Agri-lime which is advertised of the same nature as lime?
3. Will unhulled sweet clover seed grow?
4. Where can I secure a book on sheep raising?
E. G. L.

Ans.—1. There would be a certain loss through mixing the lime and manure, unless they were worked into the soil.
2. Yes.
3. The unhulled seed will grow, but it will take a little longer for germination.
4. "Sheep Farming in America," by Wing, or "Sheep Farming," by Craig, can be secured through this office.

Pigs Scour.
A bunch of small pigs have the scours and are very unthrifty. They do not seem to thrive. What is the cause and what can I do for them? They have a warm pen with plenty of straw.
W. C.

Ans.—This trouble is very often brought about by improper feeding, or by keeping them in too close quarters without sufficient exercise, and giving them decomposing feed. If you are feeding rotten apples or potato peelings, these might start the trouble, if not properly cooked. It is also possible that the young pigs are taking more feed than they can properly digest, and this has deranged the digestive organs. Feed about one part lime water to three parts skim-milk. Giving five drops of laudanum in a little new milk every four or five hours will sometimes stop the scours.

Road Work.
1. Can a ratepayer use a land roller on the public highway in winter, instead of a snow-plow? Is it advisable to use this implement in the district where there are two or three feet of snow?
2. Can the party charge for time spent in rolling the road when the municipality has not given him the authority to do the work?
3. Can the municipal council stop the ratepayer from using the land roller when they deem it an unwise action?
G. D.

Ans.—1. We do not know of any regulation preventing the use of a land roller on the highway. Where the snow is deep the land roller if put on after a snowfall firms the snow and makes it possible for a good track to be made. Where the snow is shoved aside by a plow it simply leaves a depression for the snow to bank up at the first storm. If the roller were used more, we believe the roads would be better.

2. The party is not in a position to charge for time spent in using the roller unless he were authorized to do the work. We would think, however, that the pathmaster should allow him something on his statute labor for road-breaking on his beat.

3. Undoubtedly the municipal council have it in their power to prevent the use of such implement as they deem harmful to the highway, but in this case we cannot see where they could take objection to the use of the land roller.

A "365" Day Liniment

YOU ARE SAYING TO YOURSELF—
"If I only knew of something to stop that Backache—help my Rheumatism—cure my Neuralgia, I would send and get it at once."
Get It. Gombault's Caustic Balsam will give you immediate Relief. A Marvelous Human Flesh Healer and a never failing remedy for every known pain that can be relieved or cured by external applications. Thousands testify to the wonderful healing and curing powers of this great French Remedy. A Liniment that will soothe, heal and cure your every day pains, wounds and bruises.

Gombault's Caustic Balsam

The Great French Remedy Will Do It

It Helps Nature to Heal and Cure. Penetrates, acts quickly, yet is perfectly harmless. Kills all Germs and prevents Blood Poison. Nothing so good known as an application for Sores, Wounds, Felons, Exterior Cancers, Burns, Carbuncles and Swellings.
"I had a bad hand with four running sores on it. The more I doctored the worse it got. I used Caustic Balsam and never needed a doctor after that."
—Ed. Rosenberg, St. Ansgat, Ia.
Mrs. James McKenzie, Edina, Mo., says: "Just ten applications of Caustic Balsam relieved me of gonorrhoea. My husband also cured eczema with it, and we use it for corns, bunions, colds, sore throat and pain in the chest."
A Safe, Reliable Remedy for Sore Throat, Chest Cough, Backache, Neuralgia, Sprains, Rheumatism and Stiff Joints. Whenever and wherever a Liniment is needed Caustic Balsam has no equal.
Dr. Higley, Whitewater, Wis., writes: "I have been using Caustic Balsam for ten years for different ailments. It has never failed me yet."
A Liniment that not only heals and cures Human Flesh, but for years the accepted Standard veterinary remedy of the world.
Price, \$1.75 per bottle at all Druggists or sent by us express prepaid. Write for Free Booklet and read what others say.
Cleveland, O. THE LAWRENCE-WILLIAMS CO. Toronto, Ont.



Now is the time to plan for an IDEAL GREEN FEED SILO

Begin now to plan for a silo before the spring rush is on. It will enable your cows to give 25% more milk on a cheaper ration.

The Ideal Green Feed Silo has been the choice of thousands of Canadian farmers because it is the best silo available. Sound lumber best suited for the purpose is used throughout. The staves are carefully made and finished. They are held together with extra heavy steel hoops. The doors and staves are treated with a specially prepared preservative.

The Ideal Silo lasts a lifetime and at present high prices for butter-fat pays for itself in a short time.

Send for Silo Catalogue to nearest sales headquarters

THE DE LAVAL COMPANY, Ltd.
MONTREAL PETERBORO WINNIPEG VANCOUVER
50,000 Branches and Local Agencies the World Over

Don't Pay Big Butcher Bills! **SMOKE MEAT FREE!**

Don't sell all your hogs and buy meat from butcher at double price! It is an unnecessary waste! Butcher a few hogs for your own table. Smoke ham, bacon, sausage at home. Cut meat bills in half! Sell to neighbors at tremendous profit!

Kirstin Smoke House

Write Free Book for New "Kirstin" Meat Smoking Service. Tells how "Kirstin" does the job. Gives reasons why the Kirstin is better, more efficient, and more convenient. Write for free book today.

and Meat Store House

All-steel, fire-proof. Can't burn up and destroy meat. Can't burn down buildings. Can't frizzle the flavor juices out of meat—as do old style smoke houses. Smoke is air-cooled! The Kirstin lasts longer and is better than wood—smoke much less! Use in basement, kitchen or on porch. If satisfied, after 30 days trial, keep it. If not pleased, returns at our expense. You don't risk a penny! Four easy ways to pay. Write for FREE BOOK and Special Agent's Proposition—Today!

A. J. KIRSTIN CANADIAN COMPANY
229 Bell Ave., Sault Ste. Marie, Ont.

Sunny Side Herefords

Herd headed by Brummel's Chance (Imp.) Champion at London and Guelph, 1919. We have for sale now a few choice bulls and heifers about a year old.

MRS. M. H. O'NEIL & SONS
R.R. No. 4 Denfield, Ont.
Phone Ilderton.

GALLOWAYS

For Sale—The Champion Galloway Bull, Jovial of Blackcombe (11716). This bull has had an unbeaten show-yard career. He holds the championship of both "Royal" and "Highland" Shows, and is undoubtedly the best Galloway bull now living. He is an animal of great substance and quality, and is a sure stock-getter. Apply R. CAMPBELL, Manager Castlemilk Galloway Herd, Lockerbie, Scotland

Aberdeen-Angus

Offering includes one bull calf 18 months old and four younger bull calves. Inspection and correspondence invited.

JOHN D. HAYDEN
Cobourg Ontario

SUNNY ACRES ABERDEEN-ANGUS

The present string of young bulls for sale includes some classy herd bull prospects, winners themselves and sired by champions. If interested in Angus write your wants. Visitors welcome.

G. C. CHANNON, Oakwood, Ontario
P.O. and phone. Railway connections: Lindsay, C.P.R. and G.T.R.

Aberdeen-Angus Cattle

Suffolk Down Sheep or Clydesdale Horses. Write:

James Bowman, Elm Park, Guelph, Ont.

GLENGORE ABERDEEN-ANGUS

Do not miss the opportunity to secure some of the choice males and females of wonderful smoothness, quality and strain type that are being offered by **GEO. DAVIS & SONS**, Erin, Ontario R. R. No. 1. Herd sire a son of Black Abbott, Champion Angus Bull of Canada. Write for particulars.

Aberdeen-Angus

Meadowdale Farm Forest, Ontario

Alonzo Mathews, Manager **H. Fraleigh, Proprietor**

ALLOWAY LODGE STOCK FARM

Angus, Southdowns, Collies. Choice bred heifers. Bulls 8 to 15 months. Southdown ewes in lamb.

ROBT McEWEN, R. 4, London, Ont.

ABERDEEN-ANGUS CATTLE

CLYDESDALE HORSES. We offer good young stock for sale.

Jno. Underwood & Son, Grafton, Ontario

Aberdeen-Angus—"Middlebrook Abbot 2nd," a prize winner at Toronto and Ottawa, for sale, as have had 5 years—price \$500. Young bulls and heifers \$175 and up. Get a pure-bred sire even if herd grades.—It pays. A. Dinsmore, Mgr., "Grape Grange" Farm, Clarkburg, Ont.

Evergreen Hill Farm—R.O.P. Shorthorns Present offering: Two 12-month bulls by the R.O.P. bull St. Clare =84578=, also a few heifers and heifer calves.

S. W. Jackson, Woodstock, Ont.

Questions and Answers. Miscellaneous.

Lime in Jacket Heater.

What will remove lime from jacket heaters? A. S.

Ans.—This is a difficult thing to do. Professor Harcourt, at Guelph, who was consulted on this matter, stated that he did not know how to recommend getting it off, but would try heating the jacket heater without water in it, and possibly the lime would scale off and could be cleaned out. There is danger in that the heating may injure the heater. We have spoken to plumbers, but have failed to get a satisfactory and practical method of removing the lime. Possibly some of our subscribers have had experience along this line, and could give us their methods.

Leaking Stovepipes.

The pipes of my kitchen range have been continually sweating and leaking at every joint, causing stains on the plastered wall. How can this trouble be remedied? W. D. F.

Ans.—This sweating indicates that the smoke is condensing in the pipes. This may be due to improper draft, or to the chimney being too cold. The trouble frequently occurs when the chimney is on the outside wall and not properly built. It is often accentuated by burning green wood. Take the section of pipe above the stove and have a hole possibly 6 inches in diameter cut in it; then have another pipe made to fit over this one (also with a hole in) so that the inner opening may be closed. After the fire is started this should be opened. The additional warm air going up the chimney will tend to rectify the trouble.

Crippled Pigs—Worms.

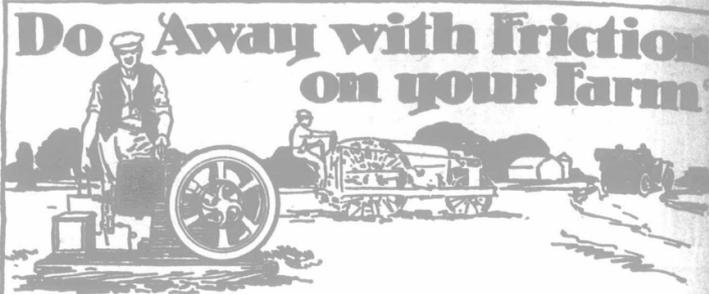
1. I have a number of pigs which are crippled and swollen at the joints. What treatment do you advise?
2. What is the treatment for worms in horses? W. S.

Ans.—1. Crippling is very often due to lack of exercise, dampness, and to improper feed. This trouble frequently occurs in winter pigs. Purge each with one to two ounces of Epsom salts. Feed a little milk, if you have it; if not, give a little tankage, shorts, finely-ground oats and raw roots. Build a board platform for them to sleep on and force them to take daily exercise. If there is any dirt in the root-house, throw that into the pig pen.
2. Treatment for worms is to mix 1½ ounces each of sulphate of iron, sulphate of copper, and tartar emetic, and 1 ounce of calomel. Make into 12 powders. Give a powder night and morning in damp feed, or in water as a drench.

Power on the Farm.

1. Is a gasoline or coal-oil engine safe around the buildings?
2. Is there any danger of fire from the exhaust?
3. Is it advisable to place the engine in the stable, or is it better to build a house outside the barn and run the belt through the wall to the grinder or machines?
4. Does it pay to grind one's own grain?
5. What is the best general-purpose gasoline engine for the farm? J. E. R.

Ans.—1. A good many gasoline engines are used around buildings, but wherever gasoline or coal-oil is used there is danger.
2. Yes.
3. The safest plan is to have a building separate from the main buildings in which to keep the engine. This building may be made fire-proof to a certain extent; at least, inflammable material should not be stored there. The belt may be run through the wall to the machinery or a line-shaft may be used.
4. We do not know that you can grind very much cheaper, all things considered, than you can get it ground at the mill, but you at least know that there is no waste of grain and you save the time of hauling to the mill, which is a consideration.
5. It depends on the work which is to be done. It is a good plan to secure an engine large enough to take care of the heaviest work which you will have for it to do. There is no reserve power with a gasoline engine like there is with a steam engine.



Do Away with Friction on your Farm

Efficiency on your farm depends largely upon reducing friction. Every operation must go smoothly. And where engines are concerned, this is especially important.

EN-AR-CO MOTOR OIL

eliminates every atom of friction in your tractor, automobile, truck, stationary or other engine. It thus ensures maximum power and longer life for these expensive machines.

Efficiency Breeds Efficiency

It is because efficiency is the keynote of En-ar-co production that it ensures efficiency for your engines. Produced by scientific vaporization, condensation and refining processes from selected crude petroleum, it is a pure, non-carbonizing lubricant. It forms a cushioning film that will stand up under pressure and will not form coke-like residue.

For added efficiency, try these also on your farm:

White Rose Gasoline Designed to put extra "pep" into your engine.	En-ar-co Motor Grease A "higher efficiency" grease for compression cups, transmissions and differentials.	CANADIAN OIL COMPANIES LIMITED 1412 Excelsior Life Building, Toronto, Ontario Send me En-ar-co Auto Game free. Enclosed find three cent stamp for postage. Also give nearest shipping point and quote prices on items marked. I use.....gals. Gasoline per yr. I use.....gals. Motor Oil per yr. I use.....gals. Kerosene per yr. I use.....gals. Tractor Oil per yr. I use.....lbs. Motor Grease per yr. I use.....lbs. Axle Grease per yr.
National Light Oil Gives more power to your tractors, brighter light to lamps, steadier warmth in stoves, heaters, brooders and incubators	Black Beauty Axle Grease For smoother-running, longer-wearing wagon axles.	
Send for Free Auto Game A fascinating game in which autos compete in a cross-country race. Sent free to any auto, tractor, motor boat or engine owner who will fill out the attached coupon and mail it to us.		Name..... Post Office..... County.....Province..... I own.....(make of auto, tractor or motor boat.) (Be sure to give make of auto, tractor or motor boat, or game will not be sent.) Am at present using.....motor Oil. I will be in the market again for more oil about.....and you may quote me on.....gals. En-ar-co Motor Oil.
Canadian Oil Companies Limited Branch Offices in 35 Cities General Offices, Toronto, Ont.		

HEREFORDS

Are Producing the Best Beef at the Least Cost
NOTE HOW HEREFORDS ARE INCREASING EVERYWHERE
There is A Reason Why. May we send you literature?

- Alberta Hereford Breeders' Association
MR. THOS. BELLEW, Sec'y, Calgary.
 - Manitoba Hereford Breeders' Association
MR. F. S. BOOTH, Sec'y, Brandon.
 - Ontario Hereford Breeders' Association
MR. JAMES PAGE, Sec'y, Wallacetown.
 - Saskatchewan Hereford Breeders' Association
MR. W. H. HARRISON, Sec'y, Montmartre.
- Head Office:
Canadian Hereford Breeders' Assn., Ancaster, Ontario

LARKIN FARMS, QUEENSTON, ONT.
ABERDEEN-ANGUS CATTLE, SHROPSHIRE and SOUTHDOWN SHEEP
CORRESPONDENCE and INSPECTION INVITED
(Mention Farmer's Advocate)

FAIRVIEW CLYDESDALE CHAMPIONS
We have at present, several mares that have been champion winners at Toronto, Guelph, London and Ottawa. Look up our past winnings and call on us if you want something choice. We also have a good milking strain. A choice lot of Tamworths of both sex, and various ages, from noted prize-winning stock. Pair of registered Clydesdale fillies rising 3.
ROBERT DUFF & SON - MYRTLE, ONT.

BROOKDALE HEREFORD FARM
Young stuff for sale at all times. Visitors always welcome and met any time.
Telephone. **W. READHEAD, Milton, Ontario**

PUSLINCH PLAINS SHORTHORNS
Five bulls for sale by Burnbrae Sultan =80325=
A. G. AULD, - - - R. R. 2, - - - GUELPH, ONT.

Questions and Answers.
Miscellaneous.

Wages.

A farmer's son, aged twenty-three, worked on a farm ever since he was able to do any work. Can he claim wages for the past two years, when there was no agreement? C. M.

Ans.—When there was no stated agreement we do not think he is in a position to claim wages.

Ginseng.

Where can I secure a book giving information on the growing of ginseng? Where can I obtain the seed, and what is the price? A. K.

Ans.—A book entitled "Ginseng" may be secured through this office for 50 cents. Some of the seed firms advertise the seed of this plant. The price varies, so that we are unable to give the information for this spring. You may find it in some of the seed catalogues.

Fertilizer for Beans.

1. Is there a publication on farm machinery issued in Canada?
2. What fertilizer would you recommend for beans, on light soil?
3. Will beans ripen earlier on land that was in oats last year, or on sod plowed in the fall? N. B.

Ans.—1. We do not know of a farm machinery publication, except those put out by several of the manufacturing firms.

2. Acid phosphate and muriate of potash are recommended for beans, or, in fact, for all legumes. About 320 lbs. of the former and 130 lbs. of the latter makes a very good application per acre.

3. It depends a good deal on the nature of the soil. We would be inclined to say that the beans would possibly do better on the sod.

Fence Posts—Piggery—Ration.

1. Will steel fence posts heave out in low, wet ground?

2. Which would you prefer for a basement of a piggery, a stone or concrete wall?

3. What is a good ration for fattening a bull? L. W.

Ans.—1. The steel posts are not likely to heave very much.

2. Both cement and stone walls are cold and damp. We would not care to build them over two feet high, and then have frame from there up.

3. Feed all the roughage the animal will take, consisting of roots, cut straw and clover hay. Then feed concentrates according to his appetite. Oats and corn, with a little oil cake, make a very good fattening ration. The amount to feed will depend a good deal on the size of the animal. The man who is feeding can tell when the ration is overdone.

Silo.

1. I am thinking of putting up a silo next summer and would appreciate your advice on the kind to build. Is silage more likely to freeze in a cement silo than in a wooden one?

2. Does cement draw the moisture out of the silage?

3. Would a concrete silo cost more than a wooden one? I am thinking of building a silo 10 by 30 feet. I can get gravel and sand quite handily. R. W.

Ans.—1. Either cement or wood makes a very satisfactory silo. Concrete is generally considered to be more permanent, but the wooden silos made to-day from treated lumber will last a long time; in fact, their life-time is not known. One must be careful to have it properly guyed or stayed so that the silo will not commence to lean one way or the other. It is generally claimed that the silage will freeze a little more in the concrete silo than in a wooden one. At any rate, it will peel off the wood quicker than off the concrete.

2. Not to any noticeable extent.

3. It all depends on the price of cement, the distance you have to draw the gravel, and the amount a contractor will charge to erect a silo. A silo 10 by 30 feet would require approximately 25 cubic yards of gravel and 21 barrels of cement, with an 8-inch wall. It would take possibly six days to erect the silo. With this information you can figure out what your concrete silo would cost, and then compare it with the price quoted you on wooden silos.



Complete-ness

YOUR tractor should be a complete power investment. any drawbar or belt power task on the average farm.

It should be one that can be used practically every day of the year, one that is 100% efficient, belt and drawbar.

The **International 8-16 kerosene tractor** meets those requirements. The drawbar has a wide range of adjustment both up and down and sidewise so that the tractor will pull any machine or implement on the farm with equal advantage.

The 8-16 pulley permits backing the tractor into the belt easily and quickly—so placed also that the belt doesn't rub against any part of the tractor nor drag on the ground. And 8-16 power is just right—neither too heavy nor too light—it fits practically

Aside from its adaptability for all-year-round farm work, the **International 8-16 tractor** is a 100-cents-on-the-dollar investment because of its exceptionally efficient and economical (kerosene) operation; because, too, you can always secure repair and expert service without delay through the branch houses and many agents scattered over Canada. Your International agent—wherever he is—has a Harvester branch in easy reach.

If you are interested in a complete tractor power investment just write your name and address along the margin of this advertisement and mail to the nearest address so that we can send you full descriptive information of the **International 8-16**.

INTERNATIONAL HARVESTER COMPANY
OF CANADA, Ltd.

Eastern Branches:
Hamilton, London, Ottawa, Ont.; Montreal, Quebec, Que.; St. John, N. B.

Shorthorn Bulls and Females—Herd headed by Ruby Marquis, a son of the great Gainford Marquis (imp.). Our calves now coming are all by this sire. We are also offering a few females in calf to him. Get our prices before buying elsewhere.
PRITCHARD BROS., - R. R. No. 1, - ELORA, ONT.

80 Spruce Glen Shorthorns—80—Eighty head to select from—twelve young bulls 8 to 14 months old, sired by Royal Red Blood = 77521 = and Nonpareil Ramsden = 10108 = and out of Bruce Fames, Florences, Minas and Emilys. A few choice heifers for sale. Come and see them, or write.
JAMES McPHERSON & SONS, "Spruce Glen Farm," Dundalk, Ont.

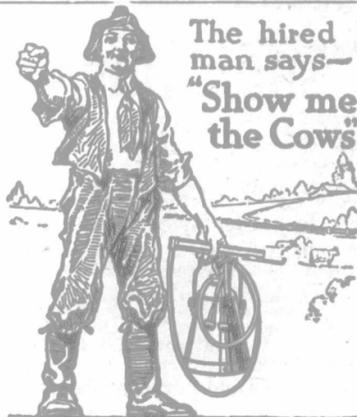
THE HAWTHORNE SHORTHORNS AND CLYDESDALES
Herd headed by "Gainford Select" = 90772 = by "Gainford Marquis" (imp.). Heifers and cows in calf to him, and six bulls, mostly by our former sire "Royal Choice." Clydesdale mares and fillies, imported and Canadian-bred. Leicester sheep. Prices moderate.
ALLAN B. MANN, Peterboro, R. R. 4, Ont.; The Hawthornes, C.P.R. and G.T.R.

20 Bulls—SPRUCE LAWN—100 Females—Clydesdales, Shorthorns, Yorkshires. Herd headed by Imported Golden Challenger 122384. A Rubyhill bred by Earl of Northbrook, by Ascott Challenger, bred by L. De Rothchild. Special bargains in farmer's bulls. Cows and heifers in calf, yearling and heifer calves. Yorkshires either sex. J. L. and T. W. McCamus, Cavan, C.P.R., Millbrook, G.T.R. and P.O., Ontario.

Maple Hall Shorthorns—We have on hand at present, four young bulls ready for service (two reds, two roans), that are just the herd sire and Butterfly dams. They are all got by that great sire, Flower King, No. 90447, and from our Good Crimson Flower and Butterfly dams.
Stations: Claremont C.P.R., Greenburn C.N.R., Pickering G.T.R. D. BIRELL & SON, Claremont, Ont.

Scotch Bred Shorthorn Females—I have a number of nicely-bred Scotch heifers (reds and roans), in nice condition, and a number are safely bred. These are priced to sell. I also have a couple of ten-month bulls, thick, sappy youngsters—just the herd sire sort. Inquiry invited.
GEORGE FERGUSON, Elora, Ontario

Shorthorn Females—Shorthorn Bulls—We are now offering a number of choice heifers, good families and good individuals. Many are well forward in calf to our Roan Lady-bred sire, Meadow Lawn Laird. We also have bulls ready for service. Prices right. Satisfaction guaranteed.
J. K. CAMPBELL & SONS, Palmerston, Ont.



The hired man says—
"Show me the Cows"

THOROUGHLY practical and a remarkable labor-saver, the HINMAN Milker solves the dairy problem. Over 50,000 in use, many on pedigreed cows. Simplest on the market, costs half as much as others. Write for free milking booklet.

HINMAN
CANADA'S
STANDARD MILKER
H. E. HINMAN & SONS, LTD., GALT, ONT.

Friction
for Farm

Every opera-
tant,
OIL
mobile, truck, stationary
longer life for these

It ensures efficiency for
cesses from selected crude
ning film that will stand up

**CANADIAN
OIL COMPANIES
LIMITED**
1412 Excelsior
Life Building,
Toronto, Ontario
Send me En-ar-co Auto
Game free. Enclosed find
three cent stamp for post-
age. Also give nearest ship-
ping point and quote prices
Items marked.
... gals. Gasoline per yr.
... gals. Motor Oil per yr.
... gals. Kerosene per year.
... gals. Tractor Oil per year.
... lbs. Motor Grease per year.
... lbs. Axle Grease per year.

Province
.....(make of auto,
L.)
e of auto, tractor or motor
be sent.)
..... motor Oil,
again for more oil about
..... and you may
gals. En-ar-co Motor Oil.

DS
Least Cost
EVERYWHERE
you literature?

EW, Sec'y, Calgary.
TH, Sec'y, Brandon.
Sec'y, Wallacetown.
Sec'y, Montmartre.
caster, Ontario

ON, ONT.
PSHIRE and
WITED

IPIONS
at Toronto, Guelph, London
ething choice. We also have

ILE, ONT.
FARM
and met any time.
EAD, Milton, Ontario
al young bulls ready for ser-
mrose Duke = 10754 =, and
th heifer calves at foot, all of
ious ages, from noted prize-
R. No. 2, Newcastle, Ont.
HORNS
80325 =,
GUELPH, ONT.



Are Your Cows Run Down?
The strain of producing a calf each year, and a large quantity of milk every day, is bound to seriously weaken your cows unless proper precautions are taken.

Pratt's COW REMEDY
Keeps cows in prime condition, tones up the system, prevents Abortion, Barrenness, Garget, Milk Fever, Scours, Indigestion, Bloat, Liver and Kidney Complications.

GUARANTEED to increase milk production. At your dealer's in 2-lb. and 4 1/2-lb. cans, also 12-lb. and 25-lb. pails.

Money Back If Not Satisfied.
Write for book on the care of live-stock. It's FREE.

PRATT FOOD COMPANY OF CANADA, LTD.
Carlaw Ave., Toronto.
CR-26



Maple Shade SHORTHORNS

A dozen young bulls imported and my own breeding at moderate prices.

W. A. DRYDEN
Brooklin - - - Ontario

IMPORTED DUAL-PURPOSE Shorthorns

If you require a bull bred on the English system for milk and beef, we can sell you one of choice breeding, and in every way a good individual—one which will add value to your herd.

We have a fine selection of young bulls at present, also English Large Black pigs.

CALL OR WRITE.

LYNNORE STOCK FARM
F. W. COCKSHUTT, Brantford Ont.

MESSRS. A. J. HICKMAN & CO.
Halse Grange, Brackley, England
Exporters of all Breeds of Pedigree Live-Stock.

DUAL-PURPOSE SHORTHORNS

Present offering: Six young bulls, Reds and Roans, also a number of females. They have size, quality and breeding from good milking dams. Prices moderate. Satisfaction guaranteed.

CHAS. GRAHAM - Port Perry, Ontario

Buy Glenfoyle Shorthorns

9 bulls, all ages; 25 heifers and cows. Herd bull 2,400 pound quality kind, which sire's dam and three nearest dam's milk records average over 9,000 pounds; also high-class yearling Clyde stallion. Come and see them.

Stewart M. Graham - Lindsay, Ont.

Mardella Dual-purpose Shorthorns

8 choice young bulls; 30 females, cows and heifers. All of good size, type and breeding. Herd bull sired by The Duke; dam gave 13,599 lbs. milk, 4 1/2 lbs. butter-fat. He is one of the greatest living combinations of beef, milk and Shorthorn characteristics. All priced to sell. Write, call or phone.

THOMAS GRAHAM, Port Perry, R.R. 3, Ont.

Scotch Shorthorns—Herd headed by Master Marquis =123326=, by Gainford Marquis. Stock of either sex for sale. Also Oxford Down ewes.

GEO. D. FLETCHER, Erin, R.R. 1, Ont.

Questions and Answers.
Miscellaneous.

Railroad Fireman.
Is there any demand for a railroad fireman? Is there any school where one could learn the firing of locomotive engines? Where is the best place to learn this?
A. S.

Ans.—There are usually openings for railroad firemen. We do not know that there are any schools that teach firing. The best place to learn is doing the actual work on the engines.

Crippled Pigs.
A pig about six months old fed on shorts and whey became crippled soon after I started feeding corn? What treatment can I give him?
J. J. W.

Ans.—1. Apparently the change in feed was made too suddenly, or else too much of the heavy feed was given. Plenty of exercise, feeding lightly for a short time and then gradually increasing the amount of corn is about the best method of dealing with the trouble.

Raising a Calf.
1. Would raising a calf on the cow produce a superior individual, regarding size and milk production; also for exhibition purposes, than would one raised with the pail? It would cost much more to raise the animal, but would the cow raised this way make up the difference in her value for milk production later on?
2. What would be the cost of a pure-bred heifer calf a few days old? Would you consider it a profitable investment to purchase pure-bred calves a few days old and raise them on a good cow? Y.S.

Ans.—1. As a rule, the calf raised on the cow is a more growthy, fleshy, sappy individual at eight to ten months of age than a pail-fed calf, but the difference is not so noticeable six or eight months later. Calves intended for exhibition purposes are usually given a liberal allowance of new milk. When milk production is considered, it is usually found that the pail-fed calf turns out to be as good a milker as an equally well-bred calf raised on the cow.

2. It all depends on the breeding and milk records which the dam or sire of the calf have. The price varies from a few dollars to up in the hundreds. As to it being a profitable investment would depend on how well bred the calves were and the price at which they could be purchased. The better bred the calf is, the better the market for it when mature.

Sheep—Silo—Sweet Clover.

1. Will sheep, pastured in a field where there are ox-eye daisies, destroy this weed?
2. What size of silo would be required to feed three cows and seven or eight young cattle through the winter months? How many acres of corn would be required to fill this silo?
3. Which makes the better silo, cement or wood?
4. Is a solid wall preferable to a block wall?
5. How much gravel and cement would be required to build this silo?
6. I had a field of sweet clover which I cut last June and pastured in the fall. Would there be sufficient seed left to the ground to give a catch next spring?
7. Can sweet clover be ensiled along with corn?
W. A. M.

Ans.—1. Sheep will keep the ox-eye daisies in check.
2. It would scarcely be practicable to build less than a 10 by 30-foot silo, although you would hardly require one of this size for the number of cattle mentioned. A silo of this size would hold approximately 47 tons, and about five acres of an average crop should fill it.
3. Either concrete or wood makes a very satisfactory silo. Some prefer one kind and some another. We have both on Weldwood Farm, and the silage keeps equally well in both.

4. There would be slightly less danger of freezing in a block silo. Ten-inch blocks or an 8-inch solid wall should be thick enough.
5. A 10 by 30-foot silo would require approximately 25 cubic yards of gravel and 2 1/2 barrels of cement.
6. It depends on how well the plants seeded in the fall. There is a danger that the new seed would be somewhat patchy. It is doubtful if you would get much pasture yield in the fall.
7. Sweet clover and corn can be ensiled together satisfactorily.

Away With the Scrub Sire and His Offspring

The 4th Annual Sale of Registered Stock of the Lambton County Pure Bred Live-Stock Breeders' Association,

MARKET SQUARE, PETROLIA, ON

Thursday, February 12th, 1920

75 Head Choice Cattle

Consisting of 61 head of Shorthorns, 2 Aberdeen-Angus, 4 Hereford bulls, cows and heifers, 1 Clydesdale stallion, 3 Berkshire hogs, 1 Chester White and 1 Berkshire sow.

Shorthorns.—Such families as Rosemary, Carnation, Winsom, Mar Rachel, Lancaster, Jealousy are represented.

Aberdeen-Angus.—Such families as Merriman, Warlock, Tollo and Elector

Herefords.—Such families as Bonnie Brae, Lord Roberts, Forest Hustler, Whitney, Dock Publisher.

Apply to Secretary for catalogue.

Sale under cover if stormy

W. S. STEADMAN, Petrolia, President

W. P. MACDONALD, Petrolia, Secretary

Burnbrae Shorthorns

Eighty-three years without change we have been breeding Scotch Shorthorns. The foundations of many of the best herds in America were laid from our farms.

I am in a position to furnish you now with the BEST in FORM and in BREEDING that can be found any place. Twenty-five young bulls, from small calves to fifteen months old. Sixty-three cows and heifers, every one of them bred right, not a plain-looking one in the lot. Every animal that I have sold in two years has been satisfactory; the most of them sold by letter. I can satisfy you with the best in what you want at a price that will give you a chance, and I will pay the freight to your station. A Grand Champion and the son of a Grand Champion at head of the herd.

Post Office, Telegraph, Telephone and Station is Stouffville, Ont.

ROBERT MILLER :: Stouffville, Ont.

A NEW IMPORTATION OF FORTY SCOTCH SHORTHORNS

arrived home Dec. 17th. From our herd of 125 head we can offer a large selection in choicely-bred bulls and females. Anyone in need of foundation stock may find it to their advantage to look over our offering before making any purchases.

J. A. & H. M. PETTIT Freeman, Ontario
Burlington Jct., G.T.R., only half mile from farm.

SHORTHORNS SHROPSHIRE COTSWOLDS
Blairgowrie Stock Farm
Cows in calf and calf by side. Also heifers in calf and others ready to breed. Bulls of serviceable age.
JOHN MILLER (Myrtle Stations, C.P.R., G.T.R.) **ASHBURN, ONTARIO**

Dual-Purpose Shorthorns—Herd headed by Dominator 106294, whose two nearest dams average 12,112 pounds of milk in a year. Inspection of herd solicited.

WELDWOOD FARM, Farmer's Advocate, London, Ont.

MANOR FARM SHORTHORNS
Five bulls from six to fourteen months. A Rosemary, Beauties and a Martha. I seldom, if ever, owned such a good lot.

J. T. GIBSON, Denfield, Ont.

SHORTHORNS (PURE SCOTCH)
Richly-bred bulls of A1 quality, by Escana Ringleader =95963=. Cows with calves at foot by Escana Ringleader. Write your wants.

F. W. EWING - R.R. 1, Elora, Ontario

GLENGOW SCOTCH TOPPED SHORTHORNS
We have several thick, growthy bulls about a year old and sired by Prince Sultan; our present herd sire—a Roan Lady, by Lavender Sultan. The families represented are Golden Drop, Crimson Flower, Wedding Gift, Wimple and Kiblean Beauty's. Also pricing females.

WM. SMITH, M.P., Columbus, Ont. Brooklin, G.T.R.; Myrtle, C.P.R.; Oshawa, C.N.R.

Imported Scotch Shorthorns For Sale—three imported bulls, one yearling, sire, also a choice two-year-old Orange Blossom of our own breeding and three well bred bull calves about year old. Would consider exchanging an imported bull for Scotch females.

R. M. MITCHELL, - R. R. No. 1, - FREEMAN, ONT.

Spring Valley Shorthorns—Herd headed by Sea Gem Pride =96305=. Present offering includes two real herd headers, one imported in dam, the other by Sea Gem's Pride and a number of other good bulls and few females. Write for particulars.

KYLE BROS., R. 1, Drumbo, Ont.

His Offspring

Stock of the Live-Stock

IA, ON

2th, 1920

Cattle

orthorns,

ord bulls,

dale stal-

1 Chester

w.

osemary, Carnation,

are represented.

Merriman, Warlock,

Brae, Lord Roberts,

logue.

ny

President

lia, Secretary

orthorns

en breeding Scotch

herds in Canada

the BEST in FORM

Twenty-five young

ty-three cows and

ooking one in the

has been satisfac-

tisfy you with the

ou a chance, and I

mpion and the son

is Stouffville, Ont.

Stouffville, Ont.

OF

ORTHORNS

an offer a large selection

undation stock may find

ng any purchases.

Freeman, Ontario

on farm.

COTSWOLDS

to breed. Bulls of serviceable age

ASHBURN, ONTARIO

y Dominator 106224, whose tw

age 12,112 pounds of milk in 9

's Advocate, London, Ont.

HORNS

and a Martha. I seldom, if ever,

BSON, Denfield, Ont.

SCOTCH

=95963 =. Cows with

your wants.

R.R. 1, Elora, Ontario

ORTHORNS

Prince Sultan; our present herd

represented are Golden Drop,

ty's. Also pricing females.

rtle, C.P.R.; Oshawa, C.N.R.

three imported bulls, one yearling,

ur-old, and our three-year-old herd

g and three well bred bull calves

otch females.

FREEMAN, ONT.

ea Gem Pride =96365 =. Present

two real herd heads. One im-

Cream Wanted

Ship your cream to us. We pay all express charges. We supply cans. We remit daily. We guarantee highest market price.

Ontario Creameries

LONDON LIMITED ONTARIO

DR. BARNARDO'S HOMES

A party of boys and girls under the auspices of the above Homes will arrive in Ontario middle of March, 1920. Applications for service, as well as boarded-out children, may be sent for boys to

Mr. John W. Hobday, Manager, 50-52 Peter Street, Toronto, and for girls to Miss Taylor, Secretary, Girls' Home, "Hazelbrae," Peterborough.

Ten Holstein Cows For Sale

Fresh and freshening in February, with good R.O.P. and R.O.M. records, all young. The cows to freshen are in calf to a 31-lb. sire. Hoping to hear from you, I remain,

Fred Ormiston, R.R. 2, Burketon, Ont.

When writing please mention Advocate

100 REGISTERED STOCK 100 HEAD GLENWOOD STOCK FARM CLEARING SALE OF HEAD



The Herd Sire, "Baron Colantha Fayne," has 15 of his daughters in this sale.

40 Holsteins 4 Clydes 33 Shropshires 23 Poland Chinas and all Farm Implements

Wed., Feb. 18th, 1920

10 a.m. sharp. Stock Sale 1.15 p.m.

Sen. sire, Baron Colantha Fayne, a worthy son of Queen Butter Baroness, 33.18 lbs. butter in 7 days; milk test 4.9%. 15 of his daughters in sale.

The two-year-olds are bred to jr. sire, a grandson of Maud Snowball, with record of 634 lbs. milk and 29.12 lbs. butter in 7 days.

Only 2 cows over 5 years old, and bred to freshen February and March, and are in fine shape for testing.

Sale includes a daughter and granddaughter of Princess Cornucopia Sadie, 24.52 lbs. at 3 years, and others of like quality of King Segis Ormsby and Butter Boy breeding. Will sell also 18 consecutive numbers of the Holstein-Friesian Herd Book.

The Clydes are from imported stock. Shropshires and Poland Chinas are of show quality. Farm 3 miles from Putnam C.P.R., 7 miles from Ingersoll. Conveyances provided. Sale under cover. Write for catalogues.

I. N. HOWE, L. H. LIPSIT, Proprietor Manager MOORE & BRADY, Auctioneers.

MERCROFT FARM - HOLSTEINS

Farms at Dorval Station, Que., and Burlington, Vt.

Our imported herd sire, RAG APPLE PIETERTJE PONTIAC -36248- (239942) is undoubtedly one of the best individual sires in Canada to-day, and his calves, now coming, show his prepotency. In breeding—his ancestors include Rag Apple Korndyke 8th, Pontiac Korndyke, King Segis, King of the Pontiacs and Colantha Johanna Lad. As he differs in breeding from most high-record Canadian sires of to-day, a fusion of this blood should be advantageous in most herds. Our foundation herd being small, we have decided to accept a few approved cows for service to Rag Apple Pietertje Pontiac at \$100 each. Will also consider selling a half interest to some good breeder in Eastern Ontario or Quebec. At present we have a few young sons of this sire for sale. Our milking females average over 13,000 lbs. of milk per year on twice-a-day milking. They are never crowded, and therefore are healthy, normal cows, with healthy, normal calves. Herd tuberculin tested twice yearly.

R. J. MERCUR, Mercroft Farms, P.O. Box 1568, Montreal, Que.

Hospital for Insane, Hamilton

Holsteins, yes! All bulls of serviceable age are sold, but several of six months and younger, from one of the best sons of King Segis Alcartra Spofford, and our best dams will be sold at reasonable prices.

APPLY TO SUPERINTENDENT

Raymondale Holstein-Friesians

A herd sire of our breeding will improve your herd. We have sons of our present sire, Pontiac Korndyke of Het Loo (sire of \$12,750 Het Loo Pieterje), and also sons of our former sire, Avondale Pontiac Echo. Several of these are of serviceable age, and all are from good record dams. Quality considered, our prices are lower than anywhere else on the continent. Their youngsters should not remain long. Write to-day.

RAYMONDALE FARM D. RAYMOND, Owner Vaudreuil, Que. Queen's Hotel, Montreal

Hamilton House Holstein Herd Sires

Our highest record bull for sale at present is a 4 months calf from Lulu Darkness 30.33 lbs. and sired by a son of Lulu Keyes 36.56 lbs. His two nearest dams therefore average 33.44 lbs. and both have over 100 lbs. of milk per day. We have several older bulls by the same sire and from two and three-year-old heifers with records up to 27.24 lbs. All are priced to sell.

D. B. TRACY, Hamilton House, COBOURG, ONT

"PREMIER" HOLSTEIN BULLS—Ready For Service. I have several young bulls from dams with 7-day records up to 32.66 lbs. of butter, 755.9 lbs. of milk, with 110 lbs. of milk in one day—over 3,000 lbs. in 30 days. All are sired by present herd sire which is a brother to May Echo Sylvia. Step lively if you want these calves.

H. H. BAILEY, Oak Park Farm, PARIS, ONT

WALNUT GROVE HOLSTEINS

I am offering a choice lot of bull calves sired by May Echo Champion who is a full brother of world's champion May Echo Sylvia, also a few cows just fresh.

(Take Radial Car from Toronto to Thornhill) C. R. James, Richmond Hill, R. R. No. 1, Ont

RIVERSIDE HOLSTEINS—CHOICE BULLS

We have several 10 months old, from dams with official records up to 100 lbs. of milk per day and 32.32 lbs. of butter in 7 days. These are well marked and straight individuals. Inspection invited.

J. W. RICHARDSON, Caledonia, Ont.

Questions and Answers.

Miscellaneous.

Miscellaneous.

1. What is a recipe for coloring heavy wooden goods with walnut shucks?

2. What preparation do railway companies use on the ties? Could the same material be used on fence posts? Will coal tar, applied to fence posts, prevent rotting? Is there any way to prevent posts heaving out of the soil?

3. Are shorts more apt to stiffen pigs than other feeds?

4. Is a little buckwheat fed with oats good for horses?

5. What is the best treatment for blue lice on cattle?

Ans.—1. We cannot give the exact

recipe for making this dye. Possibly some of our readers could give the information.

2. Creosote is sometimes used. Coal tar will also serve the purpose. Sharpening the post, or digging the post hole large enough and spiking a piece of scantling to the post will help prevent heaving.

3. Shorts are very frequently fed alone to young pigs. They are sometimes lacking in mineral matter, and for that reason it is well to use a variety of feeds. Plenty of exercise and dry sleeping quarters will help to prevent crippling.

4. Buckwheat is of a fattening nature and will help to put flesh on a horse, if one is careful not to overfeed.

5. Washing the animal with some of

HOLSTEIN HERD AVERAGES 18,812 LBS. MILK

A herd of 13 pure-bred Holsteins last year averaged 18,812 lbs. milk and 638.57 lbs. fat. Do you realize the money there is in such cows? It is estimated that the average annual yield of all cows in this country is under 4,000 lbs. These 13 cows produce as much milk as 62 cows of the 4,000-lb. class.

Why feed, milk and shelter any more cows than you need to produce the milk you require?

If interested in HOLSTEIN CATTLE send for booklets—they contain much valuable information

HOLSTEIN-FRIESIAN ASSOCIATION OF CANADA ST. GEORGE, ONT

W. A. CLEMONS, Secretary.

Sylvius Walker Raymondale

is the sire of the majority of our young bulls now listed. If you see these calves you will appreciate them. Their dams are mostly daughters of King Segis Pontiac Duplicate. Don't delay if you want a good bull at a right price. We are also offering females.

R. W. WALKER, & SONS, Port Perry, Ont.

HOLSTEIN HERD SIRES

I have at present several young show calves nearly ready for service; all of which are from tested dams and sired by my 30-lb. sire Gypsy Pontiac Cornucopia. This bull is a grandson of May Echo Sylvia and our entire offering in females are bred to him. Priced right.

JOSEPH PEEL, PORT PERRY, ONT.

Summer Hill Holsteins

—We have the best bunch of Holstein bulls ever offered at our farm. Their dams have records up to over 34 lbs. of butter in 7 days. All are sired by a bull with a 34-lb. dam. One is a full brother to the Grand Champion bull at Toronto this year. Prices reasonable

D. C. FLATT & SON, R.R. No. 2, Hamilton, Ont.

SUNNYBROOK FARM HOLSTEINS

We are offering for quick sale one 24-lb. bull and one 26-lb. bull ready for service. Both are sired by a 33-lb. son of the great King Segis.

JOSEPH KILGOUR, NORTH TORONTO, ONT.

HOLSTEIN BULLS FROM 30-lb. DAMS

If you want 30-lb. bulls—good individuals—and priced right—you should see my present offering. I also have lower priced bulls and am offering females bred to Ormsby Jane Burke. Correspondence solicited.

R. M. HOLTBY, Manchester G.T.R.; Myrtle C.P.R.; PORT PERRY, Ont.

CLOVERLEA HOLSTEIN FRIESIANS

We are offering this week two choice bulls, one ready for service, from a 25-lb. dam. Priced right for a quick sale. For price and particulars, apply to

GRIESBACH BROS., R. R. No. 1, COLLINGWOOD, ONT.

ELDERSLIE HOLSTEIN-FRIESIANS

Am all sold out of heifers, just have three bull calves left, from four to six months old. They are sired by Judge Hengerveld De Kol 8th, a 32.92-lb. bull. The dam of one is a 20.225-lb. cow. Write for prices and come and see them.

ARCHIE MUIR, Elderslie Farm, SCARBORO' P.O., ONT.

Silver Stream Holsteins

—Special offering: Four choice bulls fit for service, sired by King Lyons Colantha, the records of his six nearest dams average 30.10 lbs. butter in 7 days and from R.O.P. tested dams. Individually as good as their breeding. Write at once for particulars and price, or better come and see them.

JACOB MOGK & SON, R. R. 1 Tavistock, Ont.

Cedar Dale Farm

The Home of Lakeview Johanna LeStrange, the \$15,000 sire. He is the son of the 38.06-lb. cow, Lakeview LeStrange, and is our chief sire in service. We are offering a few females bred to him and also have a few bull calves sired by him at right prices. Other older bulls, sired by our former herd sire, Prince Segis Walker, son of King Segis Walker.

A. J. TAMBLYN, Cedar Dale Holsteins - (C.N.R. station one mile) - Orono, Ontario

ROWAN RIVER STOCK FARM

At present we have 3 bulls of serviceable age, sired by a 31-lb. sire from R. O. M. and R. O. P. dams. Younger ones sired by a grandson of May Echo Sylvia; his two nearest dams average 832 lbs. milk, 33 1/4 lbs. butter for 7 days. Priced to sell.

PETER B. FICK, PORT ROWAN, ONT.

Cow Does Not Fill.

I have a cow which does not feed as heavily as I would like her to. I am feeding good clover hay, turnips and a gallon of chop three times a day. What will I still feed her to make her fill out?

E. A. S.

Ans.—If a cow has good feed before her there must be something wrong constitutionally if she does not fill out. There are some animals which never seem full. One reason of this is that they have become so accustomed to grain that it satisfies the desire for nutrients, but is not bulky enough to fill the animal.

Shade Trees.

Where can I secure information about shade trees; how to plant and the care to take of them? N. S. W.

Ans.—You might write H. Tomlinson, the landscape gardener at Tundah, who will undoubtedly be able to give you information on this matter.



"Never again!"

There is no need for you to go through this or a similar experience. Dreadnaught Chains will prevent it.



Tire chains are a necessity for every motorist. Dreadnaughts are the best value for every motorist.

The "Just as Good" argument will not get by, if you want service and efficiency. Insist on Dreadnaught—The Master Chain.

Made in Canada

McKinnon-Columbus Chain Ltd.

St. Catharines, Ontario

FEEDS FEEDS

We can quote inducing prices on all kinds of feed including Linseed Oilcake Meal, Cottonseed Meal, Gluten Feed, Distillers Grains, Oats, American Corn, Mill Feeds, Feeding Molasses, &c. (Carlots or less).

We buy: Hay, Straw, Potatoes, Oats, Buck wheat, Barley, Peas, Beans, &c. Write us to-day
Allen - Kelley Company
214 Board of Trade Bldg., Toronto

Ayrshire—A rare offering—Bull 10 months, an extra individual. Dam, Scot's Snowball, a 1,200-lb. cow, R.O.P. at 3 years, 11,048; test 4.09 without forcing, a maternal sister to Scotch Thistle, Canadian 3-year champion. Sire is from Adalia 4th, a 1,250-lb. cow, with R.O.P. of 10,000 lbs., a sister to Adalia 2nd, ex-champion 2-year-old. He is bred with production, size, constitution. Price \$120.
E. V. SMITH, R.R. No. 6, St. Thomas, Ont.

For Sale Pure Bred Jersey Bull
Dam gave 10,500 lbs. in 10½ months, also a Majesty Jersey bull with excellent record of performance backing; could spare 3 or 4 young, fresh, Jersey cows, choice. Please write for full particulars as the above are choice breeding. Apply to
E. A. SMITH
386 Talbot St., St. Thomas
Maplehurst Jersey Farm

Two Good Jersey Bulls for Sale
Ready for service; one (imp.) son Combination Premier; dam, daughter of Golden Fern's Noble.
IRA NICHOLS, Burgessville, Ontario

LABELS
Live-stock Labels for cattle, sheep and hogs. Manufactured by the Ketchum Manufacturing Co., Ltd., Box 501 Ottawa, Ont. Write for samples and prices

Auctioneers' School of Experience
2112 Farnum St., Davenport, Ia.—Teaches all branches. You learn at home. Students now selling in 17 States. Write to-day.

BRAMPTON JERSEYS

The Largest Jersey Herd in the British Empire

At Toronto Exhibition, 1919, we won twenty-five of twenty-seven first prizes. We now have for sale first-prize young bulls from R. O. P. dams, as well as females of all ages.

B. H. BULL & SONS - Brampton, Ontario

Laurentian Producing Jerseys—The oldest bull we have at present is a year old youngster, sired by our herd sire, Broadview Bright Villa, No. 5630, and from Brampton Astoria, one of the best imported cows in the herd. We also have others younger of similar breeding, as well as a few bred heifers for sale. **FREDERICK G. TODD, Owner, 801 New Birks Bldg., Montreal, P.Q.**
Farm at Morin Heights - **F. J. WATSON, Manager**

Canada's Most Beautiful Jersey Herd
Herd headed by Imported **Champion Rower**, winner of first prize with five of his daughters on the Island of Jersey, 1914, second in 1916, and again first in service, sired by imported bulls and from Record of Performance imported prize-winning cows. Also some cows and heifers. Prices right. We work our show cows and show our work cows.

Edgeley Bright Prince—a son of Sunbeam of Edgeley, R. O. P. champion, sired by a son of Viola's Bright Prince, is for sale. He is 3 years old, sure and active. Won third prize in aged class at Toronto and London, 1919. Write for price.
JAMES BAGG & SONS (Woodbridge C.P.R., Concord G.T.R.) **EDGELEY, ONT.**

DON HERD OF PRODUCING JERSEYS
We have three young bulls of serviceable age—good individuals and priced right. Could also spare a few choice bred heifers. Visitors welcome.
D. DUNCAN & SON, TADMORDEN, ONT.

Stockwood Imported and Canadian-bred Ayrshires—Write me for your next herd sire. I have own herd sire, Killoch Gold Flake (imp.) 51225, and from imported youngsters at present sired by my Call and see the kind we breed. Also pricing a few young cows safe in calf to herd sire.
D. M. WATT, St. Louis de Gonzague, P. Q.

SPRINGBANK R.O.P. AYRSHIRES
Our Ayrshires win in the show ring and they fill the pail. We hold more present R.O.P. Champion records than any other herd in Canada. Young bulls and females by present herd sire Netherton King Theodore (imp.)
A. S. TURNER & SON, (Railway Station Hamilton) **RYCKMAN'S CORNERS, ONT.**

Westside Ayrshires and Yorkshires—I can spare a few females, some fresh. All and have two good bull calves, 10 months old, from heavy producing dams. Have Yorkshires any age and either sex. Write me your wants, or come and see.
Middlesex Co.
DAVID A. ASHWORTH, Denfield, Ont.

Glencairn Ayrshires—Herd established 36 years. Producing ability from 8,600 to 11,022 lbs. If that sort of production appeals to you, we have heifers all ages and young bulls for sale. **Thos. J. McCormick, Rockton, Ont. Coptown Station, G.T.R.**

CITY VIEW AYRSHIRES
I can spare a few females for service. One two-year-old cow, one bull calf, all have several first prizes of R.O.P. blood.
James Begg & Son, St. Thomas, Ont.

Questions and Answers.

Miscellaneous.

Sunflower Silage.

In an article in January 15 issue, a subscriber gave his experience with sunflower silage. Were the stalks used, or just the heads?
A. R.

Ans.—Stalks and heads were ensiled.

A Burst Radiator.

The caretaker of a school leaves the water in radiators. One of them bursts while the furnace is broken. Can the caretaker be made to pay for it, or the school board—the caretaker being head trustee?
Ontario.

Ans.—We do not think so.

Sheep on Shares.

What length of time does it take sheep to double when let out on shares? C. P.

Ans.—It depends a good deal on the prolificacy of the flock. In many flocks there is 150 per cent. increase. It is safe to count half of these as ewes which might go into the breeding flock.

Corned Beef.

1. What is a good recipe for corned beef?

2. What is the right time to cut undergrowth along fences to prevent second growth?
H. C.

Ans.—1. The following is a recipe which is sometimes used: Use 8 lbs. of salt to 100 lbs. of meat. Place a layer of salt in the bottom of a barrel, sprinkle salt on the meat, and put a layer of salt between each two layers of meat, and a thick layer on top. After standing for 12 hours, add for each 100 lbs. of meat a solution of 4 lbs. of sugar, 2 ounces of baking soda, and 4 ounces of saltpetre, to a gallon of water. Add enough water to cover all the meat. The meat must be covered with brine at all times.

2. Cutting after the sap is up in the wood is about as good a time as any.

Thrush and Quarter Crack.

1. What is a cure for thrush and quarter-crack?

2. What is a good hoof dressing?
C. A.

Ans.—1. Treatment for thrush which has given results is to clean out thoroughly the diseased parts and put in a quantity of calomel. Some have found washing the parts with formalin to be effective. Margins of a quarter-crack and the wall just posterior and below it should be cut away until quite thin. The bearing margin should then be trimmed so that it does not rest on the shoe. A bar-shoe that does not press on the frog may be used. Light blisters to the region of the coronet help in stimulating the growth of the horn. Rest is always advisable.

2. The following is a hoof ointment that has been used satisfactorily: Raw linseed oil, ¼ lb.; crude petroleum, ¼ lb.; neatsfoot oil, ¼ lb.; pine tar, ¼ lb. Mix well and apply every night over and under the hoof. Clean out the hoof before applying.

Bots in Horse.

We had a horse get very thin last fall, so we turned him out and he gained up, until about a month ago when he began to fail and we started doctoring him for his teeth. He died and we found bots in his stomach. They had eaten about two-thirds of the lining. What is the treatment in a case of this kind? R. C. H.

Ans.—The female bot fly can very often be seen during warm weather hovering around the horse and darting towards the animal, for the purpose of depositing an egg. These hatch in from two to four weeks, and the larvae reaches the mouth through the animal licking the parts. From the mouth, the larvae passes into the stomach and attaches itself to the gastric mucous membrane. When it is fully developed it becomes detached and the third stage is passed in the ground. Treatment consists in destroying the eggs of the larvae. This may be done by clipping the hair from the parts of the legs, or by washing the parts infested with eggs with a carbolic solution. This should be done every two weeks during the period when the female fly is depositing the eggs. It is seldom that the larva attach themselves to the lining of the stomach in such numbers as to cause death.

Questions and Answers.
Miscellaneous.

Sunflower Silage.
Article in January 15 issue, have his experience with sunflower silage?
Were the stalks used, or A. R. stalks and heads were ensiled.

Burst Radiator.
Maker of a school leaves the radiator. One of them bursts because it is broken. Can the maker be made to pay for it, or the caretaker being held

do not think so.

Keep on Shares.
How long does it take sheep to get on shares? C. P.
Depends a good deal on the flock. In many flocks per cent. increase. It is half of these as ewes which the breeding flock.

Corned Beef.
Is a good recipe for corned beef the right time to cut along fences to prevent H. C.

The following is a recipe sometimes used: Use 8 lbs. of meat. Place a layer of salt and put a layer of salt two layers of meat, and a top. After standing for for each 100 lbs. of meat 1/2 lbs. of sugar, 2 ounces of salt and 4 ounces of saltpetre. Add enough water to meat. The meat must be brine at all times. After the sap is up in the is good a time as any.

and Quarter Crack.
Is a cure for thrush and a good hoof dressing? C. A.

Treatment for thrush which is to clean out thoroughly and put in a quantity of formalin to be effective. Quarter-crack and the wall below it should be quite thin. The bearing then be trimmed so that it rest on the shoe. A bar not press on the frog. Light blisters to the horn help in stimulating the horn. Rest is always

Swing is a hoof ointment used satisfactorily: Raw crude petroleum, 1/4 lb.; lb.; pine tar, 1/4 lb. Mix every night over and Clean out the hoof

is in Horse.
I get very thin last fall, and out and he gained up, month ago when he began started doctoring him for and we found bots They had eaten about the lining. What is the use of this kind? R. C. H. male bot fly can very during warm weather the horse and darting mal, for the purpose of egg. These hatch in weeks, and the larva through the animal From the mouth, the stomach and attaches the mucous membrane. developed it becomes third stage is passed Treatment consists in eggs of the larva. This clipping the hair from legs, or by washing the eggs with a carbolic should be done every the period when the larva attach themselves to the stomach in such use death.

Maple Shade Farm
Imported Shropshire ewes served by best imported rams, very desirable for foundation flocks.
W. A. DRYDEN
Brooklin - - - Ontario

Shropshires
25 Shearing Ewes, all bred to Knoch ram. Also a fine bunch of ewe lambs. Prices right. Satisfaction guaranteed.
W. D. BURTON
R.R. No. 2 Brantford, Ont.

Shearing Machines
For flocks up to 300 use Stewart No. 9 Ball Bearing Machine, hand-operated. For flocks up to 3,000 use Stewart Little Wonder, two horse-power engine, high tension magneto, two-power shearing machines and power sharpener. For larger flocks there are as many power shearing units to operate on line shaft as needed. Insist on a Stewart—the only machine that always satisfies.
CHICAGO FLEXIBLE SHAFT COMPANY
Dept. B 161, 12th St. and Central Ave., Chicago, Ill.

Kent or Romney Marsh Sheep
The hardest and best grazing mutton and wool sheep of Great Britain. Successfully acclimated wherever grazing sheep are required. Descriptive pamphlet list of breeders, and all information from
A. J. BURROWS, Ashford, Kent, and 16 Belford Square, London, England.

Oxford Down Sheep for Sale—25 choice shearing ewes safe in lamb to our selected flock headers; 10 two-shear ewes and 15 ewe lambs; all registered. Prices reasonable.
JOHN M. ROSS, Embro, Ont.

Shropshire Yearling Ewes bred to Bibby's 84 (imp.) ram and Two Clydesdale stallions.
W. H. PUGH, Myrtle Station, Ont.

Berkshires—Boars ready for service and pigs, rich in the blood of Lord Premier's Successor 161500, Grand Champion, 1914, Champion sire of 1915, 1916, 1917. His descendants have won Grand Champion honors at the largest and strongest shows of 1919. The Champion Berkshire barrows of 1918 International were double grandsons of Lord Premier's Successor. We have shipped many Berkshires to Canada with satisfaction to customers. Prices on request.
HOOD FARM, INC., Lowell, Mass.

YORKSHIRES
We are now booking orders for Fall pigs, both sexes, 6 weeks to 3 months old. Several large litters to choose from.
WELDWOOD FARM
Farmer's Advocate, London, Ontario

Pine Grove Stock Farm
The Home of the Berkshires
Offers for sale boars fit for service, sows bred and ready to breed, younger ones coming on, the Crompton and Wandsworth strains, the best strains of the breed.
W. W. Brownridge, Georgetown, No. 3, Ont. Milton C. P. R. Georgetown G. T. R. Milton Phone.

Lakeview Yorkshires—If you want brood sows of any age, or young pigs, write me. All bred from prize-winners for generations back.
JOHN DUCK, Port Credit, Ont.

Berkshires—Some very fine pigs just weaned and some spring sows that are sure money-makers. Can breed to a Tamworth if you write at once.
ALVIN ANDERSON, Hawkstone, Ont.

Meadow Brook Yorkshires—We have a choice offering of sows bred and ready to wean. Also a number of large litters ready to wean. All show the best of breeding and excellent type.
G. W. MINERS, R.R. No. 3, Exeter, Ont.

Big Type Chester Whites—We cleaned up at Exhibitions, 1919. Now offering pigs from our 805-lb. sows, and sows bred to our 1,005-lb. boar.
JOHN ANNESSER, Tilbury, Ont.

Invergie Tamworths—Sows carrying second litters for March farrow, a few choice 200-lb. boars, gilts bred for April farrow, a splendid lot, either sex, 3 to 5 months old. Weads and lassies just weaned.
L. Hadden, Box 264, Sunderland, Ont.

TAMWORTHS
Young sows bred for May and June farrow, and boars for sale. Write or phone.
JOHN W. TODD - - - Corinth, Ontario

Questions and Answers.
Miscellaneous.

Horse Holds Out Tongue.
The following is a method used by one of our subscribers to prevent a horse from holding out his tongue while driving. He writes that he has found the following method good: "Use an over-check, and instead of having a small bit in the horse's mouth have a piece of leather on the check long enough to go around under the lower jaw, so that the check will pull on the lower jaw instead of the mouth. Check the horse fairly tightly and there should be no trouble." J. W.

- Miscellaneous.**
1. Is it advisable to seed down for permanent pasture with fall wheat?
 2. At the present price of grains what would millet seed be worth for feed? Is it good for hogs and hens?
 3. Is it good practice to roll hay and pasture land early in the spring?
 4. Will rolling spring crops have any effect on wireworms?
 5. I want to seed a clay loam field to permanent pasture. What is the best mixture to sow and how much per acre?
 6. I have a field seeded to sweet clover. I want to take a crop of hay off it. What must I do to obtain a catch for another year? Will I be able to use it for pasture after cutting? Can I plow the field next fall? H. L.

Ans.—1. As a general rule, fall wheat is a splendid nurse crop to seed down with. 2. Millet seed is so little used for feed that we really do not know its actual feeding value. It is frequently used in poultry feed, and according to analysis the seed contains much the same proportion of nutrients as do oats, but the digestibility is scarcely as high. According to "Feeds and Feeding," by Henry, pigs make fairly good gains on millet meal. The millet should never be fed alone, but in combination with other grains. Wheat or barley is preferable during cold weather for fattening hogs, as millet tends to produce soft pork. According to the above authority, millet seed has been used successfully for feeding steers. Considerably more of it is required to produce 100 lbs. of gain than of corn, and it also produces a softer fat than corn.

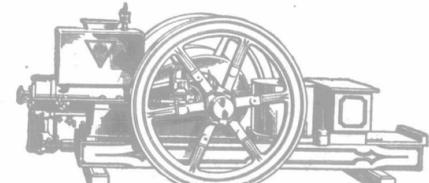
3. Rolling the hay and pasture land is a common practice in the spring. It tends to firm the soil about the roots of the clovers, and also presses small stones into the ground so they will not bother the mower.

4. We do not think that rolling would have much effect on the wireworm. It is not considered good practice to leave a field with a rolled surface in the spring, as there is extra loss of moisture through evaporation. Rolling not only breaks the lumps but it draws the moisture to the surface, which aids germination, but it is advisable to run the harrows over the field a couple of days after rolling and before the seed germinates.

5. In seeding a permanent pasture it is advisable to make a fairly heavy seeding. Some of the seeds recommended produce feed while some of the grasses are getting a hold on the soil. The following is a mixture which has given fairly satisfactory results: Orchard grass, 4 lbs.; meadowfescue, 4 lbs.; tall oat grass, 3 lbs.; meadow foxtail, 2 lbs.; white clover, 2 lbs.; alsike, 2 lbs.; Kentucky bluegrass, 4 lbs.; timothy, 2 lbs. Some like to add 3 or 4 lbs. of alfalfa or red clover to the mixture. These will give feed for the first couple of years, while the finer grasses are becoming established. It is advisable to sow from 20 to 24 lbs. of this mixture per acre.

6. The crop should be cut about the middle of June, care being taken that the cutting-bar is raised sufficiently high to leave new growth on the stubble. The second growth soon comes on and there will be good pasture in the fall. Many save the second crop for seed. Sweet clover is a biennial plant and must be re-seeded in order to obtain a crop the following year. You might scatter seed over the field in July and obtain a crop the next year. However, this plant works into a rotation the same as red clover, and we believe it preferable to treat it in much the same manner

A The cheapest engine in the long run



L

P

H

A

The wise man considers service, reliability and durability in a gas engine first, and price second.

The ALPHA is the logical engine to choose, because it is the simplest and most durable in construction and the most reliable in operation. It runs smoothly and powerfully on a minimum consumption of either gasoline or kerosene, and operates on a simple magneto without the use of any batteries.

A woman or a boy can start and operate it, and the sensitive governor, which acts the instant there is the slightest variation in the load, insures steady running without waste of fuel.

Before putting money into a gas engine, investigate the ALPHA. Made in twelve sizes, 1 1/2 to 28 H.P. Each size furnished in stationary, semi-portable or portable style, and with hopper or tank cooled cylinder.

Send for catalogue and name of local agent

The De Laval Company, Ltd.
Montreal Peterboro Winnipeg Vancouver
50,000 Branches and Local Agencies the World Over

Bigger crops mean more money

Proper and frequent cultivation are necessary to the production of maximum crops. Planet Jr. tools enable you to get increased yields because of their superior design, scientific construction. They do the work quicker, easier and more thoroughly. Planet Jr.s are guaranteed fully and last a lifetime.

No. 4 Planet Jr. Combined Hill and Drill Seeder, Wheel-Hoe, Cultivator and Plow sows all garden seeds (in hills or drills), plows, opens furrows and covers them, hoes and cultivates them all through the season. A hand machine that does the work so thoroughly, quickly and easily that it pays for itself in a single season.

No. 12 Planet Jr. Double and Single Wheel-Hoe has hoes that are wonderful weed killers. The plows open furrows, cover them and hill the growing crops. The cultivator teeth work deep or shallow. The leaf lifters save much time in late work when plants are large or leaves too low for ordinary work. Crops are straddled till 20 inches high, then the tool works between rows.



Planet Jr.

72-page Catalog Shows tools doing actual farm and garden work and describes over 25 Planet Jr.s including Seeders, Wheel-Hoes, Horse-Hoes, Harrows, Orchard, Root and Five-Wheel Riding Cultivators. Write for it today; also name of nearest agency.
S. L. ALLEN & CO., Inc.
Box 1108F Philadelphia

Pure-bred Yorkshires

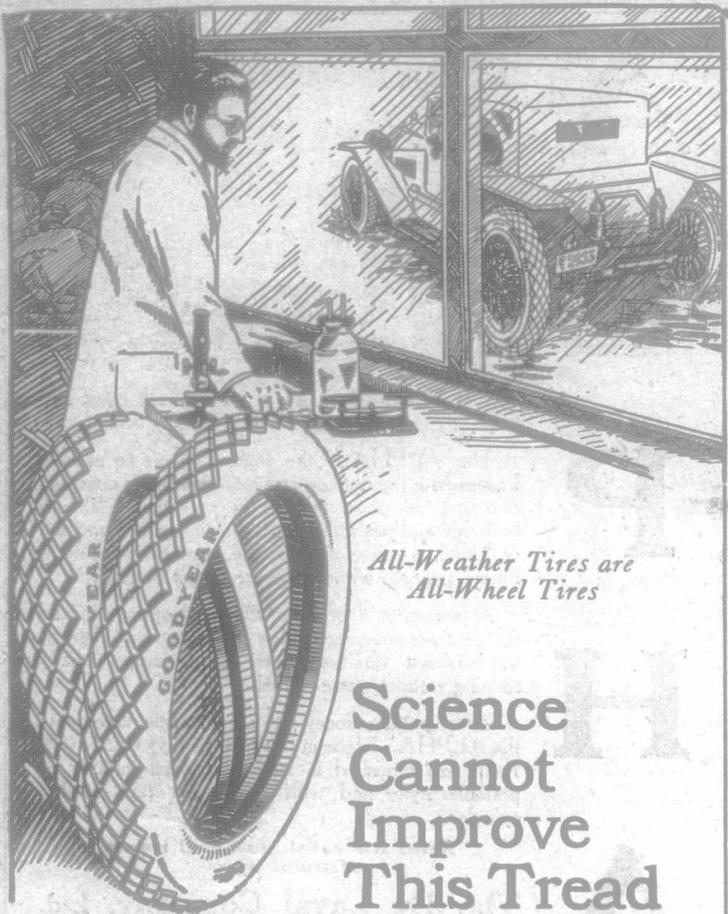
A number of choice young Sows and Boars three months old. At reasonable prices.

F. W. DARBY, FERGUS, ONT.

BERKSHIRES—My Berkshires for many years have won the leading prizes at Toronto, London and Guelph. Highcleres and Sallys, the best strain of the breed, both sexes, any age.
ADAM THOMPSON, R. R. No. 1, Stratford, Ont.
Shakespeare Station G. T. R.

Berkshires—At the great Smithfield Show, London, England, in December, the Berkshires won the Grand Championship for fairs, and made the remarkable showing in the four classes of the Carcass Competitions for pigs of all breeds by winning all the four prizes in the four classes; all sixteen pigs being pure-bred except one. We have over eighty head of splendid stock. Come and see them, or send for our breeding list.
J. B. PEARSON, Manager. CREDIT GRANGE FARM, Meadowvale, Ont.

ELMHURST LARGE ENGLISH BERKSHIRES
From our recent importation of sows, together with the stock boar, Sudden 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
Langford Station on Brantford and Hamilton Radial.



All-Weather Tires are
All-Wheel Tires

Science Cannot Improve This Tread

Research, tests, experiments, consuming years of toil and enormous outlay, have failed to develop a better tire tread than the Goodyear All-Weather Tread. Under this tread, science has made wonderful tire improvements. Each year Goodyear Tires have been giving greater mileage and lower costs.

To-day you can buy the crowning Goodyear achievement—the Goodyear Cord Tire.

But you buy it with the Goodyear All-Weather Tread. Because All-Weather Tires are All-Wheel Tires. This is the finest tread man can build. It rides smoothly and steers easily.

Rugged blocks of tough rubber each offer four sharp edges to the slippery road. These blocks are scientifically arranged. Your car climbs out of ruts and crosses icy car tracks as on a dry day.

With Goodyear All-Weather Tread Tires on all five rims, the appearance of your car is always balanced, no matter what tire change you make. Front wheel skids (the more dangerous) are eliminated.

Right now your car especially needs protection against winter roads. See a Goodyear Service Station Dealer.

The Goodyear Tire & Rubber Company
of Canada, Limited

GOODYEAR
MADE IN CANADA

Our School Department.

Farm Crops in Various Localities.

Pupils are expected to make a study of grain and seeds and train themselves in judging. Along with this work it would be interesting to make a survey of the various varieties of crops grown in the school section. One trouble with agriculture in Ontario is the great number of varieties of all kinds of crops, and an effort is being made to standardize varieties or limit them in numbers. One variety may do better in a district than some other variety, but the fact remains that too many varieties are produced and that a great many of them might just as well be eliminated. In this connection, we want to draw your attention to the report of the Experimental Union meeting, published in the issue of January 29. There is quite a full discussion there on varieties of farm crops, and teachers would find it useful in their agricultural work.

Lay Plans For Arbor Day.

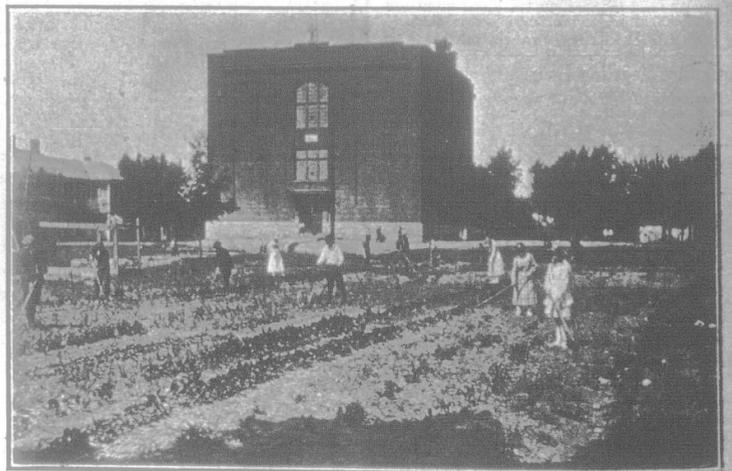
Each spring, on a certain day, school is dismissed for the purpose of cleaning up the school grounds and planting trees and flowers. When no preparation is made, or no plans laid, much of the time on Arbor Day is very likely to be wasted. An effort should be made not only to clean up the grounds, but to plant trees and flowers that will beautify the surroundings and make school life more pleasant. It is not too soon now to begin

pupils in their Arbor Day planning. The recommendations made in it, however, will be general in character and the schools can adapt certain features to their own circumstances and reject those which are unsuitable.

The Study of Weed Seeds.

Pupils were expected last fall to make a collection of weed seeds for study during the winter months and the time has now come for testing them, and otherwise learning about their peculiarities and the habits of the plants which grow from them. In some cases, perhaps, this lesson has already been given, but the germination of seeds takes some little time especially when it is desired to study the plants as well. Schoolhouses, as a rule, in the winter time are not suitable for germinating seeds because they get too cold in the night and over Sunday. We would suggest that different pupils in the senior grades germinate seeds at home in small boxes of earth, and that the plants be brought to school for further study. There is a good deal to learn about identifying weed seeds but it is also necessary to be able to recognize the small plants grown from them. Germinating the seeds in boxes and allowing the plants to grow would add considerable to the value of the lesson.

Pupils are also requested to know something about the control and eradica-



A Class at Work on the Plots at the Renfrew Collegiate; the Poultry House and Yard are at the Left.

tion of weeds. This involves a study of cultural methods. A summer-fallow is a good way to get rid of many weeds, but many farmers in Eastern Canada think a summer-fallow is wasteful and that crops should be grown continuously. Professor J. E. Howitt, of the Ontario Agricultural College, has been conducting co-operative experiments for several years in the eradication of weeds, and at the Experimental Union Convention recently held at Guelph he discussed the results briefly. On page 165, in the issue of January 29, will be found short paragraphs on weed control, under the title "Successfully Combatting Weeds." One method involves the use of rape in the destruction of twitch grass, and the other explains how iron sulphate may be sprayed on mustard to destroy it in the crops.

The study of weeds and weed seeds is very interesting. It furnishes lessons in botany, in agriculture, and arithmetic. When weed seeds are picked out from clover or grain, one naturally computes or figures out the percentage of weed seeds in the sample. Then, when a germination test is made, one computes the percentage of germination. All of these calculations provide good practice in solving arithmetical problems and they are problems which confront farmers from day to day.

We shall endeavor, before Arbor Day arrives, to publish an article on this page that will help teachers and

ment.

Arbor Day planning. Operations made in it, how general in character and adapt certain features circumstances and reject insuitable.

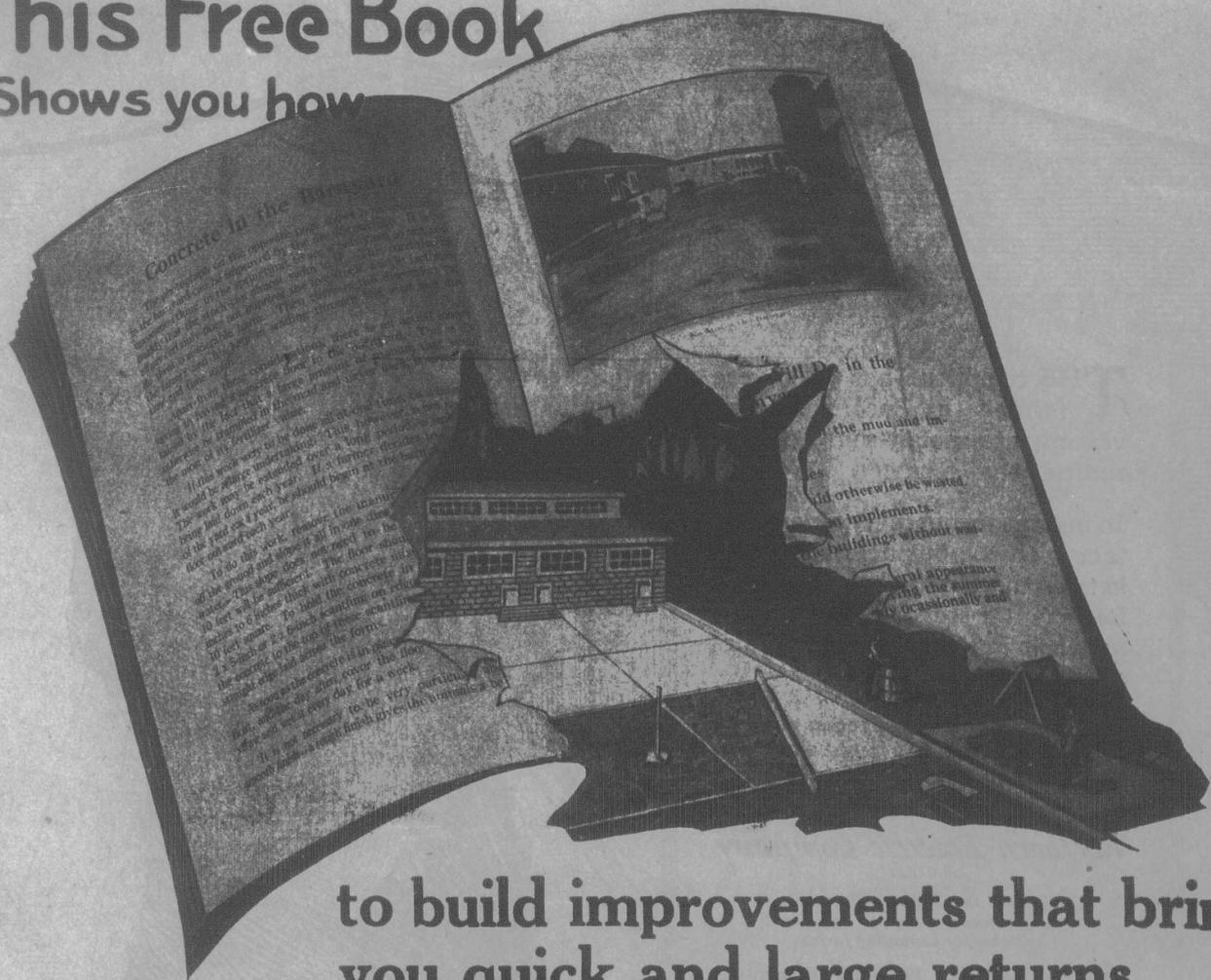
of Weed Seeds. Expected last fall to make weed seeds for study for months and the time testing them, and other about their peculiarities of the plants which grow in some cases, perhaps, already been given, but of seeds takes some little when it is desired to as well. Schoolhouses, the winter time are notminating seeds because d in the night and over d suggest that different enior grades germinate n small boxes of earth, nts be brought to school r. There is a good deal identifying weed seeds necessary to be able to all plants grown from ing the seeds in boxes e plants to grow would e to the value of the also requested to know the control and eradica-



iate; the Poultry

This involves a study hods. A summer-fallow to get rid of many weeds, ers in Eastern Canada r-fallow is wasteful and d be grown continuously. Howitt, of the Ontario ollege, has been conduct- experiments for several adication of weeds, and ental Union Convention Guelph he discussed the On page 165, in the 29, will be found short weed control, under the y Combatting Weeds." volves the use of rape on of twitch grass, and rains how iron sulphate on mustard to destroy weeds and weed seeds ng. It furnishes lessons iculture, and arithmetic. ds are picked out from one naturally computes the percentage of weed ample. Then, when a is made, one computes of germination. All of ns provide good practice hmetical problems and ns which confront farmers

This Free Book Shows you how



to build improvements that bring you quick and large returns

YOU can easily build a concrete feeding floor such as the one here pictured. A gravel bank on your farm or nearby will supply the sand and pebbles. A dealer in your vicinity has the "Canada Cement" required to complete the job. You are losing money every day you put it off—money that a proper feeding floor will save in feed and labor. Concrete is sanitary—use it to clean up the feed lot and barnyard—use it to prevent the stock diseases that help to hold down the net profits you

make from farming. Use it for wells, tanks, floors and other structures, as a protection against disease and rats. Concrete will not rot; it is rat-proof and fire-proof; it is permanent and requires no outlay for upkeep. A feeding floor is but one of many permanent improvements you can build, by the simple directions contained in our free book, "What the Farmer Can Do With Concrete." Get a copy and use it.

Ask for Canada Portland Cement, the uniformly reliable brand. It can be secured from more than 2,000 dealers throughout Canada. If your dealer cannot supply you, write our nearest Sales Office.

CANADA CEMENT CONCRETE FOR PERMANENCE

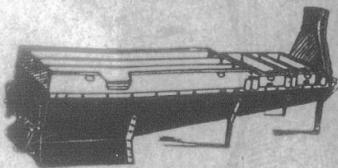
Canada Cement Company Limited
413 Herald Building Montreal
Sales offices at Montreal Toronto Winnipeg Calgary

Send me your Literature

NAME _____ 413
ADDRESS _____

Bill's Sugar and Syrup Wasn't Up To Much

That's what his neighbors said, they were right too, but there were reasons, his sap was not fresh enough or clean enough, his boiling outfit was out-of-date and he scorching the whole batch. He did a lot of hard work with poor results. It is all a question of proper outfit. With a



GRIMM CHAMPION Outfit

In your maple grove you are sure of making the best possible syrup and sugar. Do it cleanly and quickly and get more money out of it. Scrap your old outfit and make something worth while out of your sugar bush. We can help you a lot if you write us.

The Grimm Mfg. Co.
60 Wellington Street, Montreal, Que.

Coal Oil Light TEN DAYS FREE TRIAL

BEATS GAS OR ELECTRICITY



Make your home bright and cheerful, saving one-half on oil. Government and leading University tests prove this wonderful new Aladdin nearly five times as efficient as best round wick open-flame lamps. Burns 70 hours on one gallon common kerosene (coal oil). No odor, smoke or noise, no pumping up, easy to operate, won't explode. **WON GOLD MEDAL GUARANTEED.** Prove for yourself, without risk, by

Ten Nights Free Trial

that Aladdin has no equal as a white light. If not satisfied, return at our expense. \$1000 given anyone showing us an oil lamp equal in every way to this NEW MODEL ALADDIN.

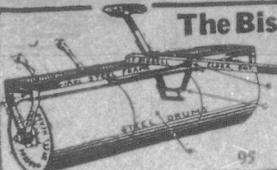
GET YOURS FREE We want one user in each locality to whom customers can be referred. In that way you may get your own without cost. Be the fortunate one to write first for **10 DAY FREE TRIAL OFFER** and learn how to get one FREE.

MANTLE LAMP CO., 234 Aladdin Bldg., MONTREAL or LARGEST COAL OIL MANTLE LAMP HOUSE IN THE WORLD WINNIPEG

Make big money spare or full time. Our easy selling plan makes experience unnecessary. We start you without money. Sample sent for 10 days trial and **GIVEN FREE** when you become a distributor.

Agents Wanted

The Bissell Steel Roller has a rigid steel frame—no wood whatever. Large roller bearings and strong 2" axles insure durability and great strength. The Bissell is a 3-drum Roller of good weight, built to stand hard usage and give great service. Write Dept. W1 for free catalogue.

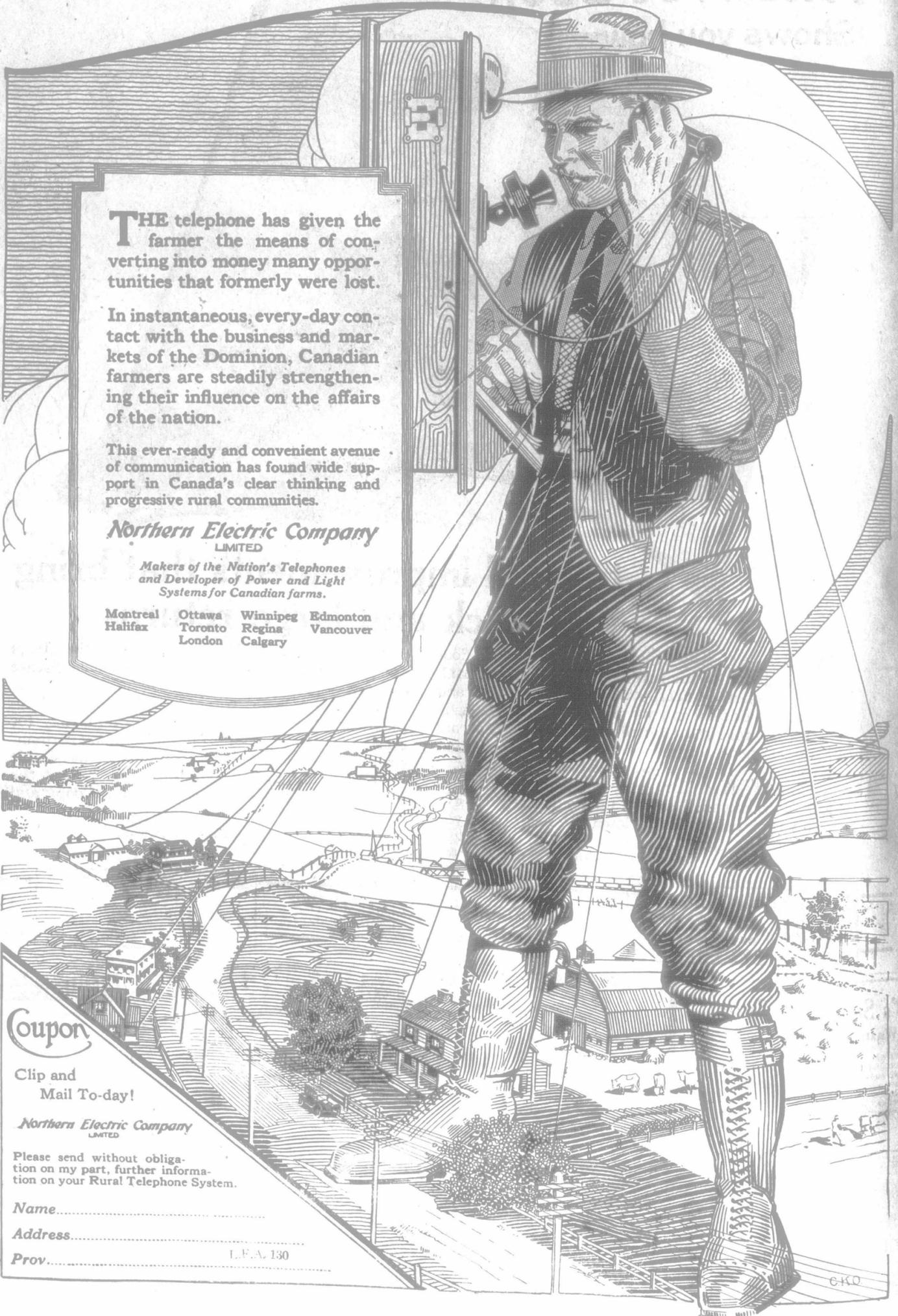


T. E. BISSELL CO., LTD., Elora, Ont.

GRAND TRUNK RAILWAY SYSTEM

The Double Track Route
BETWEEN MONTREAL, TORONTO, DETROIT AND CHICAGO
Unexcelled dining car service
Sleeping Cars on Night Trains and Parlor Cars on principal Day Trains.
Full information from any Grand Trunk Ticket Agents or C. E. Horning, District Passenger Agent, Toronto.

SEED CORN
Shelf dried. Satisfaction guaranteed. Several varieties.
ED. MATHER, - Leamington, Ont.



THE telephone has given the farmer the means of converting into money many opportunities that formerly were lost.

In instantaneous, every-day contact with the business and markets of the Dominion, Canadian farmers are steadily strengthening their influence on the affairs of the nation.

This ever-ready and convenient avenue of communication has found wide support in Canada's clear thinking and progressive rural communities.

Northern Electric Company
LIMITED

Makers of the Nation's Telephones
and Developer of Power and Light
Systems for Canadian farms.

Montreal	Ottawa	Winnipeg	Edmonton
Halifax	Toronto	Regina	Vancouver
	London	Calgary	

Coupon

Clip and
Mail To-day!

Northern Electric Company
LIMITED

Please send without obligation on my part, further information on your Rural Telephone System.

Name.....

Address.....

Prov..... L.F.A. 130

6-10