

The Farming World

A PAPER FOR
Farmers and Stockmen

WE WISH

we could make everybody realize what a wonderful improvement the

"Cushion Frame"

feature really is. It is to the old style rigid frame what the pneumatic tire was to the solid tire. It prevents jolts, jars and vibration, and one can ride



fifty miles on a cushion frame bicycle with less fatigue than in riding twenty-five miles on an ordinary rigid frame bicycle.

You can get this feature in connection with the Cleveland, Brantford, Massey-Harris and Perfect Bicycle.

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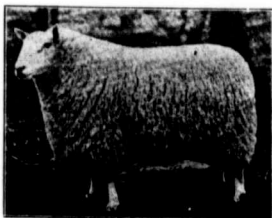
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Canada Cycle & Motor Co.
LIMITED
TORONTO, CANADA



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..AN ENGRAVING.

that will tell your story.



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We all know that it is absolutely necessary to continually bring in new blood if we wish to make a success of breeding any live stock on the farm. This rule applies to your poultry just the same as any other department; and for this purpose we make a special offer to farmers by offering them settings of eggs from our magnificent stock of White Wyandottes, Barred Plymouth Rocks and White Leghorns at very reduced prices. All our original stock was imported from the best breeders in the United States, and our present stock is second to none in Canada. Good healthy thoroughbred birds improve the look on the farm, bring more money into your pocket, and they mature earlier, lay many more eggs and demand a far greater price either dead or alive, and they do not cost a cent more to feed than mongrel stock.

Wyandotte Eggs, per setting . \$1.50
S.C. White Leghorn Eggs, per setting \$1.50
Barred Plymouth Rocks (Hawkins' Strain) \$2.00

We are willing to give farmers any information that we can in reference to their poultry, and all letters will be willingly answered. Address—

The Toronto Poultry Company
LIMITED

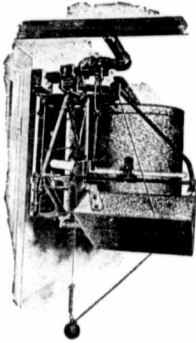
J. M. WILSON, Manager.
Davisville P.O., Ontario

Address

The Farming World

**Confederation Life Building
Toronto**

We are Sure



You would not expect your patrons to deliver their milk to you any great length of time if they are required to dump it into the receiving vat while you estimate the amount from the number of cans on the wagon? Why should you expect them to allow you to return their skimmilk in any such slipshod, hap-hazard fashion?

Our

Ideal Skimmilk Weigher

Is just as accurate as your weighing scales or the man that operates them. If you don't know about it, write us for information.

CREAMERY PACKAGE MFG. COMPANY,
COWANSVILLE, QUE.

CANNOT BEAT THE "ALPHA" IN A FAIR TEST.

FROM

MATTHEW MOODY & SONS

(Factory and Head Office, Terrebonne, P.Q.)

MANUFACTURERS OF

Rakes, Mowers, Reapers, Binders, Threshing Machines, Ensilage Cutters, etc., etc.

Terrebonne, July 16, 1900.
I, the undersigned, Geo. Belanger, manager for M. Moody & Sons, have bought for Mr. Henry Moody's account two (2) Alpha No. 1 Separators, from the Canadian Dairy Supply Co., after a test of the Alpha De Laval Separator against the "U.S." machine, held on the 10th and 11th of July. In the results obtained by both tests of machines, the difference was large enough to warrant me buying the two Alpha Separators, and I recommend all butter makers thinking of purchasing a Separator to get an Alpha, as no other will give such satisfaction from the work.
[Signed] G. W. BELANGER, Mgr.

Terrebonne, January 5, 1901,

GENTLEMEN :

Yours of the 2nd inst. to hand. The two Alpha Separators which we bought from you during the past season have been in constant use and have given us every satisfaction both as to their capacity and as to the quality and quantity of product.

Yours truly,

M. MOODY, & SONS.

THE TEST.

Here are the results of the test, under Inspector Corbeil's Supervision :

	10th July, 1900	11th July, 1900
	U.S. Separator No. 1	ALPHA No. 1
Milk received	9446 lbs.	9571 lbs.
Average temperature	72 Deg. F.	72 Deg. F.
Per cent. of fat in milk	3.80%	3.80%
Duration of skimming	3 hrs. 50 min.	2 hrs. 50 min.
Amount skimmed per hour	2464 lbs.	3378 lbs.
Speed of Separator	7800 Revolutions.	6400 Revolutions.
Average fat left in skim milk, samples taken every 15 minutes	0.07	0.03

THE CONCLUSION.

Butter Fat saved by the Alpha on 9571 lbs. milk, as compared to the U.S. performance... 3 83/100 lbs.
Equal to finished Butter... 4 40/100 lbs.
Also saved by the Alpha, as compared to additional time occupied by the run of the U.S. :—
a. Power, oil, wear and tear, attendance, Patron's time, waiting outside the door, spoilt quality of milk..... One hour.
b. Power, 50% less than with the U.S. during 2 hrs. 50 minutes, equal to..... 85 minutes.

And this economy will be a daily occurrence during the lifetime of the Alpha, and will be increased as the season advances and milk is harder to skim.

For Catalogue and further information apply to

CANADIAN DAIRY SUPPLY CO.

GENERAL AGENTS FOR CANADA

327 COMMISSIONERS ST. . . . MONTREAL

Maxwell's "Favorite" Churn.



Patent Foot and Lever Drive.	No.	Holds	CHURNS
•	0	8 gal.	4 to 8 gal.
•	1	10 "	1 to 5 "
Patented Steel Roller	2	15 "	2 to 7 "
•	3	30 "	3 to 9 "
Bearings	4	36 "	4 to 12 "
•	5	50 "	6 to 14 "
Improved Steel Frame	6	60 "	8 to 20 "

Superior in Workmanship and Finish

DAVID MAXWELL & SONS
St. Mary's, Ontario, Canada.

Up With the Times...

Progressive Cheese and Butter makers use : : : : :

Windsor Salt

because they know it produces a better article, which brings the highest price.

THE WINDSOR SALT CO.
Limited
WINDSOR, : : : : ONT.

Cheese and Butter

Makers of these articles, in many instances, do not pay the necessary attention to the quality of the salt they use. Some people think that "salt is salt," and it does not matter where it comes from or who makes it. This is a great mistake, for it is essential that to produce the best Butter or Cheese nothing but the purest salt should be used.
The number of prizes obtained by user: of

"RICE'S or COLEMAN'S" DAIRY SALT

at the various exhibitions is conclusive proof that these brands of salt stand unrivalled. For prices, etc., address

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Clinton, Ont.

"VEGETABLE GARDENING" FREE
 Prof. S. B. Green's book, 310 pages, 150 illustrations, (regular price, \$1.25) used in all leading colleges, free to every one buying Seed Drill, **NEW UNIVERSAL HAND SEEDERS AND CULTIVATORS** suitable for every class of work. **STANDARDS OF AMERICA**



All styles. Only combination 1 and 2 wheel cultivator and drill made. Every way adjustable. All our tools have tough oak bent handles and are made of best material throughout. Popular prices. Send for catalog, describing complete line and **AMES PLOW CO.**, 32 Market St., Boston, valuable book.

Farmers' Low Handy Waggon 

Wide-Tire Wheels
 Made to fit any axle.

They are lighter, stronger and much cheaper than wooden wheels.

Wrought Iron Wheels with Wide Tires

should be used by every farmer, in fact by everyone who has a wagon.

Dominion Wrought Iron Wheel Co.
 9 and 11 Brock Ave.
 DEPT. A. TORONTO, ONT.

Wilson's High Glass Scales

Special Offer for April

2000 lb. Scale Drop Lever.
 Every Scale Tested.

This offer is for **FARMING WORLD** readers only.

Diamond Steel Bearings
 Get Prices now



C. WILSON & SON
 50 Esplanade Street E., TORONTO

FRIPPLEY'S COOKERS.

Sell from \$10.00 to \$15.00. Made of boiler steel. No flues to rust or leak. Can't blow up. Guaranteed to cook 35 lb. feed in 2 hours, and to heat water in stock tanks 500 feet away. Will heat dairy rooms. Cash on delivery and prices mailed free.

FRIPPLEY HARDWARE CO., Box 216 (U.S. Factory, Graston, Ill.) London, Ont.

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To travel with most complete line of Paints Colors and Varnishes on the market.

Jewel Refining Co.,
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AGENTS WANTED

Ideal Steam Cookers lead the World, and are recognized everywhere as the best. Housekeepers and cooking experts say its many advantages over all others are unquestioned. Cooks a whole meal over one burner, on gasoline, oil, gas, electric, coal or wood stove. Reduces fuel bills fifty per cent. Toasts and poultry, no matter how tough, are made tender and palatable. No steam in the house. No offensive odors. Burning impossible. **Whistle blows when Cooker needs more water** Send for illustrated circulars. We pay express.



The U.S. SPECIALTY CO.
 Adelaide Street East - TORONTO, ONT.

Gregory's Seed

For nearly half a century Gregory's Marblehead Seed, on hundreds of thousands of farms, have been a synonym for purity, freshness, and honest dealing. The original brand of the firm still continues to carefully guard their line reputation, and is annually selling to tens of thousands of their children the same high quality of seed he sold the fathers. Our new Vegetable and Flower Seed Catalogue now ready—free to everybody. The worthy novelties of the season are too justly described.

J. J. H. GREGORY & SON, Marblehead, Mass.

RELIABLE SEEDS!
 For Farm and Garden

OUR stock includes all that is best in Garden and Field Roots, Flower Seeds and Flowering Plants, Grasses, Clovers and Seed Grain.

Illustrated Catalogue mailed free on application.

W. EWING & CO.
 Seed Merchants
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ENSILAGE SEED CORN

THE YIELD IS WHAT COUNTS

Mammoth Southern.
 Giant Prolific.
 Yellow Dent.
 Leaming Yellow—early maturing.
 White Cap Yellow Dent—early maturing.
 Red Cob White.

Read the yield from one who has tried our Mammoth Southern, and knows what it is. Don't let your dealer catch you with some cheap John variety by that name. **Get the PURE article**—take no other. Write us if your dealer does not keep ours, and we will tell you where to get it pure. "Blood will tell."


E. R. ULRICH & SONS,
 Springfield, Illinois, U.S.A.

Messrs. E. R. ULRICH & SONS, Springfield, Ill.

Gentlemen,—I used to buy seed corn from you several years ago, and it was always good, and gave me great crops, 20 to 24 tons to the acre, but late years I have bought my seed corn from _____ from which I have had poor crops, yielding 4 to 6 tons less per acre than what I got from your seed. Two years ago, one-half of my seed failed to grow at all. I had to replant with other seed. Are you still selling that good, sound, Mammoth Southern Sweet Corn that I used to buy from you? If so, what would it cost me per bushel, delivered in Bond; and have you some good earlier varieties that you can recommend as large yielders of ensilage? We like some earlier that will mature for ensilage. Earlier varieties make richer and sweeter silage, but not so much of it to the acre. I grow 60 acres for silage. Yours truly,

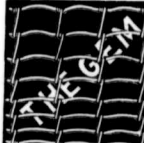
E. E. TILLSON.

Giant Prolific yielded on Government Farm, Agassiz, B.C., summer of 1898, 38 tons and 450 lbs. on one acre.



ROCK SALT for horses and cattle, in ton and car lots. **Toronto Salt Works, Toronto**

COILED SPRING and other **FENCE WIRE** for sale at lowest prices. Also **GEM FENCE MACHINE**, the most practical device made for constructing wire fencing. Write **McGregor, Banwell & Co. WINNIPEG, ONT.**



Brantford Galvanized ROLLER BEARING STEEL WIND MILLS

NEW CATALOGUE

SEND FOR

GOLD SHAPLEY CO. LIMITED
 BRANTFORD, CAN.

POWER AND PUMPING MILLS, STEEL TOWERS AND FLAG STAFFS, IRON AND WOOD PUMPS, MAPLE LEAF GRAIN GRINDERS, BEE SUPPLIES.

CANADIAN PACIFIC RY.

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Round Trip Tickets will be issued as follows:

GENERAL PUBLIC

Single First Class Fare
 Going April 4th to 8th, inclusive, returning up to and including April 9th, 1901.

TERRITORY—Between all stations in Canada, Port Arthur, Sault Ste Marie, Mich., Detroit Mich., and East, and to but not from Buffalo, N.Y., Black Rock, N.Y., and Suspension Bridge, N.Y.

TEACHERS AND STUDENTS

Single First Class Fare and One-Third

Between stations in Canada west of Montreal to Port Arthur and Windsor. Single First Class Fare and One Third to Montreal, added to Single First Class Fare Montreal to destinations.

From stations west of Montreal to Quebec, Que., and New Brunswick and Nova Scotia points.

Going March 29th to April 6th, inclusive, good to return until April 16th, 1901.

A. H. NOTMAN
 Assistant General Passenger Agent
 1 King St. East, TORONTO

Special to Our Readers

The publisher of **THE FARMING WORLD** exercises the utmost vigilance in excluding from the advertising pages of the paper all business announcements of a questionable character. He believes every advertiser represented in this issue to be thoroughly responsible, and that the goods offered will be found as described. Persons writing to the advertiser will usually find it to their advantage to mention **THE FARMING WORLD.**

OUR ANNUAL HORSE NUMBER will appear on April 16, and will this year be larger and more interesting than ever before. An unusually large edition of the number will be printed. Advertisements for that issue should be handed in early.



**IF PEOPLE ONLY KNEW
THE ADVANTAGES OF USING OUR
"SAFE LOCK"
METAL SHINGLE**

for roofing houses, churches, barns, etc., they would not consider wooden shingles or any other style of roofing. "Safe Lock" shingles are very durable, have no parts to get out of order, and make a fire and lightning proof roof, very ornamental in appearance.

We mail free model samples, catalogue and estimates.

THE METAL SHINGLE AND SIDING CO.,
PRESTON, ONT. LIMITED.

**Spramotor
For Sale.**

It will be to your advantage to write us for price. Timely spraying will make your orchard profitable. You can paint your buildings with this machine. Address

THE FARMING WORLD,
Confederation Life Bldg. TORONTO, ONT.

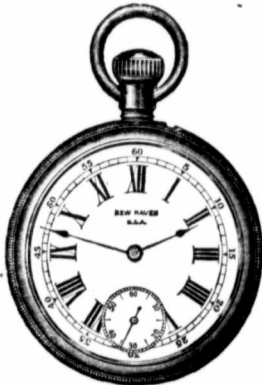


Do You Call It

A Hasher or Chopper or Crusher or Grinder or Cracker or Feedmill?

No matter what you call it so long as it is a "JOLIETTE" that you buy. There is no other make worth spending your money on anyhow.

S. VESSOT & CO.
108 Front Street East - TORONTO
Factory at Joliette, Quebec



**No
Matter**

Whether you are training for a race or racing for a train, this watch will keep you right. It is honest, reliable and looks well. It is a man's watch, and every man should carry one. Every school-boy can earn one easily. Read our offer below:

Five Good Points

- FIRST**—It is made by one of the best manufacturers in the world. Every one is guaranteed.
- SECOND**—It is a good timekeeper—in fact so good that many railway conductors rely on it.
- THIRD**—It is strong, and will stand the rough and tumble, the dust and damp of every-day wear.
- FOURTH**—The case is nickel-finished, and looks just as well as solid silver. With ordinary wear it will keep its color for two or three years—much longer with care. The works will last ten or fifteen years.
- FIFTH**—It has a stem-wind and a stem-set. No key to lose; no key-hole to let in dust.

Address **THE**

Farming World,
Confederation Life Building,
TORONTO.

Any one sending us six new subscribers to THE FARMING WORLD will receive one of these fine Watches, carefully packed in wooden box, post-paid, Free. Or we will send the Watch for three new subscribers and one dollar in cash. Or any subscriber whose subscription is paid up may have one for \$2.00. Your money back if you are not satisfied.

The Farming World is published every week, only \$1.00 per year. You can earn one of these watches in one afternoon.

SHEPHERDS



X

SHEEP DIP

Kills Lice and Ticks, destroys all disease germs. Disinfectant and antiseptic. Is healing. Prevents and cures skin diseases.

Having so much confidence in this preparation we will give to any farmer who personally brings this advertisement to our warehouse a full-sized bottle for trial.

Any Dealer who has not got it in Stock can get it for you from us.
Put up in Qt. Bottles. Price 25 Cents. Manufactured by
THE LYMAN BROS. & CO. Limited,
Wholesale Druggists,
71-73 Front Street, Toronto.

THE MODERN WAY TO DESTROY SHEEP TICKS

is by the use of

INSTANT LOUSE KILLER

It is not a dip, but a powder, that can be applied in zero weather. No slop, no muss, no danger.



There is no profit in letting ticks sap the life out of your sheep during winter, and there is no longer any call for it. With **INSTANT LOUSE KILLER** the weather cuts no figure.

Examine your sheep at once, and you will probably find ticks and lots of them. Don't wait on the weather, wait on the sheep with a package of **Instant Louse Killer**. Guaranteed.

Put up in one-pound packages, with perforated top, ready for use, very convenient.
PRICE 35 CENTS. Sold by dealers generally, or address

The Greig Manufacturing Co.
Canadian Agents, Montreal

More Than Lump Jaw



A remedy that will readily cure advanced cases of Lump Jaw without even leaving a scar, will certainly do many other important things. **Fleming's Lump Jaw Cure** is positively guaranteed to remove all lumps or swellings from either horses or cattle. It cures Spavins, Curb, Splint, etc. Price \$2, or three bottles for \$5. Sent prepaid by mail, if not at your druggists.

St. George, July 20th, 1900.
FLEMING BROS., Gents.—One application of Lump Jaw Cure was all that I required to remove the growth from the jaw of my animal. It has not even left a scar, the hair having grown again all over where applied. I can thoroughly recommend it to all stockmen. **WILLIAM McCORMICK.**

Our Illustrated Pamphlet should be in the hands of every stock owner. It's FREE to readers of this paper.

FLEMING BROS., Chemists
Room K, 58 Bay Street, TORONTO, Ont.

When writing to advertisers please mention **THE FARMING WORLD.**

The Farming World

For Farmers and Stockmen

VOL XVIII

APRIL 9th, 1901


No 33

The Best in the Dominion

Mr. Allan Robins, Boyle, Ont., writes: "I always have a good word to say for THE FARMING WORLD to all my neighbors and friends, believing it to be one of the best papers for farmers and stockmen in the Dominion of Canada or the United States. I think the directors of Farmers' Institutes should ask each member to subscribe for THE FARMING WORLD, as it is worth hundreds of dollars to every stockman who reads it."



Importance of the Soiling System

 planning for the seeding time, which will be upon us shortly, farmers should make preparation for a series of soiling crops for feeding during the dry seasons, which are becoming more common every summer in this country. The importance of this cannot be impressed too strongly upon our agriculturists. While of value to everyone who keeps stock, soiling crops are of the greatest advantage to the dairyman. Unless the dairyman adopts some system of this kind he cannot hope to make the very most out of his cows. If the pastures during this dry period are not supplemented by an abundance of green feed, cows will soon shrink materially in the volume of milk they give, and what is worse, cows that once fall off in their milk flow during July and August rarely regain it again during the balance of the season. So not only is there a great loss during the dry season, but this loss continues even after the pastures freshen up in the fall.

Realizing the importance of our readers having some reliable data bearing upon this subject we took the trouble a few weeks ago to ascertain the views of a number of practical farmers who have had some experience with the soiling system. Several of the replies are given elsewhere in this issue, and more will follow later. All of our correspondents heartily endorse this system, and recommend it to the careful consideration of every farmer. We believe there are few, if any, farmers who will differ from them on this score. But the difficulty is to get farmers to take up the work and carry it on with any degree of system or regularity. Most people have very good intentions but fail to put them to practical account. If

they did so on this soiling question alone, stock feeding could be carried on to much better advantage. Our view of the soiling system is that the dairyman cannot afford to be without it; that the swine feeder will be greatly benefited by it, and that the feeder of beef cattle and other stock will find it a decided advantage in the way of cheap production.

A hindrance, perhaps, to the more general adoption of the soiling system for the summer feeding of stock is the extra amount of labor attached to it, as compared with that of pasture alone. Several of our correspondents refer to this drawback. It should, however, not prove an insurmountable difficulty. The pecuniary advantages to be derived in the way of greatly reducing the cost of production of either milk, beef or pork, will more than make up for the extra cost of labor. Where as much food is secured from one acre of a soiling crop as from three acres of pasture (in many cases the difference in value is greater than this) there should be no hesitation on the part of farmers, and especially of dairymen, in adopting it, or partially doing so. The soiling system will enable the small farmer to keep more stock and to keep it better without decreasing in any way the acreage devoted to other crops.

A somewhat new feature in connection with soiling crops in this country is the important part which lucerne is destined to play in them. This clover, which is growing in favor every year, seems to be splendidly adapted for soiling purposes. If cut often and at the right stage of maturity, a large quantity of wholesome succulent food is obtainable for several months of the year. Its nutritive value is very great. It makes an excellent pasture for hogs. Sheep also do well on it. It is one of the earliest, if not the earliest, crop in the spring. For soiling purposes it may be cut a little before blossoming, so that another crop may follow as quickly as possible. If this practice is followed a crop may be cut every five or six weeks. For further particulars regarding lucerne, see The Farming World of March 5th last, page 645.

Another factor that is gradually coming into use for summer feeding is the silo. Nearly all our correspondents refer to it as the ideal plan. Mr. Hallman, who has had some experience with the summer silo, very strongly recommends it as a most economical and efficient way of supplementing pastures during the dry

season. It certainly has many things in its favor. The silo for the following summer's feeding can be filled in the autumn, when labor is not so scarce, while the extra work involved in feeding it to the cows is very small indeed. As compared with cutting and hauling a green crop every day to the stable or feeding place, this is a distinct advantage. As to preserving the silage for so long a time there should be little difficulty if the silo is properly made and the corn is in the right stage of maturity, and is put in in good shape. The best plan is to have a separate silo that will hold sufficient for supplementary feeding the following summer.

The practical value of this whole question of soiling crops should commend it to the earnest consideration of every farmer. It is only by adopting methods of this kind that the farmer can hope to close up the many little leaks that arise from lack of succulent food for stock feeding during the usual dry periods of July and August. The practical information given elsewhere in this issue should be of value in enabling farmers who contemplate taking up this work to follow the latest and best methods. We would be glad to have the experience of others for publication, and to answer any questions bearing upon this subject.

Our Horse Number

Our annual horse number will appear next week. It will certainly be equal to, and in many ways, superior to any previous effort in this line. We are issuing this number a week earlier than last year in order that copies may be in the hands of our readers before coming to the Horse Show, which will be held at the Armories, Toronto, April 24th to 27th next. A large number of extra copies will be issued, many of which will be distributed at the Show. The Horse Show and Military Tournament this spring is likely to exceed all former efforts in this line. We will have more particulars to give regarding it in next issue. But do not forget that our horse number comes next week.

The Drainage Across Railways

In some notes by our travelling representative, to be found elsewhere in this issue, he touches upon a grievance that causes no little trouble in many parts of the country. This grievance arises out of the action of the railway companies in refusing to put a drain or to allow one to be put, through their property. Because of their refusal there are many acres of land in the older parts of the country that are practically useless for lack of proper drainage. The case is cited of Major Hood, of Guelph, who has a twenty acre field that is almost worthless, because it cannot be properly drained excepting through the railroad property, and this the company will not do themselves nor will they allow him to do it at his own expense. No doubt there are many farmers along the railway lines of this country in the same predicament, and who have a grievance that should be remedied.

We are not familiar enough with the legal aspects of the case or the legislation under which our large railways have received their

franchises, to deal with the question from that standpoint. No doubt the railways are quite within their legal rights when they refuse to allow farmers along their lines to put drains through their property. It, however, seems like an unnecessary hardship that farming lands in many parts of the country cannot be improved, especially when the property of the railroads or the efficiency of their service would be in no way injured or hampered by such drainage. Surely this question is worth looking into by our legislators at Ottawa. It is probably a Dominion question, inasmuch as the franchises of the two great railways of this country have been obtained from the Canadian Parliament. It is none the less an important subject on that account, and might well receive some attention from our representatives at Ottawa.

A bill has been introduced into the Legislature by Col. Leys dealing with this question, and which passed the municipal committee last week. It is doubtful, however, if the Legislature has jurisdiction in the matter. The bill provides that when water is caused to flow upon and injure lands belonging to any municipality, company or individual, and when extra cost is incurred in diverting the course of drainage through the existence of a railway, such railway shall be charged for the construction and maintenance of drainage work to the extent of such extra cost.

The Binder Twine Supply

Though the harvesting season is several months away farmers will be interested in the outlook for binder twine supply. In addition to the large quantities of twine turned out annually by the Farmers' Binder Twine Co., of Brantford, a large supply may be looked for from the new farmers' co-operative concern, which has recently begun the manufacturing of twine at Walkerton, Ont. However, though these two factories may run to their full capacity, their output would only meet the needs of a very small portion of the twine market of this country. The balance will have to come from other sources, and not a little from the south of the line. It will be interesting, therefore, to know somewhat of the outlook for twine supply in the United States. Dealing with this question in last week's issue "The Farm Implement News," of Chicago, says:

"The fact that less than the usual number of twine mills have been in operation this season, and some of these have made less twine than usual, has led to talk of short supply, famine, etc. Salesmen are reported to have said to dealers: 'If there is a big crop this year there will be a twine famine.' We are of the opinion it will require a larger crop than is in prospect, an abnormally heavy one, in fact, to cause that result. While it is true that fewer mills have been running and the running time of many has been less than usual, the amount of sisal fibre actually delivered to manufacturers since last harvest is a few bales in excess of that delivered during the corresponding period of 1899-1900, and there is no doubt that the amount of twine and fibre carried over from last harvest was nearly as large as that carried from the season before. The available supply of twine last season would have been ample for the largest crop on record.

"It is evident, therefore, that unless the crop yield should exceed all reasonable calculations it will not outrun the supply of twine. A greater proportion of the available twine will, however, be held in strong hands and the twine will not be of the quality that can be sold only by cutting prices. These facts have added much to the strength of the market and influenced manufacturers to hold back rather than push the sales at this time.

Profit Side of Mutton-making

For several years we have strongly advocated the keeping of more sheep on Canadian farms. Though this subject has not been as much to the front in our columns during the past few months as heretofore, we are still of the same mind on this important question. There should not be a farm, in the older parts of Canada at least, on which are not kept from ten to twenty sheep. If given the proper care and attention, and if the right types are selected to start with, the raising of sheep can be made a most profitable branch of husbandry, even if the wool is somewhat low in price. The larger profit from sheep-rearing is to be derived from the lambs and from mutton-making. In this latter connection we have just received a very interesting article from Herbert Mumford, Professor of Agriculture at the Michigan Agricultural College, in which he summarizes the results of a series of experiments conducted during several years past in that State, for the purpose of ascertaining the cost of producing mutton. It reads thus:

It has been my privilege to observe and carry on experiments in lamb feeding at this station for several years. There can be little question but that the first cost of the lambs is a very important consideration. For example, we have data at hand showing that during the winter of '91 and '92 lambs costing 4 1-2c. in the fall and selling at 5 3-4c. per pound about the middle of March, gave us a profit of about \$1.33 per lamb, with clover hay at \$7.50 per ton, oats at 1c. a pound, corn at about 40c. per bushel of 56 pounds. This suggests the fact that the cost of food stuffs is also a factor to be reckoned with in lamb feeding.

During the winter season of '92 and '93 lambs costing 5c. per pound in the fall, and selling at 5c. in the spring after being shorn, were fed on corn during that season costing us 1c. per pound, oats the same price, and clover hay \$7 a ton. The profit on each lamb in this case was about 60c. per lamb. It should be remembered that in each case cited the lambs were above the average in quality, and were fed under the most favorable conditions for securing the largest gains for food consumed.

During the season of '93 and '94 lambs were purchased at 3c. per pound in the fall and sold for \$3.90 per cwt. in the spring, corn costing 40c. per bushel of 56 pounds, and clover hay \$7 per ton. In this case there was an average profit of 47c. per lamb.

In the season of '94 and '95 lambs were purchased at 2.4c. per pound and sold at \$5 per cwt., corn at \$19 per ton, oats at \$20 per ton, clover hay at \$6 per ton. In this case the profit on each lamb run close to \$1.85 per lamb.

In the season of '95 and '96 the lambs in the fall cost \$2.37 per cwt., and sold in the spring for \$4.60 per cwt; corn cost 30c. per bushel of

56 lbs., and clover hay \$12 per ton. The profit on each lamb in this case amounted to \$1.66.

We might go on and give other similar examples, but it is unnecessary. The point to be clearly understood by the novice in lamb-feeding is that to be a good buyer and to get the lambs at a fair price is the first requisite, if a profit is to be realized. The ruling price of available food stuffs is the next thing to be considered.

The factor of which the feeder has least knowledge, and over which he has the least control, is the selling price. It will be noted that in each case quoted above the selling price was considerably above the purchasing price, not forgetting that in '92 and '93 the lambs were purchased and sold at the same price, but they were purchased in the fleece and sold after being shorn, which, as every practical man knows, makes a decided advance in price. We have made a careful study of the subject of the cost of producing lambs in Michigan, and we have found that under average conditions, one year with another, it is not safe to figure on producing lambs for less than 4 1-2c. to 5c. per pound. The average price received for finished lambs for the last ten years does not warrant us in expecting much more than 5c. per pound at our local stations. This means that under average conditions the feeder must look for his profit in the difference between the buying and selling price, rather than to the actual profit made between cost of gain secured and its selling price. We have made it a rule to say that Michigan feeders are seldom warranted in paying over 4 1-2c. per pound for lambs in the fall, and even at that the chances are in favor of making a greater profit when the price for feeders does not rule as high in the fall, even though the prospect is not good for high prices in the spring. As a rule we have made more money in feeding lambs when we could buy feeders at your own price, even when we expect to get only a moderate price for them in the spring.

Trans-Atlantic Cattle Trade

Following what we have published during the last three issues on the dressed meat trade, the following on the trans-Atlantic cattle trade, from a recent report published by the United States Department of Agriculture, will be of interest, especially as it refers to Canada's position in its developments:

The United States and Canada now have a virtual monopoly of the world's export cattle trade to the United Kingdom. All other important cattle-exporting countries have been precluded by the British laws for the prevention of foot-and-mouth disease from landing their cattle on British soil. Argentina, after having carried on a successful and increasing trade with Great Britain since 1890, was, last April, declared to be infected with the disease and her flourishing trade has ceased. Australia, though non-infected, has not yet succeeded in establishing a cattle trade to the United Kingdom; her several tentative experiments in transporting live stock on a commercial scale over the vast distances and through the diversities of climate that separate her from the Mother Country have, as business ventures, ended in failure. Against various countries of continental Europe declarations of the existence of foot-and-mouth disease have been made

from time to time during the last quarter century, and since 1892 exports of cattle to the United Kingdom from that entire continent have almost ceased.

Even the thriving export trade of the non-infected United States and Canada has been carried on under other restrictions that would at one time have been regarded as almost prohibitive. In the year 1879 the existence of pleuro-pneumonia in the United States caused the British Government to prohibit the landing of cattle from this country except for slaughter within ten days at the port of landing, and, although this republic was officially declared to be free from the disease in 1892, the restrictions were never removed. Canadian cattle were placed under the same restraints and for the same cause in 1892. A little later these restrictions were made permanent and of universal application, and since January 1, 1897, no cattle from any country whatsoever are allowed admission commercially into the United Kingdom, if allowed at all, except for slaughter within ten days at the port of landing.

The enforced cessation of imports from Argentina is obviously an occurrence of great importance. The imports from that country had increased from 2 per cent. of the total takings of the United Kingdom in 1894 to 17 per cent. in 1899, and from being an almost negligible factor in the trade, Argentina had become, as a source of supply, almost equal to Canada. It is significant, too, that the constant increase in the proportion of cattle supplied by Argentina has been coincident with a general decrease in the proportion supplied by the United States, the percentage supplied by Canada meanwhile remaining fairly constant.

The exports of cattle from the United States to countries other than the United Kingdom in recent years have been, with one exception, of relatively small proportions, and have been directed chiefly to the West Indies, British North America, and Mexico. In 1890 the aggregate of the cattle exports from the United States to all countries assumed unprecedented magnitude; from that date to 1897 Europe took annually from 98 to 99 per cent. of our total shipments, and, as almost prohibitive restrictions upon the admission of "States cattle" existed in countries of continental Europe, the United Kingdom, as a general rule, took all of this large proportion save 1 or 2 per cent. In 1898, owing to the shipment of large numbers of cattle to the West Indies (chiefly Cuba), and doubtless in a lesser degree to the increasing shipments to Europe from Argentina, the proportion of our total exports taken by the European trade fell to 86 per cent. In 1899, from the same causes, the proportion decreased to 79 per cent., and in 1900 it declined to 76 per cent. On the other hand, exports to the West Indies increased from less than 500 head in 1895, 1896 and 1897, to 40,462 head in 1898, 73,140 head in 1899, and 85,496 head in 1900.

The trans-Atlantic cattle trade has in a quarter of a century completely revolutionized the export cattle trade of the United States. About the time of the inception of trans-Atlantic shipments the 50,000 to 60,000 head of our surplus cattle, worth from \$1,000,000 to \$1,500,000, annually found a market in the contiguous countries to the North and South and in the West Indies. Of recent years our total annual exports have closely approximated 400,000 head, valued at from \$30,000,000 to \$37,000,000.

Upwards of 300,000 of this number have annually been transported across the Atlantic, yielding yearly returns of from \$28,000,000 to \$35,000,000. The United Kingdom, formerly entirely dependent upon continental Europe for a supply of foreign cattle, now draws that supply almost exclusively from North America.

Alfalfa or Lucerne Silage

A bulletin of the Colorado Station thus summarizes the results of tests of alfalfa as a silage crop:

Some tests were carefully made on a small scale to see what losses might be expected in making silage of alfalfa. One test was made with the alfalfa put in whole as cut in the field, the other with the alfalfa cut to quarter-inch pieces as we cut our corn for silage. The whole alfalfa showed a spoiled layer of 3 inches thick on the top and an inch layer around the side nearly all the way down. The silage of the bottom and middle was excellent and was greedily eaten by the cows and calves. Its loss in the total weight was 10.7 per cent., but its loss in feeding value was probably a little larger.

The other silo was filled with cut alfalfa. The next day the silo was covered with two thicknesses of building paper and one of boards and weighted with stone to about 55 pounds per square foot. When covered, the silage was hotter than the hand could bear. Two days later the temperature had fallen to 83 degrees F., and in two days more it had fallen to that of the air. The silage shrank and settled a good deal. When put in it contained 33 per cent. of dry matter. On opening, the silo showed 2 inches of spoiled silage on top and half an inch on the sides. The spoiled silage was 7.3 per cent. of the total weight. The loss in dry matter was approximately 10 per cent.

It is fair to presume that with a good tight silo, well made silage from cut alfalfa should not make a larger loss than was here given in our small experimental silo, or about 10 per cent. of its feeding value. To make good silage from whole alfalfa is a much harder proposition. It requires that the alfalfa be quite green; that the silo be both tight and deep; that the alfalfa be thrown into the silo in small forkfuls and carefully tramped, and that it be weighted by 4 to 6 feet of some heavy, tight packing material like cut-corn fodder. If the alfalfa is put up in the middle of summer in clear, bright weather, it must be raked and loaded as fast as cut. One lot we tried was too dry for silage two hours after it was cut.

"The Sugar Beet World."

We would again direct the attention of our readers to the second number of "The Sugar Beet World," which appears elsewhere in this issue. It will be found of interest and practical value to everyone interested in the development of the beet sugar industry in Canada. To grow beets successfully the farmer must have an intimate knowledge of the beet itself, the kind of soil it requires and the cultivation needed. Definite information on these points can be obtained through "The Sugar Beet World."

The Sugar Beet World

Devoted to Sugar Beet Culture in Canada and Allied Industries. Specially Representing the Farmers' Interests.

EDITED BY JAMES FOWLER.

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The Beet Sugar Industry in Canada.

The Dominion of Canada and the Province of Quebec gave bounties on beet sugar made from Canadian-grown beets, and several factories were started in the Province of Quebec, but the venture did not prove successful, and the bounties have now expired.

The failure of the attempts to carry on the beet sugar industry in Quebec had given a set-back to further attempts in Canada, but the great subsequent success both in the United States and Europe shows that the industry in this country was not given a trial under fair conditions. In Quebec the farmers were not properly educated to the new occupation of beet growing, and though the returns to the few who did grow the beets in a rather negligent way was very satisfactory, still the farming community as a whole was not instructed and enlightened enough by the companies in regard to the industry to make them feel confident that the new venture of growing beets would prove more remunerative than the crops which they had been accustomed to raise. The result was that the factories did not get enough beets to keep the expensive plants running. Furthermore, the industry was crippled in Quebec by lack of capital, and the machinery used was not even then of the latest design.

For several years the Dominion Government has been asked to renew the bounty. Dr. Sproule, M.P., continually brings the matter up, but no headway was made until last year, when the Government were induced to make a slight concession in the way of removing the duty upon certain machinery used in the business, but this proved of no practical benefit. At the same time the Ontario Government were importuned to grant a bounty. A great deal of interest was manifested by the farming community, and every effort put forth to get the enterprise under way, with the result that experiments in the growing of the sugar beets were carried on under the supervision of the Agricultural Department, and a commission appointed to investigate the industry in the United States during the past year. Such a favorable showing has been made that the Ontario Government, realizing the vast importance to the country, more particularly to the farming interests, have voted $\frac{1}{2}$ cent per pound bounty for a period of two years, and $\frac{1}{4}$ cent. for the third year, limited to \$75,000 in any one year, upon all granulated sugar manufactured in the province. While the grant is small, and not supplemented, as expected, by the Dominion Government, it will still be sufficient to demonstrate that the sugar

Sugar Beetlets.

Beets should follow wheat or some other cereal.

Michigan made 53,661,265 pounds of fine granulated sugars this season.

Kansas has passed a \$5,000 appropriation to encourage the cultivation of sugar beets.

Teams have been hauling sugar beets from Canada across the St. Clair River on the ice.

If you would grow beets again next year, select your ground and begin the preparation this year.

A 1,000 ton beet sugar refinery requires over five million gallons of water each twenty-four hours.

John White, a New York grower for the Binghamton, N.Y., factory will handle 200 acres this season.

Remember three things in beet-growing that are essential—cultivation, cultivation, and cultivation.

You can tell the difference between deep and shallow plowing, for beets, as far as you can see the load.

A mixture of brains, common sense and muscle in about equal parts is a good thing for the beet crop.

The sugar beet crop is the only business for the farmer that is not overdone that offers a fair field.

The Marine City company has its acreage all secured and finds difficulty in stopping with acreage enough.

If the ground for your beets is plowed and pulverized deep, there is no further necessity for deep cultivation.

The farmer who plans ahead on raising sugar beets is he who will be the more successful in the years to come.

Dairying is bound to become a factor in the future development of the sugar beet industry wherever established.

You should plant and cultivate your beets under such conditions that the

plants will never stop growing until matured.

The work upon the crop does not interfere with the farm operations, save at thinning time; the trouble then may be minimized by forehanded farmers. Some thin a little early, others wait till haying is over; but the latter practice cannot be advised.

Experience has taught that beets raised on fields freshly fertilized with stable manure are inferior for purposes of manufacture, the rule has long been established that not the beets, but the previous crop should be fertilized with this material, or that the beets should be raised in rotation as the second or even third crop.

Three hundred years ago the potato was introduced into English farming, and its cultivation was looked upon with suspicion—it was, like the best crop in many sections to-day, a new thing, and the farmer then, as now, hadn't the courage to get out of the beaten path. Our German friends, in fact, had to be forced into its cultivation by a royal decree, and the result was a revolution in the antiquated system of those days. The cultivation of the sugar beet stands ready to revolutionize agricultural systems of to-day if you will let it.

Beet roots need air as well as water, and both of these are supplied more bountifully in loose than in compact or baked soils. The water will percolate down, surrounding soil particles, and what is not used finds its way down through small openings that were made by the decay of roots from previous crops, and is deposited in a subterranean reservoir to await the dry season. When droughts prevail the water trapped by the loose surface is pumped up by capillary attraction to within reach of the roots, but here stops, the capillary tubes being too large in the surface soil to carry it further, and surface evaporation is prevented. Thus beets, if properly cultivated, may be kept fresh, green and growing throughout a severe drought.

business is of great value, and is capable of enormous development in this country.

No Bounty.

The members of the Ontario Beet Sugar Association feel very much aggrieved that a bounty was not granted this year by the Dominion Government. It was not expected that the grant from the Ontario Government would do more than start an experimental plant, and they looked for assistance from the Dominion Government to give the industry a great impetus. Already several promising propositions have been nipped in the bud, and what will eventually be the greatest industry in the province has a set back.

Bay of Quinte.

One of the most favorable locations for the establishment of a sugar factory would be at a point taking in the counties of Prince Edward, Hastings, and a portion of Northumberland.

There they have the soil, the climatic conditions are favorable, limestone and water in abundance. Coal could be laid down cheaply, and, above all, they have the farmers who know how to grow beets. Experiments made in that vicinity some years ago in growing sugar beets show a very high percentage of sugar, a high degree of purity and very large tonnage. These experiments were made when very little was known about the cultivation of sugar beets. Made under existing conditions very much better results would be obtained. The municipal, county and township councils should take active steps to demonstrate in a practical way the advantages to their locality.

Wallaceburg.

The bonus recently voted upon, and carried almost unanimously by the ratepayers of the town of Wallaceburg, to give a bonus of \$30,000 to a sugar factory, has been confirmed and legalized by the Legislature, with a few slight changes. The principal ones being, first, limiting the company to not less than \$500 per year taxes for ten years, and \$2,500 per year afterwards. Another provision in the interest of the ratepayers is, making the bonus a first lien or mortgage on the plant during first ten years of operation.

The Ottawa Government intend making a series of experiments in cultivation of sugar beets again this year. London, Mount Forest, Dunnville and Picton being the points under consideration. We would strongly advise municipalities interested in the establishment of a sugar factory in their localities to take the matter up vigorously themselves without looking to the Government for more than instructions and supervision of the different plots.

It takes more than talk to build a sugar factory. Any localities looking

for the establishment of a factory cannot set down and expect to find capitalists "tumbling over themselves" to get a chance to spend their money. You must demonstrate that you have the proper soil to grow the beets, and also the inclination and desire to grow them in great quantities, at least 5,000 acres of them, and as the farmers will not average more than 3 acres each the first year, it means 1,500 of them to supply one factory. You cannot begin the agitation too soon. It means an endless amount of labor to interest so many, and educate them to the point of signing contracts to grow beets. If you are at all interested in the industry you can learn all that is going on throughout the entire world by subscribing for THE FARMING WORLD and reading their sugar beet news.

Sugar Beets in Ontario.

"I think a proper encouragement of the beet sugar industry would yield a large profit to the farmers, and give employment to our own people. The average profit on an acre of beets is \$40, which is more than the average profit on wheat, oats or barley. It will make us self-sustaining so far as the consumption of sugar is concerned. We find the soil grows beets a good deal above the average of beets in the States of the Union, and better than the average in Germany, where the industry has prospered so well."—*Hon. G. W. Ross.*

Development of the Beet Sugar Industry in the U.S.

In 1830 efforts were made to produce beet sugar near Philadelphia. In 1838 a crude attempt was made by D. L. Child at Northampton, Mass. In 1863 Gennert Bros. from Germany established a factory at Chalsworth, Ill. After several unsuccessful attempts this factory was removed to Freeport, Ill. Later it was moved to Black Hawk, Wis., and the machinery was afterwards removed to California. In 1870 the Alvarado plant was established. This plant is still in operation.

In 1871 Bonestead & Otto erected a small factory at Fond du Lac, Wis. The machinery finally reached California.

In the late '70's factories were established at Portland, Me., Franklin, Mass., one in New Jersey and another in Delaware.

In 1873 one was established at Sacramento, Cal., one at Isleton, Cal., in 1874, and one at Los Angeles in 1878.

All of these early attempts, with the single exception of the factory at Alvarado, failed for very many reasons, chief among which were that the factories could not, without Government aid, offer large enough prices to induce the farmers to grow beets, and that the sugar content in the then known varieties of beets was not large enough.

Prior to 1888 only one factory was

in successful operation, viz., the one at Alvarado, Cal.

In 1888 another factory was established at Watsonville, Cal. Prior to 1890 only two factories were in operation, but the McKinley tariff bounty of that year gave a great stimulus to the industry and the experience, and the experiments of the Alvarado factory had greatly improved the variety of beets, and had taught the growers how to cultivate them, and had led to the introduction of new and improved methods of manufacture. Then came in quick succession the four factories at Grand Island, Neb., established in 1890, and the factories at Lehi, Utah, at Norfolk, Neb., and at Chino, Cal., all started in 1891.

In 1897 three more factories came into existence. In that year the Los Alamites, Cal., factory began operations; and owing to the State bounties having been offered factories were established at Rome, N.Y., and Eddy, N.H.

The Rome factory was transferred from Farnham, Que., and the Eddy factory from Berthier, Que., and though antiquated the latter is to day in successful operation, while the former has been destroyed by fire.

In the meantime the Department of Agriculture at Washington had been making most careful observations and tests regarding the wisdom of cultivating the sugar beet. The result was that the industry was shown to be an assured success. The varieties of beets have been improved, and the methods of cultivation having become better, the farmers found that beets were the most profitable crop they could grow.

In 1898, then, came an immense stride. In that year we find nine new factories established, all of them in States in which factories have been or are assisted by Government bounties. The new factories are situated at Binghamton, N.Y.; La Grande, Oregon; Bay City, Mich.; St. Louis Park, Minn.; Ogden, Utah; Crockett, Cal.; Salinas, Cal.; Oxnard, Cal.; and Santa Maria, Cal.

For the campaign of 1899 twelve factories were built, according to a list given in the *Sugar Beet Gazette*, eight of them in Michigan, one in Washington, one in Nebraska, one in Illinois, and one in Colorado. All of these factories are now in successful operation.

For the campaign of 1900 several new factories were built, and some of the older ones largely increased their capacity.

For the campaign of 1901 new factories are under construction and many improvements going on, even at this early date.

From the foregoing we see that before the beet sugar industry was firmly established in the United States there were very many abortive attempts to operate factories and very great loss of money; and that it was not until the bounty system was adopted that the industry got a start. Since 1890, the industry has steadily progressed. During the past three years the develop-

ment has been phenomenal, and today the beet sugar industry is far past the experimental stage, being one of the most extensive and profitable sources of wealth in the United States.

The Government of the United States has done a great deal for the industry by expending large sums of money in experiments and research. Reports based on these experiments have from time to time been issued, and later ones of which conclusively show that the growing of beets and the manufacture of them into sugar is destined to be even a greater success in the United States than in Europe. Such reports have enlightened and given confidence to the growers, and thus removed any difficulty which the factories might have in getting their supplies of raw material.

Furthermore, the fact that of the thirty-one factories at present operating in the United States, twenty-eight are in States in which Government aid has at some time or other been given, shows that the granting of a bounty for the first few years of a factory's existence is a most sure way of establishing the industry.

The Proper Soil for Growing Beets.

It may be said in general that any soil that will produce a good crop of wheat, corn or vegetables will, under proper cultivation, produce a good crop of sugar beets. The best soil may be described as a deep, fertile, sandy loam that will not break or become hard during the growing season, and has good drainage. Clay loam and gravelly loam also produce good results. The least favorable soil is the heavy clay. It is difficult to cultivate and packs hard under the influence of the rain and sun.

Soils which have never produced beets may grow them for years in succession without harm, after which proper rotation is necessary.

A good system of rotation after beets is first corn or some cereal crop, then potatoes, followed by beets again. The nature of the sugar beet is to grow deep, and with proper cultivation and soil it will bury itself entirely under ground, with the exception of a small leaf crown. Hence, the reason for deeply worked soils, which allow the beet to develop to a good size without crowding itself out of the ground. By this means a beet is obtained with few rootlets, of good shape, penetrating the earth deeply without resistance, and producing a large product both in sugar and tonnage. Intelligence in cultivating the soil, and a thorough knowledge of that soil, is necessary to obtain the best results.

Pulp Feeding.

Statistics show clearly that the Province of Ontario is admirably adapted to the growth of sugar beets, and that the farmer cannot possibly get as great a direct return in money from

any other crop as from sugar beets sold to a sugar factory.

The only benefit, however, to the farmer is by no means the price which he receives at the factory for his produce. When the beets have been delivered and the sugar extracted, the pulp which remains is a most valuable article for the farmer who raises cattle of any kind.

That beet pulp is one of the best of cattle foods has been clearly demonstrated by the experience of hundreds of cattle raisers in the United States. In his report for 1899, Mr. Saylor, special agent of the United States Department of Agriculture, after giving many instances of most successful trials of pulp feeding, goes on to say: "I am convinced that this question of pulp feeding cannot be too carefully considered by the farmers of this country when they are weighing the facts and the benefits which will accrue to themselves by establishing the beet sugar industry. As a crop it is so much more profitable and surer than almost any other field crop. But I am not at all sure that the secondary benefits that follow the establishment of a factory in a farmer's locality are not really as beneficial to him as the main crop itself. I refer to the opportunity he has for feeding pulp, one of the cheapest and most nutritious stock foods that can enter into the daily ration of any animal fed for almost any purpose. The same is true of sugar beets which are raised purely for stock food. The only difference is that pulp, after the sugar is taken out, is about as nutritious as the original beet with its sugar content, and of course it is more economical for the farmer to raise beets, sell the sugar out of them, and retain the pulp for feed. Some wonderful results are being shown in this country now as to the value of pulp for feeding lambs, fattening hogs and cattle, and feeding the dairy cow. A ton of pulp can be secured at these factories for from 35 cents to \$1; and where it is that the farmer can buy a ton of other really nutritious stock food for \$1."

Parties from Montana have been investigating the pulp output in New York, and are considering the matter of bringing 50,000 head of sheep and lambs east and fattening them on this pulp, having in view the fact that they will be nearer the ready market when the feeding is completed.

At Lehi, Utah, a large dairy owned by independent capital is run in connection with the factory. They are also feeding over 700 head of cattle. At Eddy, the factory is fattening 1,100 head of lambs, which gained ten pounds each in twenty-one days. They intend to prepare these lambs for market entirely on a ration of Alfalfa and pulp.

Wonderful results are also reported from California.

From New York, where the purest of milk is required, as in some hospitals the milk from cows fed on the refuse material from breweries and distilleries was refused, while the milk from cows

fed on beet pulp was found to be superior.

Mr. Saylor says of this industry in New York: "I predict that the feeding industry, the dairy industry and the beet sugar industry will go hand in hand in that State in increasing its already wonderful resources as a commonwealth."

At another place Mr. Saylor says: "A great many things that are beneficial to the farmer follow in the wake of every factory. It affords the very best opportunities to the creamery industry and to stock feeding of all kinds in its supply of pulp which results from the extraction of the sugar from the beets. This is one of the most desirable of stock foods, can be obtained cheaply from the factory and is easily stored and kept."

Of Benefit to Agriculture.

In the establishment of the beet sugar industry, the farmer is the one most permanently benefited. Their farms will be enhanced in value, they will receive more for their labor, and a fixed value will be placed on their crops. There is no danger of overstocking the market; every farmer should encourage the industry.

No Danger of Too Many Factories.

It is difficult to realize the immense field of agricultural developments made possible in this country by the cultivation of sugar beets and the manufacture of sugar. One unacquainted with the facts would naturally suppose that Michigan, which stands at the head of sugar-producing states, with its fifteen refineries, would be able to supply a large part of the sugar used in the northern markets; but, on the contrary; it will require at least twenty more factories, such as they now have, to furnish a supply sufficient to meet the demands of that State alone. Think of it, about thirty-five sugar refineries are required to supply one State.—*Sugar City Herald.*

Beets vs. Beans.

W. P. Daily during the last season put in 55 acres to beets. The yield was 1,126 tons of beets net, for which he received \$5,484.19 at the factory. He planted 90 acres to beans, the yield from which was 1,124 sacks weighing 89,920 pounds, for which he received \$4,496. In this case the gross returns of 55 acres of beets was nearly \$1,000 in excess of 90 acres—nearly double the acreage—of beans.

Correspondence Invited.

You are invited to correspond with the undersigned regarding any and all matters connected with the growing of sugar beets and the beet sugar industry.

JAMES FOWLER.
c/o FARMING WORLD,
Toronto, Ont.

Soiling Crops and the Soiling System

What Practical Men Have to Say on This Important Question

A few weeks ago we submitted the following list of questions to a number of farmers who have made more or less of a specialty of the soiling system and of soiling crops:

1. To what extent have you used the soiling system?
2. Have you found it of advantage?
3. What crops are best adapted to this system?
4. What is your practice in regard to preparing the land and sowing crops for soiling purposes?
5. Have you had any experience with the summer silo?
6. To what extent should the average farmer adopt the soiling system?

We have received a number of replies to these questions, some of which we publish below. Readers will find them well worth careful study. They are the experiences of men who have given this whole question close attention and have put the soiling system into practice on their own farms. In later issues we will publish the experiences of others who have replied, and who will reply, to our questions. We would also be very glad to hear from any of our readers who have had any experience along this line, or who have any views to offer in regard to it. The following are several of the replies already received:

ROBERT TWISS, WOODBURN, ONT.

1. I have used it for several years in the dry season.
2. I have certainly found it a great advantage, and could not do without it.
3. Two bushels of oats, one bushel peas and four pounds millet seed per acre.
4. In the fall I plough sod and in early spring I sow, and at intervals of two weeks after, so that it will not be all one age. I feed it to my cows in the stable. What they cannot eat I cure and store for winter. I find it better feed than hay, and I get from two to three tons per acre.
5. I have not.
6. I consider every farmer who keeps a cow should provide for her some kind of green food during the months of July, August and part of September.

THOMAS MASON, STRAFFORDVILLE, ONT.

1. We have for the last twenty years followed a system of partial soiling, using the pastures and then at night feeding green crops in their season with other foods such as bran, pea meal, cotton seed meal, ground oats, using whichever would be cheapest.
2. Decidedly, yes, impossible to get along without it these dry years.
3. A mixture of peas and oats for early summer feeding; then very early varieties of flint corn followed later by Stowell's evergreen or some other canning variety.

4. We usually sow peas and oats on land that has been well manured the previous year, and has been in corn. Our fodder corn crops are in the same field with our regular corn crops and receive the same cultivation.

5. Have not a summer silo yet, but have been feeding ensilage from Oct. 1 to latter part of May; will put in one for summer use this year. Am satisfied that the silage is the cheapest and most satisfactory way of supplementing summer pastures. I have been holding back because I was in doubt as to the effect of ensilage on our grass cheese and butter. I am satisfied now that it is safe to use it in summer.

6. It's a question of land and labor, with high priced land in the neighborhood of cities, and in the Niagara fruit belt I think it would be well to soil exclusively, but with cheaper land partial soiling would be more profitable. Labor is too expensive for ordinary Ontario conditions to soil exclusively.

R. S. STEVENSON, ANCASTER, ONT.

In reply to your enquiry about my experience in soiling I may say I have followed a partial system of soiling and pasturage for a number of years in the feeding of my cows. As a matter of fact we never rely on having more than a month or six weeks of pasture, that is, good enough to keep cows up to a paying flow of milk, and we plan to sow some crop for soiling just as regularly as we sow our other spring crops.

I have found that a mixture of peas and oats sown very early on a piece of well-prepared ground is the best for the earliest crop for soiling. This crop will be ready about July 1st. This should be followed by a second sowing about two weeks later. In the place of this, a plot of lucerne will answer, but it will get beyond the best stage for feeding in a short time; it is a splendid thing while it lasts.

As soon as the ground is warm enough for corn, we plant a good acreage of the Stowell's evergreen, this variety is far ahead of any other I have ever tried for soiling, the cattle eat it up clean no matter how large the stalks are.

We always manure our land for a soiling crop, and get it in first-class shape, and sow three bushels per acre of peas and oats, and for corn we plant in drills about twelve quarts per acre.

I have not had any experience with the summer silo, but I intend to build one at an early date.

It is useless for farmers in this part of Ontario to rely on pasture alone for their cattle, as the drouths seem to come with unerring certainty every summer, and in any case a soiling crop, if not required, can always be saved for winter fodder, so I think

from every point of view it pays to sow soiling crops.

A. C. HALLMAN, NEW DUNDEE, ONT.

In reply to your questions in regard to "Soiling Crops" I shall most cheerfully give you my experience along that line. The subject is a timely one, every farmer and stockman, and especially the dairyman, will, during certain periods of the summer, have to face the perplexing problem, of supplying some substitute for pasture, or else suffer severe loss during the hot dry spells in summer that this country is so much subjected to of late years.

I have practiced the soiling system more or less the last twelve years, but only to such an extent that I deemed it necessary to bridge me over a dry spell in connection with pasture, with the exception of one year. That year I had no prospect of pasture, my meadows and fresh seeding were all burnt up, and I had no other resort, but to dispose of the stock or provide them with soiling crop. I chose the latter. I carried the stock from spring until after harvest on green food hauled to the stable.

I never kept cattle as cheaply before, nor since. One acre of ground in soiling crop is equal to three in pasture with proper rotation.

I consider it of great advantage. It means more work, but well paid, I would have never abandoned it, but had a lot of new ground which was best suited for pasture.

3. Alfalfa (or lucerne) comes first, and will form part of the ration all summer if cut at right intervals,—there is nothing better, red clover and winter rye, for early cutting, oats and peas or vetches, two parts of oats to one of peas, white hullless barley, oats and peas, sown at intervals of a week apart, sown twice as thick as for ordinary seeding, fodder corn, none better than Stowell's Evergreen Sweet; cultivate same as for ensilage. Rape in drills, for young cattle, dry sows, or a stock bull and hogs. White turnips in the autumn. Have used all the above crops with good results.

4. Have no particular method, of preparing land beyond what is required in good farming. The soil must be kept clean from weeds. Moist by frequent shallow cultivation, until crops are sown and after, if a hoe crop. The land should be rich in humus. If manure is applied, it should be done the previous year for the early crop. Latter part of No. 4 answered in No. 3.

5. This is the most important and practical subject of all. You will pardon me if I enlarge considerably on this very important question. The word "silo" or "ensilage" has a significance far beyond the grasp of a man that has had no experience with it. Nobody can fully comprehend the

value of it but those who have made practical use of good silage. I wish I could sound this in every farmer's ear and so impress it, that no farmer can attain to the highest success in cheap and successful stock-raising without an abundance of good ensilage. I believe it is just as useful for feeding export cattle as for the dairy cow, and it is especially good for the former and young stock. Now, in coming to my subject, the "Summer Silo," I am sorry to say my experience with the summer silo has been too limited for my own benefit. I have, the last three years, had silage for part of the summer, and the only fault I could find with it was that it did not last all summer. I expect to have enough this year to last the most of the summer. With my experience I feel free to say that no dairyman should attempt to be without a summer silo. It is the cheapest, most convenient succulent food that a farmer can provide for a dry spell.

6 This depends on circumstances—the size of the farm, the amount of rough, new, wet or meadow land, and the number of cattle kept, and also whether the man practices a system of catch crops in his rotation (which is a subject I shall not deal with now). It is wisdom, however, for every farmer who raises stock to provide in some way for a dry spell. An acre of oats and peas (two bushels of oats and one of peas), sowed a week or two apart, will go a long way in bridging over a gap, and if the feed is not needed at the time, if well cured, will make excellent winter food. In conclusion I wish to impress the importance of making some provision in some way, without relying entirely on pasture. The time of the year is here to lay our plans for the arrangements of our crops, and I can with all confidence recommend any of the above systems, so rudely outlined, and especially the "summer silo."

T. G. RAYNOR, ROSEHALL, ONT.

That soiling, practiced wholly or in part, is a valuable way to feed stock, goes without saying. In reply to certain questions you have asked me on this subject, I would say that:

1 I have practiced a partial system of soiling. I have grown some green foods to supplement the dry pastures to feed dairy cows and to a less extent to working horses.

2 I have found it a decided advantage. In fact, it would be impossible to keep up anything like a paying flow of milk without green food to help out when the pasture is short and dry.

3 I believe in a continuous supply of green food to be supplied to stock by commencing with fall rye, follow that with lucerne, then clover, peas and oats, millet grass, corn, pumpkins and roots. Better than all these for summer feeding would be ensilage, balanced up with a little grain ration.

What I am most familiar with is a mixture of peas and oats, sown in the proportions of 1 part peas to 2 parts

oats; and about 3 bushels of the mixture to the acre. This crop, sown at two or three different times in the spring, will last pretty well through July, and sometimes into August. I have tried oats and barley mixed, which is also good, but not so good as the peas and oats. I believe that tares and oats would be similar to peas and oats. A mixture of peas and oats approach a balanced ration, and their highest feeding value is obtained when nicely headed out and in the milk stage. This combination, if cured, makes a first-class fodder for winter feeding as well.

I have grown a good deal of corn, both sweet and ensilage, for soiling. For early fall feeding I prefer sweet corn, but the ensilage corn and all the varieties give good satisfaction. I grow it in hills four feet apart each way for the most part. What I sow I sow in drills north and south, with a drill about three feet apart and so it will grow ears. I get the best results from feeding corn when the ears have reached the milk stage and on up to maturity. Its feeding value is enhanced when it is balanced up by the use of bran and chopped oats fed with it.

I find pumpkins good for the production of both milk and pork. I grow them with the corn. Greystone turnips also give good satisfaction when fed in limited quantities and after milking. I do not advise the growing of turnips for milk production, as the products are unfavorably influenced.

I have also grown some millet hay but this crop has not done well with me. It makes very good feed. It is deficient in protein, like timothy hay.

Lucerne is undoubtedly a first-class soiling crop, where it can be grown successfully. As yet I have not been able to get it to live over the second winter. It is excellent feed, and will give three cuttings in good seasons.

4 In preparing the ground for soiling crops I like to get it in a good state of cultivation and rich in available plant food. I aim to get a large growth per acre. I like the ground to be fall ploughed and well worked up, if possible, by earlier cultivation. Manure is applied and worked in the surface soil and a liberal supply of it. Then with a good fine seed bed and proper cultivation I am pretty sure of a good crop.

5 A very good way to grow peas and oats is to plow under the peas four or five days before the oats are sown with a gang plow and lightly. They seem to come on better together that way.

5 I have had no experience with the summer silo, I am sorry to say. I believe that ensilage fed in the summer which is balanced by adding such meals as bran and chopped oats is the most economical and satisfactory method of soiling.

6 I think the average farmer should adopt a partial system of soiling, using such of the crops as I have mentioned above that he can do best with for supplementing dry pasturages

and those crops which will not impart bad flavors to milk and its products. I believe that more should be done in this way by our farmers where intensive farming is aimed at, and I am very glad you are taking up this subject and urging it upon our farmers. I believe that the milk flow in the late summer and fall months could almost be doubled on many farms, if soiling were generally practised. I am also satisfied that pork could be produced much more cheaply in summer if the growing pigs were allowed to pasture on such crops as lucerne, peas, or rape up to about 125 lbs. weight. The question of time to do this kind of work when labor is scarce is one reason why it is not more generally practised. I am satisfied it pays to take the time, and I intend to increase the practice rather than diminish it.

Terms Used in Discussing Foods.

Farmers' Bulletin No. 103, United States Department of Agriculture, contains the following definition of terms used in discussing foods and feeding stuffs, which will aid many farmers and dairymen in studying the value of different rations:

Water is contained in all foods and feeding stuffs. The amount varies from 8 to 15 pounds per 100 pounds of such dry materials as hay, straw or grain, to 80 pounds in silage and 90 pounds in some roots.

Dry matter is the portion remaining after removing or excluding the water.

Ash is what is left when the combustible part of a feeding stuff is burned away. It consists chiefly of lime, magnesia, potash, soda, iron, chlorine and carbonic, sulphuric and phosphoric acids, and is used largely in making bones. Part of the ash constituents of the food is stored up in the animal's body; the rest is voided in the urine and manure.

Protein (nitrogenous matter) is the name of a group of substances containing nitrogen. Protein furnishes the materials for the lean flesh, blood, skin, muscles, tendons, nerves, hair, horns, wool, casein of milk, albumen of eggs, etc., and is one of the most important constituents of feeding stuffs.

Gluten is the name given to one of the most important of the nitrogenous substances classed together under the general term "protein." "Wheat gum," obtained by carefully chewing wheat, is a familiar example. It is the gluten of flour that gives consistency to dough.

Man's a little chunk of ice—
Woman is the sun—she lets
Herself beam on him—ah, how nice
And soft he gets!
—Chicago Times-Herald.

Who says I cannot meet my bills?
Of libels that's the worst!
Why, sirs, I meet them every day—
Unless I see them first.
—Philadelphia Press.

The Making of Good Butter*

It is with a great degree of pleasure that we look upon the growth of our butter exports the last few years, and especially when we consider that this growth is due to improved quality.

Butter-making, from the standpoint of the dairy farmer, whether it be in the creamery, or at home, is surely a business of rare chances. There is no business whereby the farmer can make as much money with so little fertility taken from the soil, as in butter-making. It has been said that butter comes from the air and sunshine; and just think how plentiful they are, and how little they cost.

One great point of economy is that all butter should be made uniform and good. It costs just as much to make poor butter as good. Canadian dairymen should climb to the top in the quality of their butter, and then in a larger measure than ever they could send out their sunshine and their skill, in exchange for English sovereigns. This would keep them out of competition with cheap labor in eastern countries in grain production. Shipping only concentrated food would save paying freight on the carrying away of land fertility.

The real food value of butter is not much more than tallow, which can be bought for three cents per pound, and is only more valuable because of its more agreeable taste and its softness, which makes it especially suited for spreading on bread, etc., hence we see the great importance of flavor which has the greatest influence on the market value of butter.

Butter is more complicated in its chemical composition than other fats; having a combination of about fifteen different fats; thus it is easy to detect fraud in false butter.

The two most important points to be observed in butter-making are cleanliness and proper temperatures. To make the score run high, the first requisite is the very best of raw material. That means milk from good, healthy cows, which have been fed wholesome, good-flavored food, and which have had only pure water to drink. Even yet this milk may deteriorate in flavor by filth falling into it, by absorption, or by bacterial development, which may produce injurious flavors. Hence we see the necessity of cleanliness in milk production. Brush the side and udder of the cow in order to prevent filth from falling into the milk pail. Milk with clean, dry hands, and remove as soon as possible to a place where the atmosphere is pure, and have it immediately strained.

Cream may be taken from milk by three methods, viz., shallow pan set-

* Paper by J. W. Newman, Brockville, Ont., and awarded first prize at the annual convention of the Dairymen's Association, of Eastern Ontario, held at Smith's Falls in January, 1901. The prizes for this essay competition were donated by the Windsor Salt Co., Windsor, Ont.

ting, deep setting with ice, and by the use of a centrifugal cream separator.

The centrifugal method, however, is now the only method used in creamery work, and even in most good dairies. There are many different makes, but the same principle is involved in all, though each manufacturer claims some particular points of merit.

Any separator should be placed on a solid foundation and levelled. If a belt separator, intermediate should be set in line with drive shaft, and far enough away from separator to insure proper distance from endless belt. The right hand perpendicular face of intermediate pulley should be in line with right hand side of spindle pulley. The intermediate should turn away from separator, and thereby carry part of the weight of the bowl, which lessens friction on the lower bearing. The lower side of intermediate pulley should be level with the centre of spindle pulley, if round belt is used, but if flat belt, one-half inch above the centre.

The best way to start a belt separator is to start with engine and increase slowly together.

Milk fresh and warm as it comes from the cow, is in the best condition for separation. If it can't be separated, then it is best to aerate and cool to 60 degrees. When ready to separate, heat the milk again above 90 degrees by some continuous heater, that will hold sufficient milk to keep separator going, at least five minutes. Butterfat is not a good conductor of heat, not equal to milk serum, therefore sufficient time for expansion of the fat should be allowed before milk is fed into separator.

Milk is heated to reduce its viscosity. This increases the capacity of the separator, or insures more exhaustive separation.

Unfavorable conditions for cream separation are: (a) Speed below that which the separator is calculated to run; (b) feeding separator to its capacity, or over, when speed is too low; (c) milk below a temperature of 84 degrees when being separated; (d) making very heavy cream by adjustment; (e) vibrating, swaying or unsteady running of the bowl. Reversing these conditions, of course, will cause the most favorable conditions for thorough separation. Every butter-maker should see that his separator runs smoothly, and with regular speed, and that, as near as possible, to the speed intended for that particular machine, which is usually stamped on the bowl. It is not wise to run any separator much faster, owing to the danger of injuring the bearings or bursting the bowl.

Adjust so as to make from 25 to 30 per cent. fat in cream. It is advantageous to make thick cream, as there will be less volume of cream to handle, therefore requiring less ice. The

churning also, can be done in less time and at a lower temperature. This will make firmer butter and more exhaustive churning.

As soon as separating is completed, the separator should be thoroughly washed, getting every particle out of the crevices, and then have it thoroughly blown out with live steam, so that all parts coming in contact with milk or cream will be perfectly sterile. The heat absorbed by the bowl will then cause all dampness to evaporate, thus leaving all parts dry and free from danger of rusting.

Immediately after separating, the cream should be cooled down to about 70 degrees.

Always have ready a good pasteurized skim milk starter to put into cream when the separator commences, to begin the desired fermentation, and to overcome the evil effects of any injurious forms of bacteria, that may have been in the milk. Cream is ripened to improve the yield, flavor and keeping quality of the butter. A good starter is a boon to successful butter making. It hastens the development of lactic acid, allows the cream to be ripened at a lower temperature, and, to a great extent, controls the flavor of the butter. It is important that the starter has a good flavor.

There are very kindly sent out and upon easy terms, from the Bacteriological Laboratory at Guelph, pure cultures for the making of starters for butter making. This should be added to a quantity of pasteurized skim milk, to which has first been added about 15 per cent. pure water. (All cans, dippers, etc., used therewith should have been perfectly sterile.) Keep covered and undisturbed at a temperature of about 75 to 80 degrees until time to use. Skim off the first two inches from the top and thoroughly break up by pouring from one can to another, strain before adding to the cream. If this starter is in good condition, a portion may be used to start the next day's starter, and so on from day to day, until it becomes contaminated.

Should the starter go wrong from any cause, a fresh one may be started from the buttermilk of a lot of cream that was ripened in good condition, and that produced good flavored butter.

The quantity of starter used must be governed by the ripeness of milk, the time allowed for the cream to ripen, and the temperature at which it is ripened. As soon as the cream commences to thicken (which should be in about four hours after adding the starter), be ready to cool quickly to at least 55 degrees temperature, before leaving it for night, and then the churning is ready any time in the morning.

Sufficient lactic acid should be developed in the cream to cause coagu-

lation at least six or eight hours before churning.

Always stir the cream frequently while ripening, to insure uniformity. Properly ripened cream will have a smooth, glossy appearance. It will pour like thick molasses, and have a pleasant acid taste and smell. With the alkaline test it will show from .45 to .7 per cent. lactic acid, according to its density or per cent. of butter-fat.

In December, nearly all the milk or cream for butter making is pasteurized, and in fact that process is rapidly gaining favor in Canada, especially at certain seasons. This, with the use of a good starter, gives the maker full control of the cream ripening, as it leaves, as it were, clean soil to grow the desirable bacterial forms.

CHURNING.

Prepare the churn by scolding, followed by a liberal amount of cold water to cool it. The cream should be colored so that the butter will suit whatever market it is prepared for. The cream should be at its proper churning temperature at least two hours before the churning is commenced. This will secure a firmer body and a better texture in the butter.

Churning temperature will vary according to the season, the time the cows have been in lactation, and the per cent. of butter fat in cream. It should always be arranged to have some cows fresh in milk at every season.

Other things being normal and the cream having from 25 to 28 per cent. fat, churning should be done at 53 to 55 degrees in winter, and 48 to 52 degrees in summer.

Slow churning is caused by: (a) Too thin cream; make richer cream. (b) Churn too full; one-third full is sufficient. (c) Temperature too low. (d) Cream not sufficiently ripened. (e) Churn running too fast, or too slow. (f) Putting in too much cold water too soon after the butter begins to break. If the butter forms into small round, smooth granules and does not seem at all inclined to gather, draw off a portion of the buttermilk. Taking the right amount will cause the butter to gather as desired. Sufficient water at churning temperature, or slightly below, should be added to every churning to prevent it breaking too quickly and gathering in large lumps before the cream is thoroughly churned. If this added water makes the gathering too slow, draw off buttermilk as described above.

Churning should be done in 30 to 40 minutes. Run churn from 50 to 60 revolutions per minute, according to diameter. The granules should be a size larger than plump wheat grains, and if the first buttermilk drawn shows little particles of butter, continue churning a few more rounds.

WASHING THE BUTTER AND SALTING.

After the buttermilk has thoroughly

drained off, wash the butter in a liberal amount (nearly equal to the volume of cream) of water, at a temperature just a shade below churning. If a second washing is necessary, less water will be required. By using water colder than the butter, it will prevent the particles adhering to each other while the salt is added and thoroughly mixed throughout the granular mass while in the churn. Let the butter remain in the churn, or place in boxes or tubs, for three or four hours where the temperature is low. Salting this way requires less working to make an unmottled butter, and improves the texture and grain. A little extra salt should be used. Use only some especially prepared butter salt, which has been kept clean and free from offensive odors. The amount of salt to use will depend on the market. Canadian markets require from $\frac{3}{4}$ to 1 oz. per lb. of butter, while British markets require only from $\frac{1}{2}$ oz. down to salt-less butter.

Care should be taken while handling or working the butter not to injure the grain by overworking or working while too warm or too cold, or allowing any spade, etc., to draw or slide over the butter. Salt should be distributed evenly and butter worked sufficiently to give it an even color.

PACKING.

For the Canadian markets the majority of grocers prefer one-pound prints, as they can be handled without loss in cutting, and therefore they can pay a higher price for them. The parchment paper should be of good quality, having the name of dairy or creamery neatly printed on, and tastefully arranged. At certain seasons there is quite a demand for small-sized tubs. For export, however, the 56 lb. box is the leader. It should be coated with paraffin wax inside and then lined with parchment paper. Soak the paper a while in brine and a solution of formalin to prevent mold.

Pack the butter well in the centre of the box first, to drive out the air, and then pack well in the corners, and as firm as possible all the way up, not putting too much in the box between the times of packing. Try to pack the butter so that when it is turned out of the box it will look close and solid. Put one pound extra into box to insure the weight holding out. Butter should be shipped regularly and very soon after being made. Use plenty of ice, and if possible keep below freezing point until on the consumer's table.

Be careful and particular in the details of the business, and the business will prove a successful one.

Milking Methods.

Generally speaking men have adopted one or two methods by which to milk a cow: (1) the wet stripping method, (2) the dry squeezing method.

In the wet stripping method the milker first wets the teat by squirting a little milk in the hand and then

wetting the teat. Then the teat is grasped between the thumb and first finger and the hand forcibly drawn downward the full length of the teat, squirting the milk out. In order to stand this kind of work continually the teat should be made out of India-rubber. Even then any slight sore or scratch would be torn open every time the operation of milking was repeated, the cow would lose in her output of milk and in many cases develop into a kicker.

The dry squeezing method is immeasurably the superior way. In it the operator grasps the teat and squeezes it only, without any pulling whatever. There is no perceptible movement of the arms, and the flow of milk is steady. The superiority of this method lies in the fact that it deals gently with the teat, no old sores are torn open, nor any new ones formed. The cow is not made nervous and excitable, thereby decreasing the quantity of butter fat in her milk—for there is no fact more easy of demonstration than that any undue excitement at milking time will cause a falling off in quality of milk.

The two main points to be considered in a milker are gentleness and quickness. Of these two methods quickness comes first, for a quick milker is seldom a rough one. A quick milker will milk ten cows an hour; a fair one eight. Experiments have shown that a decline of 12 per cent can be effected by slow milking.—*Farmer and Stockman.*

Sugar Beet Pulp as a Food for Cows.

Cornell Station Bulletin 183.

Sugar beet pulp has been fed to cows at the station for two seasons. The pulp contained from 91 to 93 per cent. of water, while average silage contains about 79 per cent. of water. Of the results the authors say:

"The cows, as a rule, ate beet pulp readily, and consumed from 50 to 100 pounds per day, according to size, in addition to the usual feed of 8 lbs. grain and 6 to 12 lbs. hay. The dry matter in beet pulp proved to be of equal value, pound for pound, with the dry matter in corn silage. The milk-producing value of beet pulp as it comes from the beet sugar factory is about one-half that of corn silage. Beet pulp is especially valuable as a succulent food, and when no other such food is obtainable it may prove of greater comparative value than is given above."

Miles—"I want to purchase a thoroughbred cow, but I don't know how to look up the pedigree."

Giles—"Why don't you look in a cattle-log?"—*Chicago News.*

"Do people ever have corns anywhere except on their feet?"

"Why, yes, farmers have corn in the ear, corn in the crib, and the Board of Trade has corn on paper."

Three Standard Breeds of Geese

By Samuel Cushman, Pawtucket, R.I.

No branch of poultry culture pays better if intelligently followed, than breeding geese. They require, even in winter, but little expenditure for shelter, and may be pastured like cows. A goose, well managed, pays better in proportion to the investment, than a good cow. They are not, however, suited to a back lot in town, but do well on the low lands and irrigated farms of the Southwest.

Are Geese Profitable?—To make geese profitable, as many goslings as possible should be secured, by keeping the goose laying and hatching the eggs under hens. The goslings should be grown as quickly as possible, and, like Pekin ducks, marketed when green and quite young. They should be sold during the fall and early winter, when they command the most. In order to get the largest number of goslings, prolific layers must be kept, as well as active ganders, to insure a high percentage of fertile eggs. Quick growing stock is also necessary. To get the highest price in market the goslings should be white in plumage, and have yellow bills and legs, as these make the best appearance. To get good size the large breeds should be used.

Breeds of Geese.—Toulouse or gray geese are the most common of the pure breeds, and lay the largest number of eggs, but they are slow growers, and not having white plumage, being loose skinned and dark, do not sell so well dressed. The ganders are also slow and sluggish (like Cochon fowl), and the per cent. of fertile eggs is often very low.

Emden or Bremen geese grow quicker, and being white and having orange bills and legs, look the best when dressed, and the goslings sell at highest price of any pure breed. The Emden, however, is a poor layer; a goose laying no more than half the number produced by the Toulouse. They (unlike the almost non-sitting Toulouse) are persistent sitters and good mothers, and it is harder to keep them laying, and the number of goslings secured is, therefore, comparatively small.

Good Africans are as large as the best Emdens, or Toulouse geese, grow faster and larger than either up to the time goslings should be marketed. They also lay the largest eggs, and almost equal the Toulouse in number produced. They are good sitters, and therefore will not lay as steadily. It takes a few days to break them up after each sitting is laid. The African ganders (like Leghorn males) are the most active and attentive ganders of any of the large breeds. They may be given four times as many geese as the Toulouse ganders, and twice or three times as the Emden males, and rarely fail to insure highly fertile eggs. The only drawback of this most valuable and important breed is its dark

bill and skin, and the fact that it is harder than the others to pick. When dressed the white goslings lead it in price. A greater number of large goslings will usually be secured from pure Africans than from Emdens or Toulouse mated straight.

Crossing the Breeds for Best Results.—By mating an Emden gander with African geese he will be more attentive than with either Emden or Toulouse geese, thus insuring a high per cent. of fertile eggs, while a majority of the goslings raised will come white in plumage, and with yellow bills and legs. An African gander mated with Emden geese will insure more fertile eggs than if an Emden gander is used, and many of the goslings will be of the desired color for market. An Emden gander mated with Toulouse geese, while not so sure to give a high per cent. of fertile eggs as the African, will usually insure excellent results, a large number of goslings, most of which will be light or white. For Christmas geese this is the most desirable cross, and gives the largest light-colored goslings. The Toulouse gander in this sort of crossing has no place, and can be dispensed with.

Failing to secure African ganders of the right sort, Brown China or African-Brown China cross ganders may be used with about as good results. They are still more active than Africans, but are smaller, not so hardy to stand cold winters, and their goslings partake of their nervous, excitable nature, and do not take on flesh, or fatten, as readily. However, where size of goslings is of little importance, or where a medium-sized bird is desired and especially where no preference is shown whether goslings dress white or dark, or whether the bills or legs are yellow or dark, the brown Chinas, bred pure, will be the most profitable of all breeds. In this case their sharp, discordant, rasping voice, will be the only drawback, but a constant thorn in the flesh of those in their vicinity.

Securing the Stock.—Whether geese are crossed or bred pure, the right sort of pure-bred geese must be secured. They can be bought cheaper in mid-summer in the East, before the best goslings are killed for the market. In any case, whether young or old are secured, it is best to have them on your place before December to have them do well the following season. Eggs may be bought in March and April, and set under hens. There is as much difference in the laying ability of geese as there is in the milk giving capacity of cows. By taking very little trouble the goose breeder can know how many eggs each goose lays during each season, as she has a nest of her own. He can weed out the poor layers and breed only from the best, and in combination with generous feeding can build up in a very few seasons, a very

prolific strain of layers. This has already been done with all the breeds mentioned. We have a Toulouse goose that last season laid 47 eggs, which, set under hens, hatched 41 goslings; of these 37 were raised. Africans frequently lay 30 or more eggs. Good Emdens go as high as 20 or more. It all depends upon the strain, and how they have been bred and managed.

Facts for the Apiarist.

"In the study of the report of the Colorado Experiment Station upon the apiary, and according to our own experience and observation, in regard to many of the conclusions stated below," says the *Agricultural Epitomist*, "we believe that the following are reliable deductions from the experiments made at that station:

"1. Bees freely use the wax in foundation to extend both the midrib and the cell walls of the comb."

"2. As a rule the heavier the foundation the heavier will be the comb that is built upon it.

"3. If the midrib of the foundation is much lighter than that of the natural comb, the bees will probably strengthen it by adding wax to the bottom of the cells, though possibly this is only done where there are actual perforations of the comb.

"4. If the midrib of the foundation is thicker than the midrib of natural comb it will result in a comb with a midrib that is thicker than the natural.

"5. Drone comb has a thicker midrib and heavier cell wall than worker comb.

"6. A foundation with a heavy midrib and very light cell walls will still produce a comb with heavy walls.

"7. Very high cell walls in foundation are not cut down to the thinness of the cell walls in natural comb.

"8. When very light foundation is used the somewhat heavier comb is due almost entirely to the midrib's being heavier than that of the natural comb.

"9. When the foundations containing an abundance of wax to build the entire comb are used the bees still add much more wax, sometimes nearly enough to build the comb without the help of the wax in the foundation.

"10. Wax seems to be given with the best economy when the midrib of the foundation is of the thickness of the midrib of natural comb and when there is small or at most a moderate amount of wax in the cell walls.

"11. Poorly attached combs in sections seem to be more the result of weak colonies and poor honey flow than to the kind of starter that is used, though large starters and strips of foundation in the bottom of the sections do help to strengthen the union of the comb to the section."

The Agricultural Gazette

The Official Bulletin of the Dominion Cattle, Sheep, and Swine Breeders' Associations, and of the Farmers' Institute System of the Province of Ontario.

THE DOMINION CATTLE, SHEEP, AND SWINE BREEDERS' ASSOCIATIONS.

Annual Membership Fees:—Cattle Breeders' \$1; Sheep Breeders' \$1; Swine Breeders' \$1

BENEFITS OF MEMBERSHIP.

Each member receives a free copy of each publication issued by the Association to which he belongs, during the year in which he is a member. In the case of the Swine Breeders' Association this includes a copy of the Swine Record.

A member of the Swine Breeders' Association is allowed to register pigs at 50c. per head; non-members are charged \$1.00 per head.

A member of the Sheep Breeders' Association is allowed to register sheep at 50c. per head, while non-members are charged \$1.00.

Who name and address of each member, and the stock he has for sale, are published once a month. Over 10,000 copies of this directory are mailed monthly. Copies are sent to each Agricultural College and each Experiment Station in Canada and the United States, also to prominent breeders and probable buyers resident in Canada, the United States and elsewhere.

A member of an Association will only be allowed to advertise stock corresponding to the Association to which he belongs; that is, to advertise cattle he must be a member of the Dominion Cattle Breeders' Association, to advertise sheep he must be a member of the Dominion Sheep Breeders' Association, and to advertise swine he must be a member of the Dominion Swine Breeders' Association.

The list of cattle, sheep, and swine for sale will be published in the third issue of each month. Members having stock for sale, in order that they may be included in the Gazette, are required to notify the undersigned by letter on or before the 15th of each month, of the number, breed, age, and sex of the animals. Should a member fail to do this his name will not appear in that issue.

A. P. WESTERVELT, Secretary.
Parliament Buildings, Toronto, Ont.

Pure bred Bulls for the Northwest Territories.

The Department of Agriculture of the Northwest Territories, has for the third year in succession, completed arrangements with the Canadian Pacific Railway Company, whereby pure-bred bulls, which must be delivered at some convenient point on the C.P.R. in Ontario or Manitoba, will be gathered and forwarded in carload lots to the West in charge of a reliable man, and distributed at desired points on the C.P.R. main line or branches in the Northwest Territories. The Government and Railway Company defray all expenses over and above the sum of \$5 a head, which must be deposited by each person who applies for the privilege of sending pure bred bulls to the Territories at the time that this consignment will be sent. As soon as parties are in a position to make application to the Northwest Department of Agriculture for the transportation of stock blank forms will, upon notification, be supplied them. These must be filled out and returned to the Department, accompanied by the sum of \$5 for each head entered.

Stockmen availing themselves of this offer will have to make their own arrangements, through friends or otherwise, regarding the purchase of their bulls. If, however, a sufficient number of applicants select a person to purchase a full carload of bulls for them, he will be furnished free transportation to Ontario or Manitoba and will return in charge of the car. Any incidental expenses, however, that he may incur up to the time of taking charge of the stock in Ontario or Manitoba must be defrayed by himself or by those he represents.

As in 1900, Mr. A. P. Westervelt, secretary of the Dominion Cattle Breeders' Association, will, on application, purchase bulls for stockmen, who are unable to make other arrangements.

It is not necessary for applicants for transportation of stock, under the arrangements made, to purchase in Ontario before filing their applications with the Department of Agriculture of the Northwest Territories. If any one desires to obtain the reduced rate in question, he should file his application at once, and he can then purchase, at his convenience, what stock he requires. The shipment will not leave before May.

Only bulls can be accepted for transportation under the arrangement, and not more than two head will be shipped to any one applicant at the \$5 rate apiece. Pure-bred females, however, will be transported in less than carload lots, on the understanding that applicants pay the full cost of transportation. All stock will be accepted for transportation at owner's risk only, but every precaution will be taken to ensure safe delivery.

As the number of bulls to be brought into the Territories during this spring under the arrangements entered into is limited, applications will be considered in the order in which they are received.

As soon as sufficient applications are received to fill the list the stock will be shipped in one consignment under the auspices of the Dominion Live Stock Breeders' Association.

Advertise Your Stock.

As many of the members of the Dominion Cattle, Sheep and Swine Breeders' Associations do not seem to be aware of the privilege they possess of having their stock advertised once every month in THE GAZETTE free of charge, we would state that the week during which the lists of stock appear is the third week in every month, and letters containing lists of stock for sale should be received at the office during the early part of the week previous in order to secure insertion. Members of the following Associations, who

have paid their membership fees for the current year, are also entitled to advertise free, viz., Shorthorn, Ayrshires, Holstein-Friesian and Jerseys, as these have affiliated with the Dominion Cattle Breeders' Association.

FARM HELP EXCHANGE

The Farm Help Exchange has been started with the object of bringing together employers of farm and domestic labor and the employees. Any person wishing to obtain a position on a farm or dairy, or any person wishing to employ help for farm or dairy, is requested to forward his or her name and full particulars to A. P. Westervelt, Secretary, Live Stock Associations. In the case of persons wishing to employ help, the following should be given: particulars as to the kind of work to be done, probable length of engagement, wages, etc. In the case of persons wishing employment, the following should be given: experience and references, age, particular department of farm work in which a position is desired, wages expected, and where last employed.

These names when received together with particulars will be published FREE in the two following issues of the "Agricultural Gazette" and will afterwards be kept on file. Upon a request being received the particulars only will be published, the names being kept on file.

Every effort will be made to give all possible assistance, to the end that suitable workers, male or female, may be obtained. Every unemployed person wishing to engage in farm or dairy work is invited to take advantage of this opportunity.

Help Wanted.

Wanted, for 6 or 8 months, for general farm work, a man who could handle a stallion for two or three days in the week during the travelling season. Must not be afraid of work. Wages according to capabilities of man. No. 785. a

General farm hand, single, and a good milker, required on a first-class dairy farm, No. 786. a

Middle aged man, of steady habits, required to milk six cows and make himself generally useful in light farming on a small farm. Comfortable home and moderate wages. No. 787. a

Wanted, a farmer and his wife, without children, to take charge of a small farm near Montreal. Must be thoroughly capable and trustworthy. House, fuel, food, and all necessities furnished. Wages, \$25 a month. No. 788. a

Wanted, on a 200-acre for 6 or 8 months, with the option of hiring by the year afterwards, a single or married man, for general farm work. Wages, \$18 a month for 7 or 8 months. No. 789. a

Wanted, on a farm in Washington Co., Pa., man of good managing ability, who understands caring for Southdown sheep and horses. House, garden, and natural gas for light and fuel, furnished free. Wages paid at the end of every month. No. 790. a

Man wanted at once for general farm work. Must be handy with horses and help in the milking occasionally. Wages, \$140 a year with board and washing. No. 791. a

Good wages given to a good man or boy, on a farm near Rosseau. No. 792. a

Wanted, a young man, of good character, able to milk and do ordinary farm work. Will hire by the year in preference. Write at once, stating wages wanted, age, etc., to Alex. King, Hickson, Ont.

Will hire a good man for 8 months, or by the year. State nationality and wages expected. No. 793. a

Good man, who can milk, is handy with cattle, and willing to make himself generally useful, wanted at once. Shorthorn cattle and dairy cows kept. Everything handy. Would engage by the year and give good wages. Single man preferred. No. 794. a

Wanted, at once, a good, reliable man over 18 years old, who must not use liquor or tobacco or bad language. Must be healthy, able to handle a team well and milk. Engagement by the year. Wages moderate at first, but will be raised, if man proves satisfactory. Two men employed. No. 795. a

Young man of good character and able to milk, wanted by the year or for eight months. State lowest wages asked for eight or twelve months respectively. No. 796. a

Farm hand wanted to tend stock of all kinds and do general farm work. Must be a good milker. Will hire by the year or for eight months. Wages, \$145 for eight months or \$180 by the year, with board and washing. Must be steady. No. 797. a

Wanted, at once, on a farm, near Milton, half in pasture and hay, a man who can plough and do general work. Will give \$19 to \$20 a month and board. No. 799. a

Wanted, immediately, man without family, to take a fruit and hen ranch in British Columbia on shares for a term of 2 or more years. Orchard of 400 trees is coming into bearing, and large plots of berries are in full bearing. Good market for all produce. Terms \$10 per month and half interest on all receipts for the first year, tenant furnishing all manual labor, owner providing seed, implements, team, etc. For succeeding years tenant to have half interest only in all receipts. No. 800. a

Wanted, on a dairy farm near Brantford, a good, experienced farm hand, a good milker and handy with horses, on a yearly engagement. Address F. S. Passmore, Brantford, Ont. b

Man wanted for eight months or a year, to commence about April 1. Wages \$12 a month for first month, and more for the balance of the term, if man proves satisfactory. No. 773. b

Good single farm hand, about 30 years of age, temperate, a good milker, and who understands the care of milk cows, wanted about April 15, on a farm in Quebec. Must work on the farm at all kinds of work and look after pigs. Wages \$18 a month, and board and washing, but might do better for an exceptionally good man. No. 774. b

Young man, well accustomed to

horses, a good plowman, and able to milk, wanted on a farm near Midland, for six or seven months. Must be sober. Protestant preferred. Good wages. No. 775. b

Wanted, for eight months, or longer, a sober, industrious young man, who must know how to plow well, and be kind to horses. Short hours, and no chores besides care of a team. Work is chit fly fruit and light farming. State wages expected. No. 776. b

Wanted, a married man to do general farm work. House, wood, vegetables and fruit provided. State wages expected, age, number of family, and experience. Engagement by the year. Apply to A. E. Mather, Weston, Ont.

Good young man wanted at once on a farm near Montreal. Wages, \$200 a year and board. Also domestic wanted. No. 777. b

Trusty man wanted on a farm. Wages, \$160 a year, board and lodging. No. 778. b

Man wanted by the year at once. Write, stating wages, to G. M. Smith, Haysville, Ont.

Sober, steady, and trustworthy young man, from 18 to 22 years old, wanted for general farm work, on a 100 acre farm. Good wages given. Will hire for nine months, or a year. Give experience and references, and mention wages required. No. 779. b

Wanted, middle-aged man, who understands stock generally. Also young man, good teamster, and who understands marketing, required on a farm ten miles from Toronto. No. 780. b

Young man wanted, who thoroughly understands cheesemaking, to work in a private dairy, where a soft, mild cheese is made from about 30 cows, also to milk and make himself generally useful. Address M. Richardson & Son, Box 34, Caledonia, Ont.

Wanted, on a grain and hay farm, a young man about 16 years old. No. 781. b

Wanted, on a stock farm in British Columbia, two or three men. Wages for eight months, \$25 a month and board. No. 782. b

Domestic Help Wanted.

Domestic wanted on a dairy farm near Peterboro'. No. 798. a

Wanted, on a farm, where there is a small dairy and no children, a domestic who can milk. No objection to a widow and child. No. 783. b

Young woman wanted by May 1, in a model farm house with every convenience, as general servant. Must be willing to milk, if required, and be a fair cook. Wages, \$10 a month. No. 784. b

Situations Wanted.

Young man, 19 years old, first year O.A.C., wishes a situation on a stock farm. Write, stating wages, to R. D. Prittie, O.A.C., Guelph.

Young man, good milker, and able to do all kinds of farm work and handle machinery (having worked two years in a grist mill) wants a place on a farm. No. 927. a

Situation wanted on a fruit farm by man 20 years of age, who has always lived on a farm. Has taken a course at a school of horticulture. No. 925. b

Place as assistant in a dairy wanted during the coming season; creamery preferred. Wages, \$15 a month, board and washing. No. 926. b

N.B.—Where no name is mentioned in the advertisement, apply to A. P. Westervelt, Parliament Buildings, Toronto, giving number of advertisement.

Farmers' Institutes

Under this head the Superintendent of Farmers Institutes will each week publish matter relating to Institute work. This will include instruction to Secretaries and other officers, general information about Institutes and Institute work, suggestions to delegates, etc. He will also from time to time review some of the published results of experiments conducted at the various Agricultural Colleges and Experiment Stations of Canada and the United States. In this way he hopes to give Institute members some valuable agricultural information which they might not otherwise receive, on account of not having access to the original publications. If any member at any time desires further information along any of the lines discussed, by applying to the Superintendent he will be put in direct communication with the Institution that has carried on the work.

G. C. CREELMAN,
Superintendent Farmers' Institutes.

Lectures Before Horticultural Societies.

Below will be found a list of the places where arrangements have been made to hold meetings of the societies during April, and the dates when the meetings will take place.

The work of arranging these has been transferred from the Fruit Growers' Association to the Department of Farmers' Institutes, and hereafter all communications in reference to lecture work connected with these societies should be addressed to G. C. Creelman, Superintendent of Farmers' Institutes, Parliament Buildings, Toronto.

The meetings as arranged this year differ somewhat from those held in former years, in that in some instances a lady has been added to assist the regular delegate at their meetings.

It has also been arranged that all speakers shall visit and address the children of the Public and High Schools in the afternoon of the day on which the meeting is to be held. It is hoped that in this way the pupils may be instructed in matters pertaining to horticulture and nature study, and that the meetings at night may also be helped by the advertisement given them in the schools.

Delegates.—W. N. Hutt, Southend, and Miss Blanche Maddock, Guelph.

Subjects.—Mr. Hutt: (1) Insect friends and foes; (2) Birds in relation to horticulture; (3) Pruning of trees and plants; (4) Beautifying the home; (5) Spraying mixtures and their application. Miss Maddock: (1) Fruits and vegetables as articles of diet; (2) Window gardening.

Places of Meetings.—Lindsay, April 9th; Port Hope, April 10th; Cobourg, April 11th; Stirling, April 12th; Picton, April 15th; Iroquois, April 16th; Cardinal, April 17th. W. N. Hutt only: Thornbury, April 18th; Owen Sound, April 19th.

Delegates.—Wm. Bacon, Orillia, and Miss Blanche Maddock, Guelph.

Subjects.—Mr. Bacon: (1) A talk on some really desirable plants—their season and care; (2) The bulbous family presented in a popular manner; (3) The verandah—its shade and environment. Miss Maddock: (1) Fruits and vegetables as articles of diet; (2) Window gardening.

Places of Meetings.—Niagara Falls, April 22nd; Grimsby, April 23rd; St. Catharines, April 24th; Cayuga, April 25th; Oakville, April 26th.

Delegate.—A. MacNeill, Walkerville.

Subjects.—(1) The Fertilization of Flowers; (2) House Plants; (3) Plants, Trees and Shrubs for the Ordinary Town Lot.

Place of Meeting.—Port Dover, April 9th.

Delegates.—A. MacNeill, Walkerville, and Miss Laura Rose, Guelph.

Subjects.—Mr. MacNeill: (1) The Fertilization of Flowers; (2) House Plants; (3) Plants, Trees and Shrubs for the Ordinary Town Lot. Miss Rose: (1) Why I have a garden; (2) Economic Gardening.

Places of Meetings.—Woodstock, April, 10th; Paris, April 11th; Hespeler, April 12th; Guelph, April 13th; Elmira, April 15th; Mitchell, April 16th; Seaforth, April 17th; Clinton, April 18th; Kincardine, April 19th.

Delegate.—Dr. James Fletcher, Experimental Farm, Ottawa, Ont.

Places of Meetings.—Smith's Falls and Perth. Dates to be arranged later.

Management of Soils

By A. W. Peart, Burlington.

(Concluded.)

MANURING.

(3) Manures may be broadly divided into three classes—stable, green manures, and special fertilizers. Stable manure is rich in nitrogen, phosphoric acid and potash, the three chief plant foods, and is, therefore, an all-round manure, suitable for general farming. The best time to handle it and to apply it, I think, a question for every farmer to settle for himself, according to the physical features and soil conformation of each field and the purposes he has in view. There seems to be no doubt that the sooner we can get manure into the soil the greater the saving and economy. But when the soil is frozen three or four months in the year, just at the time that most of the manure is made, it is clearly impossible to get it into the soil. When a field is level, or nearly so, and there can be little or no snow from it with the thaw of the snow or winter rains, and it is to be used for a hoed crop of some sort, or is an orchard or light dry

soil, I think it would be good economy to spread manure over it in the winter, say not more than 10 loads per acre. But if the field is rolling or the land damp, and is required for spring grain of some sort, a large part of the value of the manure would doubtless be lost. Top dressing land in winter, unless the land be dry and light, delays seeding with spring grains very materially. The frost does not come out as soon and the soil is consequently cold and damp longer. This would be a benefit for hoed crops, orchards, etc., but an injury for spring grains, as the delay would mean relatively fewer bushels of crop yield. On the other hand, if the manure be carelessly piled up in the barnyard, as is too often the case, and, should there come on heavy rain, a large quantity of valuable plant food is often leached away to the nearest creek. When fermentation takes place ammonia also passes into the air and is lost. I consider it a good plan to mix the cow and horse manure together (as the former is cold and the latter hot), and make the heap high and compact. There is then little loss from leaching. The use of enough straw or litter to absorb the liquid manure is also indispensable, as the latter is more valuable, weight for weight, than the solid. It is also said that a liberal use of gypsum or of kainit will check the escape of ammonia. However, it seems to me that each must determine for himself the best way to manage manure on his farm. Well rotted manure, surface-worked into the lighter soils, and coarser manure plowed under in clay soils, seems to be the rational way of applying it, so far, at least, as the nature of soils is concerned. Heavy soils require opening influences, while lighter ones often require compacting.

Of the green manures clover and peas are probably the best. These may be plowed under very profitably to supplement the supply of stable manure, which, on most farms, is short. As is well known, they belong to that class of plants which have the property, through the peculiar construction of their roots, of gathering nitrogen from the air, converting and storing it throughout their entire system, so that even if the crop of clover or peas be removed, the roots left in the soil render it richer, so far as nitrogen or plant growth is concerned. If, then, a whole crop be ploughed under in a poor field about flowering time, the field is given a new life for several years to come. Rye, buckwheat, etc., may also be ploughed in, and will improve a field, but not to the extent of clover or peas. Any green crop or vegetable matter turned under is an advantage to a field mechanically, by placing humus or vegetable fibre therein, and consequently increasing its power to retain moisture.

Special fertilizers have a distinct place and value in special farming. Fruit growers recognize the value of wood ashes. Potash is their most important factor, and fruit trees and vines

feed heavily on potash. They should be used on the lighter and dryer soils, which are naturally deficient in this food. Clays, on the other hand, contain quantities of it. Salt is useful on the lighter and dryer soils for manure, turnips, wheat and barley. It tends to attract the moisture, and also unlocks mineral food for the use of the plant. Gypsum or land plaster is especially useful in promoting the growth and vigor of clover and grasses, and should be sown early in the spring.

Muriate of potash is used for some classes of plants that are heavy potash feeders. We use it more particularly for grapes and pears, at the rate of 150 to 200 pounds per acre. Nitrate of soda is applied when stronger growth is required in plants or trees. Two hundred pounds per acre is a good dressing for fruit plantations, sown on the surface and worked in just after vegetation has started. In applying manures we should study to supply that particular plant food that is required both by the plant and soil, and thus avoid waste.

ROTATION OF CROPS.

Rotation of crops is based upon the idea of food equilibrium. Each species of plants has its foods in a given ratio, and different from the ratio of another species. For instance, weight for weight, barley appropriates about double the potash that wheat consumes, and about the same quantity of phosphoric acid and nitrogen. It is clear, then, that if we were to grow barley continuously on the same soil year after year, the valuable potash would rapidly exhaust to the great detriment of succeeding crops. In other words there would be a shortage of available potash, and minimum food factor in the field governs the crop yield, not the maximum. In the older parts of the province it is sometimes difficult to have the rotation that we would like. There are often failures in getting a good catch of clover, and, sometimes, the fall wheat has to be ploughed up. Barley, too, when it was a good figure, had a distinctly useful place in a rotation, but with the reduced price there was naturally a narrower acreage. While it may be difficult for a farmer to follow out in practice any rigid system of rotation, still we should have a fixed ideal in view and try for that ideal. Certain soils are adapted only for certain crops, and we may have two or three distinct systems of rotation on the same farm. For example, I like to try to use a rotation like this on a heavy soil, viz., wheat, clover, grass, peas, wheat; and in a lighter soil, barley, clover, grass, oats, root crops or corn, barley. In the latter rotation stable manure more particularly steps in. In short, I think that the underlying principle we should try to observe is to rotate the nitrogen—gathering and consuming crops as far as practicable, and thus, with the aid of our stable manure, and the use of special fertilizers when required, maintain the productiveness of our farms.

The Farm Home

Old Hymns.

There's a lot of music in 'em—the hymns of long ago—
And when some gray-haired brother sings the ones I used to know,
I sorter want to take a hand! I think of days gone by—
"On Jordan's stormy banks I stand and cast a wistful eye!"

There's a lot of music in 'em—those dear, sweet hymns of old—
With visions bright of land and light, and shining streets of gold;
And I hear 'em singing, singing, where mem'ry dreaming stands,
"From Greenland's icy mountains to India's coral strands!"

An' so I love the old hymns, and when my time shall come,
Before the light has left me, and my singing lips are dumb,
If I can hear 'em sing them then I'll pass without a sigh
To "Canaan's fair and happy land, where my possessions lie."

—The Cooking Club.



Snap.

Home made games are doubly interesting to children; interesting because the making of them furnishes a quiet pleasure, and playing with them gives many an hour's enjoyment. For some time I have played with and watched children engaged with numerous card and board games, and the game of Snap seems to be called for most frequently.

To-day, as I write, two little girls are busy making a package of Snap cards for their own use, and I know other little girls will be glad to know how they are doing it. First, they cut four dozen cards of pasteboard, having the backs all of one color, and then they got down a half dozen or more magazines containing many pages of advertisements. From these they selected eight different pictures, and, you know, there are many dainty pictures among the advertisements. These pictures were cut to fit the cards. Then, by searching diligently, they found six pictures like each of the eight first selected. For example, the picture at the head of this is like six of their cards, for you must know that the whole forty-eight are cut and pasted on to the forty-eight pieces of pasteboard. When they are dry the little girls will have a jolly time calling "Snap," and seeing who will win the game. It seems to be quite as inter-

esting for two as for any number up to a table full. I notice they have two sets that bear a slight resemblance. This is in order that some may call "Snap" when they should not do so, and their cards will then go to the centre. I am taking it for granted that all small boys and girls have played "Snap," and so I do not give the rules of the game. But if there is anyone who has not, and would like further particulars, just send a letter or card to me at Ailsa Craig. If you have not the magazine advertisements to draw from, try pictures from seed catalogues, pictures of implements and stock in advertising pages of newspapers. I came near saying of FARMING WORLD, but I know father would not care to have even the ad.'s cut from it.

Will the mothers and daughters and any who are interested in the Home Department please send me a few lines of criticism or comment on some of the articles published in this Department during the past few weeks. We are all busy, but we can surely spare a few minutes now and then to give our advice or experiences to others.

M. E. GRAHAM.

Hints by May Manton

Woman's Shirt Waist, No. 3792. To Be Made With or Without the Fitted Lining.

The shirt waist with the sailor collar is in great demand and is eminently satisfactory for almost all the season's waisting materials. Without being in the least elaborate or losing the character of the simple garment the shirt waist should be, it is relieved of too great plainness and becomes available for slightly more formal dress than the more severe sort.

The model shown is of taffetta in coral red with dots of white and is combined with cream cluny lace and plain red silk edging the collar, but an infinite variety of colors are offered and suitable materials include soft silks of many sorts, veiling, albatross, challie and a host of similar fabrics, as well as all the tempting cotton and linen materials.

As shown the waist is made over a fitted lining which closes at the centre front but when washable stuffs are used the lining can be omitted. The chemisette is attached to the right side of the lining and hooked onto the left, or when the waist is unlined, is stitched to the right side beneath the collar and hooked onto the left, otherwise there is little difference in the method of making. When lined the fronts and back are arranged upon the foundation before the shoulder and under arm seams are closed, and the gathers are attached to the waist line; when unlined the fullness at the waist is simply stayed or tapes are inserted in a casing by means of which it can be drawn up. In either case the sailor

collar finishes the low neck, the stock is attached to the chemisette. The sleeves are in bishop style, finished pointed cuffs that lap over from the seam.

To make this waist for a woman of medium size $3\frac{1}{4}$ yards of material 21 inches wide, $2\frac{3}{8}$ yards 27 inches wide, 2 yards 32 inches wide or $1\frac{1}{2}$ yards 44 inches wide, will be required, with 1 yard 18 inches wide for collar, shield stock collar.

The pattern, 3792, is cut in sizes for a 32, 34, 36, 38, 40 and 42 inch bust measure.



3792 Shirt Waist,
32 to 42 in. bust.

The price of above pattern post-paid is only 10 cents. Send orders to "The Farming World," Confederation Life Building Toronto, giving size wanted.

Good Advice For House-Cleaning Times.

The editor of the *American Mother*, in the April number, gives the following good advice to housekeepers and homemakers:

The first glint of bright sunshine and balmy spring sets all the housewifely instincts astir, and the fingers are tingling to pull down curtains, pull up carpets, and bring out an array of mops and pails, and the husband comes home some bright day to find the house in a general confusion and dinner an uncertain quantity.

Much of the discomfort or even of ill health to the entire family may result from the fact that there is in the whole home no place of comfortable repose. Dust and dampness pervade every room. There is no spot free from draught, and even on bright spring days, winds sweeping through the house are uncomfortable for those who are not actively at work. The children are usually left to get into mischief, the meals are not appetizing, and although the semi-yearly attack is soon over it has been hard for the suf-

ferers to endure, and the sequelæ may be serious. Suds and scrubbing brushes are then more attractive than elegance and ease, and yet I say to the wife and mother who is beginning to feel in her heart the premonitions of a domestic invasion of every apartment with brooms and hot water, I say emphatically, "Don't!" Look upon this house-cleaning fever as a disease to be held in check by strong doses of a home-making febrifuge.

In every woman's heart the house-keeping impulse must be subordinated to the home-making desire. There should always be a home atmosphere even at housecleaning times. This can be accomplished by limiting the upheavals to small areas, thereby lengthening the process but decreasing the dangers. One room at a time, and each completely in order before another is begun, will not so completely satisfy the mental unrest of the housewife, but it will save her strength, and secure for the family always some one place of refuge with mother not too tired to be her own charming self.

Hints to Housekeepers.

Naphtha is recommended by a woman who has tried it as a satisfactory cleanser of light fur. The naphtha was poured over the fur and the boa fluffed and patted until the soil was worked out. The naphtha was then pressed out by drawing the hand firmly over it, the boa shaken and hung in the air to dry.

Scraps of plain or puff paste trimmed rom patties or pies may be sprinkled with grated cheese and made into cheese straws.

The cold boiled rice left from dinner or luncheon may be mixed with waffles or muffins, and will make them lighter.

Embossed leather can be cleaned with turpentine applied with a soft cloth. This removes the stains but slightly stiffens the leather, which must be made pliable again by rubbing briskly with crude oil. Use a very little oil and go over the piece with one of the clean cloths upon which no oil has been put, as care must be taken to get all the surface grease off to prevent soiling the clothes.

A delicious cake filling is made from chopped figs mixed with crabapple or apple jelly.

A novel plan for protecting a dainty silk or lawn shirtwaist is suggested in an underwaist of very thin, fine lawn, made with bishop sleeves gathered into dainty cuffs of lace or embroidery, a small round yoke also of lace or embroidery and a transparent choker. This can be laundered; and the outside waist is made more dressy by cutting it out to meet the decollette yoke or the underwaist.

A good cement for china and glassware is made by soaking isinglass in water until soft, then dissolve it in proof spirit and add a little resin.

Pickles should not be made in vessels of brass, copper, iron or tin. Use only porcelain or earthenware, and the very best cider or white wine vinegar.

The jars should be of stone or glass, and the pickles kept in a cool, dark place, and examined at intervals. If white specks make their appearance in the vinegar, draw it off, scald and add two tablespoonfuls of sugar and a few cloves. All vinegar should be scalded before using with pickles, otherwise it will not keep well.

When fish is rather deficient in flavor a little vinegar rubbed over the skin and a few sweet herbs boiled with it will greatly improve it. For boiling, large fish should be placed on the fire in cold water and small ones in hot water. Both are done when the fins pull out easily. Fish soup is the most economical of all fish dishes, baked fish the second best, broiled fish retains nearly all its nourishment, and boiled fish is the poorest of all. The following technical terms are used to denote different methods of cooking fish: To dress fish a la Hollandaise is to boil it in sea water; au court bouillon with cold water, white wine or vinegar, sweet herbs, soup vegetables, lemon and white spices; a l'eau de sel in salt and water; a la bonne eau with sweet herbs and cold water; au bleu in equal quantities of red wine and cold water, highly flavored with spices and aromatic herbs.

How Little It Costs.

How little it costs, if we give it a thought,

To make happy some heart each day!

Just one kind word or a tender smile,

As we go on our daily way;

Perchance a look would suffice to clear

The cloud from a neighbor's face,

And the press of a hand in sympathy

A sorrowful tear efface.

One walks in sunlight; another goes

All weary in the shade;

One treads a path that is fair and smooth,

Another must pray for aid.

It costs so little! I wonder why

We give it so little thought;

A smile—kind words—a glance—a touch!

What magic with them is wrought.

—From *Open Windows*.

The Cooking of a Ham.

The experienced housekeeper says she finds it almost impossible to learn from cook books how to cook a ham. One book will begin with the sweeping statement that the ham must be put in a deep kettle, covered with water, and cooked slowly. Hot or cold water it doesn't say; that one detail seems too commonplace for mention. Then she opens another book to read: "Put a ham weighing ten pounds in a large pot with water to cover it." Evidently the ten pounds is the important item. In reality it is not so easy a matter to cook a ham as it might seem.

For the first step much depends upon the ham. The ordinary ham that comes from the West will not endure the soaking that an old-fashioned ham must have. The Western ham is usually full of water to add to its weight. At any rate scrub the ham thoroughly. An eight pound ham is large enough for most families. Some housekeepers insist on borax and water applied with a small scrubbing brush

must be used to properly prepare the meat for cooking. It should usually be soaked over-night. Trim it and cover it with a cloth. Now put it in the kettle with one bay leaf, six cloves, six pepper corns, one carrot and one onion; cover with cold water and cook very slowly for four hours. At the end of that time add one pint of either white wine or acidulated water and continue cooking until the meat is tender. The ham is ready to be served after the skin has been removed. The liquor in which it has been cooked should be boiled down till it measures one pint, the fat carefully skimmed off and a little butter and browned flour added.

Or the ham may be prepared in a slightly different way. Put about six cups of sugar, two bay leaves, a bunch of parsley, two whole onions, and some whole allspice into the kettle. Add the ham and a quart of sour wine. Cover the kettle tight. A good idea is to cut cloth over the top and then place over it the cover. Boil rapidly for an hour. Then let the ham cool slightly before pouring in a quart of boiling water. Cover again and let the meat simmer gently for three hours. The skin of the ham should be removed when it is warm, and with a quick jerk. After it has been taken off, cover the ham with a mixture of a teaspoonful of browned flour, a cup of brown sugar and one-half cup of wine. Finish by browing the ham in a hot oven.—*New York Evening Sun*.

Repairing Mother.

A nap after dinner is worth two hours of sleep in the morning to mother. Mothers, more than most people, wear out if they are not repaired, and it is the duty of the family to see that repairs go on before the dear tenement falters. So many people paint the house and have the homes cleaned and repapered and the furniture retouched, who never think of repairing the mother. Think of it, to let a mother wear out for want of a little repair. Why, she is costly and rare, and altogether good to have around, isn't she?—*Elizabeth Grinnell*.

Helpful Suggestions.

Broken china may be mended by brushing the edges with white lead such as painters use. Press the pieces together and tie them in place, then leave them two or three days until thoroughly dry. The dish can be broken as easily anywhere else as at the old break, and water does not affect it.

If the oven gets too hot while you are baking cake or bread, put a basin of cold water in it instead of leaving the oven door open to cool it.

Should the top of a glass jar refuse to come off turn the jar upside down in a pan containing a little hot water, and allow it to remain a minute or two. It may usually be unscrewed with little effort when taken out.

The Farming World

A PAPER FOR FARMERS AND STOCKMEN.

Publisher, D. T. MCANISH.
Editor, J. W. WHEATON, B.A.

The Farming World is a paper for farmers and stockmen, published weekly, with illustrations. The subscription price is one dollar a year, payable in advance.

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Letters should be addressed:

THE FARMING WORLD,
CONFEDERATION LIFE BUILDING
TORONTO

Business Notes.

Horses, 826.

Shorthorns on page 827.

Poultry and sheep advertisements on page 828.

The Steel, Briggs Seed Co.'s advertisement on page 803 speaks for itself.

The Spraymotor, manufactured at London, Ont., can be seen at the office of THE FARMING WORLD. See advertisement on page 804.

The Creamery Package Co., of Cowansville, Que., advertised an Ideal Skim-Milk Weigher on page 802. If you don't know about it, write for information.

The Canadian Dairy Supply Co., Montreal, show a very fair test in their advertisement on page 802, also valuable testimonial of Matthew Moody & Sons. Write for particulars.

The Atlantic Refining Co.'s announcement is on page 822. Their special Elastic Carbon Paint is giving good satisfaction where used. They also handle all kinds of oil. Write for particulars.

The Toronto Poultry Company advertise on the front cover Wyandotte, White Leghorn and Barred Plymouth Rock eggs for setting. We would recommend farmers to secure eggs from thorough-bred birds to improve their stock.

Moore & Alexander's advertisement appears on the front cover. They claim the advisability of making ads. speak by using cuts. A photograph of an animal or any article you have for sale sent to their address will tell the story.

"Joliette" Grain Grinders on page 804. Their manager, Mr. Gillespie, 108 Front street East, Toronto, is very much encouraged at the number of sales being completed, which is satisfactory proof of the good qualities of their grinder.

Caustic Balm cures poll evil. The Lawrence Williams Co. are in receipt of the following from R. A. Smith, Bianco: "Some time back I wrote you about a horse of mine having a swollen head and appearance of poll evil. His head is well or about well now by using Gombault's Caustic Balm."

Mathew Moody & Sons, of Terrebonne, Que., manufacture tread power machines, roller bearings which make them run very easy. Will develop more power for the same elevation than other makes. Machinery agents should get in line with their farm

machinery, which is delivered freight paid in Ontario.

Lyman Bros. & Company announce on page 804 a sheep dip. They have so much confidence in this preparation that they will give to any farmer who personally brings this advertisement to the warehouse, 71 Front street East, Toronto, a full-sized quart bottle for trial. All who have sheep should avail themselves of this opportunity.

A scale offer for April that is only for the readers of THE FARMING WORLD. Chas. Wilson & Son wish every reader who owns a farm to buy their high class Wilson 2,000-pound scale with heavy wheels and drop lever. A special feature about these scales is that the bearings are made of diamond steel that will not rust or wear like ordinary steel. This scale will weigh as well in damp as in dry weather. They received the highest medals at the Chicago and Paris World's Fairs, and thirty-two prizes at Canadian fairs. Every purchaser gets a coal oil stove free this month only.

QUESTIONS AND ANSWERS

Query on Poultry—Effect of Lime on Barley.

W. R. M. writes:

(1) Are there any wholesale merchants in Toronto or Hamilton who buy poultry and eggs, and who are they? Is there a price set on poultry and eggs that rules the week similar to the quotations of the Wm. Davies Co. for hogs.

(2) We had a field of barley last year, about one-third of which was broken down at the second joint from the root. What effect would air-slaked lime have on it, and how should it be put on, and how much per acre? What effect would it have on barley at the second or third leaf?

Question (2) is answered by Prof. A. E. Shuttleworth, Ontario Agricultural College, Guelph.

(1) The following are firms in Toronto which deal largely in poultry and eggs: The Wm. Davies Co., Queen street west; The King Darrell Produce Co., 74 Colborne street, and D. Gunn and Bros., Front street. The Toronto Poultry Co., Davisville, Ont., whose advt. appears regularly in these columns, are buyers of live poultry. The following are parties in Hamilton who deal in poultry and eggs: Wm. S. Gilmore, King street east; and Mr. Morris, Bay street north. There are, no doubt, others but we have been unable to obtain their addresses. There is no price set on poultry and eggs that rules the market similar to the quotations for hogs.

(2) Prof. Shuttleworth says: "I beg to state in reference to the field of barley that the breaking down referred to appears to me to be due to an insect. The application of lime cannot be regarded as of any advantage to the barley. There are cases, however, where land is exceptionally rich in vegetable matter that an application of 300 pounds of salt per acre will in some instances stiffen and brighten the straw, but lime, I cannot say, would be of any benefit."

(The insect referred to is probably the Hessian fly.)

Copies of Poultry Number Wanted.

Though an unusually large edition of our poultry number was issued, the demand for them was so great that the supply ran out in a few days after the number was out. As several of our regular subscribers have written us that the poultry number did not reach them, we would be glad if any of our readers who do not keep a file or do not wish to preserve that number specially would return their copies to us. The issue is now entirely out of print, and we are therefore unable to supply any copies unless our friends come to our rescue in the way we have indicated.

Testing Cattle.

Messrs. Stubbs and Moore, of the Department of Agriculture, are now in Ontario testing cattle for export to the United States. Those desiring to have cattle tested for this purpose should make application to the Department of Agriculture, Ottawa, so that arrangements can be made as speedily as possible to send an official veterinary to do the work.

To Prevent Horses Eating Too Fast

Mr. R. D. Cowan, Gould, Ont., sends us the following device for preventing horses from eating too fast:

"I have discovered a simple device to prevent horses from not only wasting grain, but from eating too fast. Make a box wedge-shaped, say 4 x 8 inches at one end and 8 x ½ inches at the other, and about 2½ feet long; nail firmly to the side of the stall in an upright position so that the small end will be about one inch from the bottom of the feed box, so that the feed will settle down as it is eaten from the feed box.

"I find this plan of great benefit. The horse I used it on looks better than he ever did before on the same feed."

Drainage Over Railways.

By Our Travelling Representative.

When in Guelph at the recent Government auction sale, we called on the well-known stock breeder, Major Hood, and in the course of an inspection of his farm and stock we were shown a field of twenty acres, which was practically useless because the railroad refused either to put a drain through a slight embankment or to allow anyone else to do so. Mr. Hood informed us that he would gladly put the drain through at his own expense, but the railroad refused to allow him to do so, stating that they were working under a Dominion franchise, and were not subject to Ontario laws. He also stated that there were hundreds of acres of land in that section which were rendered practically useless simply because

they could not get drainage way across the railroad.

We believe that Col. Leys, of London, has a bill now pending in the Ontario House with regard to the drainage of a large section of land near London.

We also ran across Mr. Nelson Monteith, M.P.P., who is a farmer near Stratford, and he says that there are thousands and thousands of acres of the best land in the province which are utterly valueless and kept out of cultivation, simply because the rail roads refuse to give drainage way across the tracks. He says, however, that it will be necessary to get Dominion legislation on the question, as the railroads hold their licenses from the Government at Ottawa.

We believe that Jabal Robinson is fathering a bill of this nature at Ottawa, and we sincerely hope that he may be successful in lifting this unjust burden from the farmers.

Of course it may be all right from a learned legal standpoint, but it certainly is past the comprehension of the average farmer, and is in his view exceedingly unjust, that after giving a bonus of, in many cases more than the road cost, and also paying the extortionate railway rates which are demanded at the present time, that this same farmer cannot force the railroad company to comply with the same laws which he and all other citizens of the country, except the railroad companies, have to obey. Surely the now popular fad of Government ownership of railroads could not be worse than this oppression, and there is a slight chance that it might be some improvement.

Guelph Dairy School.

RESULTS OF THE EXAMINATIONS FOR THE TERM JUST CLOSED.

The final examinations of the Dairy School at the Ontario Agricultural College were held on March 21 and 22. Forty-one wrote on the final examinations; thirty-two of these took the Factory Course and nine the Farm Dairy Course examinations. Over seventy per cent. of those who wrote for the Factory Certificates have had experience in factories. Ten of the class were back for a second term. Owing to the high standard which is required for passing, not so high a percentage of students who attend the course write on the final examinations as there would be if a lower standard were adopted. The standard is very much higher than that of any of the American colleges, as students who go from the Dairy School at Guelph find that they can pass the examinations without any difficulty at all after a course in an American school; and usually the students of the Guelph school take a very high mark or stand at the head of their classes. The management of the Central Dairy School, however, think that it is best not to allow men or women who have not the necessary qualifications to ob-

tain certificates from the school. Thus the standard is placed much higher than it would be if the future work which these students are likely to do was not taken into serious account when granting certificates.

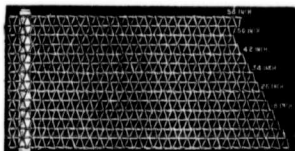
In addition to the regular work, as commonly given in dairy schools in the manufacture of cheese and butter, testing milk, etc., a distinct advance was made with the class that has just graduated, in laboratory work in chemistry and bacteriology.

In chemistry, members of the classes separated the different constituents of milk, and obtained a knowledge of the composition of milk such as cannot be obtained from lectures which may be given on the subject. They also tested the purity and solubility of salt. They made tests to distinguish milk fat from steer fat or common fats. They determined the moisture in cheese and butter. In cheese they found that with a larger amount of rennet than was usually used, there was less moisture than when the normal amount was used. This is contrary to the opinion of practical men on this question, who have always held that an increased quantity of rennet added to the milk increases the moisture in the cheese. In explanation of this difference of opinion and results, it was found that the solubility of the curdy compounds was considerably increased by using a larger amount of rennet in the manufacture of cheese. The acidity of cheese made from washed and unwashed curds was also determined by the chemist, Mr. Harcourt, along with the students of the dairy classes, and it was found in the few tests which were made that there was not very much difference in the amount of acid in the cheese, what difference there was indicating a less amount in the cheese made from washed curds.

In the bacteriological laboratory, under the direction of Prof. Harrison, cultures were made and used in the manufacture of butter and cheese, and the class had some valuable object lessons showing that the flavor of cheese and butter may be entirely changed by the use of a culture or starter. It also demonstrated to them the importance of using nothing but the very best flavored culture or starter when making cheese or butter. They also went to the stables and got samples of milk from cows where the udders were not brushed, and samples of milk into which hair had fallen; and they found that the number of germs was very large indeed. The fore-milk from the cows also contained a much larger amount of germs than the milk from later portions of the milking. The effect of pasteurization was shown when it was determined that over ninety per cent. of the germs in the milk were killed by pasteurizing.

On the whole, the term has been a very successful one, though the attendance has not been so large as in former years.

The following is the list of successful candidates who have passed on all



MILLIONS OF ACRES
fenced with them this year. The fences that grow more popular every season. Real saving, service and satisfaction in
Ellwood Steel Wire Fences
Fully guaranteed. Best steel and galvanizing. If you can't find our local agent write to
American Steel & Wire Co., Chicago or New York.

subjects, and are ranked according to standing in general proficiency:

FACTORY CLASS.

1. P. Christie, Treacastle, Wellington, Ont.;
2. H. Rive, Eramosa, Wellington, Ont.;
3. G. R. Taylor, Burford, Brant.;
4. V. A. Hooper, Tyrone, Durham, Ont.;
5. G. Orr, Fiesheron, Grey, Ont.;
6. Miss H. McAllister, Coventry, York, Ont.;
7. J. W. Seitz, Hamberstone, Welland, Ont.;
8. J. Munz, Wemyss, Lanark, Ont.;
9. C. A. Davies, Reabro, Victoria, Ont.;
10. J. McAllister, Coventry, York, Ont.;
11. A. H. Webster, Clumber, Assa, N.W.T.;
12. Miss M. L. Green, Loyal, Huron, Ont.;
13. R. A. McLachlan, Kothasy, Wellington, Ont.;
14. P. Fockler, Ringwood, Ontario, Ont.;
15. J. T. Grieve, Derwent, Middlesex, Ont.;
16. F. J. McIntosh, Cold Springs, Northumberland, Ont.;
17. A. Slater, Guelph, Wellington, Ont.;
18. T. S. Riley, Avonbank, Perth, Ont.;
19. E. R. Jibb, Cold Spring, Northumberland, Ont.;
20. W. G. Thompson, Rivier View, Grey, Ont.;
21. H. G. Smith, Hagerman, York, Ont.;
22. Ed. O. Sanders, Tyrone, Durham, Ont.;
23. D. Malpas, Guelph, Wellington, Ont.;
24. J. W. Gibson, Walkerton, Bruce, Ont.;
25. J. A. Crerar, Springhill, Carleton, Ont.;
26. C. B. Hunt, Bayside, Hastings, Ont.

BUTTER-MAKING AND CHEESE MAKING.

1. Oswald Sudgen, London, Middlesex, Ont.;
2. Frank Watson, Meaford, Grey, Ont.;
3. Christopher Duncan, Bearbrook, Russell, Ont.;
4. Oscar Jas. Smith, Attercliffe Station, Haldimand, Ont.

FARM DAIRY.

1. Miss Laura Linton, Guelph, Wellington, Ont.;
2. Miss Agnes Smith, Hamilton, Wentworth, Ont.;
3. Miss Ethel Hewson, Tullamore, Peel, Ont.;
4. Alfred B. Smith, Morrisburg, Dundas, Ont.;
5. Miss Alexina Murdoch, Ponsonby, Wellington, Ont.;
6. Elias Holm, Hespeler, Waterloo, Ont.;
7. Miss Lottie Bowers, Berlin, Waterloo, Ont.;
8. Miss Lily Beam, Black Creek, Welland, Ont.;
9. Miss Marion Hutt, South End, Welland, Ont.

Ontario Veterinary College.

The closing exercises of the session of 1900-1901 of the Ontario Veterinary College were held in the college buildings on March 28. The principal, Prof. A. Smith, F.R.C.V.S., took the chair, and with him on the platform were: Mr. A. Pattullo, M.P.P.; Prof. Baker, Toronto University; Prof. Mavor, Toronto University; Mr. Hill, Industrial Exhibition, Toronto; Mr. H. S. Wende, V.S., President Ontario Veterinary Association, and Dr. Duncan, M.D. Prof. A. Smith opened the meeting by a short address, and called on Dr. Duncan to read the graduating and honor lists, also the list of prize-winners.

Mr. Pattullo said he was astonished on looking over the list of graduates

THE FARMING WORLD

at the large number that were scattered over all parts of the continent of North America. He could remember when the old time practitioner held a far different position in the view of the public to the college graduate of today. Now the veterinary graduate is, or should be, on a social equality with anyone. The attention of the British Government had been called to Canada as a suitable field in which reimbursements may be procured for army purposes. A country that can produce good men can produce good horses, and he looked upon the veterinary profession as a most important aid in encouraging and improving the breeding of a good and suitable class of horses. There is a splendid future in Canada for the production of a good class. He believed that the prospects of the profession were never so good as now, and will still keep improving. In conclusion he was much pleased to see present so many young men from the United States, and he trusted and believed that the peace and good-will that existed between ourselves and our brethren across the borders would long continue. He wished success to the graduates in their future career, wherever they may be located.

A number of other addresses were delivered, all showing the high state of efficiency to which this well known institution has attained.

The following is the list of graduates and prize-winners:

GRADUATES.

Hal. L. Bellinger, Hickory Corners, Mich.; G. Elmer Bitgood, Voluntown, Conn.; William A. Boucher, Minneapolis, Minn.; Francis W. Buckle Guelph; Hiram Burlingham, Wellington; Thos. Bryant, Wayland, Mass.
 William A. Connolly, Fullerton, Cal.; George T. Crowley, New Britain, Conn.; Albert B. Culley, Avon, N.Y.
 Frederick A. Davis, Dunstable, Mass.; C. E. Dickerman, Montpelier, Vt.; Geo. B. Duncan, Beloit, Kansas.
 O. H. Eliason, Scandinavia, Wis.; Chas. H. Epps, Richmond, Va.; Claude C. Evelyn, St. Thomas, Ont.; R. Frank Erwin, Pickney, Mich.
 Fred D. Fordham, Watkins, N.Y.; William D. Forsythe, Southbridge, Mass.; Thomas Fraser, Richmond, Va.; George L. Frese, Elmore, Ohio.
 Robert G. George, Pigna, Ohio; Walter C. Giller, Rood House, Ill.; Nathaniel S. Glass, Chesley.
 Charles E. Howard, Leonardville, N.Y.
 Percy S. Isaacson, Hardingham, Norfolk, England.
 Matthew S. Kennedy, Carman, Man.; William J. Kirk, Sharon, Pa.
 William Lowery, Cliton.
 John P. McCoy, Minden City, Mich.; William McDonald, Florence; George A. McLevey, Florence.
 C. Arthur Mack, Carberry, Man.; Samuel M. Mizer, Wilmot, Ohio; James J. Murison, Cannington Manor, Assa.; Thomas H. Monahan, Providence, R.I.

William J. Pedden, Parkhill, Ont.; John Perschbacher, Grand Rapids, Mich.; T. Milton Pine, Allisonville, Ont.; L. J. Price, Liberty Centre, Ohio; P. J. Purcell, Bradford, Pa.

J. C. Rasmussen, Tampico, Ill.; Clarence Ransford Richards, Victoria, B.C.; T. Herbert Richards, Beaumaris, Ont.; A. L. Ramage, Calgary, N.W.T.

Zen. W. Seibert, Mansfield, Ohio; John Thomas Sharpe, Carman, Man.; Robert James Shine, Brussels, Ont.; Summer S. Smiley, Carman, Man.; William F. Smiley, Carman, Man.; B. E. Springer, Akron, Ohio; John F. Sylvester, Carman, Man.; F. F. Sheets, Van Wert, Ohio.

R. Claude Titus, Hillier, Ont.; F. H. Tucker, Lincoln, Neb.

Carr R. Webber, Rochester, N.Y.; Leslie Willoughby, Elmwood, Ont.; George Wooldridge, Lowell, Ind.

Shipping Bred Sows.

I have noticed at sales and otherwise that there is a tendency to be in a hurry to ship out bred sows. The desire is not a laudable one, it is rather hazardous to ship out until plenty of time has elapsed to prove that the sows are safe in farrow. Some may do this from a lack of experience, and others from a selfish motive in order to save feed, work and what they call trouble. I have watched this for some time, and it is a practice that should be condemned from a business standpoint. I have shipped bred sows for years, and have never had but one fail to be safe in farrow, and she turned out to be a non-breeder, having been returned to me. It is my rule never to ship out a sow until about two months after being bred, as their condition is then plainly evident and they are safe to ship. The most dangerous time to handle or ship sows is the first six weeks after being bred. Some may call this in question, but my experience and observation tells me that I am right in this. I have shipped sows long distances less than two weeks before due to farrow without any trouble occurring, and in one instance the day before farrowing ten pigs, raising nine of them. There is no end of after-claps when sows are sold as recently bred and shipped without waiting to see the result of the breeding. The trafficking back and forth is a positive nuisance, and no end of trouble and vexation. Too much care cannot be exercised in determining positively the fact that the sow is safe in farrow before shipping her, and at least waiting until two months after being bred. Then the deal is settled for all time if you have got the money.—O. S. West, in *Jersey Hustler*.

Toronto Cattle Market.

The returns from the Toronto cattle market for the quarter ending with March show a considerable falling off in the total number of animals received, as compared with the corresponding three months last year. The



Our books, telling about composition of fertilizers best adapted for all crops, are free to all farmers. GERMAN KALI WORKS, 91 Nassau St., New York.

totals are this year, 90,803, and last year, 102,089. The falling off, however, has been in hogs, with 35,101 this year and 54,961 last, while cattle receipts have shown a substantial increase of over 8,000, the totals being 37,129 for the last three months and 28,219 in the first quarter of 1900. The other totals were this year: Sheep, 1,735; calves, 1,218. In 1900: Sheep, 18,000; calves, 909. The receipts last month were: Cattle, 13,297; sheep, 4,179; hogs, 9,078; calves, 571.

Maritime Agricultural College.

A bill has been introduced into the Nova Scotia Legislature for the establishment of an agricultural college for the Maritime Provinces. It gives the Governor-in-Council power to enter into arrangements with the New Brunswick and Prince Edward Island Legislatures, or either of them, for the establishment of a school or college for imparting instruction in agriculture. It is probable that the new college will be located in King's county, Nova Scotia.

A Pork Factory at Belleville.

A largely attended meeting was held in Belleville on Saturday, 16th inst., for the purpose of considering the establishment of a pork packing industry in the city. Representative farmers from all over the district were in attendance. A provisional board of directors was appointed which met on the following Monday and elected officers as follows:

President—Mr. R. J. Graham.
 Vice President—Sir Mackenzie Bowell.

Treasurer—Mr. James Knox.
 Executive Committee—Messrs. J. Holgate, J. S. Dench, J. M. Farley, F. S. Solmes.

It was resolved that it is desirable to have a co-operative factory at Belleville for the purpose of packing pork

and other produce and preparing it for the English market, and that the stock be placed at \$150,000 in shares of \$20 each and the same be offered through the surrounding cheese factories to the patrons, limiting each patron to 10 shares, and that in case the company should fail to place all the stock among the cheese factory patrons, then they may be permitted to sell to outsiders, but in no case shall more than \$50,000 be held by others than those engaged in actual farming.

An Exposition Booklet.

We have lately received another of the beautiful booklets from the Bureau of Publicity of the Pan-American Exposition, Buffalo, N.Y. It consists of 16 pages and a cover in light green. The unique feature of it is the miniature reproduction of the famous poster, "The Spirit of Niagara," which has had a most remarkable demand. The centre of the booklet shows a bird's-eye view of the Exposition, and gives one some idea of the great extent of the enterprise upon which about \$10,000,000 is being expended. The grounds contain 350 acres, being half a mile wide and a mile and a quarter long. Other pages show horticulture, graphic arts and mines, manufactures and liberal arts, the Music Temple, the Plaza and its beautiful surroundings, the Stadium or athletic field, the agricultural, live stock and ethnology features, and a few of the 30 or 40 ingenious and novel exhibits which promise to make the Midway the most wonderful that has ever been prepared for Exposition visitors. The last page shows a ground plan of the Exposition, whereon the location of different buildings is indicated. The railroads will make low rates from all parts of the country during the Exposition, which opens May 1 and continues six months, and the people of Buffalo are preparing to entertain comfortably the millions who will attend. Anyone desiring a copy of this booklet may have it free by addressing the Pan-American Bureau of Publicity.

Farm Scarcity of Horses.

For several years says the *National Stockman and Farmer*, we have commented on the decreasing numbers of horses available for farm work, and have frequently stated that farmers would have to go to market for horse power to run their farms. This they have had to do in a limited way for the past two years, but now their buying has become so extensive that it is quite a feature of western markets. A report of the Chicago market one day last week says: "There were many orders executed for farm chunks at a range of \$80 to \$130, one Ohio dealer taking 85 head." No doubt these horses go into sections that formerly raised a surplus for market. It is so at least in many instances. Good farm horses are getting scarce, and such items as above occur daily.

Take Care of the Orchard.

By Our Travelling Representative.

In travelling about among the farmers we notice the very great general neglect of their orchards. Old orchards standing in a tough June-grass sod that has most likely never been broken up since they were planted, the tops of the trees full of limbs and suckers, which have not been pruned for years, and completely excluding the sun and air. Others have been cut and started at with an axe, leaving stubs from two to six inches long all over the trees. These, rotting, allow the rains and moisture to enter, and the tree soon falls a prey to rot and borers. Others have all the old bark of a generation hanging to the limbs and trunks, affording a lodging place for lice and all noxious insects, and making a safe harbor for the codling moth and other insects to undergo the change from the larva to the perfect stage. Still others go to the opposite extreme, as in an orchard I saw lately, where the owner must have taken a plane to scrape his trees with, for he had taken the entire outside bark off, leaving the trees almost as white as if they had been whitewashed.

We have also noticed a great increase in the spread of apple canker, or the black spot on the limbs. This is a most serious fungus disease, and it behooves the farmer to be on the lookout for the first appearance of this dreaded pest. In a recent Government Bulletin a report is given of a farmer across the line who had an orchard of eighty acres, one-half of which was ruined by this disease. Spraying with Bordeaux mixture is supposed to be a preventative measure, but when once established nothing but the saw will answer the purpose. All brush should be burned as soon as cut to prevent the spread of spores by the wind.

The disease is first noticed by a slight discoloration of the bark, usually on a limb from two to four inches in diameter, but occasionally on the trunk of a young tree. This spot gradually increases in size until it encircles the limb with a dead, rough, blackened ring of bark completely girdling and killing the limb or tree, as the case may be.

Many other orchards are growing a class of apples which are of practically no market value.

Now, when we consider the amount of care which an orchard requires, we will see that it is of no use losing time with trees that will not bear paying crops. Either cut them out by the roots and use the land for something else or, if sound and hardy, graft them by the ordinary methods of cleft-grafting, which every fruit grower understands.

Think of the enormous amount which would be added to the incomes of the farmers of Canada if every apple tree would produce No. 1 export apples. But after you have the trees producing the proper kind of fruit, they must still be fed, cultivated and cared for the

same as any other crop if you would make them pay.

First, they must be carefully and judiciously pruned each year in order to let in the sun and air, and also to cut out superfluous wood. In many cases where orchards have been neglected for some years it will be necessary to employ heroic means in order to allow a team room to work under the trees. All cuts over an inch in diameter should be immediately painted with some kind of oil paint to keep out the moisture. The cuts should also be made neat and smooth, close to the main stems, thus enabling them to heal quickly.

The trees should be sprayed from four to six times each year with the Bordeaux mixture and Paris green in order to keep down scab and all fungus diseases, the codling moth and all leaf-eating insects.

It will also pay where the codling moth is troublesome to tie bandages around the trunks of the trees, which should be examined about every ten days and all insects destroyed.

Except in case of young orchards, which can be worked deeply in order to induce a deep-rooting system, the orchard should be plowed shallow so as to disturb the roots as little as possible, and then cultivated regularly every week throughout the season in order to keep down the moisture and to check evaporation.

About the first of August, when all cultivation should cease, in order to allow the wood to ripen for winter, some cover crop should be sown. Peas, rye or fall wheat are all good, but where a good catch can be depended on there is nothing so good as the common red clover, as this plant will collect a large amount of nitrogen from the atmosphere besides mineral matter taken up from the subsoil and decaying will leave this plant food in a form which will be readily taken up by the roots of apple trees and also adds to the supply of humus in the soil.

Prices of Bacon in England

In 1899 the average annual price of the bacon imported into the United Kingdom from the United States was about 7 cents a pound, the exact quotation being 6.96 cents. The average price of the bacon imported from Canada was 7.3 cents a pound. The average price of the bacon imported from Denmark was 10.6 cents per pound. In other words, there was a difference during 1899 of about 3½ cents per pound in favor of the Danish pork over ours, which is very significant. When you consider the fact that we exported last year 563,000,000 pounds of bacon, most of which went to Great Britain, you can readily see that even a slight enhancement in the price would have meant an enormous gain to the American farmer.—*F. H. Hitchcock, before the American Industrial Commission.*

No one could tell me where my soul might be, I searched for God, but God eluded me. I sought my brother out, and found all three.
—*Ernest Crosby.*

PURE-BRED STOCK

NOTES AND NEWS FROM THE BREEDERS

These columns are set apart exclusively for the use of breeders of pure-bred stock and poultry. Any information as to importations made, the sale and purchase of stock and the condition of herds and flocks that is not in the nature of an advertisement, will be welcomed. Our desire is to make this the medium for conveying information as to the transfer of pure-bred animals and the condition of live stock throughout the country. The co-operation of all breeders is earnestly solicited in making this department as useful and as interesting as possible. The editor reserves the right to eliminate any matter that he may consider better suited to our advertising columns.

Cattle.

Right adjoining the station at S. C. utville Mr. D. H. Russell is breeding Shropshire sheep and Shorthorn cattle. His stock bull, Royal Stamp, is an Isabella bred bull, an exceedingly fine animal of a straight Scotch line of blood. In the stable we noticed a couple of choice cows, one of the well-known Mayflower tribe, the other of the noted Strawberry line of breeding. One of the nicest things in the herd is a beautiful red three-year-old heifer, Jessie's Beauty. She has a nice, straight, even calf, sired by Royal S amp, to her credit. Another choice cow, Pansy's Gem, also has a well-formed calf from the same sire. Mr. Russell has given up the summer fallow, as he considers it too expensive. He keeps about half his farm in grass all the time. His rotation is peas on sod, fall wheat, oats or barley and seeded down. He does not favor deep plowing, but believes in keeping the surface soil near the top, considering that five inches of rich plant food is better than having the same strength diluted by eight or nine inches of poor subsoil.

It is seldom, indeed, that we have the privilege of looking through such a large and carefully-selected herd of Shorthorns as that owned by the well-known firm of W. G. Pettit & Son, Freeman, Ont. This herd consists of over one hundred and twenty animals, mostly made up of his last year's importations. Out of such a number we have space to mention only a few. The stock bull at the home farm is Cruickshank's Clipper, by Star of the Morning, almost identical in breeding with Pride of the Morning, Duthie's famous stock bull. Both are from the same bull and in the second dam bred to the same cow. Pure Gold, the choice of the recent importation, and the one which has been reserved to lead the herd, is an excellent bull of great quality, belonging to the Brawth Bud tribe. C'an Fieaing, another fine animal of the old Caneller tribe, is sold to go to Illinois. Some good judges have placed him ahead of the previous bull. He is of the same rich red color and handling qualities, and, though he may not have the same quality, has great strength of bone. The red yearling, Scottish Pride, by Scottish Prince, out of Marr's Roan Lady cow, is probably the best bred animal in the herd, and belongs to a famous showyard tribe. This bull will also be reserved for home use. The females in the herd are mostly cows and two-year-old heifers in calf, belonging to such noted families as Roan Lady, Clare's Orange Blossom, Ury, Matilda, Beauties, Gills and other well known Scotch lines of breeding. He has also a fine lot of young calves, mostly from imported cows.

Mr. A. C. Hallman, New Dundee, Ont., writes: "Stock doing nicely. Have a grand lot of Holsteins on hand. My young DeKols show every indication of some day making excellent performers. They are brimful of quality. My Tamworths are also in fine shape and are of the correct bacon type."

At Stratfordville, a station on the Tilsonburg and Port Burwell railroad, and ten miles south of Tilsonburg, Mr. E. A. Garnham is breeding Shorthorns of a combination of Booth and Bates blood. He has at present five nice yearling bulls and one two-year-old to dispose of. They were all sired by Victor of Avon, who was bred by Mr. John Laur, of Avon, who has been making a specialty of breeding Shorthorns of milking strain for years. The dams are all noted for their deep milking qualities.

On the opposite side of the village of Stratfordville Mr. T. H. Mason is engaged in dairying and hog raising. Mr. Mason is one of the old boys of the Ontario Agricultural

College, and also a well-known Farmers' Institute lecturer, and not only a talker, but also a practical man who has made a success of farming. Beginning in his early days with practically nothing, he now, though still a young man, owns one hundred and seventy-five acres of good land, besides stock, implements and other necessary appliances.

This county is one of the chief dairy and hog districts of Ontario. Nearly every farmer has a silo, and the most of them have two—one for summer feed and the other for winter use. The most popular silo is the ordinary tub form, about ten feet in diameter, of which over forty were built last season. One blacksmith put in six tons of silo iron, and before the season was out had to buy more. In this section every man who owns a threshing machine also owns a large cutting box with a blower, which is mounted on a truck, which prevents the labor of loading and unloading, and as soon as the silo season begins he stops threshing and starts filling silos for all the men for whom he has threshed. In this part all the corn is planted in hills three feet to three and a half apart each way. The great advantage in planting this way is that the land can be kept much cleaner by being cultivated each way, meaning less hand work. The corn is better eared and is easier cut. The implement used is a heavy hoe made from a piece of a saw, which will cut a hill close to the ground with every stroke. With this hoe it is claimed that a man will cut two acres per day. Though the bulk may not be quite so large, the quality is much better. While there we were shown a ten-acre piece of pine forest, the remains of a piece of over 200 acres of second growth, the original trees of which were destroyed by a hurricane nearly a hundred years ago. The trees will average about two feet in diameter, and are a most valuable sort for the farm.

Sheep.

We recently called upon John Campbell, the veteran Shropshire breeder at Fairview Farm. Upon inspecting the flock we noticed one especially good lot, a pen of about 20 rams which Mr. Campbell considers the best he ever had on the farm. He has refused to put a price on his best ram lambs, as he is carrying them over for the Pan-American Exposition. Without specifying individuals we might say that this lot contains lambs, shearlings and two shear rams which have been first, second and third prize winners at all the leading Canadian shows as well as at Chicago, while the special prize given by the American Shropshire Association at Guelph Fat Stock Show, for pen of three rams, the first and second prizes went to rams from the above pen.

In another pen there were two registered ewes, first prize winners at Canadian shows, and also winners at Chicago International Show.

In the adjoining pen was a bunch of 35 breeding ewes which have been carefully selected from noted prize winners on both sides of the sea.

They are mostly imported, or daughters of the World's Fair champion, Newton Lord.

He is also carrying over a few grade lambs, which were winners at last year's fat stock show, for show purposes next year.

Mr. Campbell also has a nice herd of about 30 head of well-bred Shorthorns with which he has been very successful at the local exhibitions.

He has of late years been paying special attention to the cultivation of soil. As he does not raise fall wheat, his rotation is as follows: 3 years grass, peas and oats, barley, roots and spring wheat seeded down. He believes that there is more money in well-managed grass land than in grain. Out of 175



"A Stock Holder"

For holding stock the "Page" is the only reliable kind. It is used on the Largest Stock Farms in Canada; equally suitable for small or large stock. We now make our own wire. Could not get good enough before. It is twice as strong as that in other fences and better galvanized. Our Fencing is shipped from our factory ready-made, and our local representative can put up a string of it for you in short order. Prices lower this year.

THE PAGE WIRE FENCE CO. (Ltd.)
WALKERVILLE, ONT.



The Estate of the Late
JOHN BELL.

4 CLYDE STALLIONS

2 four-year old
1 seven year old
1 ten year old,

All in first class shape. Prices reasonable. Address, **G. F. MORGAN**, Station Agric. ut., on C. P. R. and G. T. R. Executor, L'Amaraux, Ont.

CLYDESDALES FOR SALE

1 Stallion, 6 years old;
1 Stallion, 2 years old;
3 Yearling entries, bred or mares in foal to good sires. Also several fillies and a few young Shorthorns. Farm a quarter of a mile from Burlington. Station on G. T. R.



I. DEVITT & SON
Freeman, P. O., Ont.

THE WALLACEBURG AGRICULTURAL SOCIETY

Offers a PRIZE of \$25.00
FOR AN IMPORTED CLYDESDALE STALLION
weighing 1 800 lbs. or over, to travel in district.
For particulars apply to
WM. BURGESS, WALLACEBURG, ONT.

Horse Owners should Use
GOMBAULT'S

Caustic Balsam

The Great French Veterinary Remedy.

A SAFE, SPEEDY AND POSITIVE CURE.



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SUPERSEDES ALL CAUTERY OR FIRING

Impossible to produce any scar or Blenish. The safest best Blister ever used. Taken the place of all liniments for mild or severe action. Removes all Bunches or Blenishes from Horses or Cattle.

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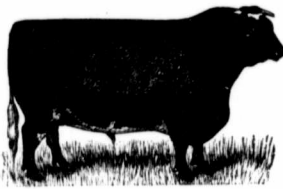
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Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS CO., TORONTO, ONT.

Shorthorns



Greenhouse Chief

ARTHUR JOHNSTON

Greenwood P.O., Ont.

Offers for sale at Moderate Prices:

**Imported Bulls and Bull Calves.
Imported Cows, Heifers and
Heifer Calves
Home-bred Cows and Heifers
Home-bred Bulls.**

CATALOGUES ON APPLICATION.

R.R. Stations:

**Claremont on the C.P.R.
Pickering on the G.T.R.**
22 Miles East of Toronto

Lake View Farm

OSHAWA, ONT.



- 1 Bull, 11 months, Color Red.
- 1 Bull, 12 months, Color Red.
- 1 Bull, 10 months, Color Red.

All Shorthorns. These Registered bulls were sired by Grand Sweep an imported bull and half brother to the

noted British Statesman. He was got by Royal James. Terms on application.

THOS. ALLIN & BROS.

Lake View Farm, OSHAWA
ONT

SUNNYSIDE

Shorthorns for Sale

5 BULLS, Eleven Months' Old

Bred and Broan.

Also a few FEMALES, all registered.

E. A. GARNHAM, | Straffordville, Ont.

acres of arable land he as a rule does not crop more than 55, and is able to produce more bushels of grain and also more straw than he did in previous years on double the acreage.

We recently called on Mr. H. Hammer, Burford, who informed us that his recent Shorthorn sale was a great success, 100 head of sheep averaging considerably over \$20 apiece. Since making his sale he has bought a farm of 100 acres right in the village of Mr. Vernon, not far from the old homestead, 1 1/2 miles from Burford and seven from Brantford and on the main road from Hamilton to London. It is his intention to put up extensive buildings and to continue the sheep business as largely as in the past.

Swine.

During a visit to Messrs. Brethour & Saunders' celebrated herd of large Yorkshires at Burford, Ont., we found them overwhelmed with business, as the orders were coming in so rapidly that they found it difficult to supply the wants of their numerous customers, although they have had two hundred young pigs farrowed within the last two months, and have a number of sows still due to farrow.

This firm is the oldest established and, without doubt, among the largest in America, and from past records in the showing ring the evidence is clear that the Oak Lodge herd has been able to meet all competitors successfully.

We were informed that since the establishment of this herd the much-coveted prize for the best herd of pure-bred Yorkshires has been won nine times at the Toronto Exhibition. Added to this the Oak Lodge Yorkshires have secured every challenge cup, silver plate or medal that has been offered for the breed during the past eleven years. This is a record indeed which any breeder might feel proud to possess.

In obtaining these awards we were told that the Oak Lodge herd has not had to have recourse to other herds either imported or Canadian bred, but the prize-winners have been mostly drawn from animals bred in the herd. Since the establishment of this herd the constant aim of its founder has been to produce an animal of the type that was suitable to meet the demands of the very best English trade. From the inspection which we made of this herd we are prepared to say that customers may rest assured that in placing orders with this firm that the quality of the stock supplied to them would be selected in every case with the judgment and care of experienced breeders. From the large volume of business now being transacted it is clearly evident that the superiority of their stock is being fully recognized. We also feel that the popularity of the large Yorkshire hog as a breed in Canada is, in a great measure, due to the untiring energy and zeal of the senior member of the firm. It is not alone in the

Shorthorns

Shorthorn Bulls For Sale, from 8 Color, red. JAMES BROWN, Thorold, Ont.

GLEN CRESENT SHORTHORNS AND OXFORDS.

A few shearing rams by imported "Royal Windsor Sire" and one two-year-old bull for sale.
J. W. WIDDIFIELD, Uxbridge, Ont.

SHORTHORN BULLS

Four Bulls, eleven months old, and a few Heifers for sale. All eligible for registration in American Herd Book.

Also 25 Yearling Grade Rams, and 6 registered Cotswold Lambs.

JOHN SOCKETT, Rockwood, Ont.
P.O. and Station.

T. Douglas & Sons, Strathroy, Ont.

Breeders of
SCOTCH SHORTHORNS

(100 head to select from).
Offer for sale 14 young bulls, and cows and heifers of all ages, of the most approved breeding, bred to (imp.) Diamond Jubilee—28861—, at head o' herd. Farm one mile north of town.

Shorthorn Bulls For Sale

Three strong lusty sons of Aberdeen Jack 245031.

S. DYMENT, Barrie, Ont.

LIVE STOCK LABELS



Send for circular and price list.

R. W. JAMES,
Bowmanville, Ont.



A CHANGE OF SEED PAYS

I can supply the following varieties of potatoes: Early Varieties—Manley, Early Thoroughbred, Michigan Early, and Early Six Weeks. Late Varieties—Sir Walter Raleigh, Uncle Sam, American Wonder, Great Divide, and First Choice. Also Salzer's Big Four Oats, early and productive. Large English Berkshire and Ohio Improved Chester White Swine. Young stock for sale, registered and express paid. Prices reasonable.

TILMAN E. BOWMAN, Berlin, Ont.

S. & F. JACKSON

Breeders of
SHORTHORNS AND TAMWORTHS
A sow and 4 bears, three months old, for sale. S. & F. JACKSON, Oxford Centre, Ont.

IMPERIAL HOLSTEIN-FRIESIAN STOCK FARM

10 Young Bulls from one month to four months, bred from Winnie's De Kol.

W. H. SIMMONS,
New Durham

OXFORD DOWN SHEEP

J. H. JULL & SONS.

Yearling Rams and Ram Lambs, and Ewes of all ages, for sale. Prices reasonable. Our flock is headed with the best imported rams in Canada—prize-winners in England, first prize at Toronto Industrial and all leading shows in Canada.

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Our market reports are reliable and up-to-date. They are written specially for The Farming World and are of inestimable value to every farmer.

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PINE GROVE STOCK FARM,

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On the C.P.R. and G.T.R. Railways. Special bargains on young bulls of superior merit and select Scotch breeding. Also thick young heifers at the right prices.

Ayrshires, Jersey, Shropshire Sheep, and Clydesdal Horses.

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

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LAURENTIAN STOCK AND DAIRY FARM,

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Ayrshires, imported and home-bred herd headed by imported Tam Glen 2nd, No. 1310 D. A. H. B. Jerseys all of the celebrated St. Lambert family; herd headed by Elmer Progs of St. Figs. Young stock of all the above breeds for sale.

Post Office, Telegraph Office, and Railway Station, North Nation Mills, P.Q., on the C.P.R.

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Manager



OAK LODGE YORKSHIRES



are acknowledged to be the best type of bacon hog to produce the ideal carcass for the best English trade. **CHAMPIONSHIP HERD AT TORONTO INDUSTRIAL EXHIBITION FOR NINE YEARS** also sweepstakes on Dressed Carcass at Provincial Winter Show. We have on hand now a large herd of different ages. Our prices are reasonable and the quality is guaranteed to be choice. Write

BRETHOUR & SAUNDERS,
Barford, Ontario

Poultry

S.C.W. Leghorns. Pekin Ducks.

Large, vigorous, great layers, breeding stock for sale. Single settings, \$2.00. Two settings, \$3.00. Incubator lots, \$8.00 per 100. Duck eggs, 15 for \$1.00.

R. C. ALLAN, Cobourg, Ont.

CRYSTAL SPRING POULTRY YARDS

ELIAS SNYDER, Prop.,
Burgessville, Ont.

Barred Rocks exclusively.
A few choice cockerels for sale.
Eggs from prize-winning stock.
Correspondence invited.

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78 and 80 King St. East

"RESTAURANT" TORONTO

Dinner for 20c.

6 Dinner Tickets \$1 Served from 11.30 to 3
for : : : : : and from 6 to 8
Farmers and their wives visiting Toronto will find
this to their taste.

Parkhill Poultry Yard

Offers Eggs from the best of stock of the following varieties: L. Brahmas, Black Langshans, W. and B. Barred Rocks, Golden Silver Laced and W. Wyandottes, Buff, Brown and W. Leghorns, S. S. Hamburgs, and Golden Seabright. \$1.00 per 13 eggs, Pekin Duck eggs, \$1.00 per 11. W. B. Turkey eggs \$2 per 9.

D. A. GRAHAM, Parkhill, Ont.

EGGS FOR HATCHING

Barred Plymouth Rocks
White Plymouth Rocks
Golden and White Wyandottes

\$1.00 per setting, \$5 per 100. Express paid on orders of \$3 and upwards.

A. L. KENT, Box 203, Oakville.

Yorkshire Hogs;
White and Barred Rocks;
Rouen Ducks and Bronze Turkeys.
Eggs from White and Barred Rocks and Ducks, \$1 per setting; Bronze Turkey eggs, \$2.50 per setting.
J. COLE,
Box 188, Bowmanville, Ont.

Eggs for Hatching

From the following varieties of utility fowls with prize winners in every pen at \$1.50 per 15 \$0 per cent guaranteed fertile.
Barred Plymouth Rocks, White and Buff Wyandottes and S. C. White Leghorns. Eggs \$1.50 per 15; \$2.50 per 30; Rocks \$5.00; Wyandottes \$6.00 per 100.

C. C. HEAVEN, Westwood, Oakville, Ont.

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Are the best and cheapest you can buy. It will pay you to write for full particulars before placing your orders.

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KOSSUTH, ONT.

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contest of live animals that this herd has been successful, but it has received the grand sweepstakes against all other herds and breeds in the various dressed carcass competitions held at the Provincial Winter Fair upon each occasion upon which this herd has made an exhibit. It is needless for us to make mention of the exceptional merit of individual animals in this herd, among which were many candidates for the Pan American and all large Canadian exhibitions, and we were much struck by the uniform type and grand quality of all these animals. We might mention here that during the last three months more than \$3,000 worth of pure-bred pigs have been sold for breeding purposes from this herd, and a very fair percentage of this amount has been real zed from animals exported to the United States, where an extensive and increasing demand is springing up for the Oak Lodge type of hog. Their trade was largely brought about by the exhibits made by Messrs. Brethour & Saunders at the International Live Stock Exposition held in Chicago last December, when the Oak Lodge herd made such a creditable exhibit, that it was one of the main features of the swine exhibit at the great show. Twelve stock boards are now in use in their herd, among them being three imported winners at the Royal Show in England. The others include some celebrated winners in Canada, and, when judiciously mated with the large number of sows kept in their herd, it is little wonder that animals of outstanding merit are obtained in the Oak Lodge herd in order to supply the demands of customers who regularly patronize this herd and also to supply customers desiring pigs not akin.

We wish to draw the attention of our readers to the advertisement on another page of Messrs. S. & F. Jackson, Oxford Centre, five miles from Woodstock, who are breeding Shorthorns and Tamworths. They have a number of choice young Tamworths for sale at present.

Poultry.

One-half mile north-west of Oakville station is the Rockdale fruit and poultry farm of A. L. Kent. Mr. Kent breeds Barred Plymouth Rocks, White Rocks and Golden and White Wyandottes, which have been selected with great care and mated for the best results. Mr. Kent's poultry house is quite different from most we have seen. It is a double house with pens on each side of a four foot passage. The windows face the south, while there are windows over the passage to lighten the rear pens. He claims for this house that it is warmer in winter and costs less to build than shed houses, and the feeding and watering can be done without entering each pen when once in the passageway.

Mr. Kent believes in keeping his fowls busy, and has one-half of each pen filled with cut straw to scratch in. He feeds mash in the morning in which clover is an important item, with shorts, oatmeal and cornmeal in very cold weather, but not enough to satisfy the fowls, so that they will scratch in the litter for a few handfuls of grain. Beet heads and vegetables are before them all the time, and green bone, cut twice a week, with oyster shells and good sharp grit.

Mr. Kent is advertising some of his fine birds elsewhere in this issue, which prospective buyers would do well to look up. His prices will be found reasonable.

Feeding Skim-Milk to Calves.

This experiment is an attempt to show the profit of raising beef calves on separator milk as compared with that derived from allowing them to suck their dams.

To start this experiment, western grade Hereford and Shorthorn cows were selected, the aim being to secure individuals uniform in respect to date of calving, type, and milking tendency.

The cows were divided into two lots. Lot. I. being taken from their

Sheep

FARNHAM FARM

OXFORD DOWN SHEEP

All ages and sexes for Sale. Can spare a few ewes in lamb to imported Bryan.

HENRY ARKELL, - Arkell, Ont.

SHROPS.

I will sell a small flock of registered Shropshire sheep, now at Eastwood village, 4 miles east of Woodstock, cheap. T. C. Paterson, P. M., Toronto.

SHAWANOO

HILL . . . FLOCK . . .

of Cotswolds

We breed for Mutton and Wool
Have for Sale
50 shearing rams, 30
shearing ewes, and 100
lambs, good quality and
excellent breeding.

JOHN RAWLINGS,

Forest, G. T. R. RAVENSWOOD P. O.
ONT.

FOR SALE

FIFTY-ACRE FARM

North half of lot 7, on 6th concession, Barton, two miles from Hamilton. House of seven rooms; barn, with stone basement, cement floors. Five hundred pum and 30 apple trees; 10 acres wheat.

C. G. DAVIS, Freeman P. O., Ont.

calves, while Lot II. were allowed to run with them.

The animals in both lots were weighed once a week, and all rations carefully measured and recorded.

The calves fed by hand made good gains during the first five months, but not equal to the lot running with the cows.

When the two lots were put on feed after the test, there was not much difference in the condition or form, but the sucking calves were smoother and better fleshed.

After weaning, the hand-fed calves had the advantage, being accustomed to rations of dry forage and grain. At the end of the year there was practically no difference either in appearance or weight between the two lots.

To find the difference in the cost of raising the two lots all food was charged to both cows and calves at market price.

In this test it was found that a skim-milk calf could be raised to six months old at a cost of about nine dollars for all food consumed.

Labor was not taken into consideration owing to the great difficulty in finding a fair basis.

The cows used in the experiment were more inclined toward beef than milk production, but still they averaged 3 992 pounds of milk and 158 pounds of butter-fat during the milking period. This amount of butter fat would make 184 pounds of butter, which would be the amount charged to each sucking calf.

As to the quality of the two lots, at the age of fourteen months it was quite impossible to detect any difference between the sucking and skim-milk calves.

A. L. HAECKER,
Nebraska Experiment Station.

Market Review and Forecast

Office of THE FARMING WORLD,
Confederation Life Building,
Toronto, April 8, 1901.

General trade conditions are still quiet, and will likely be so till full spring weather is upon us. The b.d. condition of the roads is interfering considerably with trade in the country. However, this lull is only looked upon as temporary, and soon as good, steady weather is here business is expected to be brisk again. Call loans keep steady at 4½ to 5 per cent. The general rates for discounts continue at 6 to 7 per cent.

Wheat.

There is no speculative movement in wheat just now and the export demand has been exceedingly dull. Europe has over 96,000,000 in sight to draw from while the new crop from the more southerly countries will be coming forward in a month or two. Because of this feature in the situation consumers in the old land are not getting anxious about their supplies. The growing crop in the States is reported to be in good condition. The *Price Current* last week speaks of it as follows: "The month of March was highly favorable to the winter wheat crop over nearly the entire area and the condition is better than it was a month ago and the prospects are 12 to 15 per cent. better than at this time a year ago. The only important point where the wheat crop has declined in prospects during the month is Texas where drought and an insect pest were the causes."

Local conditions are not encouraging. There was a big drop in the price of wheat during the week, which was very disappointing, as many were looking for a steady advance in the market, and holding their grain for an appreciation in value. Though the price of Ontario wheat for a couple of months back has been 8 to 10c. below the price of May wheat at Chicago, when the prices dropped in the West the market prices here fell in sympathy. The market here has ruled quiet at 63½ to 65c. for red and white at Ontario points, 64c. for goose, and 66c. for spring, east. On Toronto farmers' market red and white bring 69c., goose 66c., and spring life 72c. per bushel.

Oats and Barley

Canadian oats are quoted higher in England. The markets on this side continue firm though an easier feeling was reported at the end of the week. Quotations here are 30 to 30½c. for No. 1 white east and 29 to 29½c. for No. 2 middle freights. On the farmers' markets oats bring 34½c. per bushel.

The barley market keeps quiet with an export demand for No. 2. Prices here range from 42 to 47c. per bushel as to quality and point of shipment. On Toronto farmers' market barley brings 45½c. per bushel.

Peas and Corn.

A fair export demand for peas continues, and there is an improved feeling in England. Peas are quoted here at 63c. west, and 63½ to 64c. middle freight. On the farmers' market peas bring 66c. per bushel.

The backbone of the corn market at Chicago appears to be broken, though it is not expected that the price will decline very rapidly. Prices declined during the week at Chicago. No. 3 American yellow is quoted here at 47½ to 48c. per bushel, Toronto.

Bran and Shorts.

Ontario bran is quoted at Montreal at \$17.50 and Manitoba at \$18, in bags; and shorts at \$18 to \$18.50. It is reported that the mills are unable to supply the demand. City mills here sell bran at \$16 and shorts at \$17 in car lots l.o.b. Toronto. At the mills west bran is quoted at \$14.50 and shorts at \$15.50 to \$16.

Eggs and Poultry.

The egg market has been rather unsteady.

Early in the week prices at Montreal advanced from 13½ to 16c., but later dropped to 13c. The Easter demand has been good, though supplies have been large. Prices have ruled steady to easier here at 12½ to 13c. per dozen in case lots. On Toronto farmers' market new laid bring 14 to 15c. per dozen.

On Toronto farmers' market chickens bring 50c. to \$1.10 per pair, and turkeys 11 to 15c. per lb.

Potatoes.

Car lots of potatoes are quoted at Montreal at 40c. and 45 to 50c. per bag in a jobbing way. The market here is steady at 28 to 30c. per bag in car lots, Toronto. On the farmers' market here potatoes bring 30 to 35c. per bag.

Hay and Straw.

The bad roads have stopped deliveries in the country. Several steamers are expected to be loaded with Govt. hay at St. John within the next few weeks. At points east sales have been made on Government account for South Africa at \$10 to \$10.50 for baled hay, No. 1, and \$9 to \$9.50 for No. 2, in car lots. Montreal quotations are: No. 1, \$11 to \$11.50; No. 2, \$10 to \$10.50, and clover \$8.50 to \$9 per ton. Cars on track here are quoted at \$9.75 to \$11 for No. 1. On Toronto farmers' market hay brings \$13 to \$14.50. Sheaf straw \$8.50 to \$9, and loose straw \$6.50 per ton.

Seeds.

The selling prices at Montreal for red clover are \$12 to \$14 per cwt. and alsike \$12 to \$15 per cwt. Timothy is selling here at \$2.50 to \$3 and flaxseed at \$2 to \$2.25 per bushel. On Toronto farmers' market alsike brings \$6.25 to \$7; red clover, \$6.50 to \$7, and timothy \$1.75 to \$2.50 per bushel.

Cheese.

Quietness still reigns in the cheese markets on both sides of the Atlantic as far as new business is concerned. There has, however, been more shipping lately. Prices remain steady at Montreal at 9½ to 9¾c. for finest colored and white respectively. There is very little fodder cheese being made, and what little there is is quoted at 8 to 8¾c. The *Trade Bulletin* sums up the stocks on hand as follows:

Regarding the stocks of cheese held in Canada, of course there is the usual difference of opinion among buyers and sellers, but from what we can learn from both sides we are of opinion that the following table is as near the thing as can be estimated:	
	Boxes.
In Montreal.....	45,000 to 50,000
West of Montreal.....	40,000 to 45,000
Total.....	85,000 to 95,000

It is thought that 100,000 boxes at the very outside would cover all that is left in Canada.

Butter.

The demand for really choice quality keeps steady and active, while under grades are slow and dull. There are much larger stocks of held stuff coming to hand than was expected a month or two ago. The *Trade Bulletin* sums up the situation as follows:

"Several lots of butter held for account of Western shippers have recently been sold at pretty steep losses. One lot of Western June creamery, for which 20½c. was refused last January, was recently sold at 14 to 15c.; and several lots of Western dairy held at 10c. about the middle of February sold within the past few days at 13c. There is still some Manitoba dairy butter on the market, which has sold at 13 to 15c. as to quality, and we hear of one lot selling as low as 12c. The demand is chiefly for fresh creamery, which sells in jobbing lots at 21 to 21½c. This week three Eastern Townships factories sold their

make at 20c. f.o.b., and four other factories at 20½c. f.o.b. There is a good demand for this class of goods, which sell readily to the trade at 21 to 21½c."

Creamery keeps steady here at 20 to 21c. for prints and 18½ to 19c. per lb. for solids. There is plenty of dairy butter coming forward. Prices are 15 to 16c. for rolls and 12 to 13c. for low grades and old butts. On Toronto farmers' market lb. rolls bring 19 to 21c. per lb.

Cattle.

Cable quotations have been rather slow, though there is an upward tendency in the New York markets. On Friday good to prime steers were quoted at Chicago at \$5 to \$6 per cwt. At Montreal buyers were well supplied at Monday's market, and consequently offerings later in the week had to be sold at lower values, or a reduction of \$4.75 to \$4.90 per cwt. to \$4.50. There was only a light run of cattle at the Toronto market on Friday, the big supplies having come in earlier in the week. Friday's run consisted of 199 cattle, 1,500 hogs, 165 sheep, and 20 calves. Generally speaking the quality of the cattle offered was only medium, with few well-finished animals in either the butchers' or exporters' classes. Several of the dealers wanted shipping cattle to fill space taken on the boats. Only a few loads being offered, caused prices to be firmer than they otherwise would have been, had there been a large run. There were cattle sold at \$5 to \$5.12½ per cwt., that under ordinary circumstances would not have brought more than \$4.60 to \$4.80 per cwt. The very choicest, well-finished heavy cattle are not worth more than \$5 per cwt.; that is, to give the exporter a chance to live.

The market for butchers' cattle was not active as most of the dealers had purchased their supplies earlier in the week. The run of stockers has not been large, and the demand for well-bred stock cattle, weighing 350 to 400 lbs each, keeps good at prices ranging from \$3.50 to \$3.75 per cwt. Feeders have only been in moderate supply and prices keep steady.

Export Cattle.—Choice loads of these are worth from \$4.60 to \$5.00 per cwt. and light ones \$4.00 to \$4.50 per cwt. Heavy export bulls sold at \$3.85 to \$4.25 and light ones at \$3.40 to \$3.60 per cwt.

Butchers' Cattle.—Choice picked lots of these, equal in quality to the best exporters', weighing 1,000 to 1,100 lbs. each, sold at \$4.00 to \$4.30 per cwt., good cattle at \$3.50 to \$3.80, medium \$3.25 to \$3.40, and inferior to common at \$2.50 to \$3.10 per cwt.

Feeders.—Heavy, well-bred steers, from 1,000 to 1,150 lbs. each, sold at \$3.00 to \$4.25, and other quality at \$3.60 to \$3.80 per cwt. Light steers, weighing 800 to 900 lbs., sold \$3.50 to \$3.75 per cwt.

Stockers.—Yearling steers, 500 to 600 lbs. each, sold at \$3.00 to \$3.50, off colors and inferior quality at \$2.50 to \$3.00 per cwt. Yearling bulls, 600 to 900 lbs. each, sold at \$2.00 to \$2.50 per cwt.

Calves.—These are lower at Buffalo, choice to extra bringing \$6.50 to \$6.75 per cwt. At Toronto market ordinary calves bring \$2 to \$10 each.

Milk Cows.—These sold at from \$30 to \$46 each. Choice cows would bring more money.

Sheep and Lambs.

Lambs have been active at Buffalo at \$6 per cwt. for choice ones. Wool lambs range from \$5.90 to \$6 per cwt. for choice to extra. At Montreal yearling lambs are quoted at \$5.75 to \$6 and mixed lots at \$4.50 to \$5 per cwt. Spring lambs bring \$3.50 to \$6 per cwt. There have only been light runs at Toronto market during the week, and grain-fed yearlings are in demand at \$4.75 to \$5.37½ per cwt. and barnyards at \$3.75 to \$4.50. Sheep are steady at \$3 to \$3.50 per cwt. for ewes and \$2.50 to \$3.25 for bucks,

Hogs

Hogs have taken another turn upward. On Friday select bacon hogs sold at \$6.75 and light fats at \$6.25, and thick fats at \$6 per cwt. Unculled car lots sold at \$6.50 to \$6.60 per cwt.

The Wm. Davies Co., Toronto, will pay \$6.87½ this week for select bacon hogs, and \$6.37½ for light and thick fats.

The Montreal market is quoted firm at \$7 per cwt. for bacon hogs. The *Trade Bulletin's* London cable of April 4, re Canadian bacon reads thus: "There has been a good demand for Canadian bacon at an advance of 1s., No. 1 being quoted at 5s. to 6s."

Horses.

A Montreal report summarizes the horse situation as follows:

"Now that Lieut.-Col. Dent has orders for 1,000 horses for remounts for the British army, it must not be supposed that his instructions are to buy on best terms without any limit as to the prices he will pay. This, however, seems to be the impression which so many holders are asking. Advices from the country state that farmers' ideas on prices in this province are extravagantly high, and that while they are modified considerably the great bulk of Colonel Dent's orders will be filled in Ontario. In this market there have been a few sales of heavy draughts, driving and saddle horses during the past week, but business is by no means active. A better demand, however, is expected now that the season of navigation is approaching. Quotations for heavy draughts range from \$150 to \$250, carriage horses all the way from \$175 to \$350 each, light driving and saddle horses \$100 to \$175 each, and common stock a \$25 to \$75. Sales have been made at within the above range. A fine young bay saddle horse, 3 years off, standing 15 hands, 3 inches, was sold yesterday for \$175, and a light roadster brought \$110. Recent other sales of driving and saddle horses were made at prices ranging from \$90 to \$180 each. There is a good demand for heavy draughts, and drivers in England, but these classes of imported animals have been drawn chiefly from the United States of late."

Trade at Grand's Repository continues dull, excepting for first-class carriage and saddle horses, which are in good demand. The trade seems to be overloaded with work horses, and those of this class offered last week went off at very low figures. Mr. W. Harland Smith was in Montreal last week and reports that city also overloaded with work horses.

Yield thy poor best, and must not how or why.

Let one day, seeing all about thee spread
A mighty crowd, and marvelously fed,
Thy heart break out in a bitter cry,
"I might have furnished, I, yes, even I,
The two small fishes and the barley bread."
—Frederick Lanckbridge.

Practical Sheep Husbandry.

Ill-fed ewes will not bring strong lambs. The winter is a trying time for the ewes unless they are well fed and sheltered. There is no other grain feed so good for ewes as bran, with a small allowance of oil-meal mixed with it.

Waste eats up profit. There is waste if the right kind of feeding racks and troughs are not provided. It will not do to trample under the sheep's feet costly fodder, scattered for them on unclean ground. It is true it will add to the farm manure heap, but it is too costly for this use.

Has it ever occurred to you that there is less fluctuation in really high-class mutton than in any other product of the farm, and that no

"Canada's Greatest Seed House"

The Growers' Favorite

STEELE, BRIGGS

"ROYAL GIANT"

SUGAR BEET



Grows a GREAT CROP and of RICHEST FOOD QUALITY The Best of all SUGAR BEETS — TRY IT — You Will Like It

SOLD IN 1 LB. PACKAGES ONLY

If your merchant cannot supply it, send your order direct to us. Be sure you get "ROYAL GIANT."

PRICE

Per lb. 45 cents.
5 lb. lots or more, per lb. 39 cents.
10 lb. lots or over, per lb. 35 cents.
(CARRIAGE PAID)

"ROYAL GIANT" roots are large, grow about three-fourths out of ground, free from rough, raggy roots, and very easily harvested.

"ROYAL GIANT" is quite distinct from other varieties of Sugar Beet. The flesh is white, firm, crisp, very sweet, and the best of winter keepers. Lower half of root is a beautiful rose color. The accompanying cut is a good representation of its form.

A VALUABLE ROOT CROP

Stock feeders and producers of milk will find that "ROYAL GIANT" is not only a good flesh maker, but also increases the flow and enriches the quality of milk, which enhances the value of butter and cheese by improving the quality and flavor. No other class of roots is so desirable for feeding milch cows. No other variety of roots is more profitable for the grower.

BRINGS CASH RETURNS

Butter and cheese manufacturers pay the highest price for milk which is produced from feeding Sugar Beet. Secure Steele, Briggs' "ROYAL GIANT."

The Steele, Briggs Seed Company, Limited
Toronto, Ontario

When writing to or purchasing from our advertisers, it will be to your advantage to mention THE FARMING WORLD.

branch of husbandry affords so sure and generous net returns for the money, feed and care invested as the rearing and feeding of prime mutton sheep?

From many correspondents we hear of lambs and sheep being killed with the so-called new benzine remedy. It looks like mighty poor policy to strangle a sheep or lamb to death for the sake of killing the worms in his stomach. So far as final results are concerned, dynamite would answer the same purpose.

A weak animal succumbs to misfortune without a struggle. It seems to realize its hopeless condition. The shepherd should therefore keep his flock at all times, especially at this season, in good form, by due care. Shelter is equivalent to a good part of the food. Most of the food consumed by an animal is spent in maintaining the vital heat, and thus the food of a flock should be of that kind which best supports the natural warmth. This comes first.

The sole attention of the shepherd now for some months, is to be devoted to precautions against dangers which at this season are always imminent. Sheep are not robust, and while they are naturally a prey to more natural parasites, and other risks, yet they do exhibit a remarkable ability to take care of themselves if they are furnished the opportunities. Safe shelter and good food, never to excess, and immediate assistance when in trouble, will bring them through safely.

It is a common belief that sheep do not need any drink. Nothing could be more mistaken or injurious to the sheep. They need it quite as much as any other animal, even when on good fresh pasture. A flock in a green meadow bordering on a large pond has been observed to follow a leader to the water daily at a regular hour, and drink their fill. It is a good plan to make a sal-lick at the watering place, and they will not neglect the opportunity of supplying their wants with regularity.

It is now a time for the closest watchfulness on the part of the shepherd over his flock. The condition of life of the sheep is changed from that of the outdoor existence of the summer. The confinement of sheep to a building or enclosure is wholly adverse to its natural habits. We must think of this, and manage the flock so as to make this difference as little exacting as possible. Let the sheep be fed, as it feeds when on pasture, and it can fill its belly when the call of hunger prompts it. The moment a sheep is uneasy it frets. If it is not fed at the precise hour to which it has been accustomed, it becomes restless, and complains by its bleating. The hours of feed are to be fixed and adhered to; the feed should be varied and a change made every few days. This is consistent with its summer life, for a flock never does so well otherwise as when its pasture is changed at short intervals.—*American Sheep Breeder.*

BELL PIANOS AND ORGANS



Built to last a lifetime
By the Largest Makers
In Canada



BELL is the Musician's Favorite

The BELL ORGAN AND PIANO Co., Limited, Guelph, Ontario

Catalogue No. 41 Free

Why—In these times of keen competition, is there such a great demand for this All Steel Flexible Harrow?



We can guarantee more than double the strength and wear in this Harrow than there is in any other make.

Parties wishing a first-class Harrow will do well to write us direct or apply to the local agent.

OUR MOTTO: "Not how Cheap but how Good."

TOLTON BROS., GUELPH, Ont.

BECAUSE The Flexibility of the Harrow enables it to adapt itself as readily to rough and uneven ground as to smooth, and the oscillating motion produced by its flexibility pulverizes the ground, and leaves it in a loose and more porous condition than any other Harrow, and it is made of the very best material money can buy for the purpose. The bars are made of **Hard Spring Steel**, very stiff and strong, the hinges and teeth being of solid steel, all of which are of a higher grade than is possible to use in any other make of Harrows.

TREES TREES TREES

We have a full line of Fruit and Ornamental TREES for Spring, 1901, at lowest possible prices.

HEADQUARTERS FOR PACKING DEALERS' ORDERS

Farmers wishing to buy first-class stock, absolutely **First Hand and without paying commission to agents** should write to us at once for a catalogue and price list. Don't wait until the last minute, as you will be disappointed. Place orders early and secure the varieties you want. Correspondence Solicited.

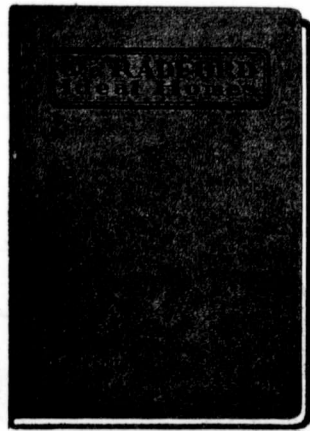
WINONA NURSERY CO., Winona, Ontario

Plans of Ideal Homes

Are you interested in moderate-priced cozy homes? Get "Ideal Homes," containing 56 plans of medium prices, besides plans of four good, sensible barns, one store building, and two church plans; 34 of these houses range in cost from \$500.00 to \$1,500.00, the others from \$1,550.00 up. This cloth bound book of 72 pages, 8½x10½ inches in size, sells for 50 cents; but we have made special arrangements with the publishers so that we can furnish this book of House Plans free to anyone sending us one new subscription to THE FARMING WORLD. Any present subscriber, not in arrears, may have a copy for 50 cents. You cannot afford to miss this opportunity to save money when you are ready to build.

In remitting, send post office or express order to—

THE FARMING WORLD
Confederation Life Building, Toronto



The Ontario Farmers Cordage Co. LIMITED

BRANTFORD, — CANADA.

(Don't confound the name with any other)



INCORPORATED recently under the Ontario Government are making rapid advancement toward completion of their splendid new factory. Everything is expected to be in working order by the 15th instant.

FARMERS! are you interested in this company as a stockholder? if not you should be, for one or more shares. The shares are only Twenty Dollars each. Send in your name at once, because the Stock Book cannot be held open much longer. Ninety per cent. of the stock of this Company is held by farmers, who are consumers of our twine. Where will you find a more truly Co-operative principle than this Company is based on?

Most Modern Machinery, costing one-third less than old factories, our shareholders get the benefit. Don't you want to be in it?

We are selling Binder Twine now, and will take your order for shipment in May or June. Brands and prices are as follows:

PURE MANILLA "Gold Leaf,"	650 feet, 12½ cents per pound	50-lb. bales, no paper.
MANILLA "Silver Leaf,"	— 600 feet, 10½ cents per pound	50-lb. bales, no paper.
STANDARD "Maple Leaf,"	— 500 feet, 9½ cents per pound	50 lb. bales, no paper

The Ontario Farmers Cordage Co. Limited

The Atlantic Refining Co.

NO COMBINE

Elastic Carbon Paint

TORONTO.

Especially adapted for farm buildings; proof against weather, fire and rust; will not crack, run, blister or scale; will stop leaks, and last a lifetime; great protector for every thing from a hot boiler front to a plow, bridge, roof and fence. Our immense buildings are covered with Metallic Roofing and Siding and painted with ELASTIC CARBON PAINT. Write us for prices. We have received thousands of valuable testimonials from Canadian and American customers. Manufactured in Canada only by THE ATLANTIC REFINING COMPANY, Manufacturers and Importers of Illuminating and Lubricating Oils, Grease and Specialties. Foot of Jarvis Street, TORONTO, CAN.

WE are the largest manufacturers of Tread Power Machines in Canada. Our machines are the most durable and will develop more power for the same elevation than other makes. One-Horse Machine has two tracks for the rollers, Two-Horse Machine has three tracks, and Three-Horse Machine has four tracks. Thus each horse has a bearing on each side of him—roller bearings on main shaft—speed regulator when desired—special safety brake on Three-Horse Machine. Labor-saving Farm Machinery delivered freight paid.

MATTHEW GOODY & SONS, Terrebonne, Que.



One-Horse Tread Power with roller bearings.



Two Horse Tread Power with roller bearings



Three-Horse Tread Power with roller bearings.